MACHINA

O3-T3: VOOC testing and evaluation report

Funded by the Erasmus+ Programme of the European Union

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

Project acronym: MACHINA

Project name: Machine Learning skills for ICT professionals

Project code: 2020-1-FR01-KA202-080386

Document History

Versions	Date	Changes	Type of change	Delivered by
Version 1.0	22-07-2022	Initial document	-	EXELIA

Document Information

Document ID name:	MACHINA_O3-T3_VOOC Testing and evaluation report
Document title:	Report on the testing & evaluation outcomes
Output Type:	Intellectual Output
Date of Delivery:	22/07/2022
Activity Type:	Evaluation report
Activity Leader:	EXELIA
Dissemination level:	Confidential

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1 INTRODUCTION

The MACHINA VOOC is a self-standing modular course for ICT professionals, who seek to improve their skills, knowledge and competencies in Machine Learning methods and use cases. The MACHINA online course, was developed in the context of the third Intellectual Output, with the aim to act as an open, wide-access delivery method for the MACHINA curriculum and educational resources (O2). The MACHINA VOOC, available in English, has been grounded on evidence-based learning outcomes (coming out from extended labour market and skill needs analysis and reflects the structure of the developed curriculum as organized around learning units and lessons. It also integrates additional pedagogical resources such as video units, infographics, working assignments, and collaboration mechanisms to provide an optimal learning experience with increased collaboration opportunities. Overall, the MACHINA VOOC offers a modular, e-learning scheme, always available over the Internet that supports the attainment of learning outcomes and places the "learner" at the heart of the educational process. The learner is given the flexibility to establish individual learning goals and a personal learning path based on available content and materials.

The third activity of the third Intellectual Output (O3-T3) included the pilot delivery (testing) of the MACHINA online course and learning materials by actual trainers and learners. Pilot testing is a trial and evaluation method that involves trying an offering (e.g., product, service, system, application) in a natural usage context to identify shortcomings and flaws that could be experienced by end-users. The pilot testing process was conducted over two months from 09 May to 1 July 2022, remotely via the MACHINA VOOC.

The overarching purpose of this process was to identify weaknesses, and opportunities for improvement and to evaluate the different aspects of the VOOC infrastructures such as course structure and clarity, learning effectiveness, technical operation and accessibility.

In total, 156 learners registered and attended the online course during the testing period, providing their comments and feedback on the VOOC and contributing to validating the MACHINA educational resources. Overall, the process recorded very positive attitudes and comments from testing participants on the educational value, usefulness, and technical operation of the online course, who expressed interest in exploiting the MACHINA educational resources.

This report presents the results and main findings from the pilot testing process – as drawn from the online evaluation forms – and provides specific recommendations for the improvement and fine-tuning of the online course.

The report is organized as follows: Section 3 provides the main details from the pilot session including participation metrics and course analytics. Section 4 provides an overview of the methodology employed. Section 5 presents in detail the evaluation results as drawn from the analysis of participants' responses and feedback. Finally, section 6 concludes with the key findings from the pilot testing process along with the next actions for the fine-tuning and final release of the online course.

2 THE MACHINA VOOC

The MACHINA VOOC is an up-to-date, self-guided, modular course for ICT professionals, who need to improve their skills, knowledge, and competencies in Machine Learning (ML) methods and practical applications. ICT professionals and anyone who follows this course will acquire and develop ML technical and non-technical skills required to respond to modern workplace requirements and succeed in a competitive labor market.

The MACHINA Vocational Open Online Course (VOOC) acts as the main delivery method for the MACHINA curriculum. It reflects the structure of the developed curriculum, as organised around learning units and lessons, and comprises the project's training and assessment materials, contextualized, in an online form (text, presentations, multimedia files, interactive tools, and exercises). The MACHINA VOOC integrates also additional pedagogical resources such as video units, infographics, working assignments, and collaboration mechanisms to provide an optimal learning experience with increased collaboration opportunities.

The MACHINA Vocational Open Online Course is founded on the following **pedagogical principles**.

- **Learner-centeredness**: Learners are at the heart of the learning process, being able to establish individual learning goals and a personal learning path based on available content and materials.
- **Flexibility**: Learners are able to arrange their learning schedule according to their resources within the lifecycle of the course and decide their level of engagement.
- **Interactivity**: The MACHINA VOOC makes explicit mention of the value of interactivity and the multiplying effects it has on learning and capacity building. Learners are encouraged throughout the course to discuss with their peers, provide feedback on each other's work, and participate in joint activities, where possible.
- **Ubiquitous learning**: Learners are able to experience learning activities and content in any context and situation 24 hours 7 days per week through mobile devices such as laptops, tablets and smartphones.
- **Teacher as facilitator**: In VOOCs, trainers should abandon their traditional role which is to convey information to learners and now act as facilitators, motivating learners to engage in course activities and providing feedback and assistance with their tasks.
- **Blended evaluation scheme**: One of the greatest challenges for a Vocational Open Online Course is to establish an assessment model that works at a much larger scale,

with potentially thousands of learners participating in the course. To respond to this challenge, the MACHINA VOOC has employed a blended evaluation scheme that incorporates different methods & tools to evaluate learners' performance, including: a) auto-assessment, b) peer feedback, and c) self-checks.

The following table shows the structure of the MACHINA curriculum and the breakdown of the **six learning units** into lessons.

Learning Units	Lessons	Duration
ML essentials for ICT professionals	Lesson 1: Introduction to ML	Total: 80 hours
	Lesson 2: Where to apply ML	
	Lesson 3: Machine Learning and Data processing	
	Lesson 4: Example ML applications	
Mathematical Foundations	Lesson 1: Set, Functions, Relations	Total: 80 hours
	Lesson 2: Linear Algebra	
	Lesson 3: Probability Theory	
	Lesson 4: Statistics	
	Lesson 5: Computation theory	
ML Algorithms, Programs, and Protocols	Lesson 1: Machine Learning by linear models	Total: 100 hours
	Lesson 2: Supervised learning	
	Lesson 3: Unsupervised learning	
	Lesson 4: Semi-supervised learning	
	Lesson 5: Programming languages and frameworks for Machine Learning algorithms	
	Lesson 6: Best practices for ML	
Deep Learning (Advanced)	Lesson 1: Multilayer Perception (MLP)	Total: 80 hours
	Lesson 2: Convolutional Neural Networks (CNN)	
	Lesson 3: Recurrent Neural Networks (RNN)	
	Lesson 4: Autoencoders (AE), Restricted Boltzmann Machines (RBM)	
Communicating the merits, challenges, and implications of Machine Learning technology to customers and within own organization	Lesson 1: Introduction to communication and ML involvement	Total: 83 hours
	Lesson 2: Types, levels, components of effective communication and ways for using Machine Learning in Communications	
	Lesson 3: The future of communication in accordance with artificial intelligence	
	Lesson 4: The effects of artificial intelligence in communication	
Legislation, Ethics, Project Management related to ML	Lesson 1: EU guidelines on ethics in artificial intelligence	Total: 83 hours
	Lesson 2: Data Value/Costs Model	
	Lesson 3: Bias in Machine Learning	
	Lesson 4: Software engineering for AI applications	

3 PILOT DELIVERY OF THE MACHINA VOOC

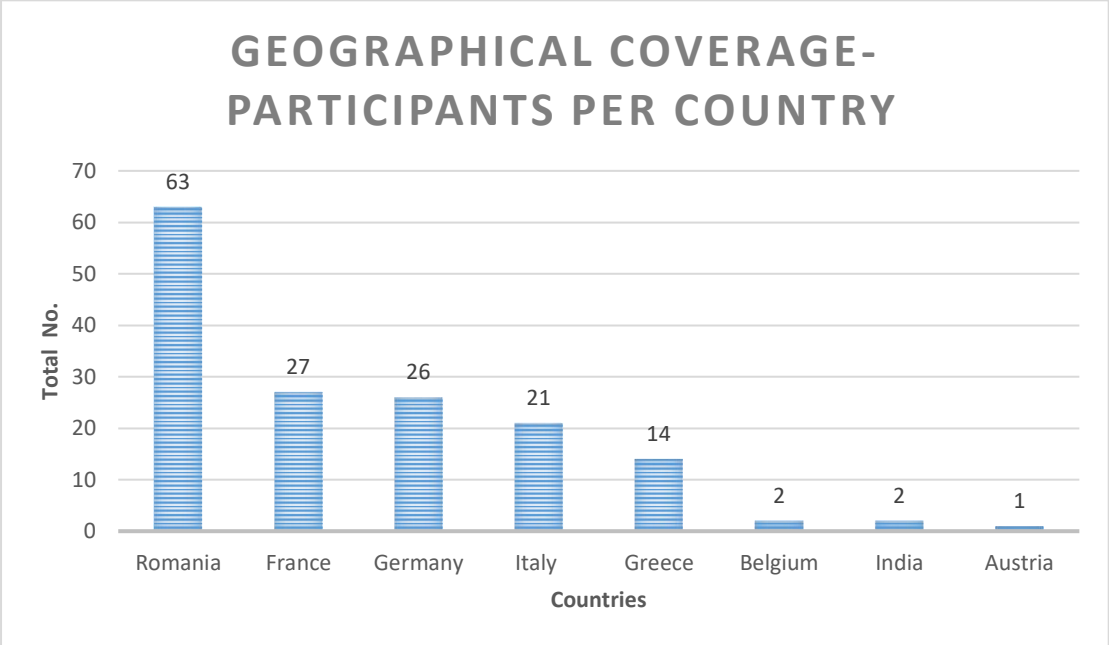
3.1 Pilot session details

The VOOC pilot online course took place in English and lasted about 2 months (from 9 May to 1 July 2022), making it available to target groups learning materials of 506 hours duration. The learners who evaluated the course spent roughly 2 hours per day for 3-4 months, to study the materials and complete the assignments. The main details of the pilot delivery of the MACHINA VOOC are presented as follows.

Testing object	MACHINA Vocational Open Online Course (VOOC)
Language	English
Delivery method	Online / Offline
Testing approach	Moderated
Facilitators	UCBL, EXELIA
Participants	ICT professionals, ICT students, VET providers, ICT trainers, tech enthusiasts, tech savvies
Start Date	9 May 2022
End Date	1 July 2022
Geographical scope	International but with a particular focus on partnership countries (France, Germany, Italy, Romania, Greece)
Feedback gathering tool	Online evaluation form
Main Outputs	1. VOOC testing and evaluation report 2. Finetuned online course

3.2 Participation

During the pilot period, 156 learners from 8 countries registered and attended the MACHINA online course on Machine Learning. The geographical distribution of course participants is as follows.



The actual participation numbers by target group are presented in the **annexed Table 1**. The majority of participants were from the MACHINA consortium countries; however, two participants came from non-EU countries, more specific from India, proving the international outlook of the project's materials.

