

# MOOC “ASYMPTOTE: teaching and learning mathematics online”

## Questionnaires

The subsequent presented questionnaires were assigned to the participants of the ASYMPTOTE MOOC before its start (Pre-Course Questionnaire) and after its completion (Final Questionnaire).

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# MOOC Pre-Course Questionnaire

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Within this questionnaire, we aim to gather information about the participants previous experiences regarding teaching, the use of ICT tools and task design. Moreover, we aim to determine participant's previous MOOC experiences and their expectations going into this specific MOOC.

## Introductory & final statement

### *Introduction*

Dear teacher

we ask 10 minutes of your time to answer a short questionnaire, so that we can get to know you better. Your data will be collected anonymously and treated in perfect respect of privacy. The results will be analysed and presented in aggregate form only.

Thank you in advance for your availability!

### *Closing*

Done!

If you wish, leave a comment

*Long text answer*

## General Information

### 1. Name

### 2. Surname

### 3. Gender

Female

Male

Prefer not to say

### 4. Age

younger than 20

20-24

25-29

30-39

40-49

50+

### 5. What country do you currently live in?

Austria

France

Germany

Greece

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Indonesia  
Italy  
Portugal  
Slovakia  
Spain  
Switzerland  
Turkey  
United Kingdom  
Other: \_\_\_\_\_

**6. You are...**

A university student that will become a teacher  
A former university student which currently is no in-service teachers  
An in-service teacher  
Other: \_\_\_\_

**Studies**

*Only for university students aiming to become a teacher, the rest go straight to question 10.*

**7. What is your field of study?**

Education (not mathematics)  
Mathematics Education  
Pure or Applied Mathematics  
Other: \_\_\_\_\_

**8. Which year of university are you attending?**

1  
2  
3  
4  
5  
Other: \_\_\_\_

**9. What is your mode of study?**

Wholly full time  
Wholly part time  
Wholly external  
A combination of these

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## Teaching experience

### 10. Teaching experience:

- None
- Few months
- 1-5 years
- 6-10 years
- 11+ years

## Previous experience in the use of ICT tools

### 11. Use of ICT in mathematics teaching per class:

- Not at all
- Once a year
- Once a month
- Once a week
- More often

### 12. Which of the following tools are you used to use in your teaching-learning maths?

*[more than one answer choice is allowed]*

- Computer Algebra System
- Dynamic Geometry System
- Learning platforms or tutoring systems
- Spreadsheets
- Other: \_\_\_\_

## Previous MOOC experience and expectations

### 13. Have you already attended MOOC(s)?

*[more than one answer choice is allowed]*

- Yes, in English language, completing it/them
- Yes, in English without completing it/them
- Yes, in my native language, completing it/them.
- Yes, in my native language without completing it/them
- No

### 14. How did you hear about ASYMPTOTE MOOC?

*[more than one answer choice is allowed]*

- Email

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ASYMPTOTE website

Facebook

Twitter

Through word of mouth

A friend who is in the ASYMPTOTE project mentioned it

By advice of my colleague

I searched the internet for online courses on mathematics

Other: \_\_\_\_\_

**15. Why did you join ASYMPTOTE MOOC?**

*Long text answer*

**16. What is your primary goal in taking this course?**

Complete the whole thing for certificate

Learn just the information I need at this time

See what is in the course for future reference

Took as a refresher of topics covered

Other: \_\_\_\_\_

**Previous experiences and knowledge in task design**

**17. How would you define your ability to design mathematical tasks?**

Absolutely poor

Poor

Fair

Good

Very good

**18. Generally, what kind of tasks do you design for your students? (if this is not your practice, write "None")**

*Long text answer*

**19. Generally, what tools or resources do you use to design tasks for your students?**

So far, I have never designed tasks for my students

Textbooks

Resources found on the Internet

My creative vein

Computer Algebra Systems

Dynamic Geometry System

**20. Have you ever heard of Learning Graphs?**

Yes

No *Go straight to question 22*

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*If yes ...*

**21. What do you know about Learning Graphs?**

*Long text answer*

*If no ...*

**22. If not, what do you think they are or what are they for?**

*Long text answer*

# MOOC Final Questionnaire

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Within this questionnaire, we pursue on three targets. We firstly aim to analyze the students' perception of the MOOC to evaluate the course design and its conduct. Secondly, we aim to collect feedback on ASYMPTOTE in a systematic way in order to plan the further development of the system. Thirdly, we aim to requests participants' willingness to integrate ASYMPTOTE in their future math classes.

