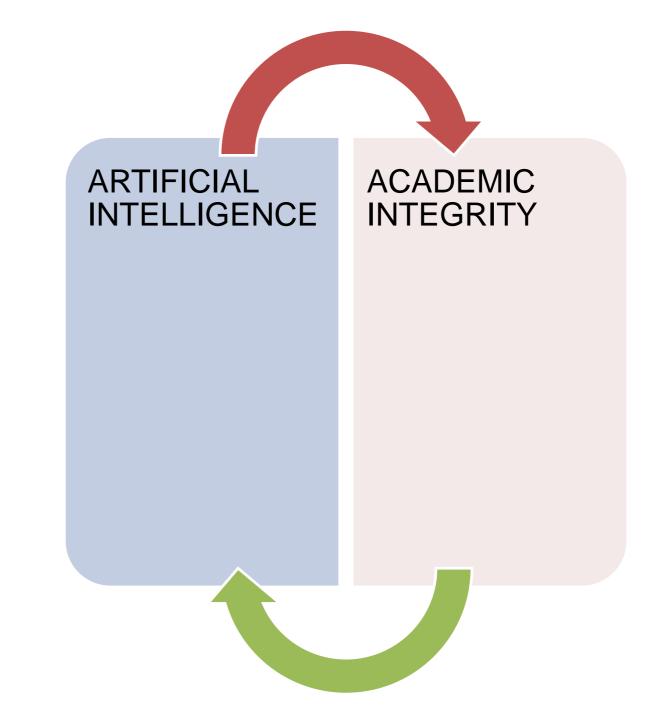


### Sonja Bjelobaba

Senior Lecturer at the Department of Modern Languages Researcher at Centre for Research Ethics and Bioethics Uppsala university, Sweden

Vice-president of the European Network for Academic Integrity (ENAI)





#### Sources:

Tauginienė, L, Gaižauskaitė, I, Glendinning, I, Kravjar, J, Ojsteršek, M, Ribeiro, L, Odiņeca, T, Marino, F, Cosentino, M, Sivasubramaniam, S. Glossary for Academic Integrity. ENAI Report 3G [online: http://www.academicintegrity.eu/wp/wp-content/uploads/2018/02/GLOSSARY\_final.pdf]

European Commission (2018) Artificial Intelligence for Europe. European Commission. Brussels. 24 April, 2018. Available Online. URL - https://eur-lex-europa-eu.ezproxy.its.uu.se/legal-content/EN/ALL/?uri=COM:2018:237:FIN

Note: Some of the slides were disseminated in previous presentations

## ARTIFICIAL INTELLIGENCE

 "Artificial Intelligence refers to systems that appear to have "intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals"

## **ACADEMIC INTEGRITY**

 "Compliance with ethical and professional principles, standards and practices by individuals or institutions in education, research and scholarship."



Foltynek, T., Bjelobaba, S., Glendinning, I. et al. ENAI Recommendations on the ethical use of Artificial Intelligence in Education. *International Journal of Educational Integrity* 19, 12 (2023). <a href="https://doi.org/10.1007/s40979-023-00133-4">https://doi.org/10.1007/s40979-023-00133-4</a>

"If students do not have the opportunity to learn about the ethical use of AI, they will be more susceptible to engaging in inappropriate use of AI, which may constitute academic misconduct."



Al-based tools can be used to transform, produce or generate any kind of content, such as text, images, art, music, or programming code.

Authorised and declared usage of Al tools.

Undeclared and/or unauthorised usage of Al tools may be considered a form of academic misconduct.



## AI = multiplier of users' abilities

 Both in good and in bad ways.

# Students and educators should be guided on the benefits and limitations of AI

To learn and use Al ethically



### Authorised content generation

- The use of AI in education is not automatically unethical. There can be differences between academic disciplines, education institutions, courses, types of assessment, cultures, regions, and countries as to what is considered acceptable use of AI and what is not.
- Authorised and declared usage of AI tools is usually acceptable



## Unauthorised content generation (UCG)

 The production of academic work, in whole or part, for academic credit, progression or award, whether or not a payment or other favour is involved, using unapproved or undeclared human or technological assistance.





