



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2020; 7(5): 308-311
© 2020 IJPESH
www.kheljournal.com
Received: 22-06-2020
Accepted: 26-07-2020

Utsav Chaware
Lakshmbai National Institute of
Physical Education, Gwalior,
Madhya Pradesh, India

Artificial intelligence in physical education and knowledge among students

Utsav Chaware

Abstract

The contemporary shift of the Indian education system to enhance the teaching-learning experiences with the introduction of machine learning and AI in education, Institutions adopting AI ecosystem for much efficient and flawless education. With the potential to impact Physical Education with numerous applications, Artificial Intelligence is the need of the hour. This paper highlights the ground applications of AI in physical education and it also accesses the knowledge of AI among students of physical education. For the study, 500 undergraduates and post-graduate students from 8 institutes of physical education responded to the questionnaire, and responses were analyzed. The study reveals as the majority of the students thought they are familiar with AI but only 14% of the students correctly responded to all the questions and were aware of the concept of AI and Machine Learning. Students and teachers of physical education must know how to harness the power of the latest technological trends and prevail to get in touch with their students to know educational needs thereby validating the importance of integrating AI in physical education curriculum so that students of today and teachers of tomorrow can begin learning about artificial intelligence before they encounter it in the workplace.

Keywords: Artificial intelligence, machine learning, physical education

Introduction

With the evolution and expansion of technology and science in every field, technology and gadgets are taking away the elegance to way better, precise, and the flawless world. The introduction of artificial intelligence has made an uplifting world, transcending the possibilities to ease life. Heading towards a whole new era of artificial intelligence starting with androids, Siri talk and google in every palm. AI being an unprecedented technology possess the potential to enrich physical education. AI applications from individualized learning and personalised training, monitoring health status and movement pattern of an individual child and talent detection and identification, the influence of AI in physical education could be abundant, it's the time for physical education professionals to move towards articulating artificial intelligence into the curriculum and make a leap with technology so that students can begin learning about artificial intelligence and become future-ready before they encounter it in the workplace. As once said by Charles Darwin "It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most responsive to change". Timms (2016) ^[7] proposed embedding AIED into smart classrooms would produce real-time data to trace learners behaviour in the wider environment of the classroom and not just with the instructional packages that we have developed to date.

Liu Xian (2010) ^[8] discussion of applicable perspective and development of artificial intelligence in modern physical education technology, and raises the corresponding development strategies to the use of artificial intelligence in modern sports educational technology, in order to provide the theoretical support for the establishment and development of modern physical education technical disciplines.

This research paper outlined the possible fundamental applications of Artificial intelligence in physical education and the awareness level of Artificial Intelligence among Physical Education students as Physical education students need to get acquainted with AI technology and its applications to compete parallelly in the future.

Corresponding Author:
Utsav Chaware
Lakshmbai National Institute of
Physical Education, Gwalior,
Madhya Pradesh, India

India Inducing AI in education

Sensing the future prominence and need of AI at present and particularly in the coming times, India is trying to induce AI and machine learning in education to reap out an AI-embedded future. Central Board of Secondary Education induced AI as a skill subject and collaborated with Intel to empower 1 lakh youths with Artificial Intelligence from class 8th onwards based on the curriculum “Intel AI For Youth” (CBSE, 2020) [4]. IITs taking vital ventures, bringing graduation as well as short-term and long-term courses in AI to make up for the dearth of AI professionals in the country. Institutions preparing students with supreme technology and acquainting students with AI to make them future-ready (Baba, Binoy, Vasani, Subash, & Tanvi, 2019) [1]. NITI Aayog and Andhra Pradesh govt. join hands with tech giant Microsoft to identify the dropout students and to minimize the dropout ratios with the help of AI and machine learning. NITI Aayog published a discussion paper on National strategy for artificial intelligence #AIFORALL consider AI the truly transformative nature of the technology and its potential to revolutionize education by supplementing pedagogy, access, and quality of education. These support the association of AI in the Indian education system (Aayog, 2018) [3].

Applications of Ai in Physical Education

AI in education is a transformative technology that can uplift the teaching-learning process, but when it comes to physical education tying knots with AI may bring out some revolutionary reforms in quality physical education.

