

APPENDIX

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A Feedback Framework

Table 1.1 Models of teaching, views of learning and related discourses on feedback

Model of teaching	Role of teacher and goals of teaching	View of learning	Feedback discourse
Receptive-transmission	<ul style="list-style-type: none"> Expert To impart new knowledge, concepts and skills 	<ul style="list-style-type: none"> Cognitive dimensions stressed Learning is individual and affected by ability which is seen as fixed Learning involves increased understanding of new ideas, memorising new facts <p>Practising new skills and making decisions based on new information</p>	<ul style="list-style-type: none"> Traditional discourse in which 'expert' gives information to others to help them improve Primary goal to evaluate Feedback is a gift
Constructive	<ul style="list-style-type: none"> Expert To facilitate discovery of new knowledge, concepts, skills To help make connections, discover meaning, gain new insights 	<ul style="list-style-type: none"> Cognitive dimensions stressed, although social dimension recognised to some extent Learning affected by ability which can develop and is affected by experiences Learning involves making connections between new and old experiences, integrating new knowledge and extending established schema 	<ul style="list-style-type: none"> Expanded discourse in which 'expert' enables others to gain new understandings, make sense of experiences and make connections by the use of open questions and shared insight. Primary goal to describe and discuss Feedback as a two-way process (ping pong)
Co-constructive	<ul style="list-style-type: none"> More equal power dynamic Teacher is viewed and views himself or herself as a learner To facilitate discovery of new knowledge, concepts and skills To help make connections, discover meaning and gain new insights To practise self-reflection and facilitate a reflexive process in others about learning through a collaborative dialogue 	<ul style="list-style-type: none"> The cognitive, emotional and social dimensions of learning are seen as interconnected and equally important The view of learning is extended to include reflection on the learning process itself and meta-learning (learning about learning) 	<ul style="list-style-type: none"> Expanded discourse involving a reciprocal process of talking about learning Primary goal to illuminate learning for all Feedback is a dialogue, formed by loops connecting the participants

Figure 1: Feedback Framework

B Motivational game components

- *Points*
- *Badges*
- *Leaderboards*
- *Progress Bars & Performance Graphs*
- *Quests*
- *Meaningful Stories*
- *Avatars & Profile Development*