#### Paraphraser





















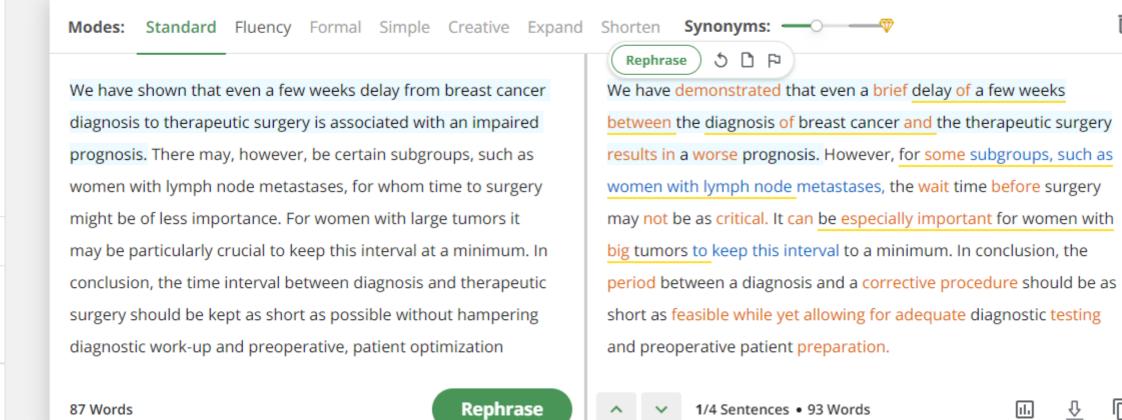












#### Tortured phrases found in computer-science papers

Scientific term	Tortured phrase
Big data	Colossal information
Artificial intelligence	Counterfeit consciousness
Deep neural network	Profound neural organization
Remaining energy	Leftover vitality
Cloud computing	Haze figuring
Signal to noise	Flag to commotion
Random value	Irregular esteem

#### nature

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<u>nature</u> > <u>news</u> > article

NEWS | 05 August 2021 | Correction 10 August 2021

## 'Tortured phrases' give away fabricated research papers

Analysis reveals that strange turns of phrase may indicate foul play in science.

Holly Else







"Bosom peril" is not "breast cancer": How weird computer-generated phrases help researchers find scientific publishing fraud

By Guillaume Cabanac, Cyril Labbé, Alexander Magazinov | January 13, 2022









- CONTRACT CHEATING (Lancaster, T. & Clarke, R. 2006)
- ESSAY MILLS
- GHOST WRITING
- ACADEMIC OUTSOURCING

Clarke, R., Lancaster, T. (2006). Eliminating the successor to plagiarism? Identifying the usage of contract cheating sites. *Proceedings of the Second International Plagiarism Conference*. United Kingdom, Gateshead, <a href="http://www.plagiarismadvice.org/research-papers/item/eliminating-the-successor-to-plagiarism-identifying-the-usage-of-contact-cheating-sites">http://www.plagiarismadvice.org/research-papers/item/eliminating-the-successor-to-plagiarism-identifying-the-usage-of-contact-cheating-sites</a>

→ Students get others to complete their coursework for them by outsourcing it



# How many students use essay mills?

- 3.5% from 5 studies
- 62.5%
   several times

Curtis, G. and Clare, J. (2017) 'How Prevalent is Contract Cheating and to What Extent are Students Repeat Offenders', *Journal of Academic Ethics* (Vol 15, Issue 2) pp 115-124



3.52% from65 studies

Newton, P (2018): How Common Is Commercial Contract Cheating in Higher Education and Is It Increasing? A Systematic Review, *Frontiers in Education*,

https://doi.org/10.3389/feduc.2018.00067





#### Examples

Capabilities

<u>(ì</u>

#### Limitations

"Explain quantum computing in simple terms" →

Remembers what user said earlier in the conversation

May occasionally generate incorrect information

"Got any creative ideas for a 10 year old's birthday?" →

Allows user to provide follow-up corrections

May occasionally produce harmful instructions or biased content

"How do I make an HTTP request in Javascript?" →

Trained to decline inappropriate requests

Limited knowledge of world and events after 2021





## Large Language Models

- System trained to statistically predict word, character or sentence sequences in a given context
- Have been around since the 1980s (Rosenfeld, 2000)
- Used in machine translation, automatic speech recognition, for document classification...
- Datasets have become larger and larger



