

The Selection Process

General string

((“conversational agent” OR chatbot OR “chat bot” OR chatterbot OR “dialogue system” OR “pedagogical agent” OR “virtual agent” OR “virtual assistant”) AND (education OR learn OR pedagogic OR teach)).

Adaptation of the string to the search bases:

ACM Digital Library

Searched for (("conversational agent" OR chatbot OR chatterbot OR "pedagogical agent" OR "virtual agent" OR "dialogue system" OR "virtual assistant") AND (education OR teaching OR learning OR learn OR teach OR educational OR pedagogical OR pedagogic))

- Expand your search to The ACM Guide to Computing Literature

Elsevier (Science Direct)

pub-date > 2006 and TITLE-ABSTR-KEY("conversational agent" OR chatbot OR chatterbot OR "pedagogical agent" OR "virtual agent" OR "dialogue system" OR "virtual assistant" OR "chat bot") and TITLE-ABSTR-KEY(education OR teaching OR learning OR learn OR teach OR educational OR pedagogical OR pedagogic).

Engineering Village

((("conversational agent" OR chatbot OR chatterbot OR "pedagogical agent" OR "virtual agent" OR "dialogue system" OR "virtual assistant") AND (education OR teaching OR learning OR learn OR teach OR educational OR pedagogical OR pedagogic))

IEEE Xplore

((("conversational agent" OR chatbot OR chatterbot OR "pedagogical agent" OR "virtual agent" OR "dialogue system" OR "virtual assistant" OR "chat bot") AND (education OR teaching OR learning OR learn OR teach OR educational OR pedagogical OR pedagogic))

SCOPUS

TITLE-ABS-KEY (("conversational agent" OR chatbot OR chatterbot OR "pedagogical agent" OR "virtual agent" OR "dialogue system" OR "virtual assistant" OR "chat bot") AND (education OR teaching OR learning OR learn OR teach OR educational OR pedagogical OR pedagogic)) AND (LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007))

Web of Science

TS = (("conversational agent" OR chatbot OR chatterbot OR "pedagogical agent" OR "virtual agent" OR "dialogue system" OR "virtual assistant") AND (education OR teaching OR learning OR learn OR teach OR educational OR pedagogical OR pedagogic))

- Índices=SCI-EXPANDED, SSCI, A&HCI, CPCIS, CPCI-SSH, ESCI Tempo estipulado=2007-2017

Search date: 12-04-2018

Search summary:

| Search bases | Results |
|---------------------------|---------|
| ACM Digital Library | 982 |
| Elsevier (Science Direct) | 129 |
| Engineering Village | 1065 |
| IEEE Xplore | 278 |
| Scopus | 2087 |
| Web of Science | 534 |
| Total | 5075 |

The list of returned studies is available at: <<https://bit.ly/2Ai2rtN>>.

Identification and removal of duplicate studies:

2463 duplicate studies were identified. The following table shows the total number of duplicate studies for each search base, which were identified with the support of the Parsif.al tool¹.

| Search bases | Initial search | Removed | Results |
|---------------------------|----------------|---------|---------|
| ACM Digital Library | 982 | 678 | 304 |
| Elsevier (Science Direct) | 129 | 76 | 53 |
| Engineering Village | 1065 | 464 | 601 |
| IEEE Xplore | 278 | 152 | 126 |
| Scopus | 2087 | 657 | 1430 |
| Web of Science | 534 | 429 | 105 |
| Total | 5075 | 2456 | 2619 |

¹ <https://parsif.al/>

The list of removed studies is available at: <<https://bit.ly/3dlTe1V>>.

The list containing information on the 2619 studies is available at: <<https://bit.ly/2Mf7k9J>>.

Reading of title, abstract and keywords:

The title, abstract and keywords of the 2619 studies were read. While reading these studies, the inclusion and exclusion criteria were considered. In total, 2071 studies were removed.

| Selection criteria | Number of studies removed |
|--------------------|---------------------------|
| EC-1 | 271 |
| EC-2 | 4 |
| EC-3 | 57 |
| EC-4 | 1739 |
| Total | 2071 |

The complete list of studies with their respective justification for exclusion is available at: <<https://bit.ly/2XhGdB5>>.

The following table shows the total number of studies removed by search base after reading the title, abstract and keywords, and applying the inclusion and exclusion criteria:

| Search bases | Initial search | Removed | Results |
|---------------------------|----------------|---------|---------|
| ACM Digital Library | 304 | 258 | 46 |
| Elsevier (Science Direct) | 53 | 40 | 13 |
| Engineering Village | 601 | 460 | 141 |
| IEEE Xplore | 126 | 107 | 19 |
| Scopus | 1430 | 1134 | 296 |
| Web of Science | 105 | 72 | 33 |
| Total | 2619 | 2071 | 548 |

Reading the studies in full-text:

The remaining 548 studies were read in full and the selection criteria were applied again. In total, 447 studies were removed.

| Selection criteria | Number of studies removed |
|--------------------|---------------------------|
| EC-1 | 16 |
| EC-2 | 2 |
| EC-3 | 0 |
| EC-4 | 429 |
| Total | 447 |

The complete list of studies with their respective justification for exclusion is available at: <https://bit.ly/36NhUhr>.

| Search bases | Initial search | Removed | Results |
|---------------------------|----------------|---------|---------|
| ACM Digital Library | 46 | 37 | 9 |
| Elsevier (Science Direct) | 13 | 11 | 2 |
| Engineering Village | 141 | 104 | 37 |
| IEEE Xplore | 19 | 12 | 7 |
| Scopus | 296 | 258 | 38 |
| Web of Science | 33 | 25 | 8 |
| Total | 548 | 447 | 101 |

The final list of primary studies that were considered for data extraction is available at: <https://bit.ly/3cjbhVh>.