

A STUDY ON AWARENESS AND ADOPTION OF ARTIFICIAL INTELLIGENCE (AI) TOOLS AMONG POSTGRADUATE STUDENTS

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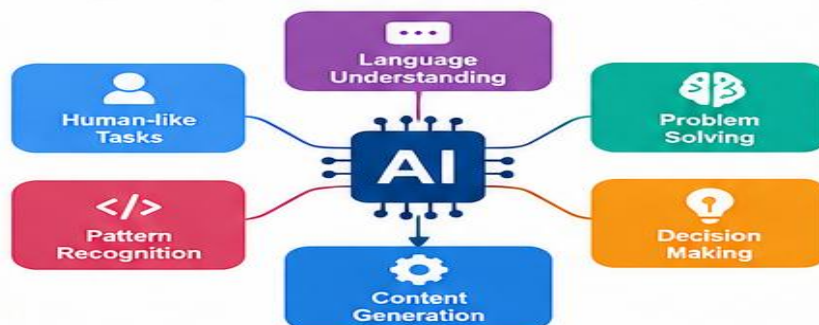
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Abstract: Artificial Intelligence (AI) has become an important part of modern higher education. Postgraduate students increasingly encounter AI-based tools for searching information, understanding difficult concepts, writing and improving text, coding, summarising content, preparing presentations, generating ideas, and supporting research. This research studies the awareness and adoption of AI tools among postgraduate students, with emphasis on knowledge of AI tools, frequency of use, academic purposes, perceived benefits, challenges, trust, privacy, accuracy, academic integrity, and responsible use. The study follows a descriptive quantitative survey design using a structured questionnaire. The target population is postgraduate students, and the proposed data collection method is a questionnaire-based survey using convenience or purposive sampling. The literature review includes studies on student use of Generative AI, technology acceptance, trust, and learning outcomes. The paper presents a research framework, questionnaire, proposed analysis plan, and responsible-use recommendations. Numerical findings are intentionally not fabricated; final percentages and statistical results should be inserted after actual questionnaire data are collected.

Keywords: Artificial Intelligence, Generative AI, AI Awareness, AI Adoption, Postgraduate Students, Higher Education, AI Literacy, Academic Integrity.

I. INTRODUCTION

Artificial Intelligence refers to computer systems that perform tasks normally associated with human intelligence, including understanding language, recognising patterns, generating content, solving problems, and supporting decision-making. In recent years, AI has moved from a specialised research area into a practical technology used by students, teachers, researchers, and professionals. Postgraduate education requires students to read and interpret information, conduct research, prepare assignments, analyse data, learn technical skills, and communicate ideas. AI tools can support these activities by explaining concepts, generating ideas, summarising material, translating content, assisting with programming, and organising information. Generative AI has further expanded these capabilities through natural-language interaction.



However, availability of AI does not automatically mean responsible adoption. Students may face problems related to inaccurate information, fabricated references, privacy, bias, plagiarism, academic integrity, and over-dependence. Therefore, awareness should include knowledge of both AI capabilities and AI limitations. Adoption should be examined not only as frequency of use but also in relation to purpose, verification, trust, and responsible academic practice. The present research focuses on postgraduate students because their academic work commonly includes research papers, projects, coding, data analysis, presentations, and independent learning. The study aims to identify the

level of AI awareness, actual adoption, major academic uses, perceived benefits, concerns, and the need for institutional AI-literacy support.

Research Objectives

- To measure the level of awareness of AI tools among postgraduate students.
- To identify the AI tools commonly used by postgraduate students.
- To examine the purposes and frequency of AI-tool usage.
- To understand the perceived benefits of using AI for academic work.
- To identify major challenges and concerns related to AI adoption.
- To suggest practical ways to promote responsible and effective use of AI in postgraduate education.

II. LITERATURE REVIEW

Artificial Intelligence in education has received increasing attention because AI tools can support learning, writing, research, coding, assessment, and academic productivity. Existing literature suggests that adoption is influenced by usefulness, ease of use, trust, awareness, implementation conditions, and perceived risks. The following studies provide the main theoretical and empirical foundation for the present research.