The section "Course experience" presents the items of the Course Experience Questionnaire (CEQ) following Ramsden (1991) as well as Byrne and Flood (2003).

*References:*

*Byrne, M., & Flood, B. (2003). Assessing the Teaching Quality of Accounting Programmes: An evaluation of the Course Experience Questionnaire. Assess. Eval. High. Educ., 28(2), 135-145. Ramsden, P. (1991). A performance indicator of teaching quality in higher education: The Course Experience Questionnaire. Stud. High. Educ., 16(2), 129-150.*

The section "Willingness to use ASYMPTOTE" contains the adapted items of the Technology Acceptance Model (TAM) proposed by Davis (1986).

*Reference:*

*Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. MIS Quarterly, 13(3), 319-340.*

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## Introductory & final statement

### *Introduction*

We ask 20 minutes of your time to answer this questionnaire, which will allow us to assess your level of satisfaction with the course and also your experience in using ASYMPTOTE and its features. Your data will be collected anonymously and treated with the utmost respect for privacy. The results will be analysed and presented in aggregate form only.

Thank you in advance for your availability!

### *Closing*

Done!

Leave a comment or any additional feedback/information you would like to provide.

Long text answer

## General Information

### 1. Name

### 2. Surname

### 3. Gender

Female

Male

Prefer not to say

Other: \_\_\_\_\_

### 4. Age

younger than 20

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Greece  
Indonesia  
Italy  
Portugal  
Slovakia  
Spain  
Switzerland  
Turkey  
United Kingdom  
Other: \_\_\_\_\_

**6. You are...**

A university student that will become a teacher  
A former university student which currently is no in-service teachers  
An in-service teacher  
Other: \_\_\_\_\_

*Only for university students aim to become a teacher*

**7. What is your field of study?**

Education (not mathematics)  
Mathematics Education  
Pure or Applied Mathematics  
Other: \_\_\_\_\_

**8. Which year of university are you attending?**

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**9. What is your mode of study?**

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Wholly external  
A combination of these

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## 10. Teaching experience:

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- 11+ years

## The modules of the MOOC

### *Module 1: Asymptote and its theoretical framework*

Editorial Note: Module 1 presents the theoretical background which underlies the development of the ASYMPTOTE system, e.g., including references on the design and conduct of online courses.

### **11. How much did the concepts of the theoretical framework help you conceptualize the integration of ASYMPTOTE into your practices as a math tasks/learning graph designer on ASYMPTOTE?**

*5-Point Likert Scale from 1 (not helpful at all) to 5 (very helpful)*

### **12. Explain your previous answer.**

*Long text answer*

### **13. Which elements of the theoretical framework best supported your development as a math tasks/learning graph designer on ASYMPTOTE?**

*Long text answer*

### **14. Which elements were ineffective or what adjustments could be made in the theoretical framework to improve the experience?**

*Long text answer*

### *Module 2, 3, 4, 5: How to design the tasks and how the app works + typologies of tasks*

Editorial Note: Modules 2-5 were about the ASYMPTOTE task design process and the participants were asked to design nine (9) math task.

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**15. How much do you agree with the following statements?**

*5-Point Likert Scale from 1 (strongly disagree) to 5 (strongly agree)*

1. Registering myself on the ASYMPTOTE web portal was easy.
2. I can orientate myself in the web portal.
3. Creating tasks in ASYMPTOTE web portal is intuitive.
4. Creating learning graph in ASYMPTOTE web portal is intuitive.
5. It was easy for me to learn how ASYMPTOTE web portal works.
6. It was easy for me to learn how ASYMPTOTE app works.
7. The interaction between web portal and app was easy to understand.
8. It was easy for me to learn how Digital Classroom works.
9. Loop tasks are valuable support for preparation of a learning graph

**16. How easy do you think it is to create a math task of the following type?**

*3-Point Likert Scale from 1 (not easy at all) to 3 (very easy)*

1. Training
2. Reasoning
3. Modelling
4. Challenging
5. Supportive

**17. If there are tasks that you have indicated as "not at all easy" or "quite easy" to create, why do you think this type is not fully accessible to you?**

*Long text answer*

**18. Do you have any suggestions or requests for task type?**

*Long text answer*

**19. How often have you used (or do you plan to use) the following answering formats?**

*5-Point Likert Scale from 1 (Never) to 5 (Always)*

1. Exact value
2. Vector (exact value)
3. Interval
4. Vector (interval)
5. Set
6. Fraction
7. Multiple choice

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8. Fill in the blanks
9. Information station

