**Identify and clearly state the research questions/hypotheses, and briefly explain how these fit into the area of research interests**

The overall aim is to investigate how AI can be used in K-12 education to benefit the learner, teacher and institution. The main questions addressed are:

1. What are the main applications of AI in education, and which type of AI has had a lot of benefit for education?
2. What is the distribution of AI at different levels of education, and in which courses has AI been frequently involved?
3. Which technologies and devices are employed to implement AI in education?

This paper also aims to look into the adoption of AI in terms of applications, AI types, level of education, lecture/subject content, and assistive technologies.

Previous studies were undertaken in this field of research. This paper fits into the niche of studying more recent integration of AI (since 2019) into an understudied level of education (kindergarten to twelfth grade – K-12). The posited questions tell us how AI is being implemented in the education sector in the most influential period of learners’ lives, as well as which types of AI are being used in different areas of education. The types of AI included are:

|  |  |
| --- | --- |
| Machine Learning (ML) | Deep Learning (DL) |
| Data Mining (DM) | Natural Language Processing (NLP) |
| Robotics | Intelligent Tutoring System (ITS) |
| Recommendation System (RS) |  |

**Identify and clearly explain the overall methodology, and the methods that are being applied.**

This paper is a quantitative, systematic literature review and a correlational study. The authors take a post-positivist approach in order to quantify the abundance and use of different types of AI in K-12 education. Since the data is being sampled from previous peer-reviewed papers, the data itself provides correlational information, since the researchers are not manipulating any variables, as in an experimental approach.

Two databases (Scopus and Web of Science) were queried to obtain a collection of papers (2075). Using the PRISMA scheme, these papers were screened based on a series of criteria – an example of purposeful sampling. The criteria narrowed the number of eligible papers to 210. In doing this screening, the contents of each paper were labelled with the type of AI used, the goal of the paper, the field of study the paper focused on, and learning environment and assistive technologies.

Primarily, the frequencies of the categories listed above are compared with one another, but the accuracy of each AI algorithm used in papers is also analysed briefly as well as the interplay between categories of AI.

**Critically evaluate the methods used in order to investigate this particular area of research interest, making sure you consider the nature of the relationship between the research question, methodology, and method**

In a systematic literature review, the researchers have total control over which papers are included in the review