THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON CRITICAL THINKING SKILLS AMONG MODERN LEARNERS

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Abstract

In 21st Century ,Data, Information and Knowledge are real sense of life. In this modern era, we use Information and Communication Technology for producing, sharing , gathering, processing and evaluating the information. It has enormous change in the world using ICT. It plays role of problem solving tool for all of us. A sharp increase has been observed in the field of using ICT in daily life. With the use of ICT, a person collects, shares, uses and evaluates the information. ICT plays significant role in developing critical thinking to solve a problem and to find better alternative option. Critical thinking is helpful in decision making.

Successful Life, as we all know, is the outcome of a succession of wise choices, some large and some minor. Making decisions requires the capacity to solve problems, critical thought, and the ability to access pertinent information from reliable sources. The Vedas advise that in order to understand things more clearly and make the best decisions, we need to be able to think critically. 16 logical methods called Padarthas were defined by the Vedic approach to critical thinking as a way to determine the truth and make the best choice. In the current environment, coding with several programming languages and IDEs is crucial for fostering critical thinking. This essay focuses on examining how ICT affects critical thinking in contemporary learners.

Keywords: ICT, Critical Thinking

Introduction

ICT now plays a significant role in daily life. Without information and communication technology, we are unable to go about our daily lives. The world has

changed thanks to technology and computing devices. Information and communication technology, or ICT. Everything revolves around transforming from the era of pigeons to the era of advanced computing. Information is modified through a variety of processes, including creation, sharing, retrieval, processing, and evaluation. Information and data have played a critical part in problem solving from ancient times to the present. Only the means of communication have changed between the Vedic and Modern eras, but the value of information has only increased. Information and communication technology underwent a rapid technological transformation. Information is the cornerstone of good decision-making. Using ICT tools and programming languages, ICT and Modern Computing Techniques transmit knowledge and foster critical thinking. Coding is a great way to foster critical thinking and problem-solving skills in students. According to NEP 2020, coding needs to be taught starting in primary school since it teaches students how to take any problem and come up with a logical solution using coding.

Review of Literature

As described by Glaser (1942, p.6) and by Fisher (2001), critical thinking is generally seen as the need to be able to recognize problems, to find workable means for solving those problems, to gather and marshal pertinent information, to recognize unstated assumptions and values, to comprehend and use language with accuracy, clarity, and discrimination, to interpret data, to appraise evidence and evaluate arguments, to recognize the existence (or non-existence) of logical relationships between propositions, to draw accurate conclusions and generalizations, to test these conclusions and the generalizations at which one arrives, to reconstruct one's patterns of beliefs on the basis of wider experience, and to render

accurate judgments about specific things and qualities in everyday life.

In the global world of the 21st century, life skills like critical thinking, creative thinking, innovation, problem solving, cooperation, communication, co-decision making, knowledge sharing, urgency, information and communication technology literacy, productivity and adaptation, which are the necessities of today, take the place of previously expected knowledge and abilities (Nagel, 2014). Accordingly, the

media production process helps students develop the skills of critical thinking, problem solving, decision making, communication and cooperation, imagination, creativity, searching, planning and writing (Ohler, 2006; Frazel, 2010; Yang & Wu, 2012).

ICT & Critical Thinking

ICT- Information and communication technologies (ICTs) cover a wide range of technical tools and methods that are used to produce, transmit, store, share, and exchange information. These technological tools and resources include, among others, computers, the Internet (websites, blogs, and emails), live broadcasting media (radio, television, and webcasting), recorded broadcasting media (podcasting, audio and video players, and storage devices), and telephony (fixed or mobile, satellite, visio/video-conferencing, etc.).

Critical Thinking

Analyzing the information at hand—facts, evidence, observations, and arguments—in order to make a decision is known as critical thinking.

Students' critical thinking abilities are enhanced when ICT is used in the classroom as they talk, experiment, collaborate, make decisions, and solve problems with the use of tools. As a result, critical thinking is the only way for students to learn how to solve problems, ask questions, and make decisions throughout their life. This analysis will focus on one component of critical thinking and demonstrate how ICT may be used to develop these skills.

Decision Making & Problem Solving

Steps in the decision-making process include making a decision, gathering information, and evaluating viable solutions. By organizing essential facts and detailing potential outcomes using a step-by-step decision-making process, you may make more thoughtful, educated decisions. For data analysis and decision-making based on a certain outcome, ICT and Critical Thinking are crucial.

Bloom's Taxonomy as Critical Thinking

The Bloom's taxonomy guides students through a process of critically examining material or knowledge. Bloom's taxonomy starts with knowledge and memory and gradually encourages students to seek out more information based on a progression of questions and keywords that prompt the learner to take an action. It involves switching from lower order to higher level thinking and vice versa. It performs many degrees of information analysis. It comprises Remembering, Understanding, Applying , Analyzing, Evaluation and Creating.