Country	Number of participants
Romania	63
France	27
Germany	26
Italy	21
Greece	14
Belgium	2
India	2
Austria	1
Total	**156**

3.3 Course analytics

Course analytics offer valuable insights on what learners are doing in the course and how they are interacting with the available content and other participants including facilitators (when relevant). OpenLearning provides a series of metrics on learners' engagement and course participation such as:

- Active time: Learners' activity on the course
- Page views: Learners' engagement at a page level
- Progress / Completion rate: Percentage of the course completed
- Comments over time: Comments made by learners in each session and the discussion forum

These metrics together with the information gathered from learners through the anonymized follow-up feedback survey have helped the MACHINA partnership obtain a clear picture of the student learning experience, and improve the quality of the course, towards providing an optimal and comprehensive learning experience.

The metrics obtained are quite satisfactory, demonstrating a relatively high engagement rate. These can be summarized as follows.

Page views	7642
Average page views per user	45.9
Highest course completion rate	98.41%
Average course completion rate	5.76%
Total active time on course	87.03 hours
Highest active time on course	11 Hrs 39 Mins
Average active time on course	33 minutes

4 METHODOLOGICAL APPROACH TO EVALUATION AND FEEDBACK PROVISION

4.1 Purpose and testing objectives

The partnership run a pilot session of the online course with the participation of actual learners and trainers, seeking to evaluate the educational value of learning materials and test the VOOC's functionality. Testing results will be used to identify weaknesses, areas of strengths, opportunities for improvement. The partnership pursued the following research objectives:

- Understand learners' actual needs and expectations from the course, and discover opportunities to address them.
- Explore if learners are able to review materials and attend all course activities without any malfunctions.
- Collect quantitative and qualitative data on the educational value, structure usability and technical operation of the online course.
- Fine-tune the online course based on participants' feedback and comments as derived from actual VOOC usage and interaction with materials.

4.2 Evaluation areas

Performance evaluation refers to the process of collecting, analysing and interpreting information on the performance and effectiveness of a product or service. This process estimates and looks into the parameters under which a tool, framework, system under examination is working as intended and reaches the targeted results. These parameters are related to the components or elements of the testing object that need to be measured for assessing its performance, status and usability. The MACHINA online course was evaluated against 5 parameters/criteria.

1. Clarity and comprehensiveness of curriculum structure (the accuracy of the course, the effectiveness of the curriculum)
2. Relevance and quality of learning materials
3. The added value of the training offering (an increase of learning skills, the application of the theory into practice)
4. Usability and technical operation of content (registration process and the technical issues)

5. Connectivity, bandwidth and accessibility issues

4.3 Process

This sub-section depicts the procedure followed by the MACHINA partnership to prepare and carry out the pilot delivery of the MACHINA online course.

- Step 1: Development and release of the MACHINA online course on "OpenLearning" platform
- Step 2: Promotion of the online course to target groups by partners
- Step 3: Publication of the online course on the platform's marketplace after successfully passing the quality reviewing process
- Step 4: Start of the pilot session on the 9th of May 2022
- Step 5: Registration of learners (continuous process)
- Step 6: Facilitation of the online course and monitoring of learners' activity
- Step 7: Closure of the pilot session on 01 July 2022
- Step 8: Distribution of the evaluation form to course participants
- Step 9: Closure of the evaluation period on 15 July 2022.

4.4 Feedback collection form

An online structured questionnaire was the main instrument for capturing course participants' views and feedback on the educational value, usability and effectiveness of the MACHINA online course and educational resources.

A web-based approach was employed for reasons of practicality, and to facilitate the data collection, coding, and analysis process. The questionnaire was structured in a clear and simple manner to encourage participation and facilitate communication with participants. As there was not be a physical interaction between participants and facilitators, all questions were designed to be clear and understandable, providing working definitions and clarifications for terms/procedures that participants may not be familiar with.

The survey questionnaire comprised mostly closed-ended questions (Likert scale multiple choice questions) as they are easier and quicker for respondents to answer; offer better coding, analysis and comparison possibilities. Likert scale questions were mostly used so that

the partnership can identify the degree to which users agree or disagree with a number of statements referring to the relevance, usefulness and effectiveness of the MACHINA resources. Open questions were also included so that course participants can express their opinion and state anything they feel is relevant, clarify and justify their answers, provide more accurate information on the usability of the online course and make recommendations on how to further improve it.

The evaluation form consisted of the following sections:

1. Participant profile
2. Structure
3. Relevance and quality
4. Clarity
5. Added value
6. Technical operation
7. Comments and suggested improvements

The questionnaire was distributed to course participants via email after the conclusion of the pilot session of the online course. The evaluation form was also posted on the announcement section of the online course, to achieve increased visibility. The survey remained open for about 15 days, from 1 July to 15 July 2022.

5 EVALUATION RESULTS

This section presents the main findings drawn from the feedback collection process and more especially from the statistical analysis (descriptive statistics) of the input provided by course participants. The process has recorded positive attitudes and comments on the educational value, usefulness, and technical operation of the online course. At the same time, participants provided valuable feedback that will be used by the partnership to improve learning materials and fine-tune the online course and develop its final version before making it available to final end-users and beneficiaries. The results of each (survey) question are presented using tables and charts (graphs). The structure of the analysis that follows is mostly based on the structure of the evaluation form in terms of evaluation/measurement parameters and the sequence of the questions included.

The main parameters that were assessed were a) course structure, b) relevance and quality of educational materials, c) clarity, d) added value, and e) technical operation. The questionnaire also included – apart from demographic questions – two screening questions; one on participants' previous experience and familiarization with online courses and one on the time spent on the online course, as a proxy on the validity of the responses provided. In total, the online evaluation form was completed by 32 out of 156 course participants (~20%), which is a relatively good response rate.

5.1 Participants' profile and previous experience with online courses

The questionnaire started with the so-called screening questions giving the chance to participants to state their country of origin, their professional role/capacity, previous experience with online courses and the time they spent on the MACHINA VOOC. The results are reported below.

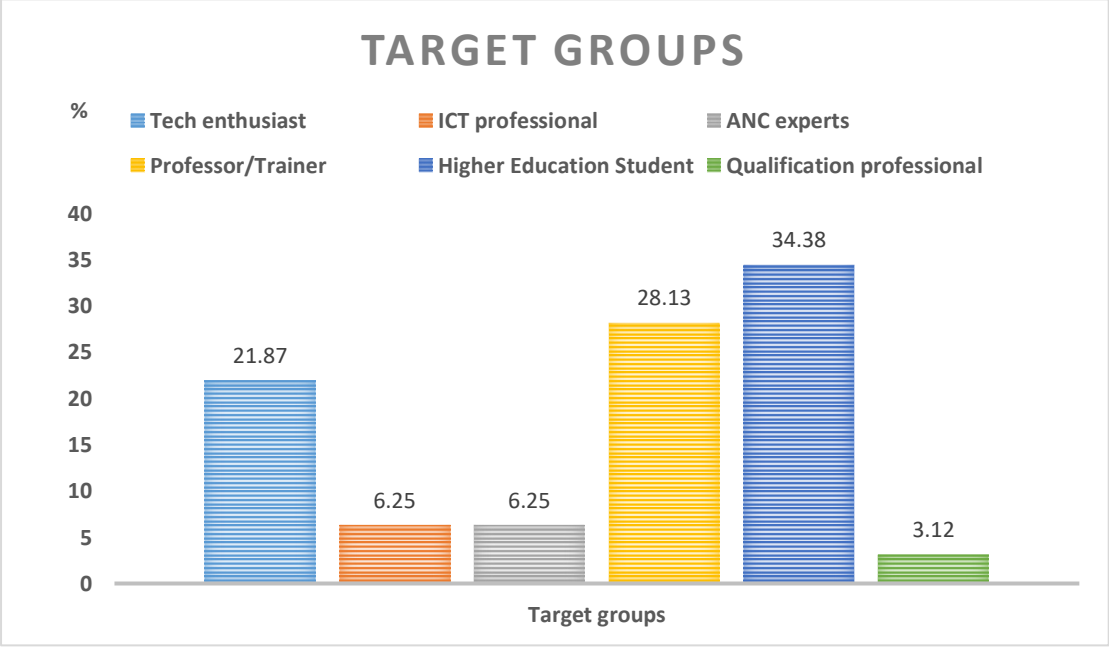
Geographical distribution

The survey was completed by 32 course participants from 6 countries. The geographical distribution of these responses is as follows:

Country	Number of participants
Romania	15
Greece	7
Germany	5
France	3
Marocco	1
Ukraine	1
Total	**32**

Responses per target group

The participation numbers per target group is depicted below. More specifically, the partnership gathered 32 responses from ANC experts, ICT professionals, professor/trainer, higher education student, tech enthusiast and Qualification professional.

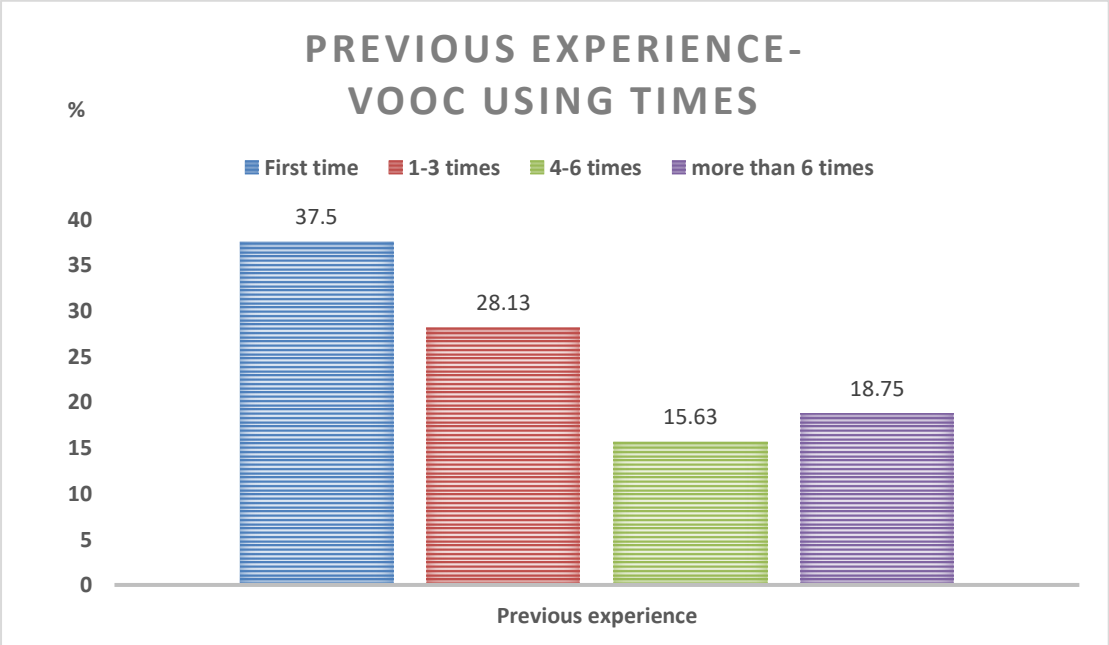


Previous experience with online courses

One of the important criteria of the pilot-run survey was to take into account the previous experience of the respondents with similar courses, in order to assess how familiarity with the context affects the ability to collect feedback from different target groups. The options for the participants to state their previous experience were represented as showcased below:

- First time to take an Open Online Course
- From 1 to 3 times
- From 4 to 6 times
- More than 6 times

The results show that the great majority of survey participants had previous experience with online courses, demonstrating a high familiarity with online education. Only for one out of three participants, this is the first time taking an online course.



