AIAE - Artificial Intelligence Curriculum for Adult Education

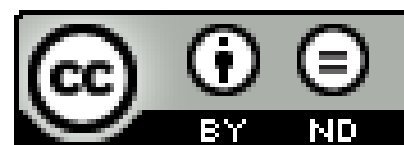# Guidelines

STEP-BY-STEP GUIDELINES FOR TRAINERS IN ADULT EDUCATION TO CONDUCT ONLINE AND OFFLINE TRAINING ABOUT ARTIFICIAL INTELLIGENCE

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The authors who prepared this document bare no liabilities in relation to its use and implementation of the ideas, methods and advises contained therein.

Clarification of Terminology

The simultaneous use of male and female forms of speech has been avoided for reasons of better readability. All personal designations are equally applicable to both genders.

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

STUDIO 2B

Stati Generali dell'Innovazione

LT SYNERGY GRC advisors

emcra Co-shaping Europe

STEP Institute

AIAE - Artificial Intelligence Curriculum for Adult Education

The Project AIAE

addresses trainers in adult education and adult learners with little or no experience in the field of AI. This project enables trainers in adult education to strengthen their own digital skills and acquire knowledge on AI.

The Project Partners

Studio2B is a Berlin-based social enterprise that pursues the goal of making vocational orientation and vocational training more modern, creative and digital by implementing a wide range of innovative concepts for young people and adults within Germany and worldwide such as e-learning courses, virtual company tours, 360° videos and VR trainings.

Stati Generali dell'Innovazione (SGI) is a non-profit, non-political association based in Italy. It was founded in 2011 with the aim of developing a common perspective on innovative guidelines and policies for diverse target groups and actors in politics, civil society and business.

LT Synergy in Cyprus is an advisory firm providing holistic governance, risk, compliance (GRC) and organisational effectiveness services, to the local and regional market with the aim to inspire organisations to transform, grow and excel in their market for the benefit of their stakeholders.

emcra - co-shaping Europe is a leading German training and consulting company within the areas of management and funding. As an accredited educational institution, emcra is an active provider of training programmes in the field of vocational orientation and adult education.

STEP Institute (Slovenia) is a research and training organisation that is developing innovative methods for people's potential. It empowers people for better functioning in the work environment through innovative methods.

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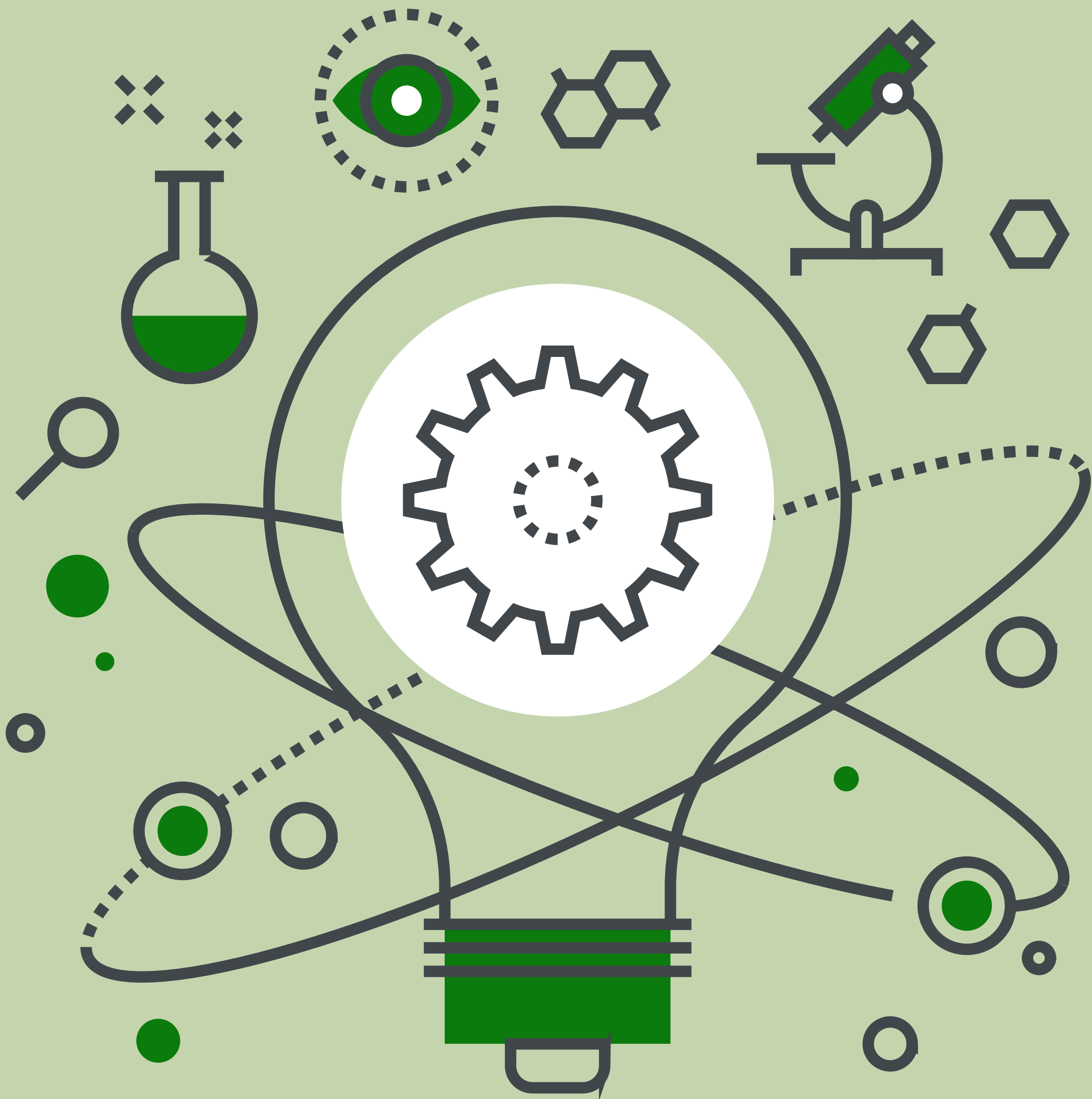
THE STARTER PACK FOR AI TRAINING PREPARED FOR ALL THE TRAINERS IN ADULT EDUCATION

GOALS

By attending the AIAE training participants will:

Knowledge

- Become familiar with AI
- Get to know some of the key concepts of AI
- Learn why AI is relevant for our work and everyday life
- Gain some insights about how they can include AI in adult education

Skills

- Improve their capacity in building AI into the training
- Be able to apply at least 1 topic/concept of AI in the training

Competence

- Conduct the training independently with the material from AIAE
- Grasp the key information about the topic quickly despite the lack of previous knowledge
- Lead a constructive discussion with open questions
- Steer the flow of the session while having a structured plan

Attitude

- Develop and strengthen an open attitude towards new technologies like AI
- Be aware of the various backgrounds of the learners
- Meet the learners at eye level and see the training session as a joint learning process
- Willing to develop herself/himself through the training and gain new insights
- Be inspired to engage with AI in further training

YOU CAN USE THE FOLLOWING CURRICULUM AS A GUIDE OR AS INSPIRATION FOR DESIGNING YOUR OWN TRAINING. YOU CAN ALSO USE OTHER TOOLS PRESENTED IN THIS HANDBOOK AND/OR USE YOUR OWN IDEAS. WHEN CREATING YOUR PROGRAMME, FIRST TAKE INTO ACCOUNT THE GOALS OF THE TRAINING AND THE NEEDS OF THE GROUP.

ARE YOU PREPARED TO CONDUCT A TRAINING SESSION ABOUT AI?

Basic knowledge about AI

	Yes	Not yet
Are you familiar with the topic of the session?	☐	☐
Can you name a few examples of AI applications?	☐	☐
Can you explain the basics of this topic to the learners?	☐	☐
Are you prepared to lead a discussion with the learners about this topic?	☐	☐
Can you anticipate what questions learners might raise concerning this topic?	☐	☐
Do you know how to respond to them?	☐	☐
What do you want to achieve at the end of the training?	☐	☐

Notes

ARE YOU PREPARED TO CONDUCT A TRAINING SESSION ABOUT AI?

Basic knowledge about the learners

	Yes	Not yet
Do you know who the learners are?	☐	☐
Do you know their educational and professional background?	☐	☐
Do you know whether they have any knowledge about AI before the training?	☐	☐
Do you know their training needs?	☐	☐
Do you know the motivation and the expectation from learners?	☐	☐

Notes

ARE YOU PREPARED TO CONDUCT A TRAINING SESSION ABOUT AI?

