A CRITICAL REVIEW ON AI SOFTWARES AND ITS BEST PRACTICES ACROSS THE COUNTRIES TO FOSTER HOLISTIC DEVELOPMENT IN EDUCATION

Mr. K. KISHORE
Ph.D. Scholar, Department of Education
University of Madras, Chepauk, Chennai

Dr. A. SHYAMALA DEVI
Assistant Professor, Department of Education
University of Madras, Chepauk, Chennai
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Abstract

Artificial Intelligence (AI) is transforming a normal classroom environment into an extraordinary learning environment. Through AI, the Education System is enhancing to a different version which holds both traditional and technological approaches of teaching- learning process. The aim of the present study is to understand the effectiveness of the AI software in the field of Education. The researcher adopted qualitative approach to collect the source, to analyze and to interpret the collected data. For this, a critical review is done on the AI softwares across the countries. Totally seven AI softwares namely Wilma, Graphogame, Nearpod, Kahoot, Examsoft, Moodle and Blackboard Learn are critically reviewed and their features are highlighted. The features of the AI softwares are also analyzed whether they satisfy the regulations of NEP 2020. The findings of the study show that Artificial Intelligence has become the supporting technology for teachers, students, parents and other stakeholders. AI softwares can be effective in the field of education and also in developing the student's performance holistically. Therefore, it is concluded that AI softwares could help the learners to acquire knowledge and Higher Order Thinking Skills (HOTS) and also make them efficient to fit into holistic learning. The present study recommends the Government to consider AI softwares for teaching and evaluating students. Also, the evaluation process should be a 50% summative assessment and a 50% formative assessment, where the formative assessment can be done by the AI softwares through quizzes, assignments, group works etc. As per the regulations of NEP 2020, the evaluation can be done fruitfully and productively by the applications AI softwares in the near future.

Keywords: *Artificial Intelligence, AI Softwares, NEP 2020, Formative Assessment, Holistic Development.*

Introduction

The Assessment and Evaluation are considered to be the key process in Education. It is interconnected with the teaching and learning process. The teaching, learning, assessment and evaluation play a vital role in the student's life. It is because only these teaching, learning, assessments and evaluations could make the student a holistic learner. In the traditional classrooms, the teachers used lecture method, discussion method, play-way method, etc to make the teaching-learning process effective. But the classrooms in the 21st century should have technical strategies along with the traditional method of teaching.

Classrooms in the 21st century should make the students process **Higher Order Thinking Skills (HOTS)** like critical thinking, analysis, conceptual clarity (as quoted in the NEP 2020), decision-making skills, competency-based learning, vocational knowledge, time management skills etc. Only through these **Higher Order Thinking Skills** (**HOTS**), a student can be considered to have Holistic Development. For this Holistic Development, classrooms with AI are necessary. AI is a technology which supports the teacher in the teaching-learning process as well as in the evaluation process. It is clear from history that only the teacher can make a successful student. But the usage of AI will help the teachers as well as the students to make the teaching-learning process easier. AI softwares can explore teaching-learning and evaluation process effectively. In the field of Education, AI softwares are going to play an important role in assessing and developing a student. According to NEP 2020, AI-based software has to be developed for evaluating the students. It will make the students track **their growth** by the feedback of teachers and to **meet their needs**, **strengths** and **areas of interest**.

Objectives

- To critically review the Studies done on AI.
- To understand the features of AI softwares in the field of Education.
- To identify whether the features of AI softwares meet the NEP 2020 regulations.
- To explore the formative assessment strategies through AI softwares.

Need and Significance of the Study

According to NEP 2020, A student should be evaluated (or) assessed in a multidimensional manner which reflects the uniqueness of the student in cognitive, affective and psychomotor domains. AI could be the emerging trends in the field of Education. Through AI softwares, a new learning environment could be created. It could also bring inclusiveness among the students irrespective of any form of disparities. To make the overall assessment of the learner and also to make the process of assessment easier, the necessity of AI is required. The AI softwares would be effective for all learners, teachers and parents towards the Holistic Progression.

Methodology

Qualitative research design has been adopted in this study to critically review the AI softwares across countries.

Critical Review on AI Softwares & Its Best Practices

AI softwares which has its best features and satisfies the NEP 2020 regulations are selected for critical review.

