



**ARTIFICIAL INTELLIGENCE APPROACH TO LANGUAGE  
INSTRUCTION**

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**Submission Date:**15.03.2025

**Acceptance Date:**24.03.2025

**ABSTRACT**

This paper describes an implement, archetype system for a difficult, intelligent tutor for instruction in a foreign language. The system is an application of artificial intelligence research in ordinary language, but it implements several ideas that depart from touchstone approaches to natural language understanding. For instance, the semantic analyzers diagnose several kinds of conception problems and semantic errors that a student might make. Some fine distinctions in meaning are represent to detect misuse of words. Not only is a model of good syntax included in the tutor, but also a model of incorrect forms, rich enough to pinpoint specific syntactic mistakes. Finding the proposed elucidation is complicated by the possibility of student errors. Therefore, perfect syntactic form is not compulsory for semantic analysis of the student's input. The problems discussed and solutions presented are intimately related to the more common problem of how to respond to a natural language input that surpasses the computer's model of language or of environment.

**Key Words**

Intelligent Tutor for Instruction, Problems and Semantic Errors, Elucidation, Language

**INTRODUCTION**

Artificial intelligence (AI) has undergone exponential growth and has been overwhelmingly permeated in the educational field, including English language education. Many individual studies have paid close attention to probing the effect of AI on learning. However, no quantitative meta-analysis has been conducted on the overall effectiveness of AI on English language learning achievement.

Hence, to fill the research gap and strengthen the statistical power, this article aims to carry out a meta-analysis for examining the effectiveness of AI on English learning outcomes.

AI automates repetitive learning and discovery through data. Instead of automating manual tasks, AI performs frequent, high-volume, computerised tasks. And it does so reliably and without fatigue, of course, humans are still essential to set up the system and ask the right questions. AI adds intelligence to existing products. Many products you already use will be improved with AI capabilities, much like Siri was added as a feature to a new generation of Apple products.

Automation, conversational platforms, bots and smart machines can be combined with large amounts of data to improve many technologies. Upgrades at home and in the workplace, range from security intelligence and smart cams to investment analysis. AI adapts through progressive learning algorithms to let the data do the programming. AI finds structure and regularities in data so that algorithms can acquire skills. Just as an algorithm can teach itself to play chess, it can teach itself what product to recommend next online. And the models adapt when given new data. AI analyses more and deeper data using neural networks that have many hidden layers. Building a fraud detection system with five hidden layers used to be impossible.

We need lots of data to train deep learning models because they learn directly from the data. AI achieves incredible accuracy through deep neural networks. And these products keep getting more accurate the more you use them. In the medical field, AI techniques from deep learning and object recognition can now be used to pinpoint cancer on medical images with improved accuracy.

AI gets the most out of data. When algorithms are self-learning, the data itself is an asset. The answers are in the data – you just have to apply AI to find them. Since the role of the data is now more important than ever, it can create a competitive advantage. If you have the best data in a competitive industry, even if everyone is applying similar techniques, the best data will win. But using that data to innovate responsibly requires trustworthy AI. And that means your AI systems should be ethical, equitable and sustainable.

Technological interventions play a prominent role in advancement and change in educational practices. The NEP 2020 also emphasises the potential AI has, to change the dynamics of the workplace and raise the demand for skilled workers who are fluent in mathematics, computer science, and data science, in conjunction with multidisciplinary abilities. The integration of AI into education has the potential to transform educational practices, providing a technologically advanced environment that promotes engagement, flexibility, and personalised learning. In the field of education, AI tools are

instrumental in addressing the diverse learning needs of students, enabling educators to offer tailored educational experiences that foster inclusivity and enhance learning outcomes. India has been working to promote AI in education for several years. The "AI for All" strategy was launched in 2018, focusing on education, smart cities, smart infrastructure, and agriculture (NITI Aayog, 2018). Although India has taken various steps in recent years to integrate AI in school education, with both private and public institutions increasingly adopting AI technologies, government school teachers often have limited access to these advancements due to lack of training, resource constraints, time-bound curriculum, and lack of professional development opportunities.