Ensuring Physical Literacy for All

The primary objective of physical education is fostering physical literacy and awareness to all, cultivating a healthy body eventually resulting in brain productivity. Macro setting classes may hinder the involvement of every student due to diverse choices and dissimilar interests. Many students, specifically girls of higher classes don't find PE attractive as they don't find activities as per their interest. Many involved in individual games don't like to participate in group and team games. With AI-embedded physical education children could choose inquisitive and exciting activities based on their interest to make sure the association of every kid of any age group. Students of higher classes and girls, with AI assistance teachers, can design a need-based and interactive team, group, and even individual activities for the inclusion of every child and attain physical literacy.

Ai-Integrated Monitoring System

The nature of a Physical Education class is always dynamic, other than classrooms the on-ground movements and interest scale of games and activities by students are broad. In a macro setting its not pragmatically possible for a teacher to guide and instruct every child and to look after his activity. With the help of an AI-integrated monitoring system, teachers can monitor the class in real-time and can assist, instruct and provide real-time feedback to students for their activities and movements. One such example is *LUMILO* augmented reality glasses offers real-time feedback and student activity to the teachers (Holstein, McLaren, & Aleven, 2018) [6].

Talent Identification

Physical education teachers are the first toll gates to screen children, there can be some talents with different genotype if identified at an early age can be prepared for world-class performance. Present models and methods of talent

identification are either inaccessible or aren't precise. The integration of present methods with AI and machine learning such models can be more accurate and explicit. Also, with machine intelligence new accessible and easily available models can be developed for talent identification and development at a rudimentary level, machine intelligence can aid in detecting any remarkable character in the students. sensory data from peripheral devices (sense) could be used as a tool to predict and identify an exceptional physiological trait as heart rate, estimated vo2 max capacity, and an elevated lactate threshold value. Use of AI integrated circuits in sports equipment can help track the performance of students for example “power bat” developed by ‘Spektacom’ company to record real-time data of batsman in cricket these types of circuits can be designed for various games to identify the skill-specific talent. Through machine learning data, near approximate predictions can be made using algorithms about the presence of muscle fiber types in an individual. Wearables can be used to track superior reflexes, perceptual variables, and refined decision-making skills or ease in performing the movements (Barlow & Sriskandarajah, 2019) [2]. AI-sensors in shoes can notify any athletic superlatives motor ability or stride length, power generation, flight time, or movement efficiency in athletics. AI integrated methods and models with machine learning can surely aid talent identification to a more accurate and emphatic talent detection among children.

Individualized Learning and Personalised Training

As one size doesn't fit all, possibly the skills and movements demonstrated in physical education could be complex and compound, for better acquisition of movements and error-free execution, with teachers and AI-based teachboats can provide real-time feedback and quick corrections solving doubts and misconceptions of students 24x7, it can store and track individual's data displaying evidential improvement and analysis so that every student can become a better version of himself empirically. AI with individualized learning could serve teachers to help every student in a better understanding ex.- stereoscopic image-based simulation can help students to learn under an interactive ambiance. Students following sports practices could be assisted with personalized training tailored for their performance improvement based on their lacunae in skills or areas to work upon. Teachers with AI-assistance can design personalized training schedule for every student considering training preferences and level of students, concerned with any sport to grow and magnify performance.

Methodology

In the main part of the study to access the knowledge of Artificial Intelligence among physical education students, An Online platform ‘Google Form’ was used to develop and conduct the survey, the questionnaire was circulated via digital sources among physical education students, a total of 500 students 62% male and 38% female, 298 undergraduates and 202 post-graduate students from 8 different colleges of physical education across India responded to the questionnaire. The questionnaire was developed based on the literature reviewed and previously developed questionnaires to access the knowledge among physical education students towards AI. It was divided into 2 sections, in 1st sections, students were asked about some demographic details, 2nd section accessed the knowledge of AI among students, 1 point was awarded for every correct answer and no point was awarded for an incorrect response. The percentage method was performed for data analysis with MS excel.

Result and Discussion

Based on the answers responded by 500 subjects regarding knowledge of physical education students towards Artificial Intelligence following data was recorded.

Subjects were asked- “Mark for the applications you use and were you aware that some/all of the following applications use Artificial Intelligence technologies”.