#### ChatGPT

- Released on 30/11 2022
- The company OpenAI (Microsoft owns 49%)
- Based on GPT-3
  - GPT-1: 2018
  - GPT-2: 2019
  - GPT-3: 2020



#### GPT-3

- 7% trained in languages other than English → multilingual (Brown et al., 2020)
- But: 90% of all languages used by a billion people have no language technology support – so this will widen technological inequality (Joshi et al., 2020)
- the technology is based on data from the internet that perpetuates dominant views, encodes bias and can harm marginalized groups (Bender et al., 2021).
- cost to the environment: requires a lot of energy, contributes to climate change (which affects more those who do not benefit from LLMs!) (Bender et al., 2021)
- Ethical training. 400 words were filtered out but this in itself may further marginalize some groups (Bender et al., 2021)

Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?. *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, 610–623. <a href="https://doi.org/10.1145/3442188.3445922">https://doi.org/10.1145/3442188.3445922</a>

Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., Neelakantan, A., Shyam, P., Sastry, G., Askell, A., Agarwal, S., Herbert-Voss, A., Krueger, G., Henighan, T., Child, R., Ramesh, A., Ziegler, D. M., Wu, J., Winter, C., ... Amodei, D. (2020). *Language Models are Few-Shot Learners* (arXiv:2005.14165). arXiv. <a href="https://arxiv.org/abs/2005.14165">https://arxiv.org/abs/2005.14165</a>

Joshi, P., Santy, S., Budhiraja, A., Bali, K., & Choudhury, M. (2020). The State and Fate of Linguistic Diversity and Inclusion in the NLP World. *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, 6282–6293. https://doi.org/10.18653/v1/2020.acl-main.560



## GPT-4

- Released in March 2023
- Based on an even larger dataset
- Not as good ethical training doesn't filter everything



While ChatGPT has the ability to generate coherent and grammatically correct text, there are several limitations to its use for writing academic texts. Firstly, ChatGPT lacks the domain-specific knowledge and expertise required to produce content that is accurate and well-researched. It may also struggle with properly citing sources and following established academic writing conventions. Additionally, it may not be able to understand the specific context or audience for a given piece of writing, which can lead to inappropriate or irrelevant content. Therefore, while ChatGPT can be a useful tool for generating initial ideas or drafts, it is not a substitute for the critical thinking and research skills required for academic writing.

#### **Characteristics:**

- Quality of the text: general texts without examples and references to the current context
- No, overly general, or fake references
- Data until 2021

## What are the limitations of using large language models in academic writing?

#### ☑ PERPLEXITY

**■** View Detailed

Large language models have some limitations when it comes to academic writing. For example, they may miss domain-specific knowledge that is required for a particular field of study<sup>[1]</sup>. Additionally, they are not good at planning and reasoning tasks<sup>[2]</sup>. Furthermore, their training data is limited to a specific time period and may not reflect the current state of the world<sup>[3]</sup>. Finally, while language models can scale to superintelligence in theory, this is still a long way off in practice<sup>[4]</sup>.



] 4 SOURCES

**≡** View List

1 towardsdatascience

2 n bdtechtalks

3 🔑 moveworks

4 🗍 🛠 lesswrong





## Welcome to the new Bing

Your AI-powered copilot for the web

What are the limitations of using large language models for writing academic texts? Wrate a 100 words text and include 3 references to scientific peer-reviewed papers.

- Searching for: limitations of using large language models for writing academic texts
- Generating answers for you...

Large language models have several limitations when it comes to writing academic texts. They may lack accuracy, enterprise context, controllability, and their training data may become stale 1. They should not be relied upon for complex reasoning or crucial information <sup>2</sup>. However, they could be used to gain a deeper understanding of a text's content and context <sup>2</sup>. Here are some references to scientific peer-reviewed papers that discuss the limitations of large language models: 2 3 4.

**Learn more:** 1. moveworks.com 2. papers.ssrn.com 3. deepai.org

1 of 8



GPTGO: ChatGPT combined with Google search GPTGO Language ▼

Results for "how can teachers use chat gpt in a positive way"

Webb Bild

Ungefär 2,230,000 resultat (0.29 sekunder)

Sortera efter:

Relevance +

#### 50 Ways Teachers can use Chat GPT to Save Time - YouTube

YouTube > watch

11 apr. 2023 ... 50 Genius Tips for Teachers to Save Time with ChatGPT Text to Audio Chat GPT ⊳ https://youtu.be/2PXZmFEnnVk Patreon ...