5.2 Evaluation Area A: Course Structure

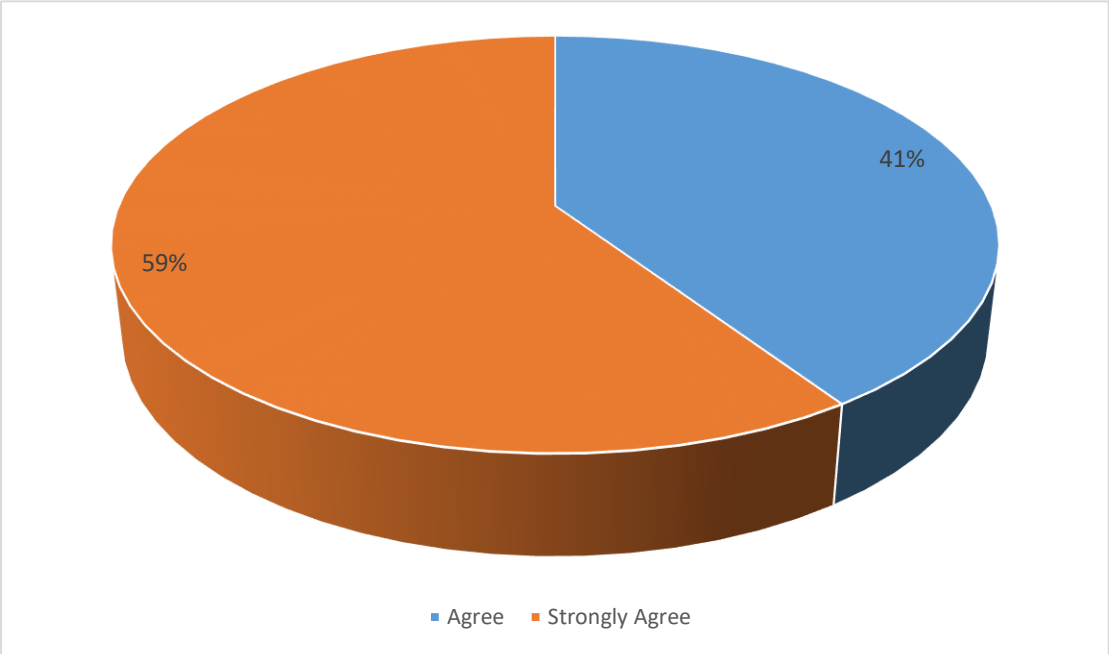
The first evaluation parameter includes variables that assess the structure of the MACHINA curriculum and the flow of learning materials. Information provided by testing participants in this area will allow the partnership to assess content organisation, whether the MACHINA online course is structured in a logical and flexible way, whether the desired balance between theory and practice has been achieved and whether its structure allows learners to choose to attend the modules and learning activities that better address their needs and personal learning objectives. Testing participants were asked to indicate their level of agreement with the following (structure-related) statements:

- The course is well-organized and flows in a logical progression.
- The learner can easily choose the parts of the course wishing to attend.
- The course provides a balanced approach between theory and practice.
- The content is enriched with visual and auditory elements, which are well-integrated with other course materials.
- It is easy for the learner to follow the course at his/her own pace and time.

What can be easily extracted from the evaluation results, as presented below in the form of graphs, is that almost all the participants have a positive impression of the course structure (visual elements, flow, ease, etc.).

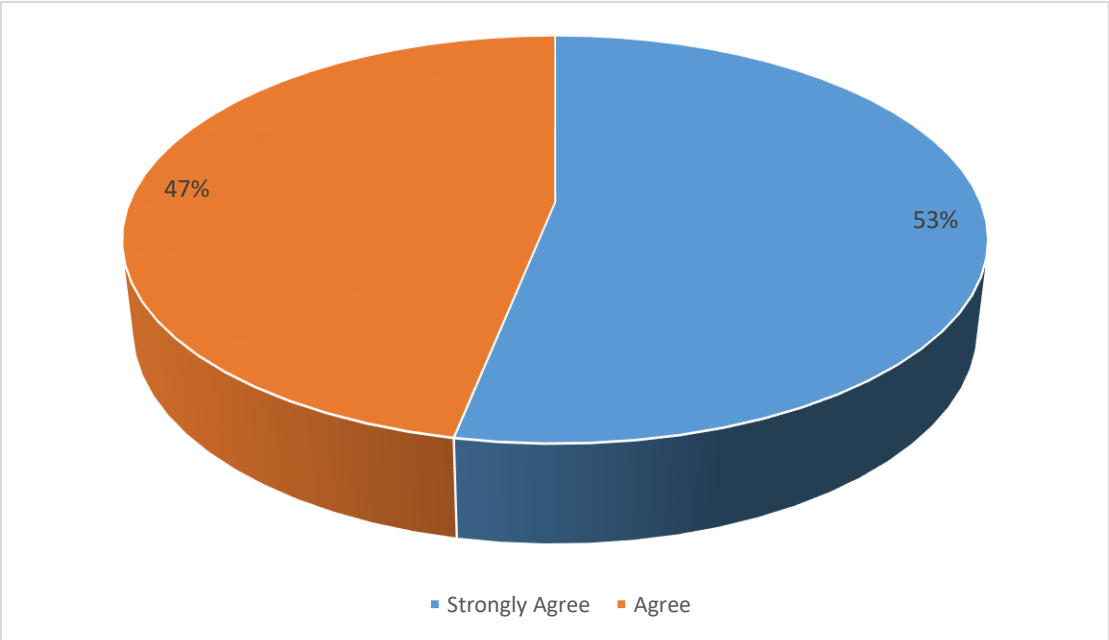
Statement 1:

The course is well-organized and flows in a logical progression.



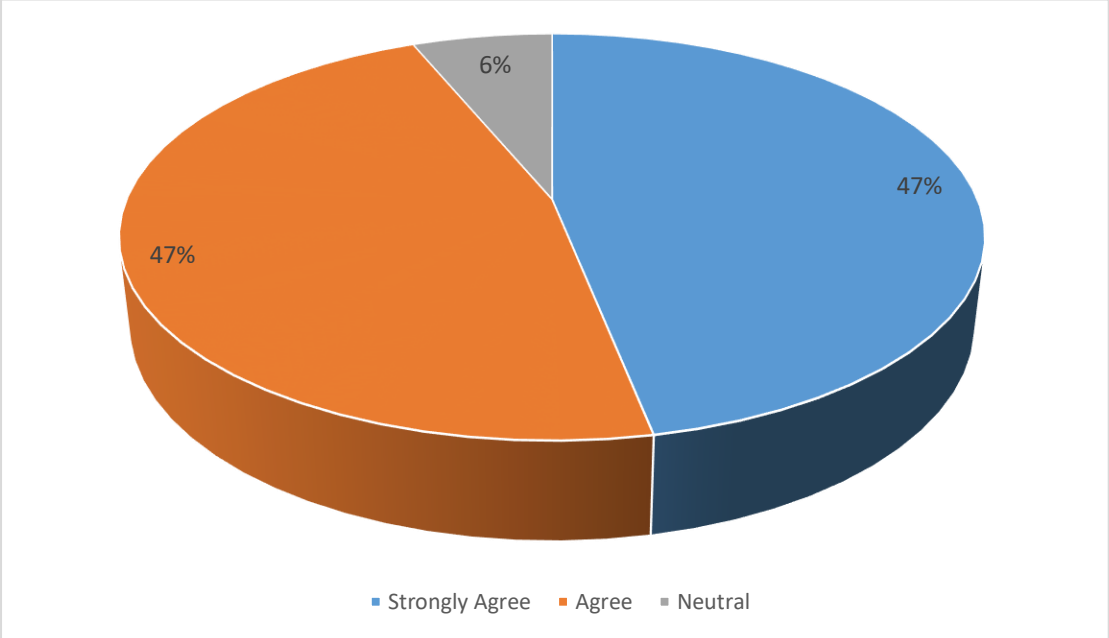
Statement 2:

The learner is able to easily choose the parts of the course wishing to attend.



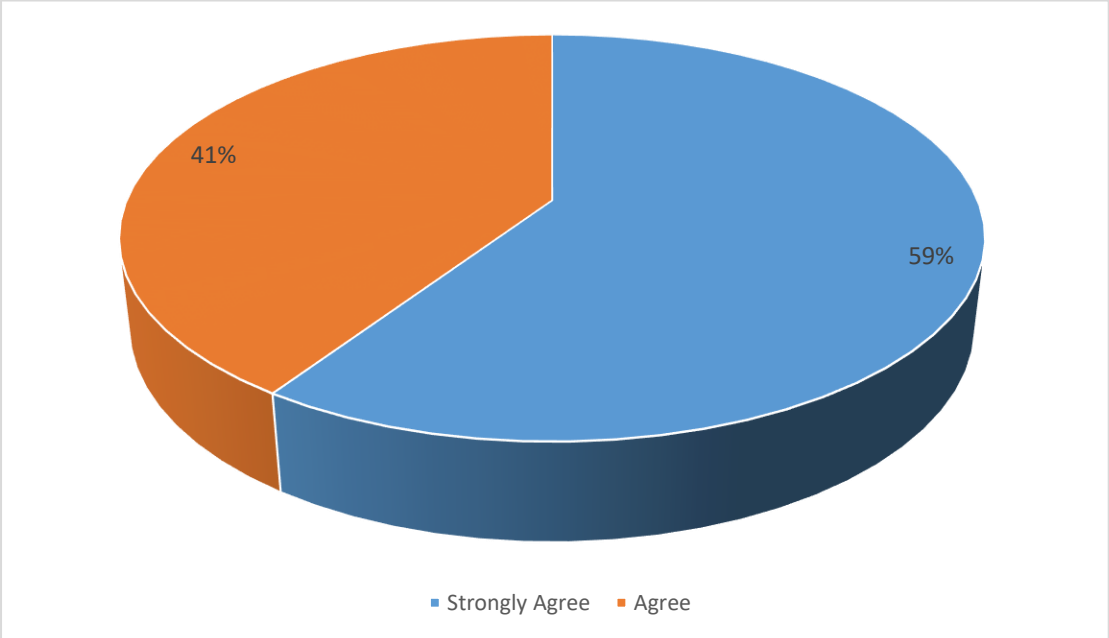
Statement 3:

The course provides a balanced approach between theory and practice.