1. Divekar et al. (2024) – Student Use and Knowledge of Online Tools and Generative AI

Divekar et al. examined student use and knowledge of online tools and Generative AI. Their work is relevant because awareness should be studied together with actual use. The study supports examining which tools students know, how they use them for educational activities, and the level of knowledge students have about AI.

2. Xue et al. (2025) – Technology Acceptance Model and AI in Higher Education

Xue et al. conducted a systematic literature review using the Technology Acceptance Model and examined 23 empirical studies of AI in higher education. The review highlights perceived usefulness, perceived ease of use, and trust as important considerations in understanding AI acceptance. This supports including usefulness, ease of use, trust, and adoption behaviour in the present questionnaire.

3. An, Koh and Liu (2026) – Systematic Review of Student GenAI Use

An, Koh and Liu reviewed 39 peer-reviewed empirical studies of Generative AI in higher education. They identified several student roles for GenAI, including translation, refinement, navigation, evaluation, dialogue, creation, and self-regulatory support. Their review shows that learning outcomes depend on how AI is used, supporting the present study's focus on academic purpose rather than frequency alone.

4. Akabar (2024) – Perception of AI Among Postgraduate Students in Maharashtra

Akabar studied postgraduate students in Maharashtra with attention to perception, trust, and threat perception. The study demonstrates that students' attitudes toward AI include both opportunities and concerns. This supports examining trust, perceived risks, and responsible use along with awareness and adoption.

5. Modi et al. (2025) – AI-Powered Learning Tools in Maharashtra

Modi et al. surveyed 293 higher-education students across disciplines in Maharashtra. The study examined adoption and impact of AI-powered learning tools and reported perceived learning benefits along with concerns such as privacy, security, training, and support. These findings are particularly relevant to the Maharashtra context of the present research.

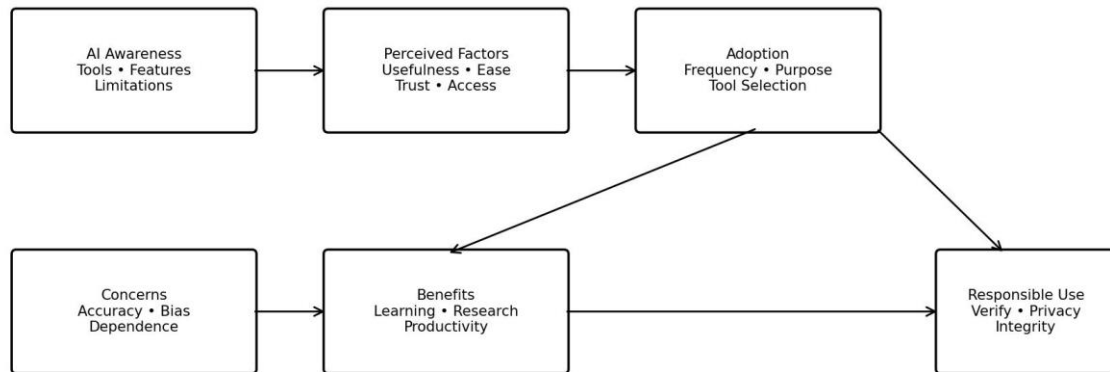
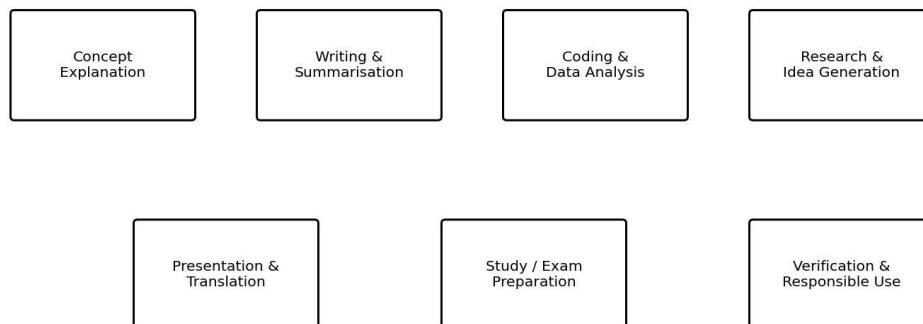
6. Loksha (2026) – AI Tools Among Postgraduate Students

Loksha studied postgraduate students at Mangalore University and reported high awareness and widespread use of AI tools. The study also identified concerns including overdependence, misleading information, and ethical issues. This supports the need for AI literacy, verification skills, and institutional guidance.