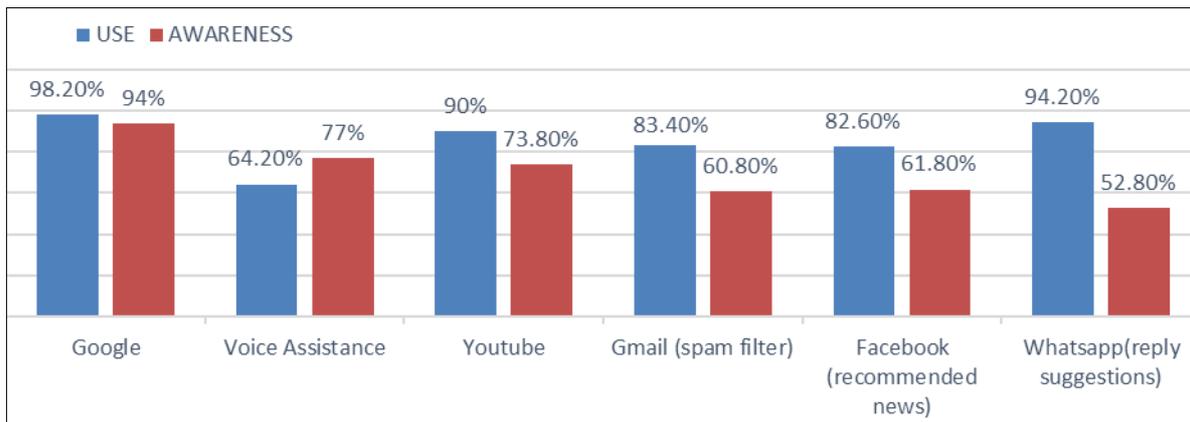


Fig 1: Percentage of Students using software and social media platforms and their awareness regarding AI in platforms.

The question was asked about the use of some popular social media platforms commonly used by students and their awareness regarding the use of AI-technology by these platforms. An average of 84.44% (427) students use all the

mentioned applications and an average of 70% (350) students were aware of the use of AI in all the applications. Are you familiar with the following terms?

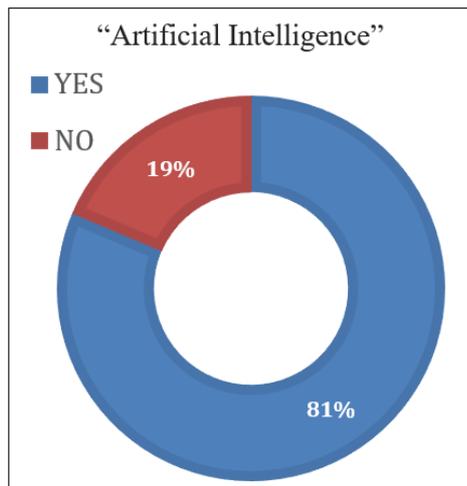


Fig 2: 81% of students have heard the term AI, 19% of students never heard of the term.

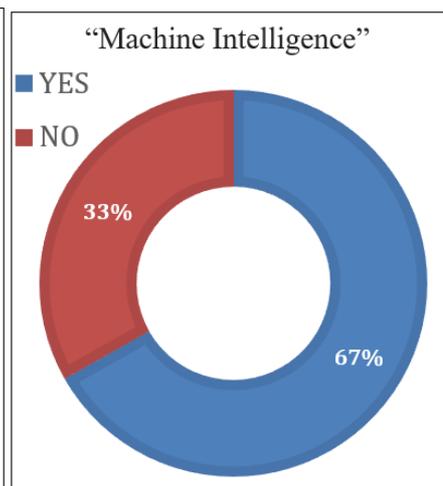


Fig 3: Only 67% of students were acquainted with the term ML

Students were asked about the terms Artificial Intelligence and Machine Learning, 81% of students (Fig. 2) thought they are familiar with the term AI and 33% of students (Fig. 4) were not acquainted with the term ML.

To access the basic knowledge multiple choice-based questions regarding AI and ML were asked to the students and 1 point was awarded for each correct answer.