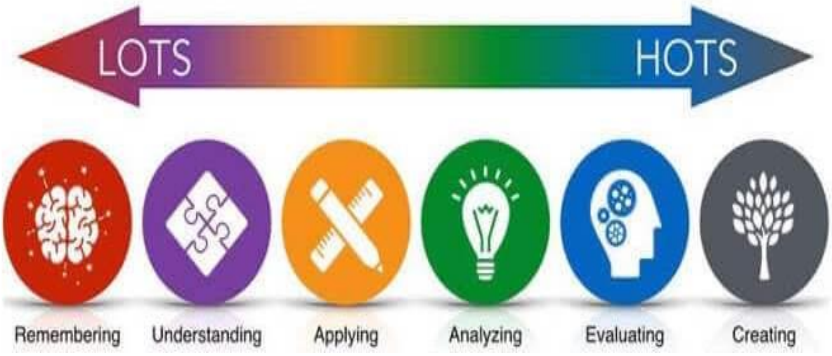

Fig. 1: Bloom's LOTS -HOTS

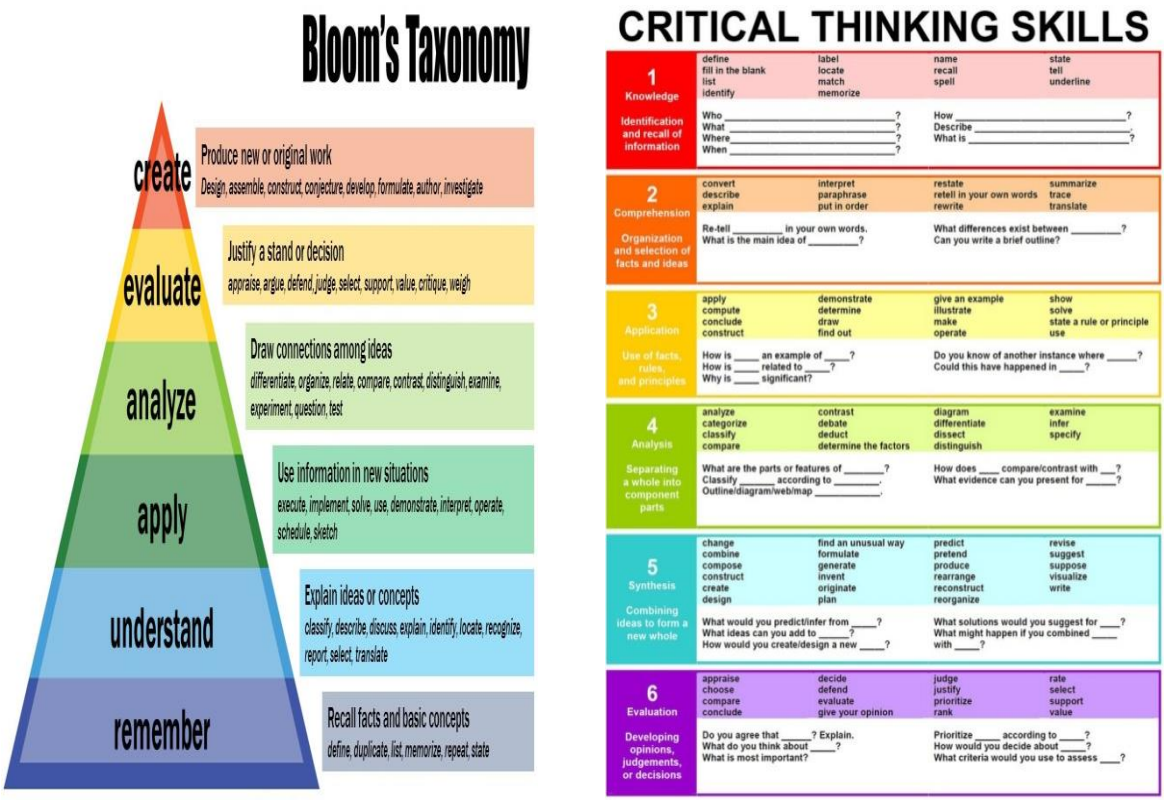

Fig. 2: Bloom's Taxonomy and Critical Thinking

Bloom's Taxonomy and ICT Tool for enhancing Critical Thinking skills

Creating: To create fresh or original content. wiki creation, video blogging, podcasting, publishing, simulating, animation, blogging, and cinematography are all examples of tools..

Evaluating: To defend a position or choice; to render decisions based on standards and criteria by investigating and evaluating. Tools: Testing, networking, grading, reflecting, evaluating, posting, and moderating on blogs.

Analyzing: Connecting ideas, concepts, or figuring out how each component relates to a larger framework or goal. Tools: mind maps, surveys, linkage, and validation.