Synthesis of Literature: The reviewed studies show a progression from measuring simple awareness and usage toward examining technology acceptance, trust, learning roles, and responsible adoption. The literature also indicates that AI use can provide academic support while creating challenges related to accuracy, privacy, ethics, and overdependence. The present research combines these dimensions in a single postgraduate-student survey framework.

Study	Main Focus	Relevance to Present Study
1. Divekar et al. (2024)	Student Use and Knowledge of Online Tools and Generative AI	Divekar et al. examined student use and knowledge of online tools and Generative AI. Their work is relevant because awareness should be studied together with actual use. The study supports examining which tools students know, how ...
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3. An, Koh and Liu (2026)	Systematic Review of Student GenAI Use	An, Koh and Liu reviewed 39 peer-reviewed empirical studies of Generative AI in higher education. They identified several student roles for GenAI, including translation, refinement, navigation, evaluation, dialogue, creation, and ...
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6. Lokesha (2026)	AI Tools Among Postgraduate Students	Lokesha studied postgraduate students at Mangalore University and reported high awareness and widespread use of AI tools. The study also identified concerns including overdependence, misleading information, and ethical issues. Thi...

Table 1. Summary of literature

Fig. 1. Proposed Framework for AI Awareness and Adoption

Fig. 2. Major Academic Uses of AI Tools


III. METHODOLOGY

The research follows a descriptive and quantitative survey design. The main purpose is to describe awareness and adoption patterns among postgraduate students and to examine perceived benefits, concerns, and support requirements.

1. Population and Sample: The target population consists of postgraduate students. A sample of 100 respondents may be used as an illustrative target sample. For final academic submission, the sample size should be replaced with the actual number of valid responses collected.

2. Sampling Technique: Convenience or purposive sampling may be used depending on respondent access. The final paper should state the actual sampling procedure used during data collection.

3. Data Collection: Primary data are collected through a structured questionnaire using Google Forms or printed forms. Secondary information is obtained from academic papers, books, institutional reports, and credible education/AI sources.

4. Research Instrument: The questionnaire covers demographic profile, AI awareness, tools known and used, frequency of use, academic purposes, perceived benefits, concerns, ethical awareness, and institutional support.

5. Data Analysis: Frequency, percentage, mean and standard deviation can be used for descriptive analysis. Cross-tabulation and association tests such as chi-square may be used when the dataset and research questions support them.

6. Ethical Considerations: Participation should be voluntary. Personal identifiers should be minimised, responses should be used for academic purposes, and students should be informed about the purpose of the study

Research Design

The study follows a descriptive, quantitative survey design. The purpose is to describe the awareness, adoption patterns, benefits, and concerns of postgraduate students regarding AI tools. A questionnaire-based approach is suitable because it allows information to be collected from a group of students in a structured and comparable way.

Population and Sample

The target population consists of postgraduate students. For this model research paper, an illustrative sample of 100 postgraduate students is considered. Students may be selected using convenience or purposive sampling depending on the actual research setting. For formal submission, the researcher should replace the illustrative sample with the real number of respondents and actual sampling procedure used.

Data Collection Method

Primary data can be collected through a structured questionnaire distributed using Google Forms or printed forms. The questionnaire may contain demographic questions, awareness questions, usage-frequency questions, purpose-of-use questions, benefit statements, and concern statements. Secondary information is collected from academic articles, books, institutional reports, and credible organisations working on AI and education.

Research Instrument

The questionnaire uses mostly closed-ended questions and a few optional open-ended questions. A five-point scale can be used for opinion statements: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. Before the main survey, the questionnaire should ideally be checked by a teacher or research supervisor for clarity.