C Initial Data Model

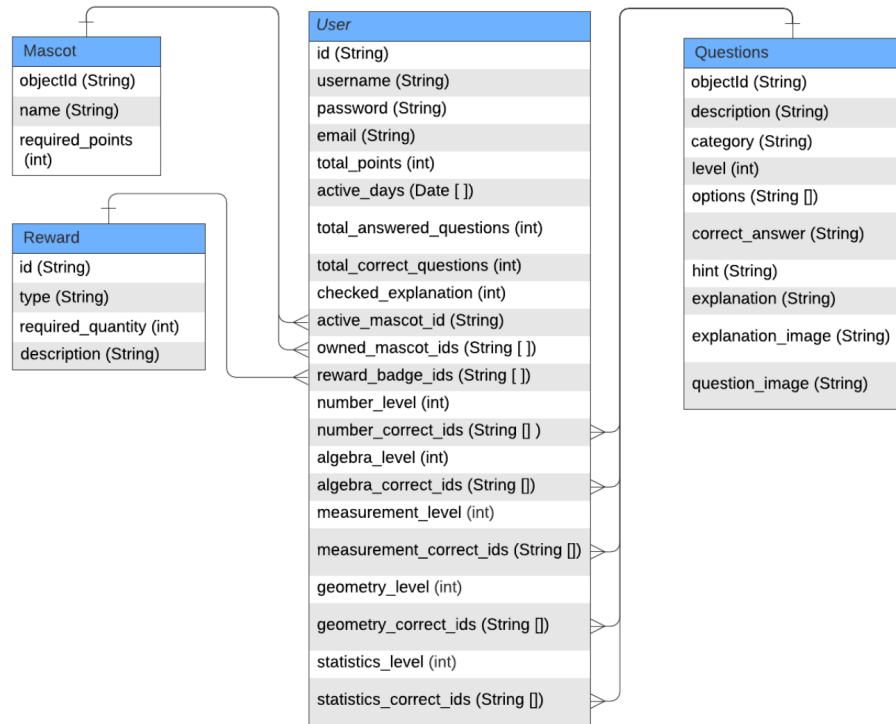


Figure 2: Initial data model

D Initial Code Architecture



Figure 3: Initial code architecture

E Questionnaire

1. Gender?

Male
Female
Prefer not to say

2. Where do you live?

Denmark
England

3. How satisfied are you with the design of Maths Camp?

Very satisfied
Satisfied
Neutral
Unsatisfied
Very unsatisfied

4. How many days have you played Maths Camp?

Textfield

5. Which question category is your favourite in Maths Camp?

Geometry
Numbers
Algebra
Measurement

6. Which question category did you first choose to practice in Maths Camp?

Geometry
Numbers
Algebra

Measurement



7. What did you think about being able to select different categories to practice?

Great
Motivating
Useful
Annoying
I didn't think about it
Other textfield

8. Did you answer questions within all 4 categories in Maths Camp?

Yes
No
I don't remember

9. What did you think about the progress bars on the landing page?

 measurement 3	2/7 questions answered! <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
 number 1	5/7 questions answered! <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

Long textfield

10. On a scale from 1 to 5, how much did you enjoy seeing your own progress

	1	2	3	4	5	
I did not enjoy it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I enjoyed it a lot

11. How fun was it to see your progress in each category?

Very fun
Slightly fun
Neutral
Not fun
Don't care

12. How motivating was it to see your progress in each category?

Very motivating
Slightly motivating
Neutral
Demotivating
Very demotivating

13. Did you get to level up in one or some of the categories?

Yes
No
Don't remember

14. If yes, then on scale from 1 to 5, how much did you enjoy this part?

	1	2	3	4	5	
I did not enjoy it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I enjoyed it a lot

15. Was it most fun to win a new badge or reach a high level?

Win a new badge
Reach a high level

16. Will you keep using Maths Camp? If yes, how long?

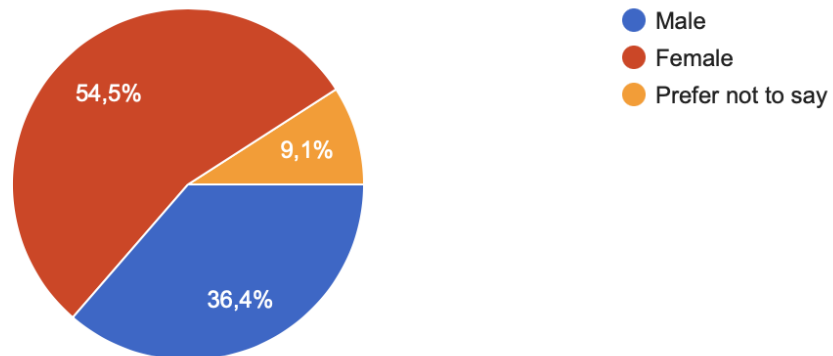
Textfield

F Questionnaire results

Question 1

Gender

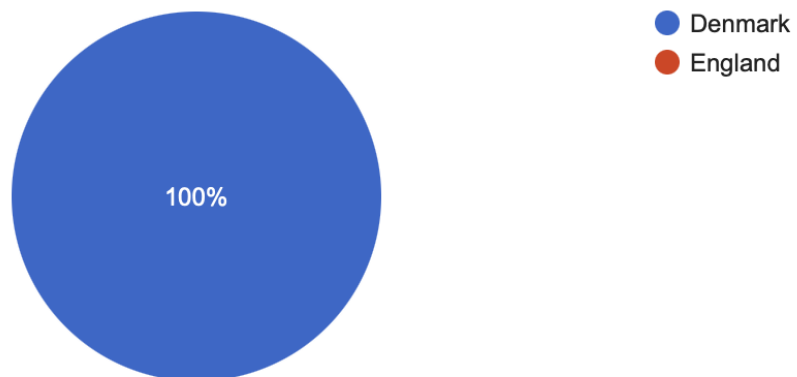
22 svar



Question 2

Where do you live?

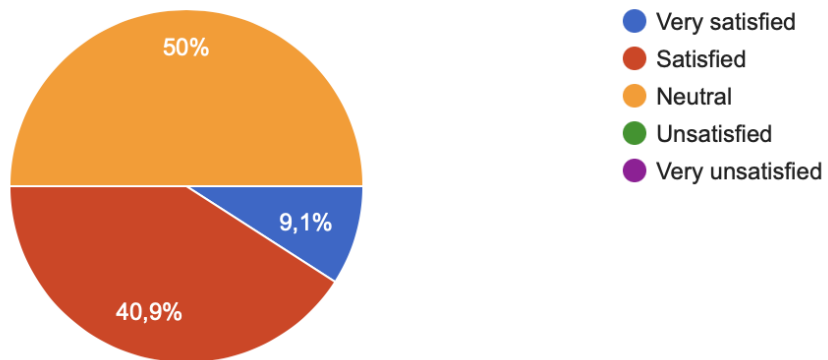
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Question 3

How satisfied are you with the design of Maths Camp?