Applying: To apply knowledge to fresh contexts, such as models, diagrams, or presentations. Tools include those for calculating, creating charts, editing, hacking, presenting, operating, and sharing with a group.

Understanding: To clarify thoughts or create meaning from textual or visual content. Advanced search, annotating, blogging, tweeting, tagging, commenting, and subscribing are all tools.

Remembering: To retrieve information or to recall facts or fundamental concepts. Tools include bookmarking, copying, searching, using Google, bullet pointing, and highlighting.

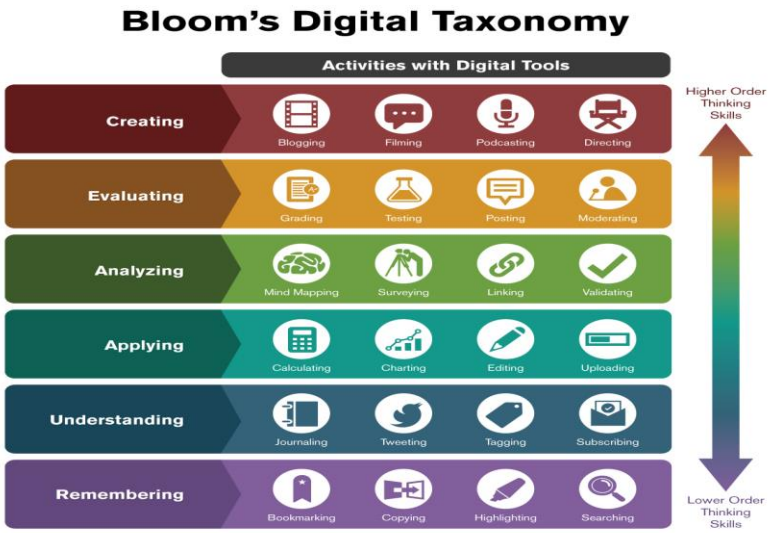

Fig. 3: Digital tools and Bloom's Taxonomy

Coding encourages Critical Thinking

Critical thinking is addressing a problem or situation analytically and breaking it down into its constituent elements in order to solve it. In addition, clear communication skills and mental flexibility are prerequisites for critical thinking. Learning to code stimulates logical thinking and tests the learner's intellect. Coding is useful for engaging the mind and our approach to problems and solutions because each circumstance is unique. According to NEP 2020, coding has been added to the list of subjects that must be studied beginning in Class 5. Coding gives you the chance to make mistakes and repair them, which develops your capacity for critical thought. Make mind maps to visualize your thought processes and tackle an issue more abstractly. It is always easier to find bugs, come up with solutions, and debug your programmes when a larger problem is broken down.

Here are five great ways that coding can help encourage learner to think logically

- **Coding teaches that failure is not the result of mistakes.** One of those activities where errors and second, third, or fourth tries are commonplace is coding. In actuality, they are expected. Thus, learning to code teaches you to be kind to yourself, to not be afraid of making mistakes, to not associate mistakes with failure, and to practise makes perfect.
- **Coding fosters original problem-solving skills.** It is usual to make several tries to solve a problem, and this teaches children to explore different approaches until they find one that works. Coding teaches you how to think, according to Steve Jobs.
- **Critical thinking skills are taught through coding.** By employing the same procedure, programming enhances critical thinking in one of the most significant ways.
- **Coding is a literacy supplement.** The truth is that it is a language, and one of the most precise ones at that. Programming converts commands into a language so that a computer can carry out a certain task and produce the desired outcome.

- **Coding teaches that there are multiple correct responses:** Students who learn to code are encouraged to keep in mind that there may be various approaches to arriving at the intended outcome. For a more welcoming and open mind, this viewpoint might easily bleed over into other topics and even friendships with other individuals. Websites, where learners can Learn and Practice Progamming Languages to enhance critical thinking skills.

Online Coding Platform for Learners of All age Group

Conclusion

The impact of ICT on learners' critical thinking skills was the main emphasis of this article. A general word used in the Vedas and the oldest Sanskrit language is "critical thinking." It has been transmitted in various ways, including ICT, in the current period. We recently began employing ICT and advanced computing techniques, which has a significant impact on students of all age groups' critical thinking abilities.

By providing 16 Padarthas to determine the truth and make the right judgement, Vedic rishis in Vedic Approach to Critical Thinking have defined a deeper knowledge of both reasoning and critical thinking. In contrast, ICT, digital tools,

mind mapping, online discussion forums, hackathons, and coding activities are used by modern learners to cultivate high-order critical thinking skills.

NASA is preparing to use Sanskrit in the development of computers in order to comprehend the Vedic technique of decision-making, connect to our roots, and bridge generational barriers. The idea of employing Sanskrit to create artificially intelligent computers is exciting for both historians and common people since it creatively mines the past to provide answers for the future. Future research will show that computing technologies can be therapeutic instruments for cultivating critical thinking in students' minds.

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