Methods and Tools

Have you selected methods and tools that are feasible to carry out in a training group, taking into consideration:

	Yes	Not yet
Time?	☐	☐
Place/Space?	☐	☐
Can the methods and tools meet the needs of the learners?	☐	☐
Are you prepared to lead a discussion with the learners about this topic?	☐	☐
Applicability of the methods and tools in the learners' current environment?	☐	☐
Pay special attention to the different settings of online and offline training!	☐	☐

Notes

ARE YOU PREPARED TO CONDUCT A TRAINING SESSION ABOUT AI?

Training skills

	Yes	Not yet
• Are you positive about your training skills?	☐	☐
• Do you have experience with the methods and tools you want to use in the training?	☐	☐
• Have you adapted the methods and tools specifically for the AI training?	☐	☐
• Do you have the necessary hardware/software/equipment for the online training?	☐	☐

Notes

ARE YOU PREPARED TO CONDUCT A TRAINING SESSION ABOUT AI?

Get ready!

	Yes	Not yet
Are you ready to offer a training session about AI?	☐	☐
Do you feel confident as a trainer, although you might not be the expert on AI?	☐	☐
Have you planned the training session with sufficient time buffers and additional materials?	☐	☐
Do you have an overview of all the materials and do you know where to find more materials?	☐	☐
Are you ready to start the training session and develop your understanding together with the learners?	☐	☐
Then get started and we wish you a great training session!		

Notes

AI technologies and application fields

offline training session 1

PREPARATION

Time:

- 8 pedagogical hours and breaks

Learners:

- Adult learners, who want to understand how AI works and how it can be applied

Learning outcomes:

- After the training learners will be familiar with various AI technologies. They will understand different ways of how AI is incorporated in everyday life and work environments. Through discussion of the advantages and disadvantages of AI application in several fields, the learners will be able to have a better understanding about how AI can be a helpful support to human beings and to our society

Methodology:

- icebreaker, group work, discussion, world cafe, presentations, learning from materials, self-reflection

Equipment:

- Whiteboard, bigger sheets, projector, pens, colours, internet access as well as all learning materials printed or digital (specific chapters of the briefings, questions for the world cafe, etc.)

Preparation of the classroom:

- layout with bigger tables that enables the learners to work in groups of 4-5 learners
- six A3 sheets with one AI technology listed on each sheet on the walls of the classroom.

Note:

- It is also possible to convert this session into an online training session. In case of online training, make sure to choose the appropriate platforms for group work and handout designing (Jamboard, Padlet...)

IMPLEMENTATION

Time: 15 minutes
Activity: Icebreaker

- Trainer holds a small ball and explains the rules:

- "We will pass this ball around. When you catch it, tell us your name (if learners do not know each other). Then think of the workplace where you work or used to work. Which technologies are used in this workplace? Tell us about them in a few sentences when you receive the ball. Once you explain the technologies used in your workplace, pass the ball further on."

- Trainer begins by setting an example, tells his/her name and lists technologies he/she uses in the workplace. Then he/she passes the ball further on to the next person.

- The icebreaker finishes when all learners have had the ball.

Time : 75 minutes
Activity : Usages of AI technologies

- Before this activity, the trainer tapes six A3 papers with one technology listed on each paper in the classroom. The terms to be included on the sheets of paper are: object or image recognition, face recognition, voice recognition, speech recognition, navigation and object manipulation.

- Trainer shortly presents six AI technologies (object/image recognition, face recognition, voice recognition, speech recognition, navigation and object manipulation) with the help of 5.1 subchapter (link) and basic briefings on AI technologies (link). The trainer can either present the information frontally or ask learners about what they already know about specific technology. Keep the explanation short and simple. (20 minutes)

- Learners go from one paper to the next in the classroom and write down examples of how each technology is used. Trainer can provide them with an example of Siri or Alexa as a speech recognition technology for easier understanding of instructions. (20 minutes)

- Once the learners finish writing examples, the trainer summarises the findings and examples written on each paper.

- Discussion about the widespread usage of the AI technologies in peoples' lives follows.

Break

Time: 90 minutes
Activity: Deep dive in the application fields of AI technologies (education, finance, healthcare system, justice, manufacturing, transportation)

- Trainer chooses application fields of AI technologies that are most relevant for the learners (examples with materials developed in the scope of the project: education, finance, healthcare system, justice, manufacturing, transportation). He/she prepares material for each of the chosen application fields. Aside from the chapters from basic briefings (link) the trainer can add more material that he/she finds useful.

- Learners are divided in groups of 4 or maximum 5. They should name their own group, and choose a leader, who will be in charge of the reporting and organisation of work within the group.

- Each group receives material about one specific application field of AI technologies (education, finance, healthcare system, justice, manufacturing, transportation or other), such as chapters from the briefings, articles, videos, interviews etc. (links) Each group should have a unique application field of AI technologies.

- Learners use all the material (both the given material and material they will find on their own) to prepare a presentation about the application field of AI technologies they have received. They prepare a poster presentation, through which they will later inform other groups their findings about their findings. (30 minutes)

- The poster should include as a minimum the following information:
1. Which AI technologies are used in this application field?
2. Three real examples of specific uses of AI technologies in this field.
3. How do these technologies benefit this field?
4. What are the challenges of using these technologies in this field?
5. What did you find interesting when researching the material?

- Each group presents their findings within 10 minutes. After each presentation, other groups can ask questions or comment on the presentation. Trainer moderates the discussion and provides more details regarding each application field.

- If possible, place the posters in a visible place in the classroom.

Break

Time: 90 minutes
Activity: Seller or a robot?

- Divide learners into different groups than in previous activities. There should be a maximum of 5 learners in each group. Each group chooses a host of the table who will remain at the same table the whole activity.

- Every group has its own table, at least three A3 or bigger sheets of paper, colourful pencils, markers and other materials they can use when working in groups.

- Trainer provides the first question: "Which AI technologies do you find the most useful? In which fields are they applied?" It is recommended to have the questions written down somewhere on a visible spot.

- Learners have 20 minutes to work on this question. When thinking about a specific question, they should write and draw on the paper on the table, to express their thoughts and ideas

.
- After 20 minutes all the hosts (1 person from each group) remain at the table, whilst others move to a new table. It does not matter where they go, as long as there are not more than 5 learners in one group.

- Once in the new group, the hosts of the tables shall explain the findings of the previous group to the new group. (5 minutes)

- After 5 minutes, the trainer presents the second question: "How can AI technologies benefit you in your everyday life and in your workplace?" The newly formed groups have 20 minutes to work on this question.

- After 20 minutes, they change groups again, while the hosts remain at the same table. They present findings of the previous group to the new group in 5 minutes.

- Trainer presents the third question: "What can you do to be better prepared for the changes AI technologies are bringing?" Groups have 20 minutes to work on this topic.

- After the third question, all hosts present the most important findings of their table in all three rounds to everyone. If possible, group discussion about the whole activity follows.

CONCLUSION AND EVALUATION

Trainer asks learners the following questions:

- What were your favourite aspects of the training session?
- What parts of the training session would you rather change?
- What did you find the most interesting during todays' training session?
- How will you use this knowledge in practice?
- How has your perspective of AI technologies and application fields changed?

MORE LESSON PLANS ON THE TOPIC OF AI TECHNOLOGIES AND APPLICATION FIELDS:

links to relevant learning scenarios: education, finance, healthcare, justice, manufacturing, technologies, transportation

OFFLINE TRAINING

Machine learning and human machine interaction

offline training session 2

PREPARATION

Time:

- 8 pedagogical hours and breaks

Learners:

- Adult learners, who want to know more about machine learning and its interaction with humans

Learning outcomes:

- Upon completion of the training, learners will learn about the theoretical framework of machine learning within the different machine learning techniques. Through interactive activities, they will learn about everyday examples of the interaction between humans and machine learning and thus gain understanding and insight into the subfield of AI.

Methodology:

- icebreaker, group work, discussion (link to 3.2.6. Guidelines for discussion), activities (link to Chapter 3.2.): 1-2-4-All, Researcher, Future mapping, evaluation and self-reflection

Equipment:

- A4 papers, sticky notes, colour markers, pens, projector, computer and internet access, bell/timer, printed materials (worksheet for 1-2-4-All on basics of machine learning, theoretical materials on examples of human machine interaction, and worksheet for future mapping), sticky notes on machine learning techniques for the draw

Preparation of the classroom:

- Classroom should be open, and have tables, chairs, and whiteboard/board/space on the wall.

Note:

- It is also possible to convert this session into an online training session. In case of online training, make sure to choose the appropriate platforms for group work and handout designing (Jamboard, Padlet…)

IMPLEMENTATION

Time: 20 minutes
Activity: Icebreaker - Stand up if...