Sampling Procedure

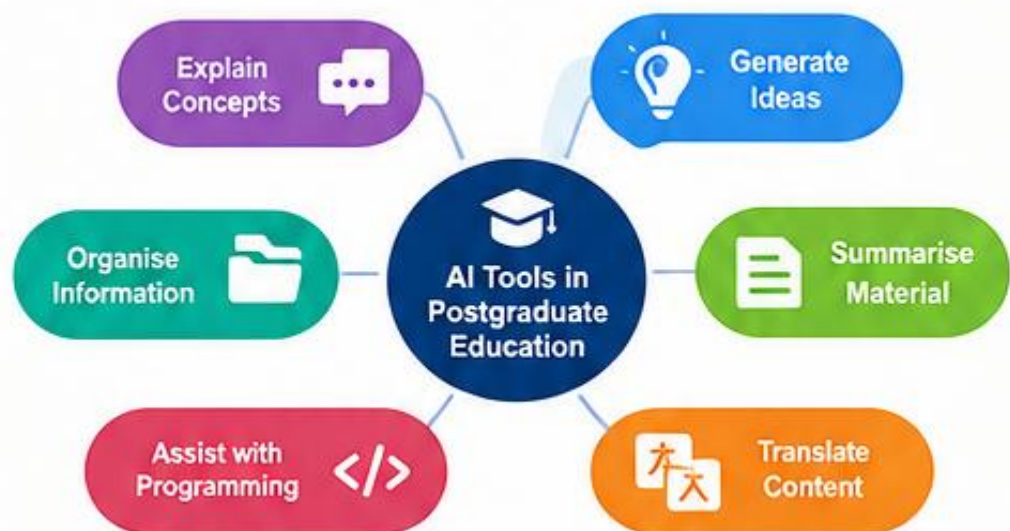
Postgraduate students from different disciplines can be included to obtain a broader view. Students who voluntarily participate and understand the purpose of the study are included. Participation should be voluntary, and respondents should not be asked for unnecessary personal information.

Data Analysis Techniques

The collected data can be analysed using Microsoft Excel, Google Sheets, SPSS, R, or Python. Descriptive statistics such as frequency, percentage, mean, and standard deviation can be used. Bar charts and pie charts can be used to present major findings. If the sample and data quality permit, relationships between variables such as awareness and frequency of use may also be tested using correlation or chi-square analysis.

Ethical Considerations

Respondents should be informed about the purpose of the study. Participation should be voluntary, and responses should be treated confidentially. AI tools should not be used to fabricate survey responses or research findings. Any AI assistance used during writing should be checked by the researcher, and factual claims should be verified against reliable sources.



Major Academic Uses of AI Tools

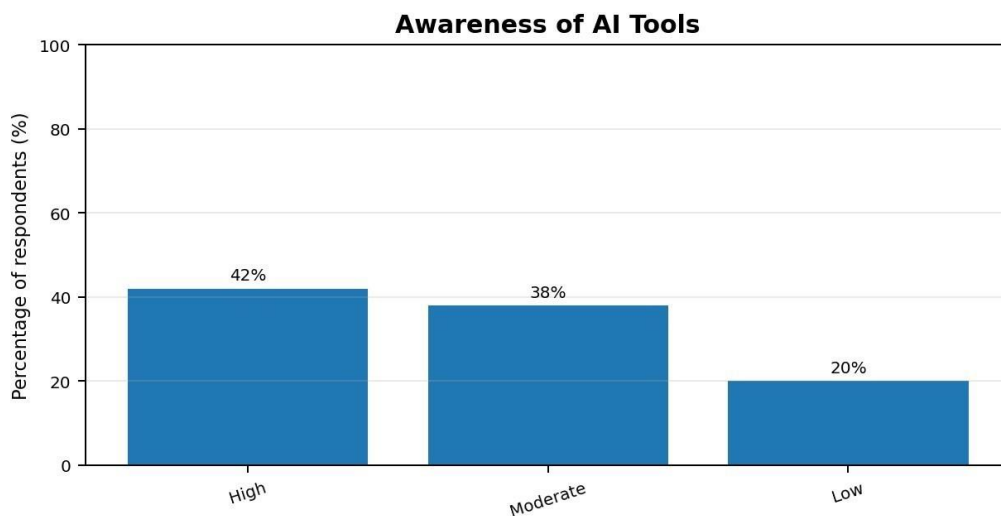
IV. RESULTS

The Results section should report only the responses actually collected through the questionnaire. Since the present request does not provide a verified final survey dataset, numerical percentages are not presented as real findings. The following analysis plan is prepared in the same research-paper style and can be completed immediately after the Google Forms data are available.