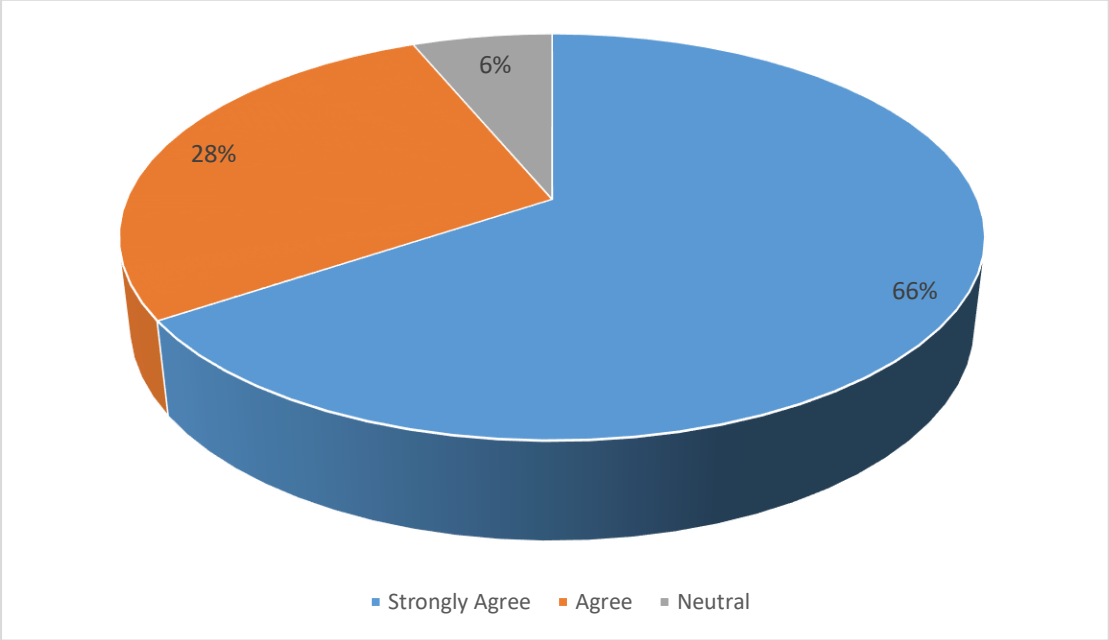
<u>Statement 4</u>:

The content is enriched with visual and auditory elements, which are well-integrated with other course materials.



Statement 5:

It is easy for the learner to follow the course at his/her own pace and time.



5.3 Evaluation Area B: Relevance and quality

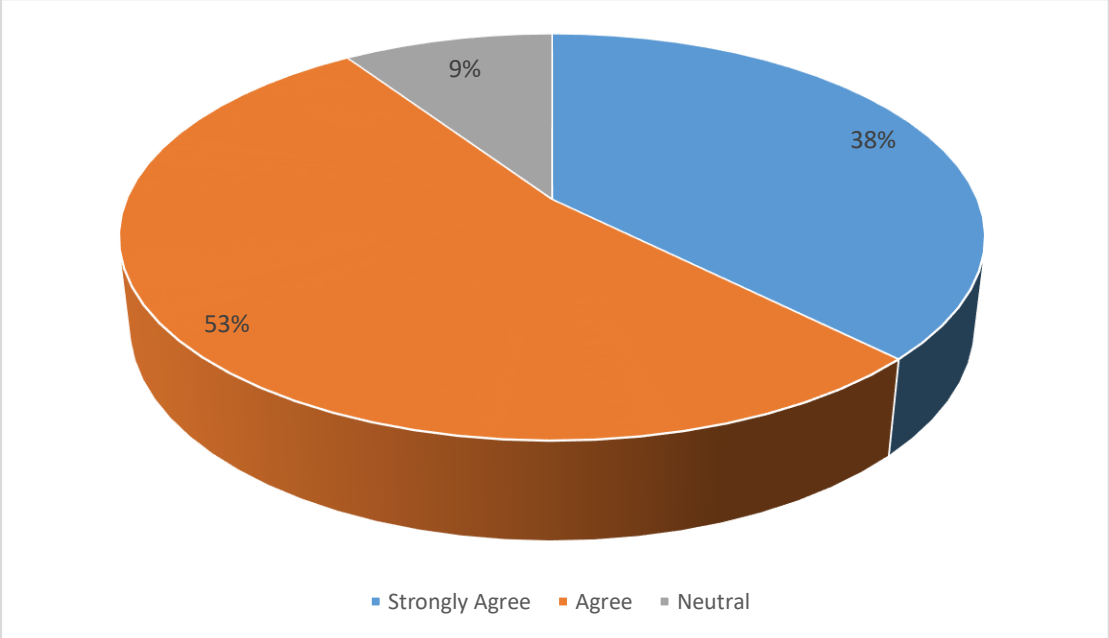
The second evaluation parameter includes variables that assess the relevance and quality of the MACHINA curriculum and its learning materials. Information provided by testing participants in this area will allow the partnership to assess the content's quality, whether the MACHINA online course has an impact on learners and if materials are close to target groups' expertise. Testing participants were asked to indicate their level of agreement with the following (relevance/quality-related) statements:

- The curriculum reflects and corresponds to the actual ML related skills and workplace requirements for ICT professionals
- The materials correspond and complement the topics addressed by the course
- The materials help learners comprehend the theoretical foundations of Machine Learning
- The materials help learners comprehend the practical applications and the innovative possibilities that Machine Learning offers.

What can be easily extracted from the evaluation results, is that almost nine out of ten participants have a positive impression of the course quality and the relevance of materials to actual learners' capacity-building needs.

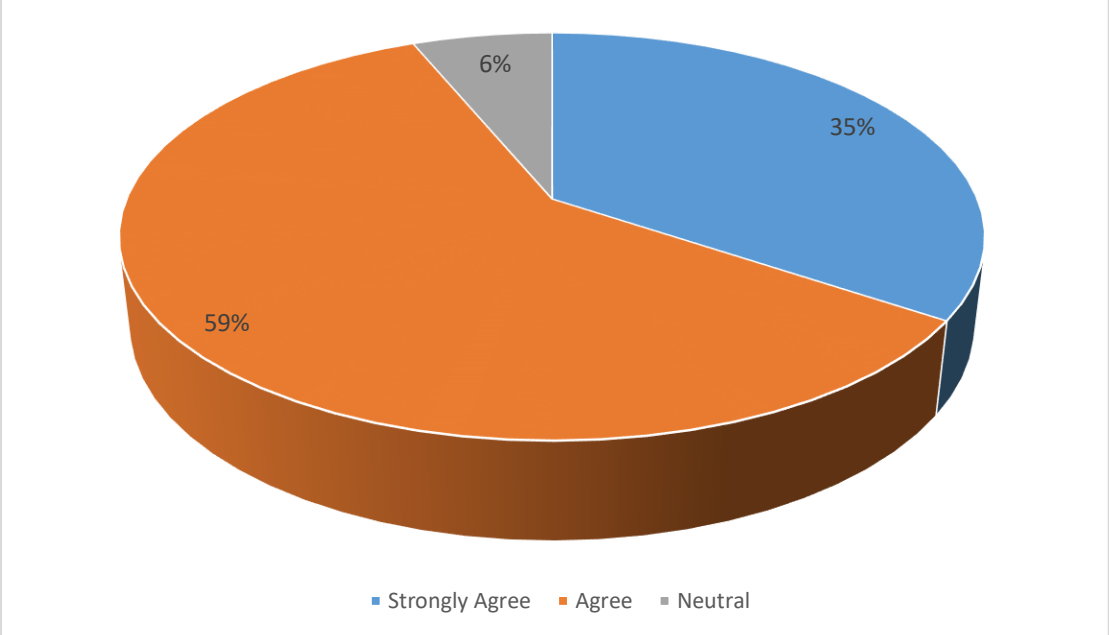
Statement 6:

The curriculum reflects and corresponds to the actual ML-related skills and workplace requirements for ICT professionals.



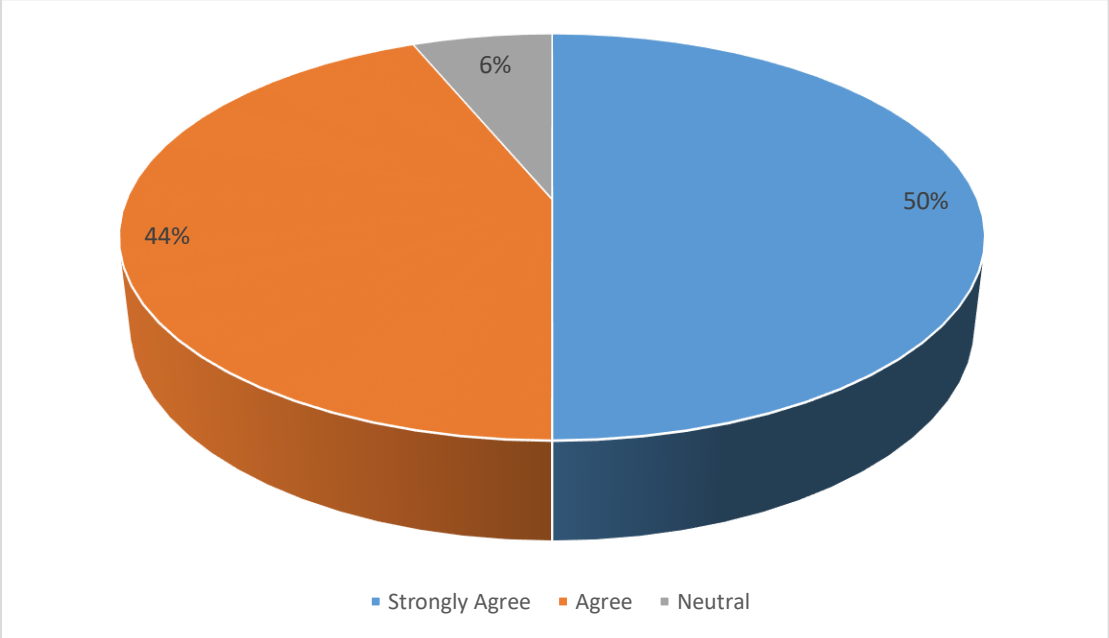
Statement 7:

The materials correspond and complement the topics addressed by the course.