#### How teachers can use Chat GPT? - YouTube

YouTube > watch

21 feb. 2023 ... Mr Long Teacher TIPS: What is Chat GPT? A new Artificial Intelligence technology that uses a chatbot to answers responses, create content ...

#### How Can Teachers use it #chatgptforteachers #chatgpt #aiforteachers

YouTube > watch

för 5 dagar sedan ... Chat GPT is an example of a creative tool that has gained popularity among teachers. This video explains different ways teachers can use ...

#### 20 Ways Teachers Can Use ChatGPT to Make Their Lives Easier

We Are Teachers > chatgpt-for-teachers

13 mars 2023 ... Examples of ways teachers can use ChatGPT, including a child writing with writing prompts created. By now, you've probably heard all the hubbub ...

#### 6 Ways ChatGPT Can Save Teachers Time | Edutopia

Edutopia > article > 6-ways-chatgpt-save-teachers-time

13 mars 2023 ... Using ChatGPT, teachers can streamline communication with parents, colleagues, and administrators via Al-composed welcome-to-class letters, ...

#### ChatGPT in the classroom. Step-by-step guide for educators

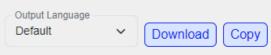
www.kinderpedia.co > English > Resources > Blog > Connected Education

6 feb. 2023 ... By using Chat GPT in the classroom, teachers can provide students with instant feedback and help them expand their knowledge on various subjects ...

#### ChatGPT

Teachers can use ChatGPT in a positive way in the following ways:

- As an educational tool: Teachers can use ChatGPT to help students find answers to their questions on a wide variety of topics related to their coursework. This can help students learn faster and more efficiently.
- 2. To answer questions beyond the classroom: ChatGPT can be used by teachers to answer questions related to the subject matter but outside of what's being taught in the classroom. This will help students broaden their knowledge about the subject and develop a deeper understanding.
- 3. For personalized learning: ChatGPT can help teachers provide personalized learning to their students by answering their questions in real-time. This approach will help teachers deliver personalized education to the students and help them understand the subject conceptually.
- 4. To save time: ChatGPT can also help teachers save time by allowing them to focus on other aspects of teaching such as lesson planning and grading papers. This is because ChatGPT will be readily available to answer student questions.