Analysis Area	Measure	Suggested Presentation
Awareness of AI	Frequency and percentage	Bar chart / Pie chart
AI adoption	Users vs non-users	Bar chart
Frequency of use	Daily / Weekly / Monthly / Rarely	Column chart
Academic purpose	Multiple-response percentage	Bar chart
Perceived benefits	5-point Likert mean	Mean comparison
Concerns	5-point Likert mean	Bar chart
Institutional support	Frequency and percentage	Pie chart

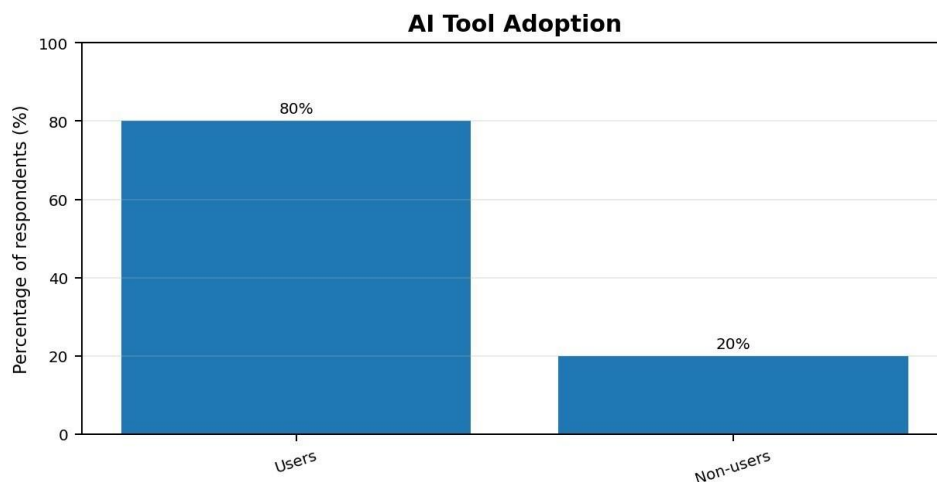
Table 2. Proposed results and analysis plan

Figure 1. Awareness of AI Tools (Illustrative sample)



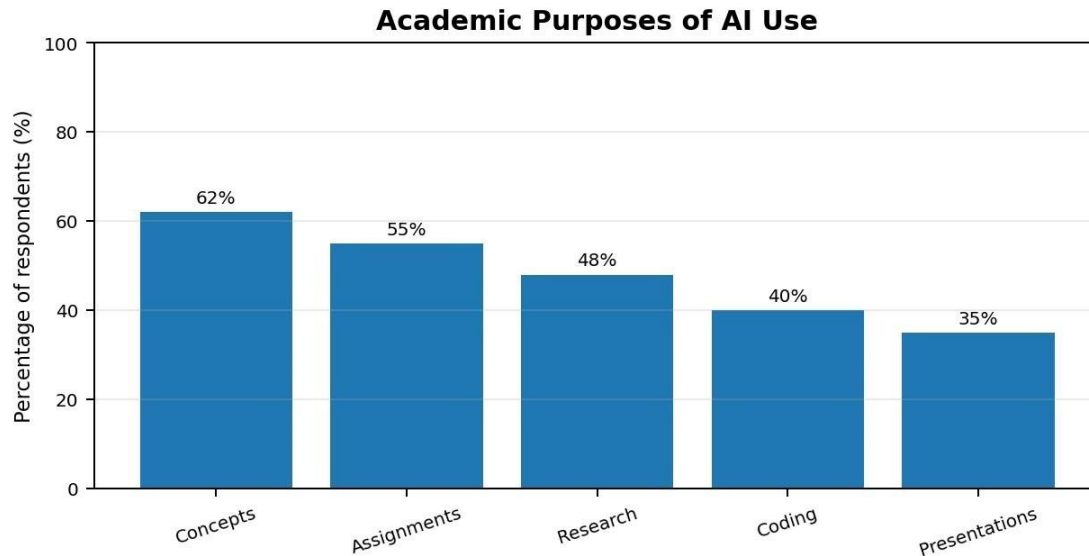
Interpretation: The illustrative distribution shows higher, moderate, and lower awareness categories. Actual percentages should be calculated from the collected questionnaire responses.