- The trainer introduces the topic of the training session, and offers a few key concepts of Machine Learning (supported by the material in the Briefing: pp. 27 - 34)

- Trainer prepares a list of questions about the field of machine learning that can only be answered with Yes or No. Some examples: Is machine learning part of your everyday life? Do you think robots can think? Would the world be better without technology? Is Google Translate machine learning? Is machine learning used in garbage recycling? Have you ever tried face recognition at the airport? Has Google Maps ever helped you avoid traffic jams?

- Trainer then explains the rules to learners: "A series of questions will be read. Quickly stand up if the statement applies to you. If your answer is no, keep seated. Take a look around the room to see who is standing and who is seated. This is a quiet activity, so simply pay attention to the reaction of others."

- The trainer then fairly quickly reads the questions to the learners. For each statement, they stand up if their answer is yes.

- After questions, invite them to share an experience of answering quick questions. This can offer you a good basis for an introduction to the machine learning topic.

Time: 20 minutes
Activity: 1-2-4-All on basics of machine learning

- This activity will serve as an activator and a basis for further training. Explain the flow of the activity: First you will think solo, then in pairs, foursomes and finally all together.

- Prepare a worksheet with three sections: SOLO, PAIRS, FOURSOMES, ALL. Ask learners an introductory question: What do you think of when you hear the term "machine learning"?

- SOLO: Silent self-reflection by learners on the question we proposed, then writing down the main idea on the worksheet. (1 minute)

- PAIRS: The group is then split into pairs. They generate ideas in pairs, building from their self-reflection. Write it down on the worksheet. (2 minutes)

- FOURSOMES: The pairs are now gathered into small groups of four. They identify the similarities and differences between the ideas stemming from the pairs. This stage aims to share, filter duplicates, and feed the thought process by strengthening the agreements and discussing any differing points of view. (4 minutes)

- ALL: The foursomes then get together. Ask everyone: "So what is machine learning? What are the main ideas from your discussions?" Each group then shares their description of machine learning. (5 minutes)

- The trainer then summarises important findings and adds additional basic information on machine learning.

- More tips for running this activity online in subchapter 3.2.2. (link)

Time: 80 minutes

Activity:
Researching machine learning techniques and examples

- Trainer briefly presents the four machine learning techniques (deep learning, supervised learning, unsupervised learning, and reinforcement learning) with the help of 4.1.1. subchapter and basic briefings on machine learning (link). The trainer presents them shortly and simply (10 minutes)

- 2.Learners are divided into 4 groups. Every group chooses a group representative. Each group has an A4 sheet, pens, and coloured markers. Learners should have their own smartphones with internet access, or we provide them with laptops with an internet connection. (5 minutes)

- 3.Each group draws one machine learning technique. The task of the group is to do research and prepare handouts for the specific technique. (30 minutes)

- Handouts should include: definition of the technique; at least two concrete examples of the field of use; and interesting YouTube video relating to the chosen technique - it should be stimulating and short (maximum of 2 minutes)

- Each group gives a presentation of their handouts (4 x 10 minutes). The presentation is made by a previously selected representative of the group. He/she presents the definition, examples of usage and plays a YouTube video. After each presentation, every group asks at least one question or gives feedback on the presentation (4 x 5 minutes)

- More tips for running this activity online in subchapter 3.2.5. (link)

Break

Time: 85 minutes
Activity: Examples of human machine interaction

- Trainer prepares materials for examples of human machine interaction (interfaces, communication, control of devices, machines, computers, systems, and human-machine interaction combined with virtual reality, augmented reality or mixed reality) with the help of 4.1.2. subchapter and basic briefings on machine learning (link).

- Each learner takes a piece of paper as worksheet, divided into four sections, with titles of examples of human machine interaction (interfaces/communication/control of devices, machines, computers, systems/human-machine interaction combined with virtual reality, augmented reality or mixed reality). Under each example, there is a space for the learner to write down definitions, descriptions, and facts after hearing the presentations of group work.

- Learners are divided in 4 or 5 groups (each group has a maximum of 5 learners). Every group chooses a group representative. Each group receives materials about one specific example of human machine interaction (interfaces, communication, control of devices, machines, computers, systems, and human-machine interaction combined with virtual reality, augmented reality or mixed reality).

- Learners exchange their experiences with this particular example. They can list all the cases to their knowledge and describe their interactions with the technology with each other. (10 minutes)

- Then learners should use the given materials and other sources on the internet (they can use their laptops and smartphones) to prepare an oral presentation about the example of human machine interaction they have received. They prepare key points that will be presented to other learners later. (30 minutes)

- The presentation should include:
- definition; description of at least 2 examples; fun and interesting facts.

- Group representatives present their findings in 5 - 10 minutes. After each presentation, invite other groups to ask questions or give feedback on the presentation. Trainer moderates the discussion and provides more details on the topic. (45 minutes)

- All learners make notes for each presentation on the worksheet they received at the beginning of the activity. At the end, every learner has a filled worksheet with definitions, examples, and interesting facts for all 4 examples of human machine interaction.

Break

Time: 50 minutes
Activity:
Future mapping on examples of human machine interaction

- Divide the wall into three equal sections. At the top of each section write: last year, this year, and next year to five years in the future.

- Give each learner a marker and sticky notes, then explain the aim of this activity: "We will, together, create a vision of the future, through the lens of the past and present." The learners shall think about significant trends, difficulties, and challenges as examples of human machine interaction. The learners are encouraged to interact with the handouts from previous activities.

- The learners can write the ideas on the sticky note, stick it up on the wall and read it out loud so others can hear.

- There is no need to wait, as soon as one learner comes up with something, write it down and stick it up. The aim is to fill up the wall in the next 25 minutes. (25 minutes)

- When the time is up, divide learners into groups of 3. Each group gets a paper. Then invite groups to reflect on posts that are on the wall. Let them find some common patterns and ideas. (10 minutes)

- After the discussion, have a group reflection and discussion (15 minutes) with the following questions:
- What patterns do we see looking at this timeline?
- Which trends are most important for me as an individual?
- Which trends are most important for the society as a whole to be aware of and learn more about?
- How do I feel about the past, present, and future?
- What does this mean for our team? My company? Our society?

- Point out some of the key themes that came up throughout the discussion.

- You will find more information about this activity in the subchapter 3.2.3. (link)

CONCLUSION AND EVALUATION

Trainer asks learners the following questions:

- **Did this training session meet your expectations?**
- **Highlight one thing you would change in this training flow. How?**
- **What will you remember most from this training?**
- **How will you transfer this knowledge into practice?**
- **How has your perspective on machine learning and human interaction changed?**
- **Think of something meaningful and important that was told in this training. Share.**
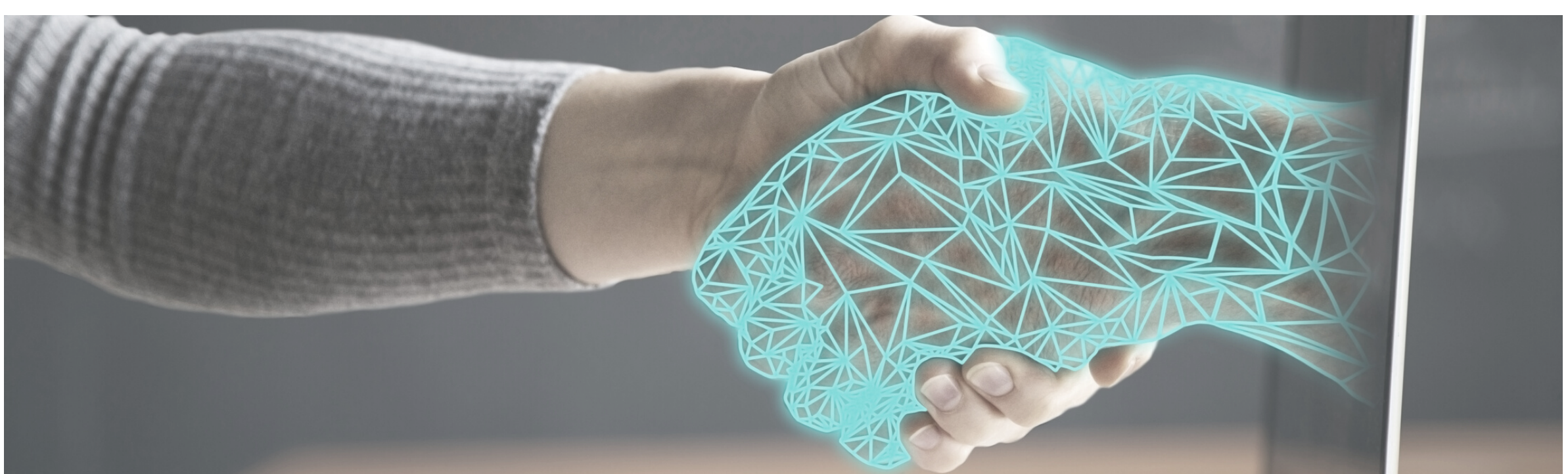
AI perceptions, ethics and societal challenges

offline training session 3

PREPARATION

Time:

- 8 pedagogical hours and breaks

Learners:

- Adult learners, who want to address and discuss the topics AI perception, ethics and bias in AI and societal challenges concerning AI

Learning outcomes:

- After the training, learners will have a reflective perception on the topic of AI and its relevance to ethical issues and societal challenges. Through discussion in particular, learners will engage with the impact of AI on our society and develop a sense of where AI can also lead to challenges.