Google: 25 new AI applications released last week; Bard + Google Scholar

Microsoft: Co-Pilot

Presentations: Text + visuals

Text to video and audio













**Favourites** 



Submit

Community



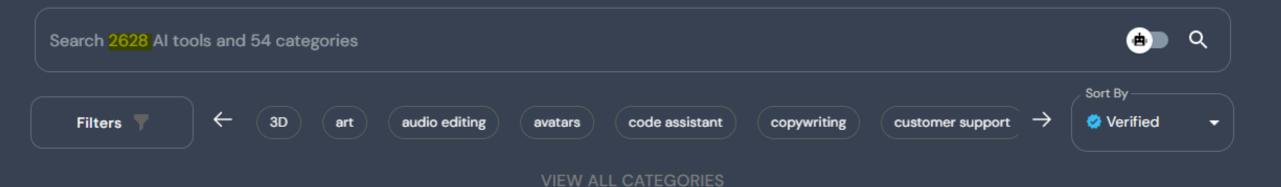




## **FUTUREPEDIA**

THE LARGEST AI TOOLS DIRECTORY, UPDATED DAILY

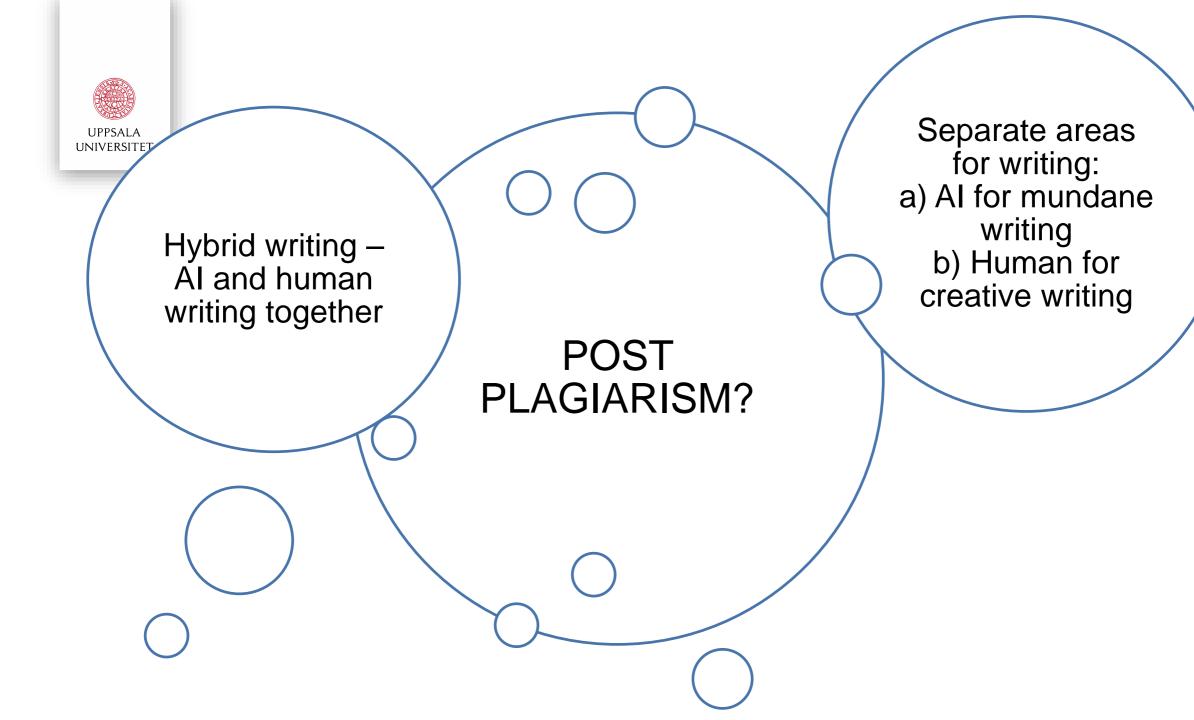






#### Is it possible to detect AI written texts with technical solutions

- Text-matching software (Ouriginal, Turitin) does not detect Alwritten texts
- New applications are launched (e.g. Crossplag, OpenAI, Turnitin), but they do not work very well. Research in progress!
- False positives and false negatives
- Watermark (will probably be able to be washed away via paraphrasing services or other AI programs)
- Stylometry



Al will not go away – the solution is not to ban

We need to think again how we assess our students

- Formative
- Performative
- Individual experiences, contexts
- Details that have happened in the classroom

Al can help students to learn

Individual exercises

Help for the teacher

Discuss the benefits and limitations of Al with students

Al will affect the job market – we need to prepare our students and imbed Al in the curriculum

Generic competencies are even more important:

- Academic literacy
- Critical thinking
- Argumentation analysis
- Reference management

Discuss with your students when AI can be used and how to state that it has been used





## **ENAI RECOMMENDATIONS**ON THE ETHICAL USE OF AI



#### ACKNOWLEDGEMENT OF AI

Al tools should be acknowledged when used to influence ideas or generate content.

#### MISLEADING INFORMATION

Users should be aware that the outputs of AI tools can include biased, inaccurate, or incorrect content.





#### STUDENTS' LEARNING

Students should learn the purpose of the learning activities and assessment, and how to develop their skills.

#### TEACHERS' TRAINING IN AI

Teachers should receive training on ethical teaching and learning practices using Al.





#### NATIONAL GUIDANCE

National guidance should provide overarching advice on what institutions should include in their policies on Al.

#### INSTITUTIONAL POLICIES

Institutional policies should define when and how the use of AI is allowed and how it should be acknowledged.