22 svar

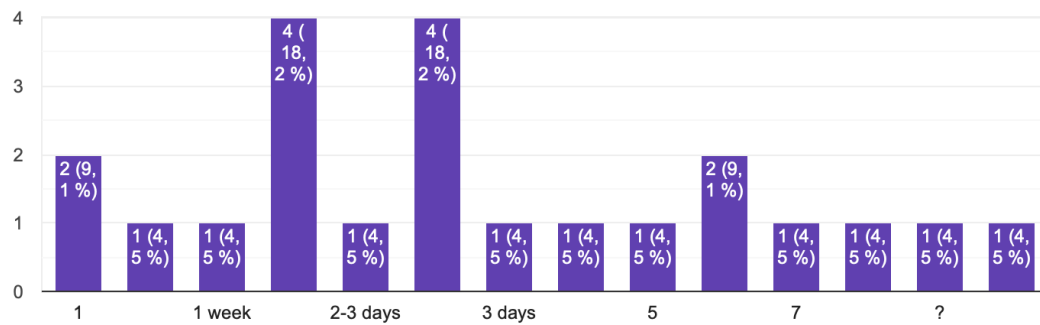


Question 4

How many days have you played Maths Camp?

 Kopier

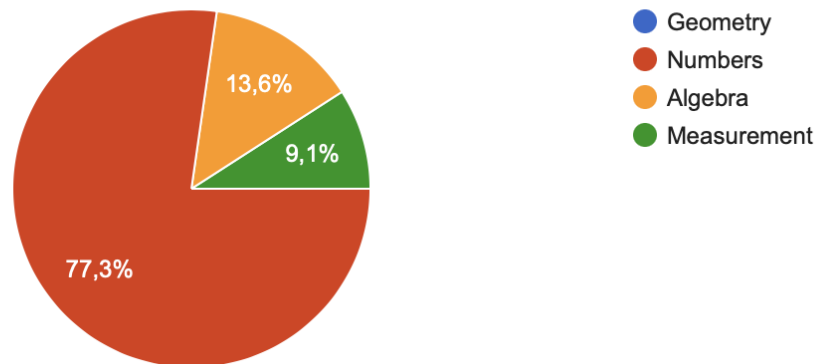
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Question 5

Which question category is your favourite in Maths Camp?

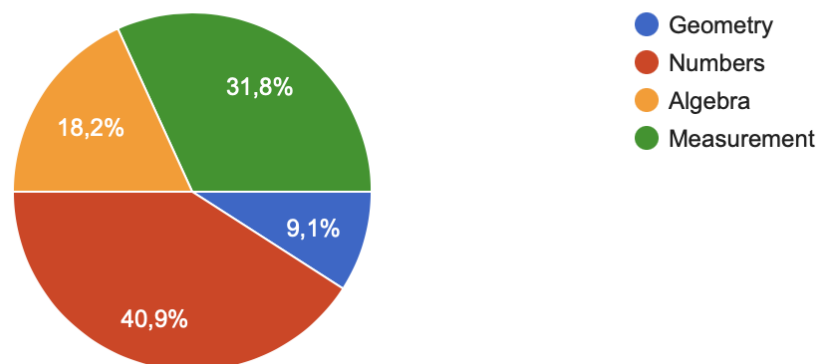
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Question 6

Which question category did you first choose to practice in Maths Camp?

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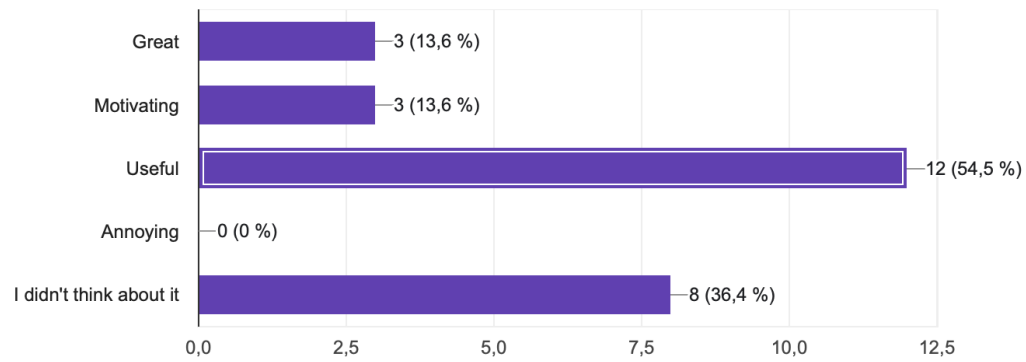


Question 7

What did you think about being able to select different categories to practice?