Methodology:

- icebreaker, assessment exercise, discussion, group work, group exercise in pairs, case study, reading, presentation, brainstorming, internet research, reflection, evaluation.

Equipment:

- Whiteboard, bigger sheets, projector, pens, colours, internet access as well as all learning materials printed or digital (specific chapters of the briefings, questions for the world cafe, etc.).

Preparation of the classroom:

- Classroom should be open, and have tables, chairs, and whiteboard/board/space on the wall.

Note:

- It is also possible to convert this session into an online training session. In case of online training, make sure to choose the appropriate platforms for group work and handout designing (Jamboard, Padlet...)

IMPLEMENTATION

Time: 20 minutes
Activity: Icebreaker: "Presentation suitcase"

- Trainer prepares a suitcase filled with various items. The items can be very diverse (wallet, keys, glasses, book, item of food, item of office supplies, etc.). The important thing is that the learners can build a reference to the topic of AI.

- Trainers ask learners to choose an item that is related for them to AI.

- Each learner chooses an item from the case and introduces him/herself briefly: Name, Experience with AI, Expectations of the training, How does the item relate to AI? Why did I choose the item?

Time: 60 minutes
Activity: AI perceptions – Your point of view

- Before the activity, the trainer sticks two pieces of paper on the floor in the classroom. One piece on the left side of the classroom, the other piece on the right side of the classroom. A line can connect the two papers. The left paper says "AI – an opportunity for improvement", the right paper says "AI – a threat to society".

- The trainer asks the learners to think about which statement they agree with more and then position themselves on the line there. It is possible to place oneself on the far right, far left or anywhere on the line.

- Learners shall explain their position if they like.

- Other learners who agree with the same positions are welcomed to join.

- The trainer then divides the learners randomly into two groups: one group discusses the advantages of AI, the other group discusses the disadvantages of AI.

- At the end of the discussion, the groups should present the advantages and disadvantages to each other. To support the arguments, each group will have access to two case studies (link) of what AI can bring. Plus, some clues about advantages and disadvantages will be given without the argumentation behind (link).

- 2.In the end both groups discuss together and form a common perception on the question: What can AI bring to our society. Please document your results on a whiteboard.

- Additional learning material: see worksheet (link)

Break

Time: 60 minutes
Activity:
AI perceptions – Autonomous driving and autonomous weapons

- The learners read chapter 6.1.1.2 case studies / examples (or worksheet) to get an idea of how diverse the use of AI already is in our society.

- Learners are separated into a few pairs of 2 and discuss the following questions with each other:

- Autonomous driving and autonomous vehicles:
- What are the advantages of autonomous driving? And what might be the problems? What is "partial autonomous" and "fully autonomous"? What is your understanding? When we discuss autonomous driving and autonomous vehicles, who shall take the responsibility? Who/what is being transported by autonomous vehicles? What does autonomous driving and autonomous vehicles mean for: ownership of vehicles, driving schools, drivers as an occupation, traffic regulation, and legal regulation, etc.? And how would our city/town look like with fully autonomous vehicles?

- Autonomous weapons:
- Are autonomous weapons really autonomous? What are the features of autonomous weapons? And what might be the problems? What is "partial autonomous" and "fully autonomous" when it comes to weapons? How to understand the statement from the Pentagon that "humans will always be in control of AI weapons"? Where are autonomous weapons being used these days? Who takes the responsibility? What does this mean for: officials/operators/generals, soldiers and civilians, regulation and international laws, the production and supply of such weapons, and the engineers who program the software?

- Come back to the common plenary and talk together about your experiences, results, and open questions from the small group work.

Break

Time: 100 minutes
Activity: Ethics and bias in AI

- Trainer presents four examples on ethics and bias in AI to the learners (see 6.1.2.2/link):
- a.   Recruitment programme of Amazon
- b.   Racist healthcare in the US
- c.   Prediction of Crime in the US
- d.   AI as an alternative solution to triage in the battlefield

- Collective brainstorming on the concept of bias. The trainer asks the following questions to stimulate the discussion:
- What does the word bias mean? Can you provide a sample of bias, for instance a witnessed situation or reported by the newspaper? (Use sticky notes on the Whiteboard)

- Come to a shared definition of bias, write the definition on the Whiteboard. Validate it through internet research.

- Form 3 groups among the learners. Each group reads one case study. Discuss the following questions within your group: What is in your case study bias? How is the bias in your case study generated? What could have been done to avoid the bias?

- Based on the comments on the case study, write down 5 useful recommendations for ethics in AI. The learners are encouraged to use the internet for further research.

- Each group presents the case and the 5 recommendations to the other groups.

- Reflect about the impact of ethics in AI. Consider the question: How can bias be avoided? The trainer shall write down the ideas on the Whiteboard.

- Additional learning material: see worksheet (Link)

Break

Time: 80 minutes
Activity: Societal challenges related to AI

- Generally, we need to address the question of responsibility in the application of AI (AI in elderly care, in the actions to combat climate change, in labour market, etc.) and the question of autonomy.

- The trainer invites all learners to conduct their own individual internet research on the following questions: What is responsibility? What is autonomy? The learners can also use the theoretical information in chapter 6.1.3 Societal challenges concerning AI (Link).

- The trainer gathers the learners together and share their results.

- Based on all the individual results, the trainer guides the learners to come to a shared definition on the terms "responsibility" and "autonomy" with all learners.

- A collective round of brainstorming on the use of AI for addressing societal challenges: what are some urgent societal challenges? Do you have any idea about how AI is used or can be used to tackle them? The learners shall write down their ideas on the Whiteboard.

- With the questions in mind, the trainer will show the learners two videos: AI in agriculture and AI in epidemics (Link)

- Collective discussion on the video: how is AI used for addressing societal challenges? What are the pros and cons of its application in the fields?

- Once the learners have defined how AI is used for tackling societal challenges, check some other examples here: Applying AI for social goods

- The trainer gathers the learners for a final round of reflection: What does AI mean for education in the future? Especially for adult education? The learners shall write down ideas on sticky notes and present them to the group of learners.

- The trainer collects all the ideas on a moderation wall and groups the ideas into categories. Together with the learners, the trainer gives the categories headings. At the end of this round, the learners shall be able to see the key words for the application of AI in adult education.

CONCLUSION AND EVALUATION

Trainer asks learners the following questions:

- Did this training session meet your expectations?
- Highlight one thing you would change in this training flow. How?
- What will you remember most from this training?
- How will you transfer this knowledge into practice?
- How has your perception on AI changed? Did your perspective on ethics and bias in AI change? What is your new position regarding societal challenges concerning AI?
- Think of something meaningful and important that was told in this training. Share.
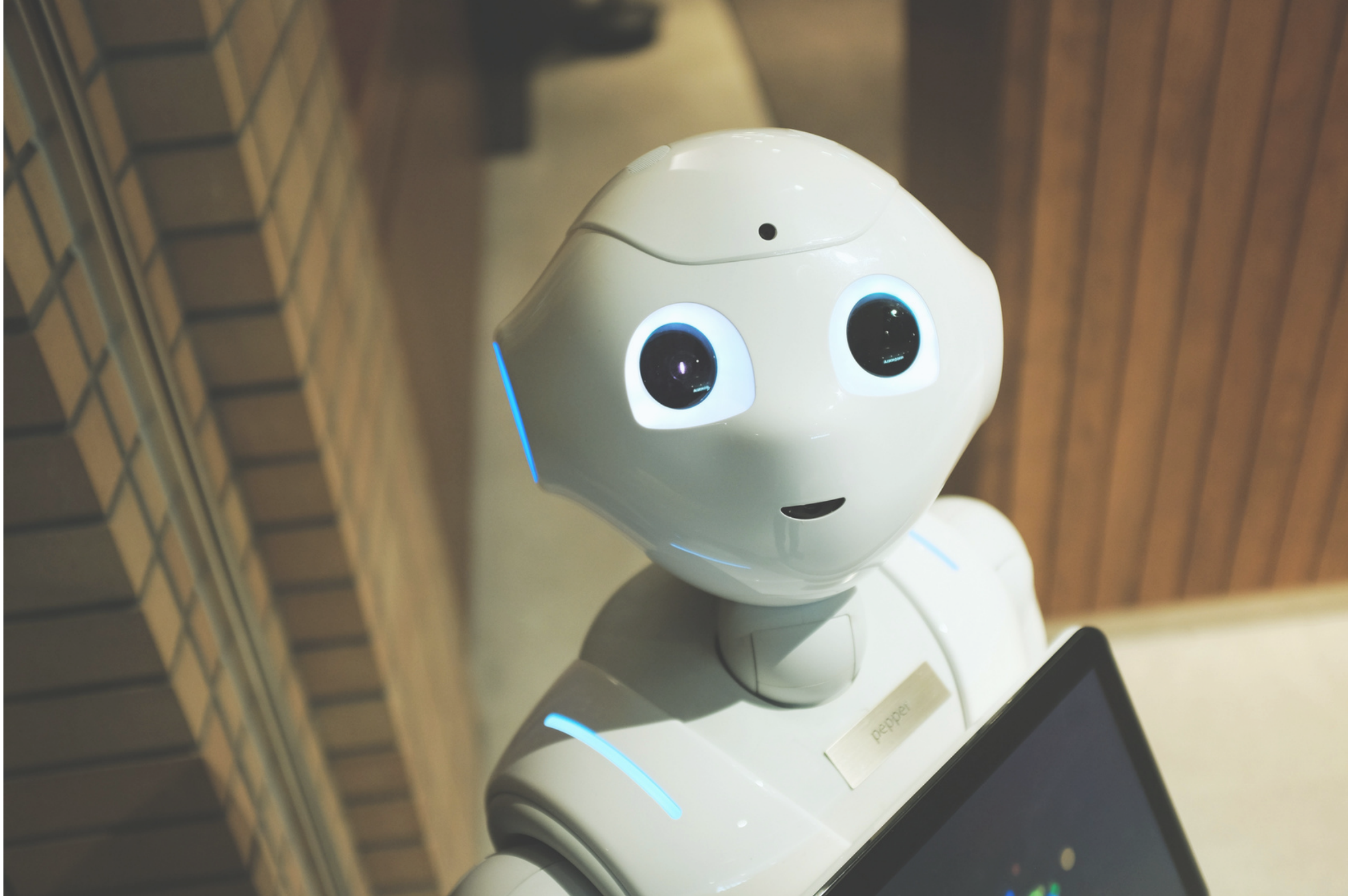
AI in machine learning with Scroobly

online training session 1

PREPARATION

Time:

- 4 pedagogical hours and breaks

Learners:

- Adult learners, who want to address and discuss the topic of AI in machine learning

Learning outcomes:

- After the training, learners will have a reflective perception on the topic of AI in machine learning. Through the example of Scroobly, learners will have a direct impression of how machine learning works. At the end of this training session, learners should be able to see the strength of machine learning and are motivated to explore more possibilities of using machine learning in everyday life.

Methodology:

- icebreaker, assessment exercise, discussion, group work, group exercise in pairs, case study, reading, presentation, brainstorming, internet research, reflection, evaluation.

Equipment:

- Before the training, the trainer shall choose the virtual boards on which he/she will work. Padlet, mural, miro, mentimeter are recommended for this training programme. Make sure there is stable internet access.

Preparation of the classroom:

- For online training, the trainer should choose a platform that allows the learners to work in breakout rooms (e.g. Zoom/Adobe Connects) And make sure the trainers have prepared all the handout in advance (with the support of external software or links)

IMPLEMENTATION

Time: 30 minutes
Activity: Introduction and warm up

Goals:

- Building relationships between participants.
- Setting rules of cooperation during the activities (technical and interpersonal).
- Getting to know needs and motivation of participants.

Step-by-step instruction:

- The trainer welcomes all the learners and gives a brief introduction of the trainer her/himself

- The trainer shows a map on the screen, while invites each learner to introduce her/himself, with key information such as name, affiliation, motivation and expectation from this training session. Each learner shall also provide 1 fact about her/his current location (without revealing the actual location). Other learners have the chance to guess where this learner is – and ask for one more fact, if necessary.

- Once the learner reveals/confirms her/his actual location, the trainer can add a pin on the map.

- Once the round of introduction is completed, the trainer shall give a concluding remark.

- The trainer then gives a brief introduction to the topic of the training, explaining the goals and programme of the training.

Time: 15 minutes
Activity: Test yourself!

Goals:

- Building relationships between participants.
- Setting rules of cooperation during the activities (technical and interpersonal).
- Getting to know needs and motivation of participants.

Step-by-step instruction:

- The trainer shows a scale on the screen, with points varying from 1 to 5. For example:

MACHINE LEARNING AND YOU...

1   2   3   4   5
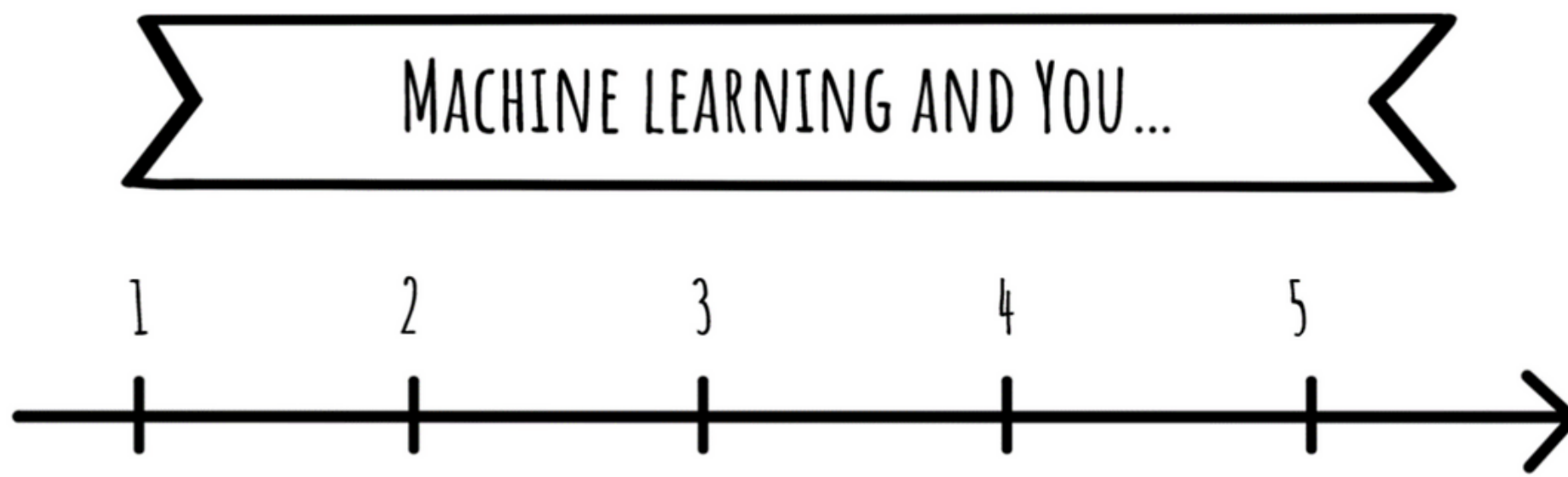
- The trainer asks the following questions one by one:
1. I am familiar with how machine learning works.
2. I believe machine learning can be fun.
3. I can explain the difference between machine learning and classic programming to a friend.
4. I would like to try out different applications powered by AI.
5. I would like to promote fun AI applications that use machine learning to other people.

- We recommend using Menti during this part of the training: https://www.mentimeter.com/

- After every question, the trainer collects the answer on the scale by adding small images/symbols/emojis on the scale.

- The result of this exercise shall be saved and revisited later as a part of the evaluation at the end of the training session.