Authors: Tomáš Foltýnek, Sonja Bjelobaba, Irene Glendinning, Zeenath Reza Khan, Rita Santos, Pegi Pavletić, Július Kravjar

Foltynek, T., Bjelobaba, S., Glendinning, I. et al. ENAI Recommendations on the ethical use of Artificial Intelligence in Education. *International Journal of Educational Integrity* 19, 12 (2023). <a href="https://doi.org/10.1007/s40979-023-00133-4">https://doi.org/10.1007/s40979-023-00133-4</a>



## What should be acknowledged?

## Ideas and content

- All persons, sources, and tools that influence the ideas or generate the content should be properly acknowledged → when an Al tool is used, it should be acknowledged.
- Form of acknowledgement may differ
- If possible, prompt should be provided

## Form

- Appropriate use of services, sources, and tools that only influence the form is generally acceptable
- e.g. proofreaders, proofreading tools, spelling checkers, thesaurus



## Responsibility

#### Bias

• The outputs of AI tools can include biased, inaccurate, or incorrect content that users should be aware of

## Responsibility

- Neither the AI tool, nor the provider of the AI tool take responsibility for the generated content
- Human (user) is always responsible!

## Co-authorship

- An Al tool cannot be listed as a co-author in a publication
- Al cannot take responsibility for the content and findings reported.
- The person (human being or legal entity) is always accountable for the content, whether or not it was generated by AI (see COPE guidelines)



## Education

## Students

- The purpose of all activities related to learning and assessment and why they should develop (e.g. write) their individual/group work assignments.
- How to develop their ethical writing and content production skills.

## Teachers

- Teachers should receive training on ethical use of AI
- development of relevant learning outcomes, learning activities, and assessment strategies.



## Guidelines and policies

## National guidelines

 National guidance should provide overarching advice on what institutions should include in their policies

## Institutional policies

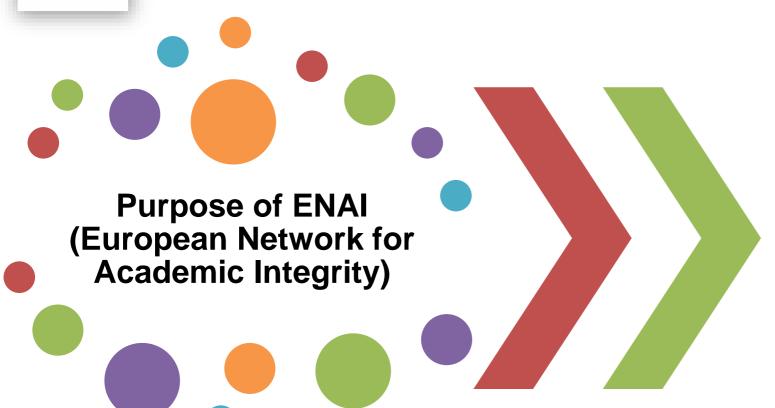
- Should define default rules on allowed use of Al
- There should be space for specific rules at course level
- The policy and the rules should be clearly communicated to all stakeholders
- Should guide the users on how to correctly and transparently acknowledge the use of AI tools in an assignment, dissertation, thesis, paper, article, book chapter, computer programme, graphic, artwork and other types of artefact



### SUMMARY STATEMENT

- There is no doubt that AI brings significant change to education
- As with any other technology, it extends and enhances human abilities and may be used both in a positive and a negative way
- ENAI urges national policymakers, institutions, and all individual members of the academic community to seek ways on the ethical use of Al and share best practices in order to benefit from the opportunities that Al brings to education and science





to support
higher education
institutions
to work together
in the field of
academic
integrity





#### **Objectives**

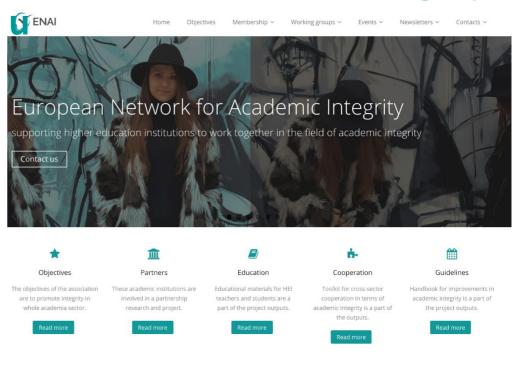
- to provide a platform for academics across all sectors to investigate
- exchange, develop, collaborate and access resources
- to offer opportunities for researchers
- to present best practices
- to make available a central point of reference
- to organize conferences, workshops and other events
- to network and collaborate with individuals and organizations actively
- pursuing related research
- to collaborate towards research
- to appreciate individual and institutional efforts by offering awards