Wilma Software

Wilma is considered to be the supportive tool in the schools of Finland. Wilma was developed in the year 2014. The Wilma License is owned by Jyvaskylan Kaupungin Opetustoimi. Wilma is being broadly used by teachers, students and parents, which brings **equal communication among the stakeholders of Education**. The salient features of Wilma software are as follows:

- In Wilma, students can register for courses, check grades, read notifications & announcements and can communicate with teachers.
- A teacher can grade the students, assign homeworks, enter absences and update feedback about the students. The teachers can also communicate with parents.
- Parents can also access Wilma to check their children's assessment, bags and also their absence history.
- Apart from the teachers, students, parents, other stakeholders like principal, administrators, school personnel, etc., can also access the Wilma software.

Thus, Wilma software can fit into the holistic assessment of the student which accesses the student's performance and includes self-assessment, teacher assessment and peers or parent's feedback. The features of Wilma software are in line with NEP 2020 regulations.

Graphogame Software

Graphogame is AI software specially designed for kindergarten kids and for primary school children between the age group of 6-9. Graphogame was developed in the year 2017 by Mervi Palander (CEO) and Jesper Ryynanen (COO). It has its best practices in the countries like America, Canada, Finland, Africa, Zambia, Kenya, Tanzania and Namibia. It is originally a technology-based intervention method for supporting children with **reading disabilities** (**Dyslexia**). The children who face difficulties in reading have problems in differentiating and manipulating speech sounds. Graphogame has been formulated to support the children to improve their reading skills and sounds quickly. The salient features of Graphogame are as follows:

- It is bound with 3D graphics.
- It is an In-game literacy analytics for tracking student's progress and difficulties
- It is a reading intervention platform.
- It is mainly developed for children with learning difficulties.
- It helps primary school children to read and spell their first letter, syllables and words.

Thus, the participatory, inclusiveness and learner-centric approach of Graphogame software would match the regulations of NEP 2020.

Nearpod Software

Nearpod is the powerful **Formative Assessment** tool that enables the teacher to get real-time insights into student learning. The teacher can deliver lessons with interactive media & assessments and students can interact from any device either in live classes or in their own time. Nearpod was developed in the year 2012 by Felipe Sommer, Emiliano Abramzon and Guido Kovalskys. It has its best practices in Finland, United States and UK. Nearpod offers 9 types of formative assessments including polls, quizzes, open-ended questions, drawing activities etc. Through this fun loaded interactive activities, the teacher can easily engage with students, draw attention and understand their learning styles and also their area of weakness. Nearpod ensures that the students are engaged and achieve higher levels. The salient features of Nearpod are as follows,

- It includes interactive lessons, videos, activities etc.
- It does post-session reporting.
- It holds 20+ formative assessments.
- It has visual insights on student learning.
- It involves student's Live Participation.
- It encourages student-paced learning.

Thus, Nearpod software proposes a formative assessment which will fall under the NEP 2020 regulations towards holistic development.

Kahoot Software

Kahoot is an assessment tool which is considered to be an all-in-one assessing platform. Kahoot has been specially designed to engage, teach, assess and to review. Kahoot was developed in the year 2012 by Morten Versvik, Johan Brand and Jamie Brooker. It has its best practices mostly in U.S and Norway. Kahoot has been loved by millions of teachers, students, parents and concerned admins. Kahoot is a software which can transfer the traditional form of classroom to a virtual classroom. Kahoot can grab the student's attention and interest in learning. It helps the teachers to post instructions which allows the students to learn independently. Kahoot ensures that no learners are left behind and it enriches the **inclusive approach**. Kahoot is used in the **formative assessment** of the learner. It takes less time to create a quiz or learning game on any topic in any language based on the related content. Students could enjoy playing the game where their critical thinking, involvement and competency level increases. The salient features of Kahoot are as follows,

- It allows the educators to do quick pulse checks.
- It tests the knowledge of the student through pre-assessment.
- It promotes knowledge gap assessments.
- It encourages student-paced independent learning.
- It allows test practice and preparation for the students.

Thus, Kahoot software is identified as the formative assessment software which meets the regulations of NEP 2020.