Time: 45 minutes
Activity: introduction into machine learning

Goals:

- The learners have a general impression of what machine learning is
- Based on the information from the trainer, learners shall be able to see why machine learning is relevant for their work and their everyday life, and they shall be able to name a few examples of machine learning at the end of this part

Step-by-step instruction:

- The trainer offers an introduction into the topic of machine learning, based on the materials available in the basic briefing (pp. 26 – 30 / Link)

- The trainer will use a PowerPoint-presentation to present the information, with interactive exchange with the learners

- After the basic information is delivered, the trainer invites the learners to offer some examples of machine learning

- As support for the discussion with learners, the trainer can reply on the information in the briefing (pp. 31 – 33 / Link)

Break

Time: 30 minutes
Activity: machine learning with Scroobly

Goals:

- The learners gain the basic information of what Scroobly is and how to use it
- The learners have the opportunity to learn this tool on the site, and to try it out and to ask questions
- The trainer will have an overview of the technical readiness of each learner, a key information for the forming of small groups in the next step

Step-by-step instruction:

- The trainer offers an introduction of Scroobly, using the material available in the learning unit "Machine Learning" (Link) and presenting the information with a PowerPoint-presentation

- The trainer invites every learner to open the website of Scroobly, and clarifies the technical requirements for using Scroobly at the same time (with the support of the information available in LINK)

- Each learner tries out the tool by her/himself, and the trainer is ready to answer questions and offers support
- The learners have the chance to present her/his result, if they want to

Time: 45 minutes
Activity: Tell your story with Scroobly

Goals:

- Learners work together in small groups, designing and producing a video to tell a story
- Learners gain a direct impression of the tool, and have some fun exploring the tool together
- Learners have the chance to communicate with each other in a small group and get to know each other better

Step-by-step instruction:

- The trainer forms a few small groups, make sure that learners with relatively high technical capacity and relatively low technical capacity are equally distributed

- Each group experiments the tool further and designs an animated story

- Each group creates a video based on the animated story

- After 30 – 35 minutes, the learners are gathered in the plenary again

- Each group presents their result

- The floor is open for questions and comments on the story of each group

Time: 15 minutes
Activity: summary and reflection

Goals:

- The learners gain further insights about machine learning and are motivated to try out more tools
- The learners have a chance to reflect on this session and give feedback about their progress

Step-by-step instruction:

- The trainer invites all learners to reflect on their experience with machine learning

- The trainer can use the materials available in the briefing (pp. 33 – 34/Link) and discuss the challenges and opportunities machine learning brings together

- Ask the five questions of "Test yourself!" again, and collect the answers on a new scale

- Compare the results of the two scales and invite the learners to evaluate this training session.

CONCLUSION AND EVALUATION

Trainer asks learners the following questions:

- Did this training session meet your expectations?
- Highlight one thing you would change in this training flow. How?
- What will you remember most from this training?
- How will you transfer this knowledge into practice?
- How has your perception on AI changed? What is your new insight regarding machine learning?
- Think of something meaningful and important that was told in this training. Share.

Human machine interaction

online training session 2

PREPARATION

Time:

- 4 pedagogical hours and breaks

Learners:

- Adult learners, who are interested in AI and want to discuss the topic of human machine interaction

Learning outcomes:

- After the training, learners will have a reflective perception on the topic of human machine interaction. Through the example of Replika, learners will have a direct impression of how chatbot works and how it interacts with us.

Methodology:

- icebreaker, assessment exercise, discussion, group work, group exercise in pairs, case study, reading, presentation, brainstorming, internet research, reflection, evaluation.

Equipment:

- Before the training, the trainer shall choose the virtual boards on which he/she will work. Padlet, mural, miro, mentimeter are recommended for this training programme. Make sure there is stable internet access.

Preparation of the classroom:

- For online training, the trainer should choose a platform that allows the learners to work in breakout rooms (e.g. Zoom/Adobe Connects) And make sure the trainers have prepared all the handout in advance (with the support of external software or links)

IMPLEMENTATION

Time: 30 minutes
Activity: Introduction and warm up

Goals:

- Building relationships between the learners.
- Setting rules of cooperation during the activities (technical and interpersonal).
- Getting to know needs and motivation of learners.
- Become familiar with the online learning platform

Step-by-step instruction:

- The trainer welcomes all the learners and gives a brief introduction of the trainer her/himself

- Using a digital whiteboard/flip chart, the trainer invites all the learners of the session to write down three words that capture the personal character

- The trainer should encourage each learner to choose one colour during writing

- Once the writing is completed, the trainer reads through each set of three words and invite all the participants to identify the writer behind the description

- Once the writer/learner is revealed, the trainer invites him/her to elaborate the reason behind these three words and say a few more words about her/himself

- After all the participants have the chance to introduce themselves, the trainer asks the question "what kind of a chatbot you would like to have?" and invites the participants to list three words to describe the ideal chatbot of their imagination

- After an exchange among all the learners, the trainer returns to the digital board/chart/sheet, and writes a few key words from the discussion.

- The trainer shall keep the result for further discussion

Time: 15 minutes
Activity: Test yourself!

Goals:

- The learners can have a chance to evaluate their current state of knowledge, capacity and motivation
- The trainer can have a better understanding of the level of knowledge among the learners in this session, so that she/he can adjust the session if necessary
- The trainer will revisit the result of this exercise later, as a part of the evaluation of the training session

Step-by-step instruction:

- The trainer shows a scale on the screen, with points varying from 1 to 5. For example:

AI-Chatbot and You...

1   2   3   4   5
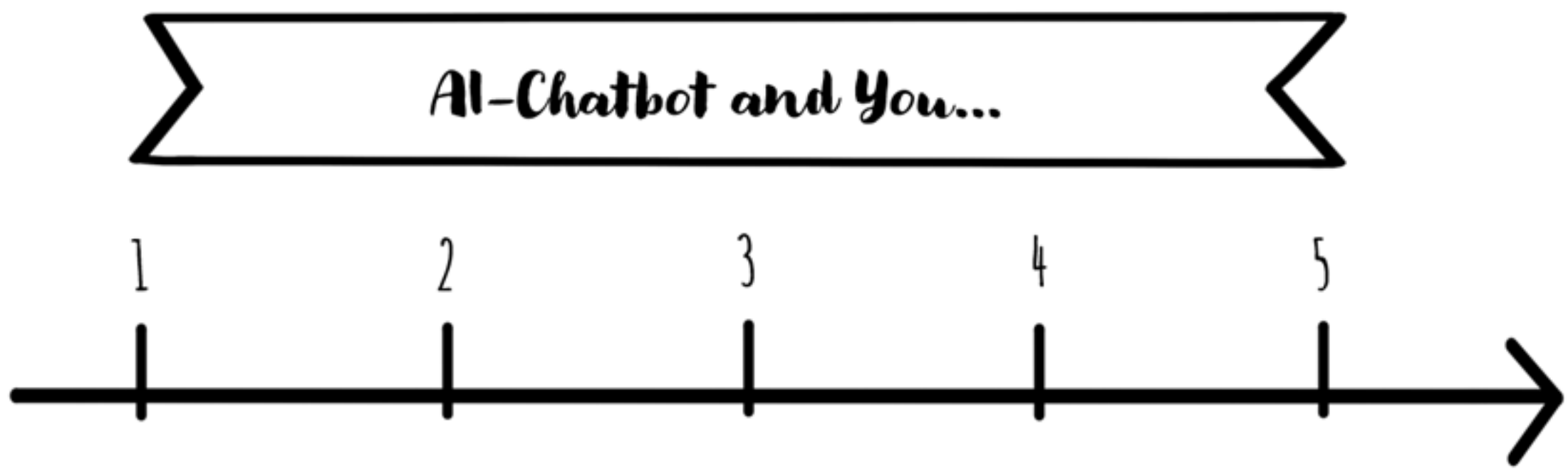
- The trainer asks the following questions one by one:
  1. I am familiar with various examples of AI chatbots.
  2. I believe AI-powered chatbots like Replika are learning through our interaction with them.
  3. I can explain the benefits and the threads of using AI chatbots to communicate with customers to a friend.
  4. I would like to learn more about how AI-powered chatbots are able to respond to people's questions.
  5. I am open to talk with AI-powered chatbots like Replika.