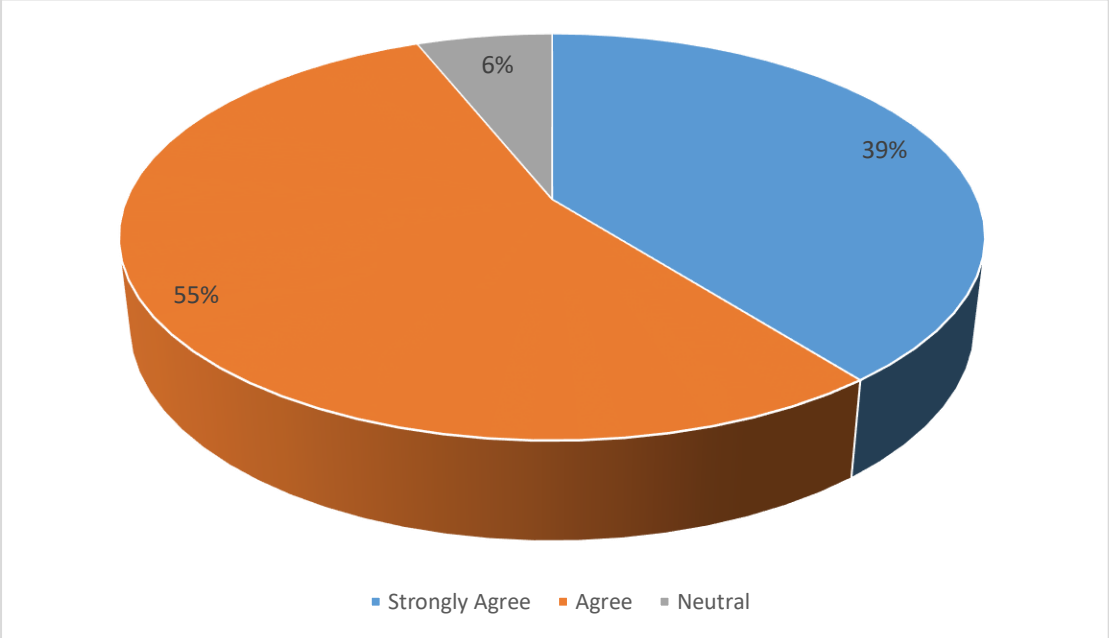
Statement 8:

The materials help learners comprehend the theoretical foundations of Machine Learning.



Statement 9:

The materials help learners comprehend the practical applications and the innovative possibilities that Machine Learning offers.



5.4 Evaluation Area C: Clarity

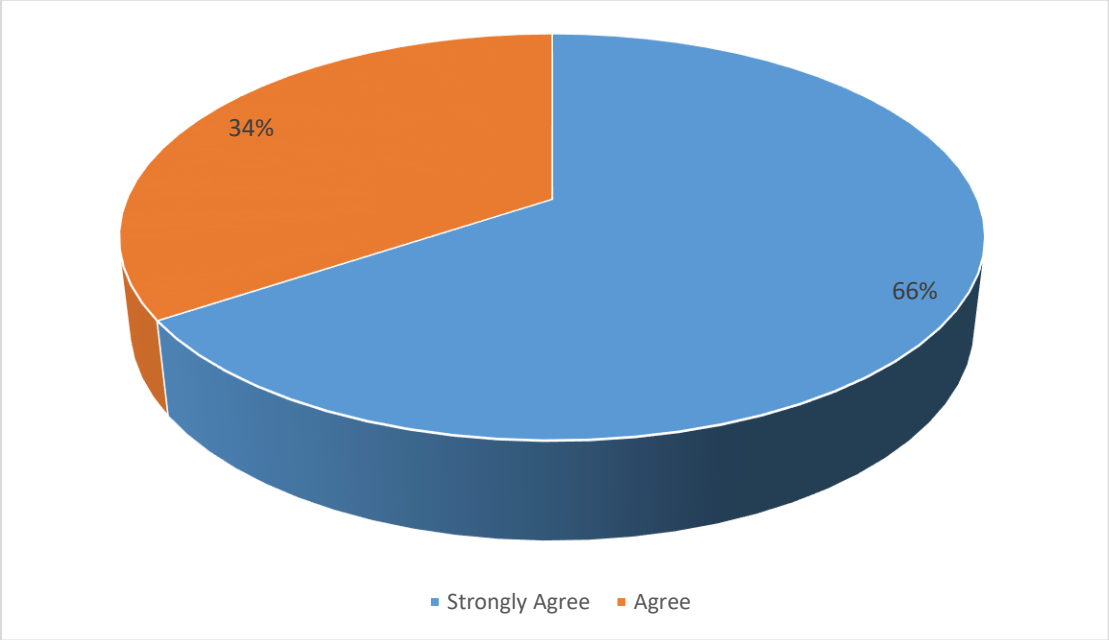
The third evaluation parameter includes variables that assess the clarity of the MACHINA curriculum and learning materials. Information provided by testing participants in this area will allow the partnership to assess how user friendly and eye-pleasant features the course has, the connection between materials and learning objectives and the clarity of the course's concepts and objectives. Testing participants were asked to indicate their level of agreement with the following (clarity-related) statements:

- The course objectives are clear
- The connection between learning objectives and materials is clear
- The materials include comprehensive examples and explanations
- The course delivers complex concepts in a clear and precise manner

What can be easily extracted from the evaluation results, is that 100% of participants agreed about the clear objectives of the course, as presented below in the form of graphs (clarity, examples, explanations etc.).

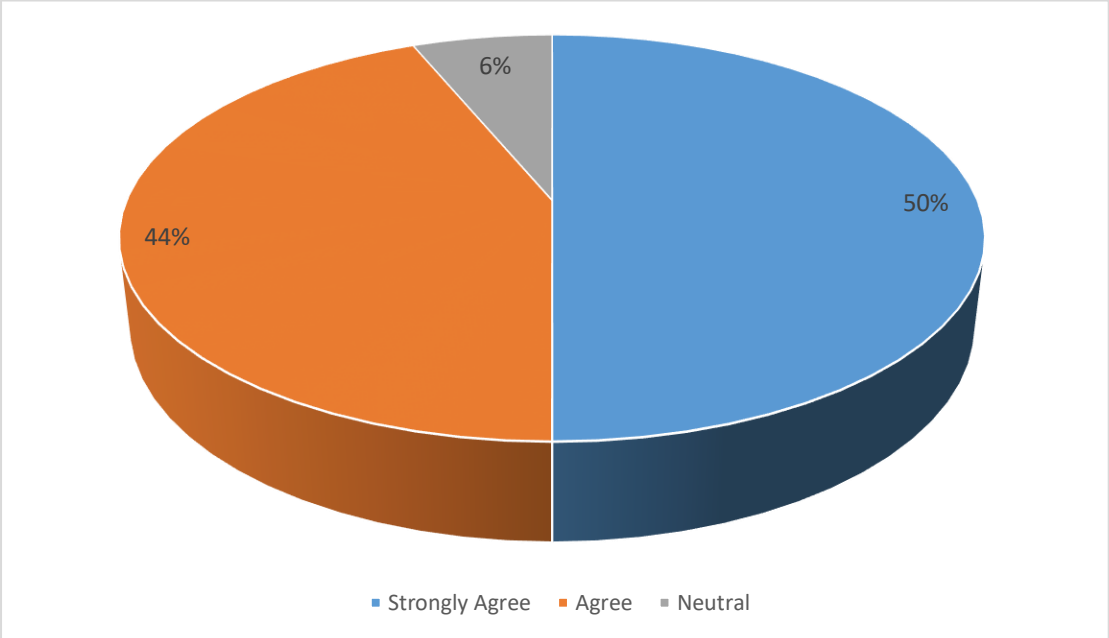
Statement 10:

The course objectives are clear.



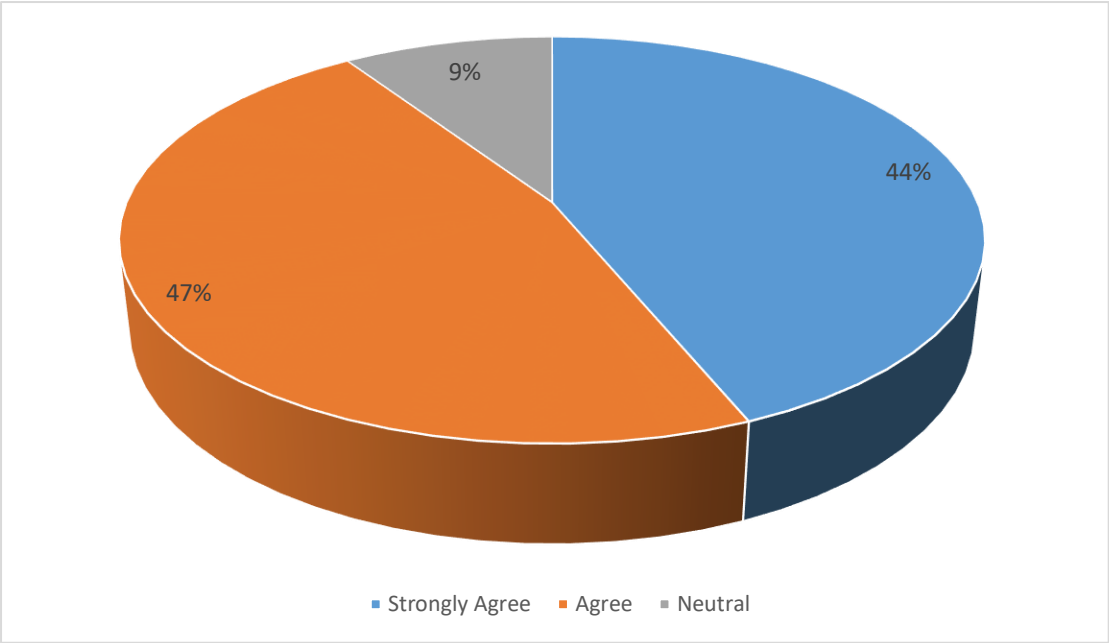
Statement 11:

The connection between learning objectives and materials is clear.



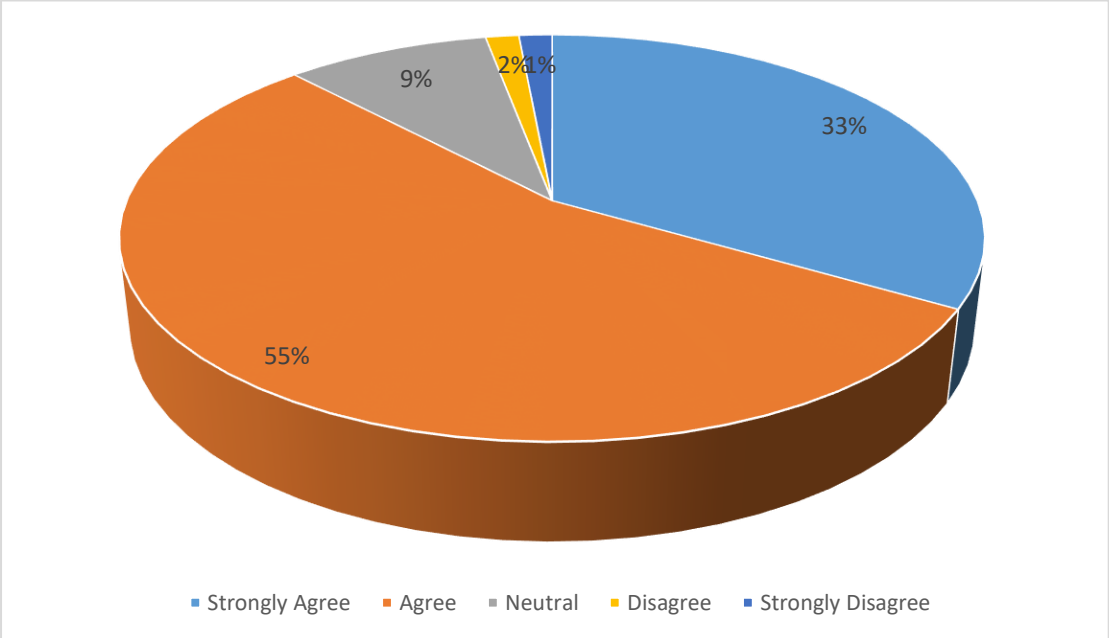
Statement 12:

The materials include comprehensive examples and explanations



Statement 13:

The course delivers complex concepts in a clear and precise manner.