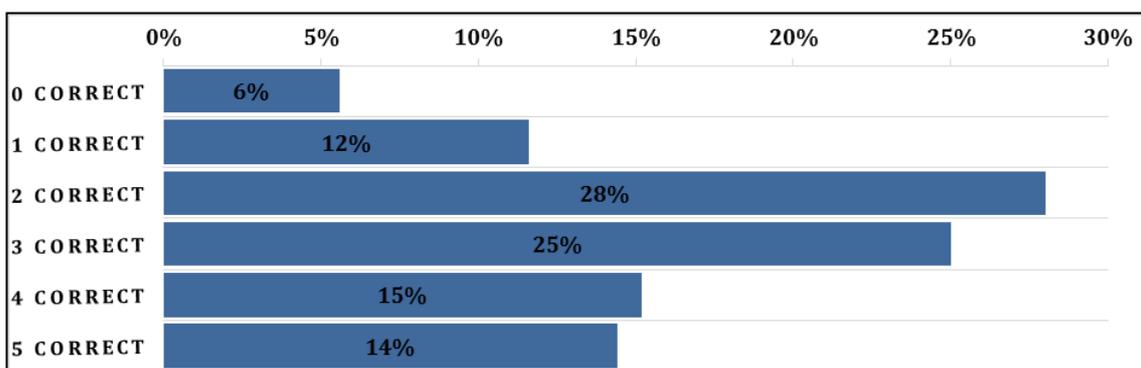


Fig 4: Out of 5 questioned asked, an average of 28% of students responded to only 2 questions correctly, and only 14% of students were correct with their answers, which reveals a deficit of AI knowledge among physical education students.

The graph displays No. of correct responses by the percentage of students out of 5 questions asked Surprisingly only 14% i.e. 70 students scored 5 points with all the correct answers, 15% (75) students scored 4 points with 1 incorrect answer. The majority of students (28%) were able to answer only 2 questions, scored 2 points and 30 students constituting 6% of total students were unable to answer a single question correctly.

Outcomes of the study reveals a significant dearth of fundamental knowledge of artificial intelligence among physical education students, although most of the students seems to be aware of the use of AI in social media platforms and were also familiar with the terms but when evaluated for the basic knowledge only few students were able to respond all the questions correctly, this displays the inaccuracy in knowledge, and as AI is a revolutionary technology and students have to face AI environment in near future they should be well prepared for the future.

Conclusion

Artificial intelligence is a revolutionary technology that can transform education and physical education, from individualized learning and personalized training, monitoring system, and talent identification. To make use of AI technology physical education students should be well acquainted with it, as this paper reveals the deficit of knowledge among physical education students. Physical education to compete, need an updated curriculum integrated with Artificial intelligence and its associates.

References

1. Baba S, Binoy M, Vasani V, Subash, Tanvi. Artificial Intelligence (AI) and India: Promise, Perception, and Preparedness. Bengaluru: National Institute of Advanced Studies, 2019. Retrieved from <http://eprints.nias.res.in/id/eprint/1837>
2. Barlow A, Srisankarajah S. Artificial Intelligence, Application to the Sports Industry. PwC Publications, 2019.
3. Aayog N. Discussion Paper on National Strategy for Artificial Intelligence. NITI Aayog, 2018.
4. CBSE. Artificial intelligence integration across subjects for the CBSE curriculum. Central Board of Secondary Education, 2020.
5. Gherhes V, Obrad C. Technical, and Humanities Students' Perspectives on the Development and Sustainability of Artificial Intelligence (AI). Sustainability, 2018; 10:3066. 10.3390/su10093066.
6. Holstein K, McLaren MB, Alevan V. Student Learning Benefits of a Mixed-Reality Teacher Awareness Tool in AI-Enhanced Classrooms. Artificial Intelligence in Education, 2018, 154-168. doi: https://doi.org/10.1007/978-3-319-93843-1_12
7. Timms M. Letting Artificial Intelligence in Education Out of the Box: Educational Cobots and Smart Classrooms. Int J Artif Intell Educ, 2016, 701-712. Retrieved from <https://doi.org/10.1007/s40593-016-0095-y>
8. Xian L. Artificial intelligence and modern sports education technology. International Conference on Artificial Intelligence and Education, 2010, 772-776.