## **ADVANTAGES OF AI IN LANGUAGE**

### **Reduction in Human Error**

One of the most significant benefits of Artificial Intelligence is that it can significantly reduce errors and increase accuracy and precision. The decisions taken by AI in every step are decided by information previously gathered and a certain set of algorithms. When programmed correctly, these errors can be reduced to null.

### **Decision-Making**

One of the noted pros of Artificial Intelligence is decision-making. AI enhances decision-making by leveraging vast data to identify patterns and trends often invisible to humans. Machine learning algorithms can analyze historical data and predict future outcomes, allowing businesses and individuals to make informed decisions quickly and accurately. AI's ability to process information at high speeds reduces the time required for decision-making, thus providing a competitive advantage in dynamic environments.

### **Zero Risks**

Another significant benefit of AI is that humans can overcome many risks by letting AI robots do them for us. Whether defusing a bomb, going to space, or exploring the deepest parts of oceans, machines with metal bodies are resistant and can survive unfriendly atmospheres. Moreover, they can provide accurate work with greater responsibility and not wear out quickly.

### **24x7: Availability**

One of the key benefits of AI is round the clock availability. Many studies show humans are productive for only about 3 to 4 hours daily. Humans also need breaks and time off to balance their work and personal lives. But AI can work endlessly without breaks. They think much faster than humans and perform multiple tasks simultaneously with accurate results. They can even handle tedious, repetitive jobs easily with the help of AI algorithms.

## **Digital Assistance**

Digital assistants are employed by some of the most advanced companies to interact with users, reducing the need for human personnel. Many websites use digital assistants to deliver content based on user requests, enabling us to have conversational searches. Some chatbots are so sophisticated that it's difficult to tell whether we're communicating with a human or a machine.

## **Increase in Workforce Productivity**

Another point in the list of 'pros of AI' is the increase in workforce productivity. AI-powered tools can help manage and optimize various aspects of work, such as prioritizing tasks, scheduling meetings, and automating routine processes. This allows employees to focus on more strategic and creative tasks, thereby increasing their productivity.

## **Personalization**

AI algorithms can deeply analyze user behavior, preferences, and interactions to deliver highly personalized experiences. By leveraging this data, AI can tailor content recommendations, targeted ads, and customized user interfaces, ensuring a more engaging and satisfying user experience.

## **Better Decisions**

AI enhances decision-making by analyzing vast amounts of data quickly and accurately, identifying patterns and insights that might be missed by humans. This enables businesses to make more informed, data-driven decisions, improving efficiency, reducing errors, and ultimately leading to better outcomes.

## **Advanced Data Analysis**

AI technologies can process and analyze large datasets much faster than traditional methods. This enables businesses to gain valuable insights, make data-driven decisions, and predict future trends more accurately.

## **Problem-Solving**

AI technologies excel at recognizing patterns in large datasets and can be used to solve complex problems across various domains. Businesses and researchers can develop innovative solutions and improve decision-making processes by leveraging AI.

## **Disadvantages of Artificial Intelligence**

While artificial intelligence offers numerous benefits, it also presents some disadvantages. Here are few cons of Artificial Intelligence:

## **Creativity**

Artificial Intelligence (AI) often lacks the intrinsic creativity of humans, which stems from emotional depth, abstract thinking, and imaginative processes. While AI can mimic creativity by generating art, music, or writing based on existing patterns, it doesn't possess genuine originality or the ability to think outside the box.

AI's creative outputs essentially recombine pre-existing data, limiting its capacity for true innovation. This reliance on patterns and data constrains AI, making it challenging to match human creativity's nuanced and unpredictable nature, which thrives on intuition and emotional intelligence.

## **Emotional Intelligence**

The next disadvantage of AI is that it lacks emotional intelligence as it involves recognizing and managing one's own emotions, as well as empathizing with others and handling interpersonal relationships judiciously and empathetically.

While AI can be programmed to recognize specific emotional cues and respond in a predetermined way, it doesn't possess genuine empathy or the capacity to navigate complex human emotions. This limitation can hinder AI's effectiveness in roles requiring emotional sensitivity, such as counseling, human resources, or any field where interpersonal interactions are critical.

## **Encouraging Human Laziness**

The increasing reliance on AI for tasks ranging from mundane chores to complex decision-making can lead to human laziness. As AI systems take over more responsibilities, individuals might become less inclined to develop their skills and knowledge, relying excessively on technology.