5.5 Evaluation Area D: Added value

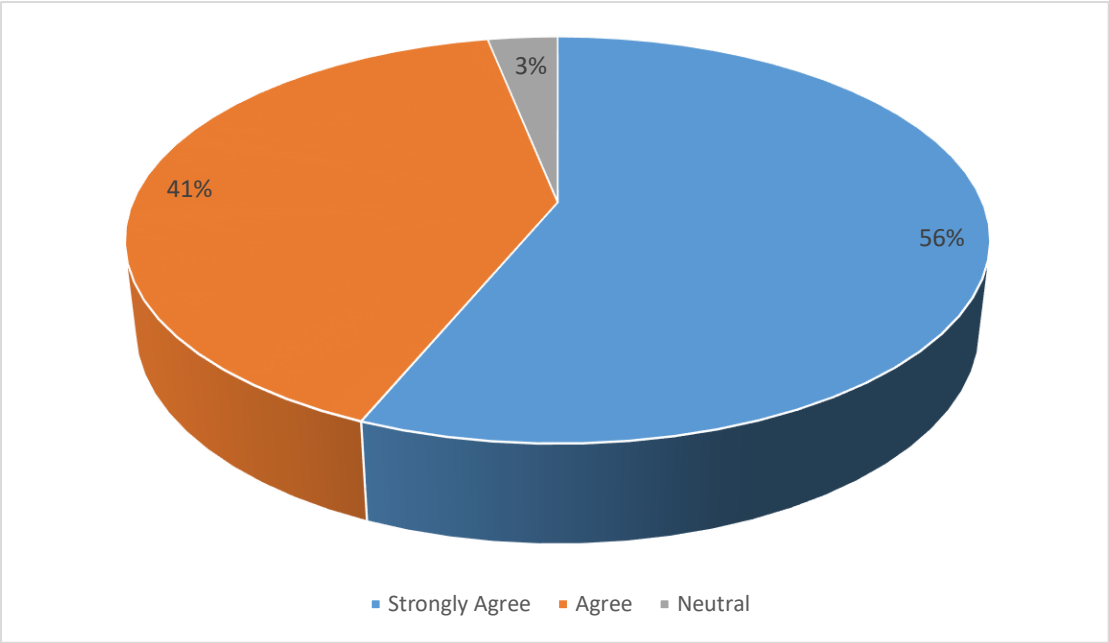
The fourth evaluation parameter includes variables that assess the added value of the MACHINA course to learners' experience and knowledge building. Information provided by testing participants in this area will allow the partnership to assess the degree to which the defined learning objectives are achieved, and to which extent the project's learning approach – after the use of the MACHINA VOOC - translates into new knowledge and skills acquisition for learners in the subject matter. Testing participants were asked to indicate their level of agreement with the following (added value-related) statements:

- The materials introduce the learners to new knowledge.
- The course can motivate learners to pursue more advanced work on the subject in the future.
- The course enables learners to put theory into practice.
- The course can increase learners' employability.

The charts below testify that over 95% of the participants consider that the MACHINA VOOC can significantly ameliorate learners' skills, knowledge, and work.

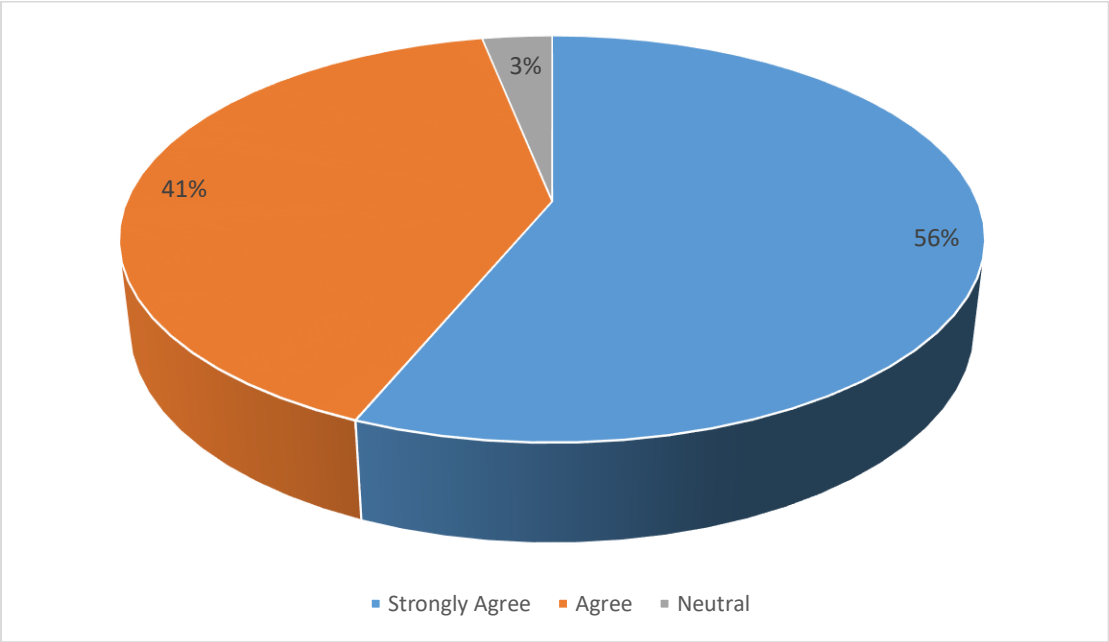
Statement 14:

The materials can increase learners' skills and interests in the subject matter.



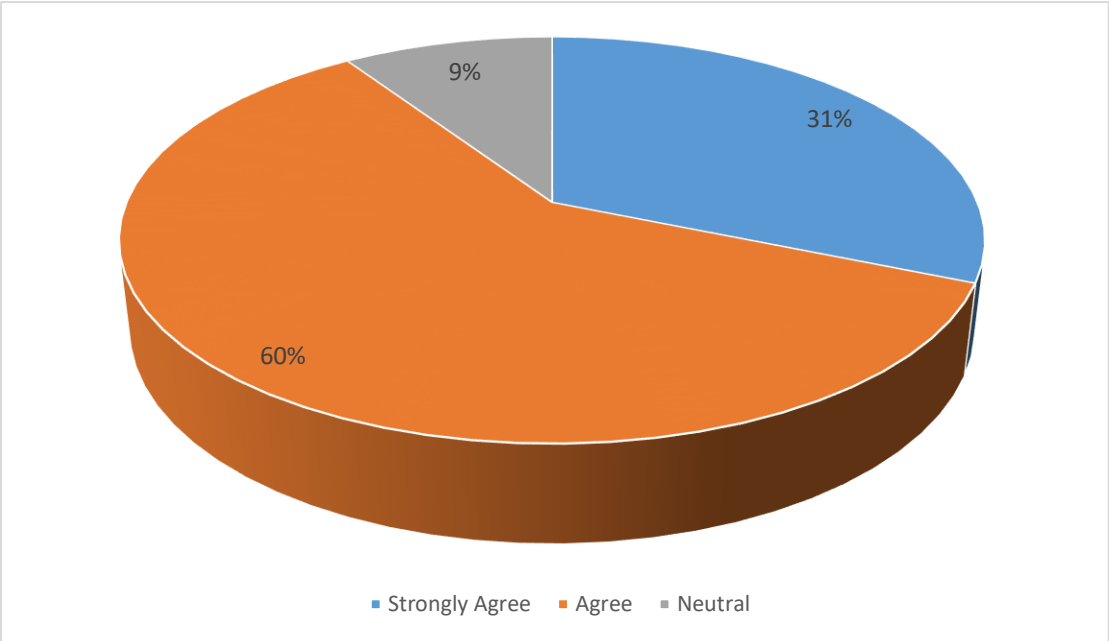
Statement 15:

The materials introduce the learners to new knowledge.



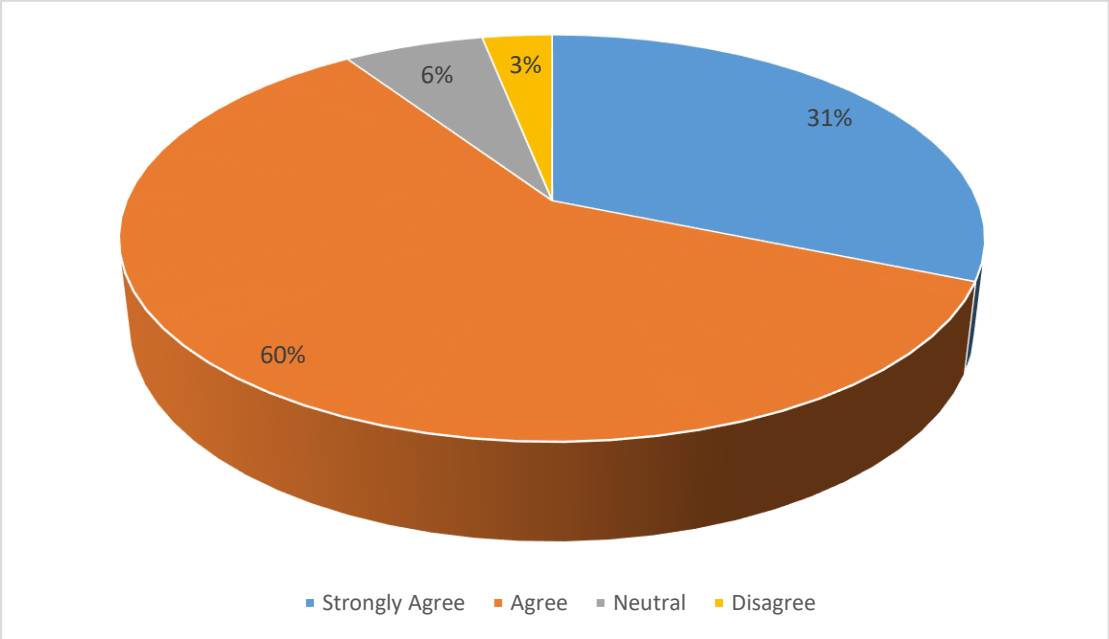
Statement 16:

The course can motivate learners to pursue more advanced work on the subject in the future.