#### **ENAI** Activities

- Web portal with resources
  - Educational materials
  - Guidelines
- Raising awareness
  - Regular newsletter (every 2 months)
  - Facebook, twitter
- Annual conferences
- Training events and workshops
- Research

#### http://www.academicintegrity.e



2016-1-C701-KA203-023949

Co-funded by the Erasmus+ Programme



## **Working Groups**

http://www.academicintegrity.eu/wp/working-groups/

- Academic integrity policies
- Academic integrity survey
- Addressing Unauthorised Content Generation
- **Educational materials**
- **ENAI** awards committe
- Ethical advisory group
- Ethical publishing and dissemination
- Gamification on academic integrity
- Glossary and Guidelines
- Integrity in secondary education
- Outreach
- Promotion and public relations
- Testing of support tools for plagiarism detection
- Support for the victims of academic misconduct
- Working group for students



#### Members' benefits

- Part of the network → collaboration opportunities
- Prestige → institution takes AI seriously, marketing tool
- Can elect the Board and influence the network
- Discounts on fees for ENAI events
  - Some events for ENAI members only
  - Discounts on fees for events organized by affiliated bodies
- Can organize ENAI conferences and events
- Access to consultants, experts, mentors and speakers
  - ENAI can subsidize
- Regular newsletter, grant opportunities
- Access to resources, online training



## Membership

## Members: legal entities engaged in educational activities

Each member institution appoints a representative

#### Supporters: individuals

#### How to become a member

- filling the application form
  - http://www.academicintegrity.eu/wp/application-for-membership/
- approval by the Board
- payment of membership fee





Use activities from the ENAI website

http://www.academicinteg rity.eu/wp/all-materials/









## BRIDGING INTEGRITY IN HIGHER EDUCATION, BUSINESS, AND SOCIETY

## Three bridges

- 1: Academic Integrity and Research Integrity
- 2: Academic Integrity and Business Ethics
- 3: Academic Integrity and Citizen Science Ethics

## A HOLISTIC PERSPECTIVE

#### TARGET GROUP

- ♦ Master students
- Doctoral students
- ❖The supervisors

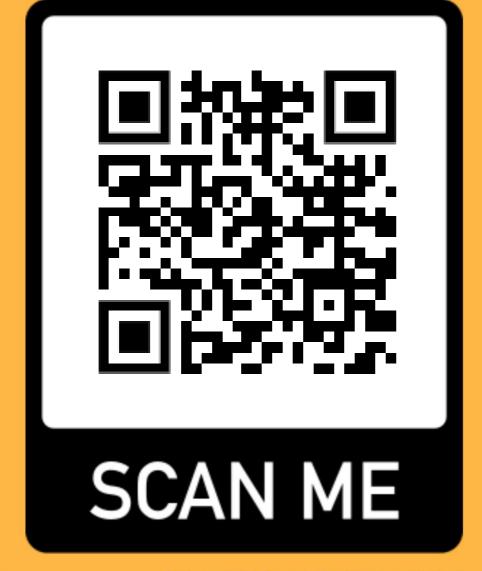


# PROJECT OUTPUTS

Co-funded by the Erasmus+ Programme of the European Union

2020-1-SE01-KA203-077

Bridging Integrity in Higher Education, Business and Society



https://dev.academicintegrity.eu/wp/bridge/

Checklists

Guidelines

Open educational resources

Gamified cases

Workshops

Webinars



### Checklists for the Academic and Research Integrity







Checklists for Doctoral Students



#### Checklists for Master Students







### Games



2020-1-SE01-KA203-077973



bridge



## Modules – video, documents, quiz, games













#### 2nd Multiplier BRIDGE Event

One-day conference co-organized by:

Kherson National Technological University (Ukraine)

Uppsala University (Sweden)

18th May 2023

Venue: zoom

International conference on integrity in higher education, business and society



Co-funded by the Erasmus+ Programme of the European Union (2020-1-SE01-KA203-077)







https://academicintegrity.eu/conference/



## **THANK YOU!**

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Website: http://www.academicintegrity.eu/wp/bridge/

Twitter: projectbridge\_

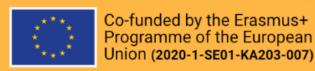
Facebook: infobridgeproject



https://www.academicintegrity.eu/



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