- We recommend using Menti during this part of the training: https://www.mentimeter.com/

- After every question, the trainer collects the answer on the scale by adding small images/symbols/emojis on the scale

- The result of this exercise shall be saved and revisited later as a part of the evaluation at the end of the training session

Time: 30 minutes
Activity: Introduction into human machine interaction

Goals:

- The learners have a general impression of what human machine interaction can be

- Based on the information from the trainer, learners shall be able to see why human machine interaction is relevant for their work and their everyday life, and they shall be able to name a few examples of such interaction at the end of this part

Step-by-step instruction:

- The trainer offers an introduction into the topic of machine learning, based on the materials available in the basic briefing (pp. 19 – 25 / Link)

- The trainer will use a PowerPoint-presentation to present the information, with interactive exchange with the learners

- After the basic information is delivered, the trainer invites the learners to offer some examples of human machine interaction, or name some chatbots they have already known, and write the result on the digital board/chart/sheet for later discussion

Break

Time: 30 minutes
Activity: Human machine interaction – an example of Replika

Goals:

- The learners gain the basic information of what Replika is and how it works
- The learners have the opportunity to try out this chatbot on the site, engage with the chatbot directly and have a conversation
- The trainer will have an overview of the technical readiness of each learner, a key information for the forming of small groups in the next step

Step-by-step instruction:

- The trainer offers an introduction of Replika, using the material available in the learning unit "Human machine interaction" (Link) and presenting the information with a PowerPoint-presentation

- The trainer invites every learner to install Replika on their devices, and clarifies the technical requirements for using Replika at the same time (with the support of the information available in LINK)

- Each learner tries out the chatbot by her/himself, and the trainer is ready to answer questions and offers support

Time: 45 minutes
Activity: Conversation with Replika

Goals:

- The learners have an immediate experience with Replika
- The learners have an impression of interaction with a chatbot, when they engage in different topics
- The conversation should trigger the interest of the learners, not only to have more interaction with chatbots, but hopefully also consider it as a new way of learning new information

Step-by-step instruction:

- The trainer gathers all the learners again and presents the result from the previous discussion on the digital board/chart/sheet to the group, where they have written down examples of human machine interaction or chatbots.

- The trainer invites all the learners to pick one example from the result, which they do not have much knowledge about – and this example will be Topic 1 for their conversation with Replika

- The trainer shares her/his screen on a mainstream news agency/newspaper of the region, and assigns one headliner to each learner – and this piece of news of will be Topic 2 for their conversation with Replika

- With these two topics, the learners will start interacting with Replika individually. The learners will have 30 minutes to engage in a conversation with Replika and they should:

1. Ask Replika about Topic 1 – an example of human machine interaction – and write down some notes from the conversation
2. Ask Replika about Topic 2 – a piece of news in the local newspaper – and write down some notes from the conversation
3. Have a casual chat with Replika, and write down some notes from the conversation

Break

Time: 45 minutes
Activity: Replike - my favourite chatbot?

Goals:

- The learners reflect on their interaction with Replika
- The learners compare the experience with their own expectations from a chatbot at the beginning of the train session, and analyse the desired features of a chatbot through this comparison

Step-by-step instruction:

- The trainer gathers the learners together, and invites them to share their experience with Replika

- The learners should present their notes and think about these questions:
1. Have you learnt something from Replika?
2. What is the most unique quality of Replika that you find interesting?
3. What other topics would you like to talk about with Replika?

- After sharing their interaction with Replika, the trainer revisits the first discussion of the session where all the learners have written down their wish for an ideal chatbot. With the result from the previous discussion, the trainer asks the learners to reflect on their experience with Replika, and evaluation the conversation they have had with Replika and the features of Replika

- Then the trainer can ask the learners: does Replika fulfil your expectation? Or do you have more wishes, where Replika shall improve?

- And ask the learners: after interaction with Replika, do you want to change your description of 3 words from the first round of discussion? What will be a new character you did not consider before?

- The floor is open for questions and comments on the new visions of chatbots, as well as other examples of human machine interaction

- Note: Replika is currently only available in English. In case the learners are not able to engage a conversation in English, we encourage the trainers to find an alternative chatbot that works in the native language.

Time: 15 minutes
Activity: summary and reflection

Goals:

- The learners gain further insights about human machine interaction
- The learners are more motivated to try out more chatbots
- The learners have a chance to reflect on this session and give feedback about their progress

Step-by-step instruction:

- The trainer invites all learners to reflect on their experience with Replika and over this topic

- The trainer can address the challenges and opportunities of human machine interaction

- Ask the five questions of "Test yourself!" again, and collect the answers on a new scale

- Compare the results of the two scales and invite the learners to evaluate this training session.

CONCLUSION AND EVALUATION

Trainer asks learners the following questions:

- Did this training session meet your expectations?
- Highlight one thing you would change in this training flow. How?
- What will you remember most from this training?
- How will you transfer this knowledge into practice?
- How has your perception on AI changed? What is your new insight regarding human machine interaction, especially in the field of chatbot?
- Think of something meaningful and important that was told in this training. Share.

ONLINE TRAINING

AI perceptions, ethics and societal challenges

online training session 3

PREPARATION

Time:

- 4 pedagogical hours and breaks

Learners:

- Adult learners, who want to address and discuss the topic of AI and the societal challenges that come with the application of AI

Learning outcomes:

- After the training, learners will have a better understanding of AI, its ethical dimensions and its societal challenges. Through the examples of a few controversial development in the field of AI, learners will have a direct impression on how AI has a direct impact on our society. At the end of this training session, learners should be better equipped to analyse and reflect the debates over the AI

Methodology:

- icebreaker, assessment exercise, discussion, group work, group exercise in pairs, case study, reading, presentation, brainstorming, internet research, reflection, evaluation.

Equipment:

- Before the training, the trainer shall choose the virtual boards on which he/she will work. Padlet, mural, miro, mentimeter are recommended for this training programme. Make sure there is stable internet access.

Preparation of the classroom:

- For online training, the trainer should choose a platform that allows the learners to work in breakout rooms (e.g. Zoom/Adobe Connects) And make sure the trainers have prepared all the handout in advance (with the support of external software or links)

IMPLEMENTATION

Time: 30 minutes
Activity: What do we have in common?

Goals:

- Building relationships between the learners
- Setting rules of cooperation during the activities (technical and interpersonal).
- Getting to know needs and motivation of the learners.

Step-by-step instruction:

- The trainer welcomes all the learners and gives a brief introduction of the trainer her/himself

- The trainer states a few facts about her/himself (where the trainer is/how is the weather today/hobbies/preference of food/favourite genre of movies, music, literature or art/sports/AI aspect that interests her/him the most) and asks the learners, whether someone has something in common

- Each learner, once has identified a common feature, can volunteer to be the next to introduce her/himself and add on a few facts about her/himself

- The Learner asks the others, whether someone has something in common – and the round of introduction continues like this.

- Once the round of introduction is completed, the trainer shall give a concluding remark, which includes a few most-frequently mentioned points of what everyone has in common

- The trainer then gives a brief introduction to the topic of the training, explaining the goals and programme of the training

**Time: 15 minutes**
Activity: Test yourself!

Goals:

- The learners can have a chance to evaluate their current state of knowledge, capacity and motivation

- The trainer can have a better understanding of the level of knowledge among the learners in this session, so that she/he can adjust the session if necessary
- The trainer will revisit the result of this exercise later, as a part of the evaluation of the training session

Step-by-step instruction:

- The trainer shows a scale on the screen, with points varying from 1 to 5. For example:

AI AND YOU

1   2   3   4   5
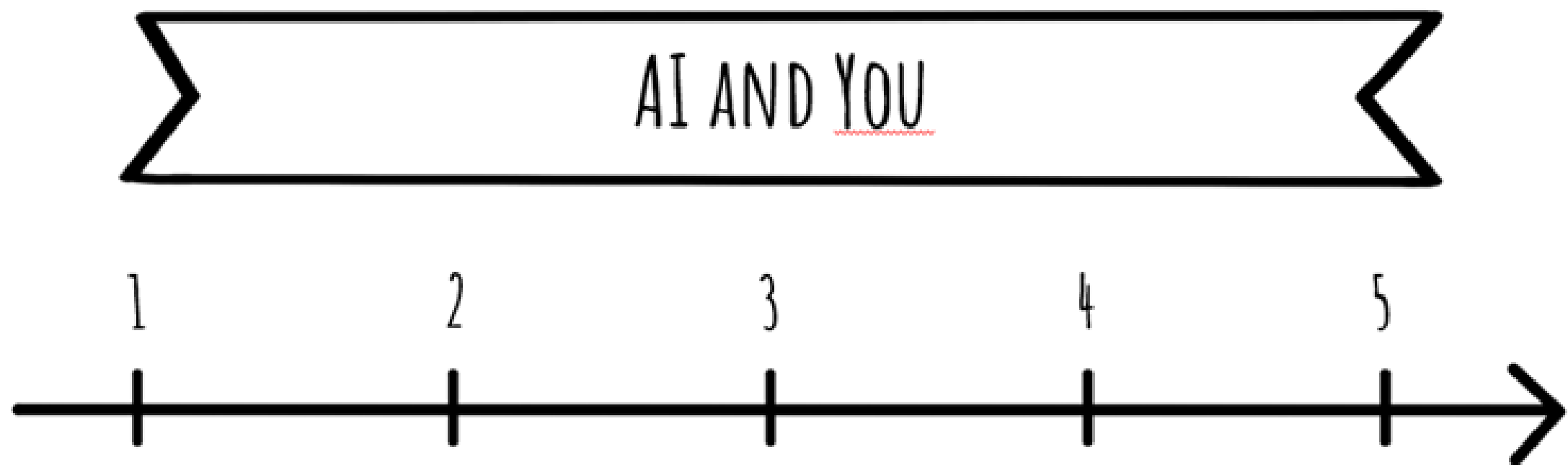
- The trainer asks the following questions one by one:
1. I believe AI can be used in positive ways to improve our everyday life
2. I can name three examples where AI is used in our society
3. I can explain the benefits and the potential problems of AI to a friend.
4. I am curious to know how AI is used during the global pandemic.
5. I would like to promote a more ethical approach of AI by telling others the possible biases of AI.