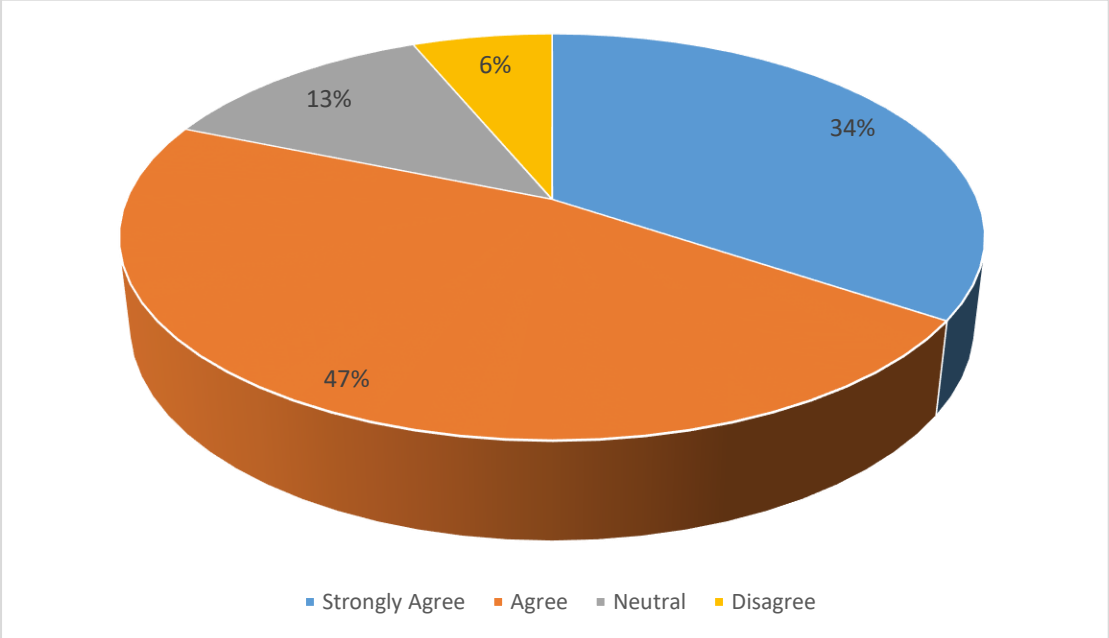
Statement 17:

The course enables learners to put theory into practice.



Statement 18:

The course can increase learners' employability.



5.6 Evaluation Area E: Technical operation

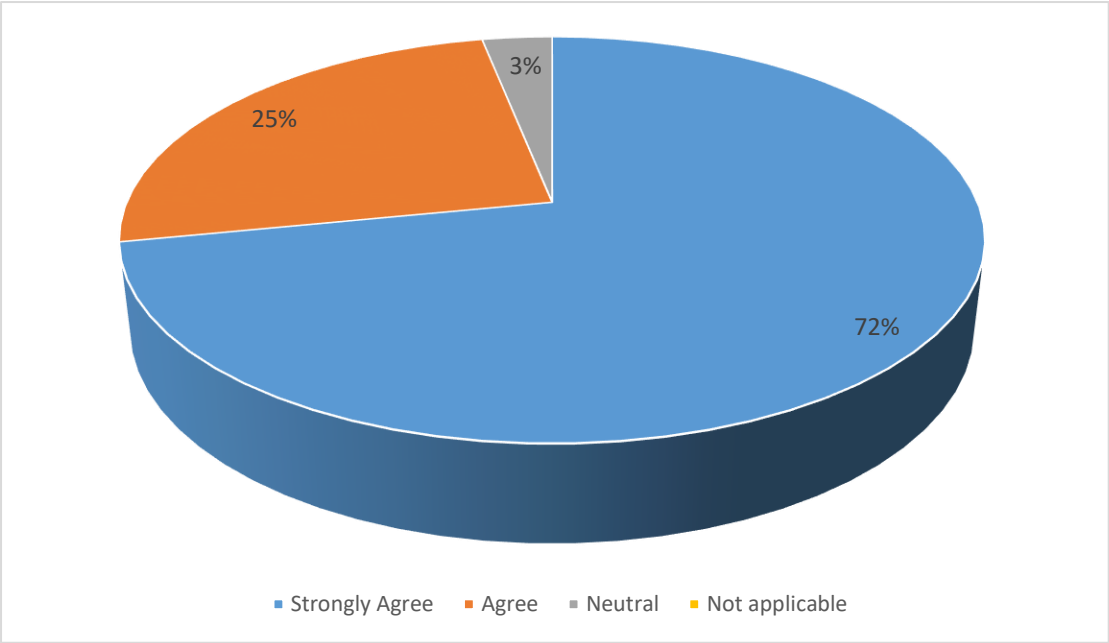
This section aims to rate how operational and easy to understand and use these features are. The fifth evaluation parameter includes variables that assess the technical aspects of the MACHINA VOOC. Information provided by testing participants in this area will allow the partnership to assess whether the online course behaves according to the technical specifications without any substantial lag or technical errors. Pilot participants were asked to indicate their level of agreement with the following (technical-related) statements:

- Registering for the course was quick and easy
- Pages are loading fast
- Embedded, external content (e.g. YouTube videos) was working flawlessly
- Access through mobile devices was easy and convenient

The results of the graphs below testify that the majority of the participants did not find any technical obstacles while registering and attending the MACHINA VOOC.

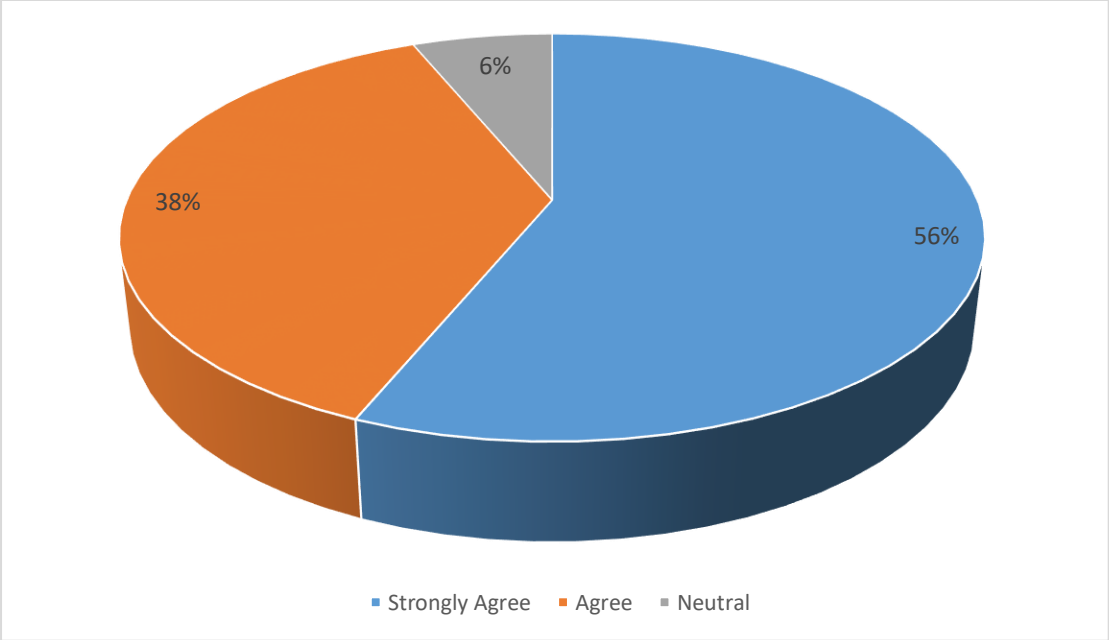
Statement 19:

Registering for the course is quick and easy.



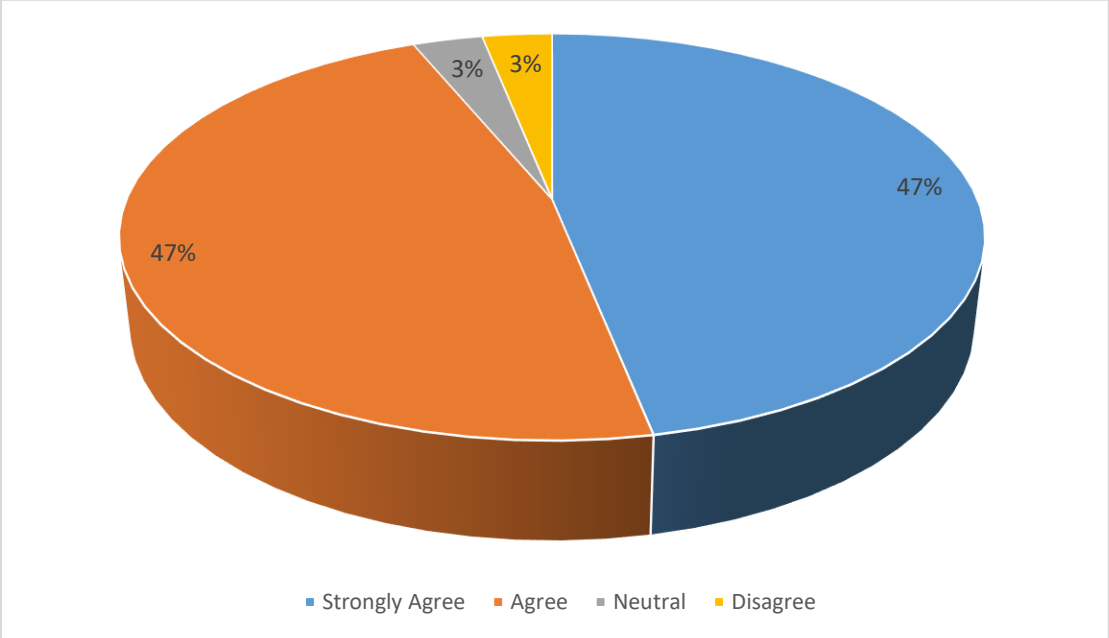
Statement 20:

Pages are loading fast.



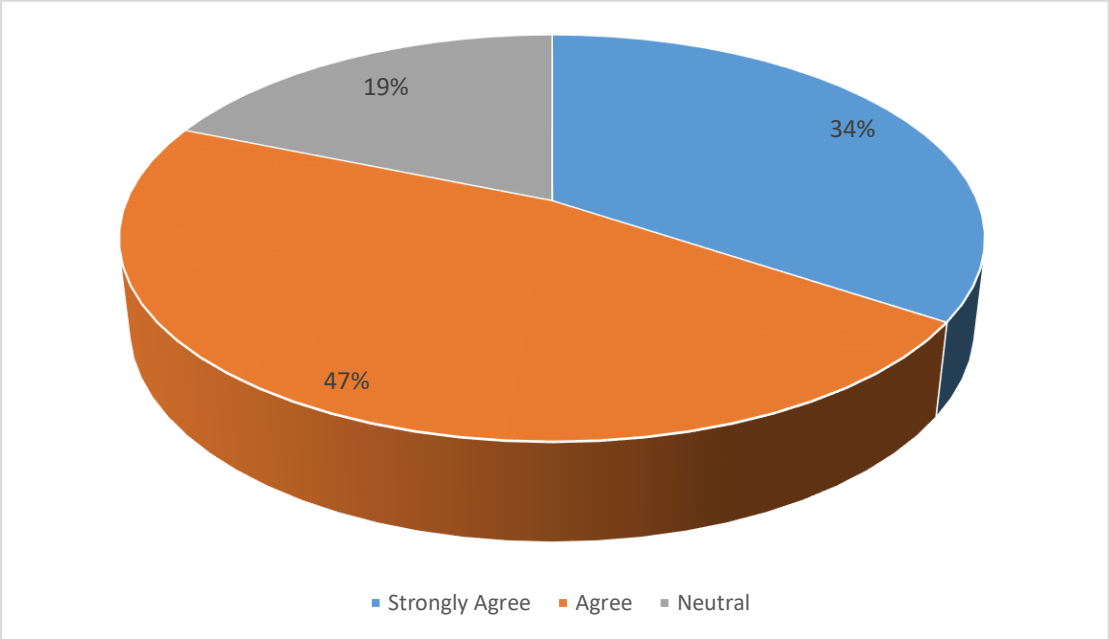
Statement 21:

Embedded, external content (e.g., YouTube videos) is working flawlessly.