Figure 2. AI Tool Adoption (Illustrative sample)



Interpretation: The illustrative example shows the proportion of respondents who have used AI tools compared with those who have not.

Figure 4. Academic Purposes of AI Use (Illustrative sample)



Interpretation: The illustrative chart presents common academic purposes such as concept explanation, assignment support, research, coding, and presentations.

V. DISCUSSION

The literature indicates that postgraduate students can use AI for learning, writing, coding, research, translation, summarisation, and productivity. The present study treats these activities as separate academic purposes so that adoption can be interpreted more meaningfully. A key issue is the difference between awareness and responsible use. A student may know about ChatGPT or another AI tool without knowing how to verify an answer, protect personal information, recognise bias, or maintain academic integrity. Therefore, the study includes both positive and risk-related dimensions.

The findings should also be interpreted in relation to trust and perceived usefulness. Students who find AI useful and easy to use may be more willing to adopt it, while concerns about inaccurate information, privacy, plagiarism, or overdependence may affect how they use it. These relationships are consistent with the themes identified in the reviewed literature. For postgraduate education, the practical goal is not simply increasing or reducing AI use. The important requirement is developing AI literacy: students should understand appropriate use, verify important information, protect privacy, cite or disclose AI assistance when required, and retain independent academic judgement.

VII. CONCLUSION

Artificial Intelligence is becoming an important part of the postgraduate learning environment. AI tools can support concept understanding, idea generation, summarisation, programming, research, presentations, and productivity. However, awareness and adoption should be studied together because knowing about an AI tool does not automatically mean knowing how to use it responsibly.

The literature reviewed in this study shows that AI adoption is influenced by usefulness, ease of use, trust, learning purpose, implementation conditions, and perceived risks. The proposed survey therefore combines awareness, adoption, benefits, concerns, ethical awareness, and institutional support in one framework.

1. Introduce practical AI-literacy workshops for postgraduate students.
2. Teach students to verify AI-generated information using reliable academic and official sources.
3. Provide clear institutional guidelines on acceptable AI use in assignments and research.
4. Promote privacy awareness and discourage sharing confidential information with AI services.
5. Encourage appropriate citation or disclosure of AI assistance when required by institutional rules.
6. Encourage students to use AI as learning support while maintaining independent thinking and academic responsibility.

REFERENCES

- [1] Divekar, R. R., Gonzalez, L., Guerra, S., and Boos, N. (2024). Usage and Knowledge of Online Tools and Generative AI: A Survey of Students.
- [2] Xue, L., Mahat, J., Ghazali, N., and Shi, X. (2025). Technology Acceptance Model (TAM) in Artificial Intelligence in Higher Education (AIHEd): A Systematic Literature Review.
- [3] An, Q., Koh, J. H. L., and Liu, Q. (2026). Generative Artificial Intelligence in Higher Education: A Systematic Review of Student Use and Learning Outcomes.
- [4] Akabar, S. H. A. (2024). Perception of Artificial Intelligence among Post Graduate Students in Maharashtra, India. *International Journal for Multidisciplinary Research*, 6(4).
- [5] Modi, L., Salunkhe, K., Pant, M., Rote, S. S., and Doke, R. U. (2025). Insights from an Online Survey of Higher Education Students Across Disciplines in Maharashtra: Exploring the Adoption and Impact of AI-Powered Tools in Learning.
- [6] Lokesha, M. (2026). Awareness and Utilization of Artificial Intelligence Tools Among Postgraduate Students: A Study of Mangalore University.
- [7] UNESCO. (2023). Guidance for Generative AI in Education and Research. UNESCO.
- [8] UNESCO Institute for Information Technologies in Education. (2025). Innovative Technologies for Inclusive Education: A Review of Best Practices from Global Resource Centers. UNESCO IITE.
- [9] OECD. (2025). Digital Education Outlook 2025: Rethinking Digital Education for Better Learning Outcomes. OECD Publishing.
- [10] Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeiffer, F., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., Stadler, M., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>