Examsoft Software

Examsoft is an advanced assessment platform which ensures **retention** & **remediation**, **accreditation**, **efficiency**, **flexibility** and **secure assessments**. This software helps the instructor to **track their learner's progress** and to **give analytical feedback**. Examsoft was developed in 1998 by Stewart Wallach and George Wolf. It has its best practices in 35 countries. It also helps the learners and instructors to identify the areas of weakness and the areas to concentrate. Examsoft provides a wide range of possibilities for delivering assessments which include paper-based, computer-based and mobile-based options. The salient features of Examsoft are as follows,

- It helps with retention and remediation process.
- It is capable of creating thousands of secure assessments.
- The assessments can be online (or) offline, and the grading can be done continuously.
- The assessments are developed based on the needs of each individual learner.
- The curriculum mapping can be done in the Examsoft software.
- Accreditation can be given to the learners after each assessment.

Thus, the features of Examsoft software are in the line of NEP 2020 regulations, where the teachers can assess the students and give remedial feedback which helps the learners to meet their needs.

Moodle Software

Moodle software is a learning platform which is designed to provide students, teachers and administrators with a single robust, secure and integrated system to create personalised learning environments. Moodle ensures both teaching and learning. Moodle was developed by Martin Dougiamas. The first version of Moodle came to existence in the year 2002. A total of 239 countries use Moodle software. United States is the topmost country to use Moodle. There are a variety of assignments and assessment features in Moodle. The educator has the responsibility to post the materials and to create quizzes and assessments based on the content. The teacher can **track the performances of the learners**, **grade** them and **addfeedback** to the assignments. The salient features of Moodle software are as follows:

- It is facile to use.
- It is highly flexible and fully customizable.
- It is an all-in-one learning platform.
- It has no licensing fees and is free to use.
- It is always updated.

- It enables the peer's feedback.
- Video assignments can also be accessible in Moodle.
- Chats, discussion, assessments, grading & feedback can be done in Moodle.

Thus, Moodle is considered to fulfill the regulations of NEP 2020 through its features.

Blackboard Learn Software

Blackboard Learn Software holds a unique approach that emphasis both teaching and learning. This approach brings down the burden of teachers in assessing the learners. Blackboard Learn Software was developed in 1997 by Michael Chasen and Matthew Pittinsky. It has its best practices in US and Canada. This software brings collaboration between educators and learners. It also helps the institution to meet the specific needs. There are two approaches to assessments in this software. They are **formative assessment** and **summative assessment**. Formative assessment helps the learner to improvise in learning by rendering appropriate feedback. At the end of the course, the learning of the student is evaluated through summative assessment. Both the approaches have equal level of benefits in shaping the learner's skill. The salient features of Blackboard Learn are as follows:

- It has flexible assessment types.
- The feedback is customized after the assessments.
- It delivers **an inclusive learning environment**.
- Learners can track their progress on their own and find the next step.
- Instructors can easily identify the learners who struggle in learning.
- It addresses the student's need for learning.
- This software helps the educator to take faster decisions on the assessment.
- The assessment showcase both the strength and weakness of the learner.

Thus, Blackboard Learn Software can be considered as the unique software which satisfies the regulations of NEP 2020 by providing formative and summative assessment and also for creating an inclusive learning environment.

Table 1 Summary of the Critical Review on AI Softwares and its Features Matching with The Regulations of Nep 2020

Name of the Software	Year	Developers	Salient Features	Features Matching With Nep 2020 Regulations
Wilma	2014	Jyvaskylan Kaupungin Opetustoimi	• Parents, teachers and students can access the software, • Parents can check their child's activities and follow the feedback.	It matches with the regulations of NEP 2020 through 360-degree assessment which involves self, teacher and parent's assessment.

Graphogame	2017	Mervi Palander & Jesper Ryynanen	• Reading intervention platform, • In-game literacy analytics for tracking students progress and difficulties • Learning and assessing through 3D graphics.	Participatory, inclusiveness and learner-centric approach would match the NEP 2020 regulations.
Nearpod	2012	Felipe Sommer, Emiliano Abramzon & Guido Kovalskys	• 20+ formative assessments, • Post-session assessments • Student-paced learning.	It proposes the formative assessment which will fall under the NEP 2020 regulations towards Holistic Development.
Kahoot	2012	Morten Versvik, Johan Brand & Jamie Brooker	• Encourages student-paced independent study, • Enriches inclusive approach, • Formative assessment of the learner.	Inclusive approach and formative assessment of the software will meet the NEP 2020 regulations.
Examsoft	1998	Stewart Wallach & George Wolf	• Retention and Remediation process, • Secure assessments, • Grading can be done continuously.	The assessments conducted in the software can meet the needs of each learner which is in line with NEP 2020 regulations towards Holistic Development.
Moodle	2002	Martin Dougiamas	• Facile to use. • All-in-one learning platform, • Peers feedback.	Flexible learning, assessments, grading and feedback through the software would meet the regulations of NEP 2020

Blackboard Learn	1997	Michael Chasen & Matthew Pittinsky	• Flexible assessment, • Inclusive learning environment, • Addresses the student's need in learning.	Flexible assessment, inclusive approach and meeting the needs of the students would match with the regulations of NEP 2020.