This dependency can diminish critical thinking and problem-solving abilities, as people might defer to AI solutions without questioning their validity or exploring alternatives. Over time, this could lead to a less capable workforce.

## **Privacy Concerns**

AI systems often require vast amounts of data to function effectively, which can lead to significant privacy concerns. Personal data collection, storage, and analysis can be intrusive, exposing sensitive information without individuals' consent.

AI-driven surveillance systems and data mining practices can erode personal privacy, leading to potential misuse of data by corporations, governments, or cybercriminals.

Additionally, there is a risk of data breaches and leaks, which can compromise personal and financial information, leading to identity theft and other forms of exploitation.

### **Job Displacement**

The rise of AI and automation technologies poses a substantial risk to employment, particularly in industries reliant on routine and repetitive tasks. While AI can create new job opportunities, the transition period can be challenging, with many workers requiring retraining and up skilling. The economic and social impact of widespread job displacement can increase unemployment rates and social inequality if not managed effectively.

### **Over-dependence on Technology**

As society becomes increasingly reliant on AI, there is a growing risk of technological dependence. This dependence can reduce human skills and capabilities as individuals and organizations rely more on automated systems for decision-making and problem-solving. AI can be beneficial if systems fail or produce accurate results. Moreover, the complexity of AI systems can make it difficult for users to understand or question AI-driven decisions, potentially losing autonomy and control over essential processes.

### **Algorithms Developments Concerns**

The rapid development of AI algorithms raises concerns about the pace and direction of technological advancement. There is a risk that algorithms are being developed and deployed faster than regulatory frameworks and ethical guidelines can keep up. This can lead to unintended consequences, such as the misuse of AI technologies, lack of accountability, and insufficient safeguards against harmful applications. Additionally, the proprietary nature of many AI algorithms can limit transparency and public scrutiny, making it challenging to assess their fairness, accuracy, and overall impact on society.

### **Environmental Issues**

The development and deployment of AI technologies can have significant environmental impacts. Training large AI models often requires substantial computational power, which demands considerable energy consumption. This can contribute to increased carbon emissions and exacerbate climate change. Data centers, which house the infrastructure for AI systems, require constant cooling and maintenance, further adding to their environmental footprint. As AI technology grows, finding sustainable and energy-efficient solutions becomes crucial to mitigating its environmental impact.

### **Lack of Common Sense**

Despite their advanced capabilities, AI systems often need more common sense reasoning. They can process and analyze vast amounts of data but need help understanding

context, making intuitive judgments, or adapting to new and unforeseen situations. This limitation can lead to errors or inappropriate actions in scenarios that require nuanced understanding and flexibility.

### **Interpretability and Transparency**

Many AI and ML models, particularly deep learning algorithms, operate as "black boxes," meaning their decision-making processes are not easily interpretable or transparent. This lack of interpretability can be problematic in critical applications, such as healthcare or criminal justice, where understanding the rationale behind AI decisions is essential. Transparency makes it easier to trust AI systems and hold them accountable for their actions.

### **CONCLUSION**

Countries are becoming increasingly reliant upon big data for teaching purposes. Because of the mass quantities of educational data available, they are devising new techniques to produce more personalized learning experiences that meet students' unique academic needs. Due to the ethical implications of collecting and using data from students, policy frameworks regarding the use of artificial intelligence in educational environments must address those ethical concerns. The entire educational community must clearly define how student data are being used and be explicitly based on the consent of the parents to students' data being collected. Education institutions are actively updating their curriculums to confirm that learners are getting the skills required for a rapidly evolving future workplace, with changes occurring across the board in every instructional division, from childhood to continuing education. Contemporary AI technologies are having a substantial impact on education systems. Consequently, the need to transform educational programming to make use of prediction algorithms of artificial intelligence ought to be a continual and essential procedure. Indeed, there are many examples of the positive and negative effects of AI in different areas of human education and activity, as indicated by the examples provided in this article. All said, we are in the beginning of an organized and holistic approach for AI in education. This can lead to creating a well-organized policy plan for AI in education. Hence, it is paramount that the AI industry collaborates with other sectors when beginning the development of a framework.

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