Statement 22:

Access through mobile devices is easy and convenient.



<u>Statement 23</u>:

What aspects of the online course and learning materials shall be improved? Please give examples.

This question aims to reveal reasoning behind the VOOC trial, therefore to assess the needs that the online course covers, as well as their expectations from taking the course. This question is deliberately used in the form of an open question, to provide the participants to use their words while giving feedback, to reveal the strength of their opinions, phrase their comments and feedback in a way that we cannot anticipate, and give accurate representations of personal views.

The majority of respondents participated in the VOOC course following the suggestion of a colleague or out of suggestion or curiosity. Most of them are professors/ trainers, tech enthusiasts, or HE students who wish to get employed in related jobs and sectors. Some of the respondents stated “Everything was great!” or “Possibility of also having explanatory videos in French. Make a video summary for each learning unit“ while others, participated in the survey in order to try an online course and to have an instructor/professor to help and guide them saying “The theoretical foundations of Machine Learning are not easy to comprehend by those who have no background in math, science or engineering.”.

In the pilot-run the given replies are 28 Blanks and as follows:

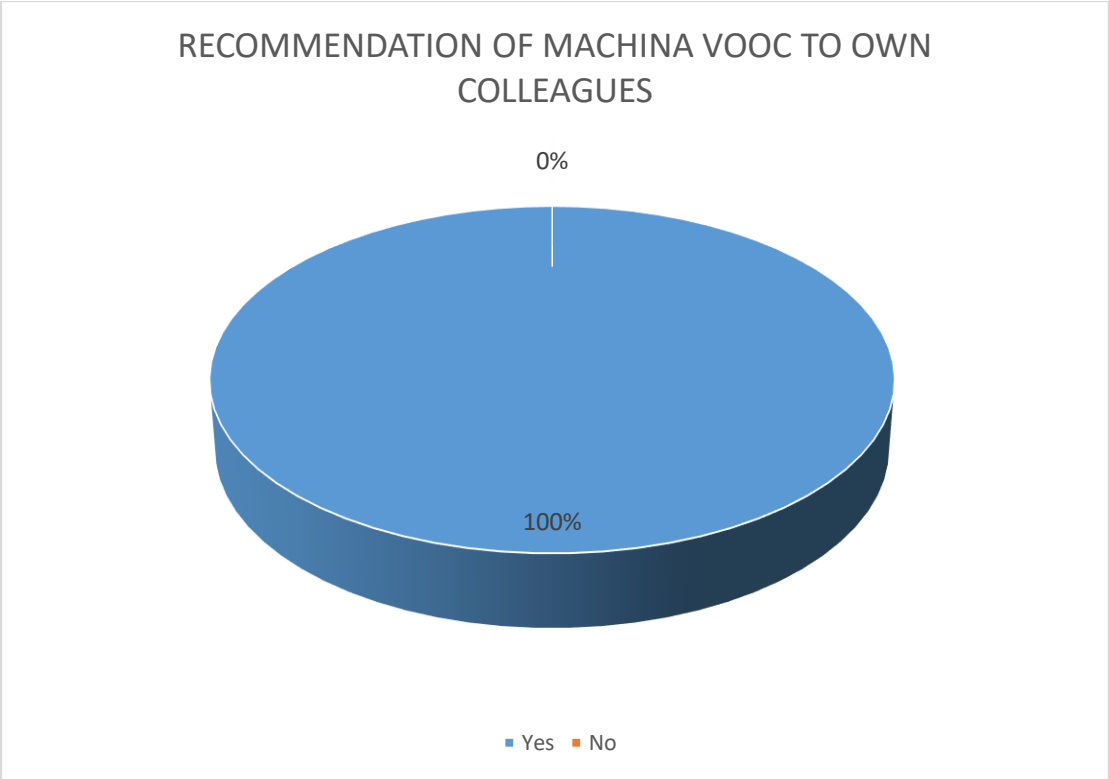
1.	I think that "Final assessment" has some mistakes, more exactly on Ex 1, neural network.
2.	Everything was great
3.	The theoretical foundations of Machine Learning are not easy to comprehend by those who have no background in math, science or engineering.
4.	Possibility of also having explanatory videos in French. Make a video summary for each learning unit.

5.7 Evaluation Area G: Recommendation of the course

The respondents were asked whether they would recommend the online course to their colleagues and friends. Unanimously, all respondents (100%) declared that they would recommend the course to their colleagues and friends.

Statement 24:

Would you recommend the MACHINA online course to your colleagues and friends?



6 KEY FINDINGS AND FINETUNING

The main objective of the pilot was to a) test the whole set of VOOC's technical aspects against specific criteria of usability and user experience, and b) assess the educational value of the MACHINA curriculum and the educational resources. The rationale behind this process was to validate the technical operation and added value of the curriculum, and proceed to fine-tuning before its final release to the general public. Additionally, the pilot run survey asked the participants to make suggestions on how to further improve the course.

The key findings and suggestions made by participants could be summarized as follows:

- Improving the presentation of code examples
- Enhancing VOOC with more audiovisual content
- Incorporating more theoretical video material and provision of detailed instructions for practical exercises
- Reducing the time necessary to end the first learning unit
- Clearer wording of questions in MCQs
- Correcting the mistakes in Final assessment on Ex.1 (neutral network)
- Inclusion of more case studies

The pilot's findings, as shown in more detail in Section 5, confirmed the usability of the online course, verifying that both ICT professionals and potential ones can be enrolled on the course and acquire a complete set of knowledge and skills by following the sequence of the course. Overall, very positive feedback was received from respondents. It was observed that both the technical aspects of the course were easy and fun to use, while the users felt comfortable enough to make a few suggestions on how to improve the visual and contextual aspects of the course. This was particularly useful, allowing for some relevant observations and considerations to be made. It is also, of great importance to state that all participants declared themselves willing to suggest this course to their contacts. Based on the expectations outlined in the MACHINA Application Form, the MACHINA VOOC will reach its final stage, when the suggestions and recommendations received during the pilot run, will be adapted to the final English version of the course.

7 ANNEXES

7.1 Tables

Table 1: Target groups of the survey

A.	*Target groups*	*No. of respondents*	*Percentage*
a	Professors/trainers	9	28.12%
b	ICT professional	2	6.25%
c	Higher educational students	11	34.38%
d	ANC expert	2	6.25%
e	Tech enthusiast	7	21.87%
f	Qualification professional	1	3.12%

Table 2: Previous participation in an Open Online Course

B.	*In how many Open Online Courses have you participated?*	*No. of respondents*	*Percentage*
a	This is the first time I attend/take an Open Online Course	12	37.50%
b	1–3 times	9	28.13%
c	3-6 times	5	15.65%
d	More than 6 times	6	18.75%

Table 3: Recommendation

C.	*Would you recommend the MACHINA online course to your colleagues and friends?*	*No. of respondents*	*Percentage*
	Answer	32	100%
a	Yes	32	100,0%
b	No	0	0,0%

7.2 Evaluation Form

EVALUATION FORM

Dear Learner,

Thank you for registering and attending the MACHINA online course on Machine Learning. We hope you have enjoyed the journey, and learnt a lot about this disruptive computing innovation.

To help us evaluate and improve the course, you are kindly invited to share your impressions with us, by completing a short online questionnaire.

It will not take more than 10-15 minutes to complete the questionnaire. Your input and data will be treated and remain strictly confidential and will be only used for internal purposes.

Link (To be provided):

Thank you in advance for your participation and valuable contribution!

Should you have any questions, please contact the MACHINA partnership at: solomos@exelia.gr

The MACHINA partnership
https://machina.univ-lyon1.fr/

A. PARTICIPANT PROFILE

1. Name

2. Country

3. Organisation / Affiliation

4. Email (optional)

5. Which of the following best describes you? (Choose the most relevant)

- ICT professional
- Student in a Higher Education (HE) institution
- Student in a Vocational Education and Training (VET) institution
- Professor / Trainer
- Tech enthusiast
- Other

6. In how many Online Courses had you participated before the MACHINA VOOC?

- This is the first time I attend/take an Online Course
- 1-3
- 4-6
- More than 6

B. STRUCTURE

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
7. The course is well-organized and flows in a logical progression.	○	○	○	○	○	○
8. The learner is able to easily choose the parts of the course wishing to attend.	○	○	○	○	○	○
9. The course provides a balanced approach between theory and practice.	○	○	○	○	○	○
10. The content is enriched with visual and auditory elements, which are well-integrated with other course materials.	○	○	○	○	○	○
11. It is easy for the learner to follow the course at his/her own pace and time.	○	○	○	○	○	○

C. RELEVANCE AND QUALITY

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
12. The curriculum reflects and corresponds to the actual ML related skills and workplace requirements for ICT professionals.	○	○	○	○	○	○
13. The materials correspond and complement the topics addressed by the course.	○	○	○	○	○	○
14. The materials help learners comprehend the theoretical foundations of Machine Learning.	○	○	○	○	○	○
15. The materials help learners comprehend the practical applications and the innovative possibilities that Machine Learning offers.	○	○	○	○	○	○

D. CLARITY

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
16. The course objectives are clear.	○	○	○	○	○	○
17. The connection between learning objectives and materials is clear.	○	○	○	○	○	○
18. The materials include comprehensive examples and explanations.	○	○	○	○	○	○
19. The course delivers complex concepts in a clear and precise manner.	○	○	○	○	○	○

E. ADDED VALUE

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
20. The materials introduce the learners to new knowledge.	○	○	○	○	○	○
21. The course motivate learners to pursue more advanced work on the subject in the future.	○	○	○	○	○	○
22. The course enables learners to put theory into practice.	○	○	○	○	○	○
23. The course can increase learners' employability.	○	○	○	○	○	○

F. TECHNICAL OPERATION

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
24. Registering for the course is quick and easy.	○	○	○	○	○	○
25. Pages are loading fast.	○	○	○	○	○	○
26. Embedded, external content (e.g., YouTube videos) is working flawlessly.	○	○	○	○	○	○
27. Access through mobile devices is easy and convenient.	○	○	○	○	○	○

G. SUGGESTED IMPROVEMENTS

28. What aspects of the online course and learning materials shall be improved? Please give examples.

29. Would you recommend the MACHINA online course to your colleagues and friends?

- Yes
- No

Thank you for your participation!