Table (1) shows the summary of the critical review on AI softwares and its features matching with the regulations of NEP 2020.

Findings based on the Objectives

The findings based on the objectives are:

- After critically reviewing the studies done on AI, it is found that **AI** has become the supporting technology for teachers, students, parents and other stakeholders.
- The selected AI softwares namely Wilma, Graphogame, Nearpod, Kahoot, Examsoft, Moodle and Blackboard Learn holds excellent salient features and these softwares are being used in different countries with extraordinary outcomes.
- It is found that the salient features of the selected AI softwares are effective in the field of Education.
- These AI softwares are contributing to its best part in the process of assessing the learners.
- The AI software pays the way for new learning environment where the learning will take place in a diversed manner.
- It is found that the features of AI softwares meet the regulations of NEP 2020 by enriching the learning process with technical support and assessing the student's performance in all perspectives.
- It is also found that AI softwares can evaluate the student's performance through formative assessment and helps to meet the student's need.

Discussion

- According to Olga Tapalova and Nadezhda Zhiyenbayeva (2022), Artificial Intelligence possesses many key advantages in the education system. This is in line with the findings of the critical reviews that AI softwares can explore in the field of Education through its salient features and its efficiency in giving the desired outcome of the learners.
- From the findings, it is found that AI can create an **inclusive classroom** where the learning takes place in a **diversed manner**. This is in line with Ishfaq Majid and Y. Vijayalakshmi (2022). The results of their study showed that the implication of AI can create an inclusive classroom irrespective of language and disabilities.

- From the critical review, it is found that the features of AI software met the requirements of NEP 2020 through formative assessment. This is in line with Dr. Shaheen Parveen (2020), where she has elaborated the regular and formative assessments of NEP 2020.
- As per the NEP 2020, that should be a shift from summative assessments to regular and formative assessments which should test the student's critical thinking, decision making skills, competency level and time management. Thus, AI softwares can assess the students with all these regulations and undoubtedly shift the summative assessments to formative assessments.

Recommendations

From the findings of the present critical review, investigator recommends the following.

- The Government has to take the initiative to adopt AI softwares in the School Education System.
- The Government has to regulate the schools to undergo formative assessments using AI softwares.
- The Government has to create a platform for AI software which will play a vital role in every individual.
- The Government has to alter the assessment process for the holistic development of a student. Therefore, alterations have to be made to the evaluation procedure. 50% of summative evaluation and 50% of formative evaluation can bring a shift to the year end assessment (Summative).
- Holistic Progress Card (HPC) can include the marks obtained in the formative assessments through quizzes, assignments, group work, etc. done using AI software.
- The schools have to be equipped with facilities to welcome AI softwares into existence.
- The teachers should not hesitate to assess the students through AI softwares.
- The teachers have to be ready to post videos, subject contents, questions for the quizzes and other kinds of assignments in the AI software.
- The teacher has to track their student's performance for holistic development.
- The parents have to cooperate and involve themselves in their children's Holistic Education and Development.

Conclusion

Artificial Intelligence (AI) has its own speciality in the world and among the people. The drastic growth of AI technology has taken human life to the next level. Because of its various applications, AI has stepped into the field of Education. The best features of AI softwares can make the learning process easier for both students and teachers. As per the regulations of NEP 2020, the examinations at the year-end (Summative evaluation) can be

shifted to formative evaluation which should analyze the student's performance continuously and also mentally, physically and emotionally. Also, the AI-based software should be developed and should meet the needs of the students. The student's 360-degree approach can be assessed with the help of AI softwares. The critical review about different AI softwares in the present study can disseminate the features of the AI softwares and its important role in the field of Education. This AI softwares can change the student's learning method and create a new learning environment which will provide a 360-degree learning (Critical thinking, analysis, conceptual clarity) to the learners. These Softwares can also assess the student's performance and ensures their growth in the needed areas. Thus, this enriched learning will pave the way to holistic development of the learners.

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