**20. Do you have any suggestions or requests for answering formats?**

*Long text answer*

**21. How did you perceive the Digital Classroom from a teacher's perspective?**

*Long text answer*

*Final module: Review and peer-review*

Editorial Note: The final module was dedicated to the Learning Graph (LG) design process in the ASYMPTOTE system and the participants were asked to create one LG consisting of the nine (9) math tasks they have designed in the previous modules. This module also included a peer review process of the participants' final creations – the LGs

**22. What mathematical topic did you choose for your Learning Graph?**

*Long text answer*

**23. Why did you choose this topic?**

*Long text answer*

**24. For students at which school level is the learning graph you have designed?**

- Primary
- Lower secondary
- Upper secondary
- University

**25. Which of the following options applies to the challenging/supportive tasks you designed for your learning graph?**

- 2 challenging and 1 supportive
- 1 challenging and 2 supportive
- Other: \_\_\_\_\_

**26. Why did you make these choices?**

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*Long text answer*

**27. What difficulties did you face when using ASYMPTOTE in creating tasks or learning graph?**

*Long text answer*

**28. What difficulties did you face when using ASYMPTOTE in running a learning graph?**

*Long text answer*

**29. Please indicate your level of agreement with the following statements on the review process of your tasks**

*5-Point Likert Scale from 1 (strongly disagree) to 4 (strongly agree) and 5 (not Applicable)*

1. The review times have been carried out in a short time
2. The requests for revision were clear
3. The required revisions were excessive
4. The review has allowed me to improve my math task design skills

**30. Would you like to leave a comment for the reviewers?**

*Long text answer*

**31. How useful do you think it was to see the productions of 3 other participants?**

*5-Point Likert Scale from 1 (Useless) to 5 (Very useful)*

**32. Please justify your previous answer.**

*Long text answer*

## **Course experience**

**33. Express your level of agreement with the following statements**

*5-Point Likert Scale from 1 (strongly disagree) to 5 (strongly agree)*

1. The teaching staff of this course motivated me to do my best work
2. It was always easy to know the standard of work expected.
3. The workload was too heavy.
4. To do well in this course all you really needed was a good memory.

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5. The course developed my ability to utilize digital technology in teaching mathematics.
6. The staff put a lot of time into commenting on my work.
7. I usually had a clear idea of where I was going and what was expected of me in this course.
8. I was generally given enough time to understand things I had to learn.
9. The staff seemed more interested in testing what I had memorized than what I had understood.
10. The course developed my ability to teach online.
11. The staff made a real effort to understand difficulties I might be having with my work.
12. It was often hard to discover what was expected of me in that course.
13. There was a lot of pressure on me to do well in this course.
14. Too many staff asked me questions just about facts.
15. The course developed my ability to design math learning tasks to use in ASYMPTOTE.
16. The teaching staff normally gave me helpful feedback on how I was going.
17. The staff made it clear right from the start what they expected from students.
18. The sheer volume of work to be got through in this course meant it couldn't all be thoroughly comprehended.
19. The course helped me to learn how to plan and implement math teaching using ICT.
20. My lecturers were extremely good at explaining things.
21. The teaching staff worked hard to make their subjects interesting.

## **Willingness to use ASYMPTOTE**

### **34. Express your level of agreement with the following statements**

*5-Point Likert Scale from 1 (strongly disagree) to 5 (strongly agree)*

1. I think that ASYMPTOTE is easy to use.
2. I think that ASYMPTOTE is useful to assist me in teaching mathematics.
3. I am attracted by the visual appeal – Graphical User Interface of the ASYMPTOTE.

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4. I feel that ASYMPTOTE is interesting.
5. I am interested in using ASYMPTOTE.
6. I will recommend other teachers to use ASYMPTOTE.
7. It is easy for me to familiarize myself with ASYMPTOTE.
8. I think ASYMPTOTE makes me more effective in teaching mathematics.
9. The tasks and the learning graphs in ASYMPTOTE are attractive.
10. I feel that ASYMPTOTE is exciting.
11. I like using ASYMPTOTE to teach mathematics.
12. I predict I would use ASYMPTOTE in the future.
13. It is easy for me to handle ASYMPTOTE.
14. If I use ASYMPTOTE to teach mathematics the students will learn more easily.
15. The whole experience of using ASYMPTOTE is attractive.
16. I feel that ASYMPTOTE is pleasant.
17. Using ASYMPTOTE is a best way to teach mathematics in Emergency Remote Teaching.
18. I will familiarize my students to ASYMPTOTE.

**35. Depending on how you answered earlier, why do you think you should continue/not continue using ASYMPTOTE?**

*Long text answer*