Name: Suzan Dsouza

R.NO: 9194

Exp 10: Case Study

Introduction

Artificial intelligence (AI) applications in education are on the rise and have received a

lot of attention in the last couple of years. AI and adaptive learning technologies are

prominently featured as important developments in educational technology in the

2018 Horizon report (Educause, 2018), with a time to adoption of 2 or 3 years. Accord□ing to the report, experts anticipate AI in education to grow by 43% in the period

2018–2022, although the Horizon Report 2019 Higher Education Edition (Educause,

2019) predicts that AI applications related to teaching and learning are projected to

grow even more significantly than this. Contact North, a major Canadian non-profit

online learning society, concludes that "there is little doubt that the [AI] technology is

inexorably linked to the future of higher education".

The field AI originates from computer science and engineering, but it is strongly in fluenced by other disciplines such as philosophy, cognitive science, neuroscience, and economics.

Background:

AI and machine learning are often mentioned in the same breath. Machine learning is a method of AI for supervised and unsupervised classification and profiling, for example to predict the likelihood of a student to drop out from a course or being ad□mitted to a program, or to identify topics in written assignments. Popenici and Kerr (2017) define machine learning "as a subfield of artificial intelligence that includes soft ware able to recognise patterns, make predictions, and apply newly dis

In order to extract the data, all articles were uploaded into systematic review software EPPI Reviewer6 and a coding system was developed. Codes included article information (year of publication, journal name, countries of authorship, discipline of first author), study design and execution (empirical or descriptive, educational setting) and how arti□ficial intelligence was used (applications in the student life cycle, specific applications and methods). Articles were also coded on whether challenges and benefits of AI were present, and whether AI was defined. Descriptive data analysis was carried out with the statistics software R using the tidyr package

Methodology:

The purpose of a systematic review is to answer specific questions, based on an explicit,

systematic and replicable search strategy, with inclusion and exclusion criteria identify□ing studies to be included or excluded (Gough, Oliver & Thomas, 2017). Data is then

coded and extracted from included studies, in order to synthesise findings and to shine

light on their application in practice, as well as on gaps or contradictions. This contribution maps 146 articles on the topic of artificial intelligence in higher education

The initial search string (see Table 1) and criteria (see Table 2) for this systematic review included peer-reviewed articles in English, reporting on artificial intelligence

within education at any level, and indexed in three international databases; EBSCO

Education Source, Web of Science and Scopus (covering titles, abstracts, and keywords). Whilst there are concerns about peer-review processes within the scientific

community (e.g., Smith, 2006), articles in this review were limited to those published in

peer-reviewed journals, due to their general trustworthiness in academia and the rigorous review processes undertaken (Nicholas et al., 2015). The search was undertaken in

November 2018, with an initial 2656 records identified.

After duplicates were removed, it was decided to limit articles to those published during or after 2007, as this was the year that iPhone's Siri was introduced; an algorithm based personal assistant, started as an artificial intelligence project funded by the US

Defense Advanced Research Projects Agency (DARPA) in 2001, turned into a company

that was acquired by Apple Inc. It was also decided that the corpus would be limited to

articles discussing applications of artificial intelligence in higher education only.

In order to extract the data, all articles were uploaded into systematic review software

EPPI Reviewer6 and a coding system was developed. Codes included article information

(year of publication, journal name, countries of authorship, discipline of first author),

study design and execution (empirical or descriptive, educational setting) and how artificial intelligence was used (applications in the student life cycle, specific applications

and methods). Articles were also coded on whether challenges and benefits of AI were

present, and whether AI was defined. Descriptive data analysis was carried out with the

statistics software R using the tidyr package.

Results

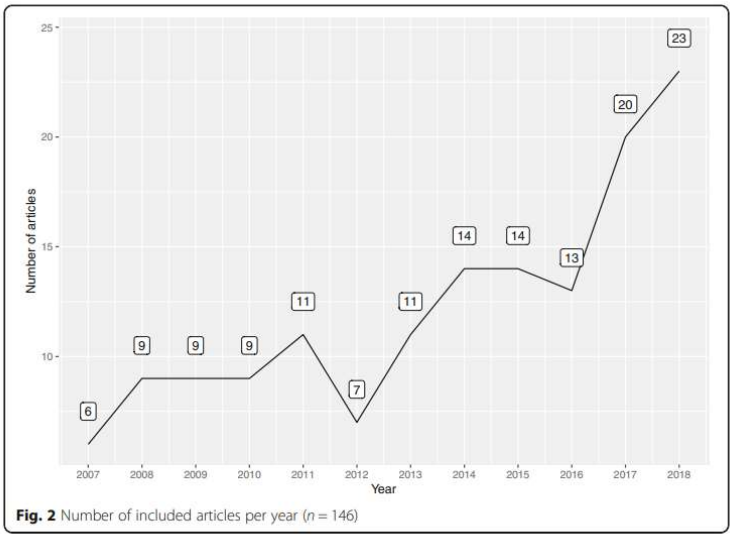

Fig. 2 Number of included articles per year ($n = 146$)

The article discusses various studies on Intelligent Tutoring Systems (ITS). Most of the studies focus on teaching and learning, but one looks at the institutional and administrative level. The latter presents an interactive student assistant called StuA that helps newcomers in a college. ITS are commonly referred to as intelligent (online) tutors or intelligent tutoring systems, but can also be identified as intelligent (software) agents or intelligent assistants. The first ITS reported was the SCHOLAR system, launched in 1970.