- We recommend using Menti during this part of the training: https://www.mentimeter.com/

- After every question, the trainer collects the answer on the scale by adding small images/symbols/emojis on the scale

- The result of this exercise shall be saved and revisited later as a part of the evaluation at the end of the training session
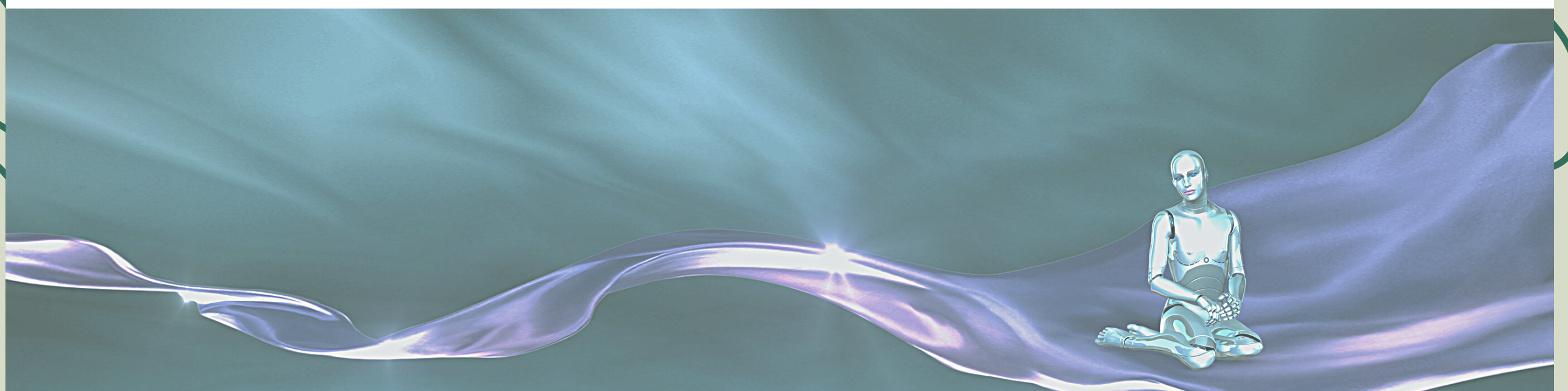
Time: 15 minutes
Activity: Introduction into AI

Goals:

- The learners gain a general impression of what AI is
- Based on the information from the trainer, learners shall be able to see why it is important to consider ethics in the application of AI and why this is relevant for their work and their everyday life

Step-by-step instruction:

- The trainer offers an introduction into the topic of ethics in AI, based on the materials available in the basic briefing (pp. 35 – 41 / Link)

- The trainer will use a PowerPoint-presentation to present the information, with interactive exchange with the learners

- After the basic information is delivered, the trainer invites the learners to offer some examples of an ethical question in the application of AI

Time: 40 minutes
Activity: introduction of the concept of autonomy

Goals:

- The learners gain a working-understanding of the concept of autonomy
- The learners are able to see different aspects of this concept and the different implications
- The learners are able to discuss AI through the lens of the concept of autonomy and therefore gain new insights

Step-by-step instruction:

- The trainer offers an introduction of the concept, using the materials from the Handbook (Link)

- The trainer writes down the key points of the two perception (Kant and Mill) on the virtual board, and ask the learners to select one side of the two perceptions

- Once the learners are divided into two groups, they shall enter the breakout rooms, and continue the discussion in small groups.

- In small-group discussion, the learners will be asked to 1) summarise this perception in 3 key words, and 2) name 3 examples/scenarios where this understanding of autonomy is applied (20 minutes)

- The trainer will gather the learners again. Each group presents their results, and together the learners compare their findings (10 minutes)

- The trainer summarises the discussion and writes down the key words of each group on the board.

Break

Time: 80 minutes
Activity: Case study: Autonomous weapons

Goals:

- The learners gain the basic information of what autonomous weapons mean
- The learners will watch a video about the autonomous weapons and get to the many different aspects involved in the current debates

Step-by-step instruction:

- The trainer offers an introduction of autonomous weapons, using the materials available in the handbook (Link) and presenting the information with a PowerPoint-presentation (5 minutes)

- The trainer will show the video (link), and the learners will watch it together (25 minutes)

- A round of brainstorming at the end of the video, where all learners can share their impression (5 minutes)

- Each group (from the previous section) is invited to reflect the content of the video through the lens of what "autonomy" means, and combine the results from the previous discussion with the video (5 minutes)

- The trainer will collect the most discussed themes from the brain-storm session, and form small groups with the selected themes (15 minutes)

- The trainer will gather the learners together again. Every learner has the chance to express their view on autonomous weapons.

- The trainer will lead the discussion with the following guiding questions: What are the features of autonomous weapons? And what might be the problems? What is "partial autonomous" and "fully autonomous" when it comes to weapons? How to understand the statement from the Pentagon that "humans will always be in control of AI weapons"? Where are autonomous weapons being used these days? Who takes the responsibility? What does this mean for: officials/operators/generals, soldiers and civilians, regulation and international laws, the production and supply of such weapons, and the engineers who program the software?

- The Trainer offers a brief summary of this session with a few concluding remarks

Break

Time: 45 minutes
Activity: Tell your story with AI

Goals:

- The learners share their experiences with AI and expand their understanding
- The learners gain a direct impression of the AI tools they can use for daily life and work

Step-by-step instruction:

- The trainer offers two examples of AI tools (autonomous driving, AI in triage) based on the materials available in the handbook (Link)

- The trainer prepares a digital whiteboard, inviting the learners to write the advantages and disadvantages these two examples can bring (5 minutes)

- All the learners are divided into two groups, each group conducts further discussion in a separate working group/breakout room. In the breakout room, each group shall prepare a whiteboard/digital sheet, where they use their imagination to "invent" two more tools which involve AI technologies (10 minutes)

- The trainer gathers the learners back in the plenary, both groups will present their inventions individually (10 – 15 minutes)

- Based on the inventions from the learners, the trainer steers the discussion to the impact of these inventions, using some of the guiding questions: (15 minutes)

1. Will these new inventions replace human beings in the job market?
2. What will be the advantages of using AI technologies compared to the conventional human operation?
3. Which skills can be replaced or even improved by AI technologies? Which skills can not?
4. What does this mean for education in the future?
5. What skills are unique to human capacities, and how shall we strengthen these skills through education?

- Through the discussion, learners shall be able to have an understanding about AI, and the impact of AI on our society, esp. on education.

- The trainer can conclude the discussion with a few "suggestions for future trainers", where all learners are invited to summarise their opinions in one sentence

Time: 5 minutes
Activity: summary and reflection

Goals:

- The learners have a chance to reflect on this session and give feedback about their progress
- The trainer has the chance to monitor the progress among the learners and reflects the training session her/himself

Step-by-step instruction:

- The trainer invites all learners to reflect on their experience of this session

- Ask the five questions of "Test yourself!" again, and collect the answers on a new scale

- Compare the results of the two scales and invite the learners to evaluate this training session.

CONCLUSION AND EVALUATION

Trainer asks learners the following questions:

- Did this training session meet your expectations?
- Highlight one thing you would change in this training flow. How?
- What will you remember most from this training?
- How will you transfer this knowledge into practice?
- How has your perception on AI changed? What is your new insight regarding the ethical challenges of AI?
- Think of something meaningful and important that was told in this training. Share.

FURTHER MATERIAL

visit our website and our E-Learning platform, where you can find infographics, briefings, handbook, interviews, literature, and plenty of interactive learning nuggets to guide your through this AI journey:

http://www.studio2b.de/thema/aiae

AIAE - Artificial Intelligence Curriculum for Adult Education

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