 Kopier

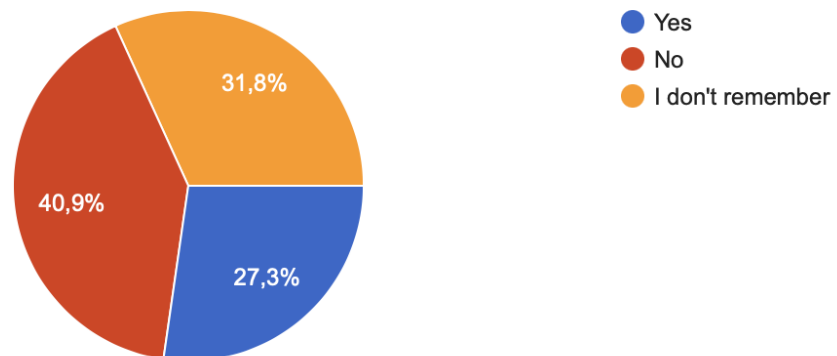
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Question 8

Did you answer questions within all 4 categories in Maths Camp?

22 svar



Question 9

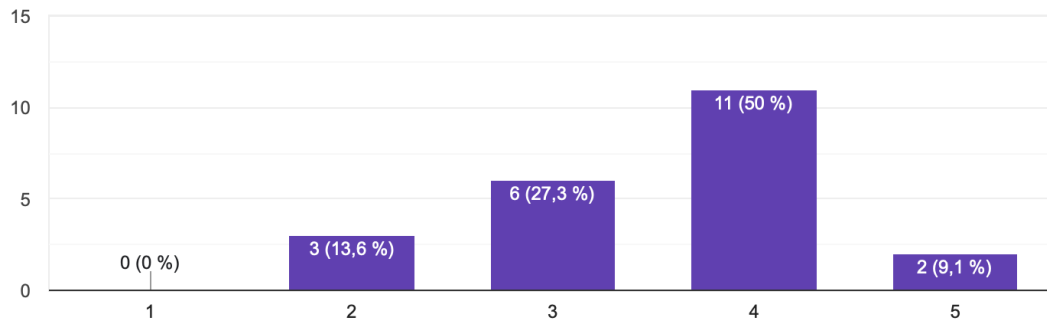
- quite good
- I wouldn't mind
- Not so useful because it didn't work for me.
- I think they are motivating.
- they were nice but when i completed the first level on the numbers it didnt upgrade me.
- I think they are very useful so you know which level you are on
- To be honest if i do the category it dosen't show how many questions i have answered
- they are useful
- I don't think it made THAT much of a difference but it was a bit useful if you wanted to know how much you did:)
- useful
- I think it is a great way to know your progress in that subject.
- i feel fine about them
- I didn't notice it but now i think that it's very cool and you should keep it
- I don t really understand it
- It was nice to know
- Well
- good but it would be nice if there were more categories or there would be levels of difficulty and medium and easy
- i feeled smart
- it is ok

Question 10

On a scale from 1 to 5, how much did you enjoy seeing your own progress

 Kopier

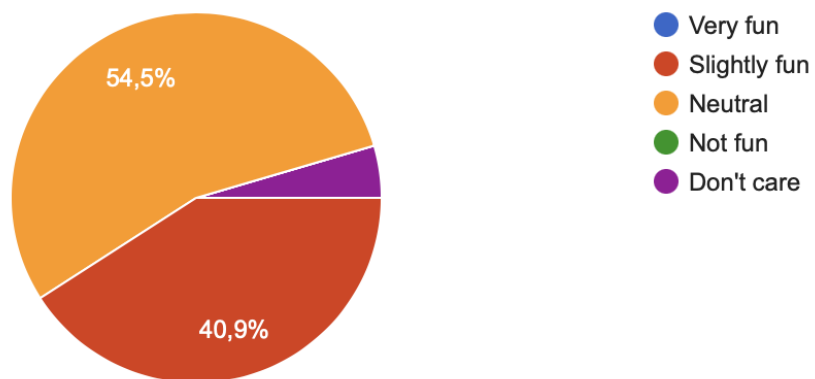
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Question 11

How fun was it to see your progress in each category?

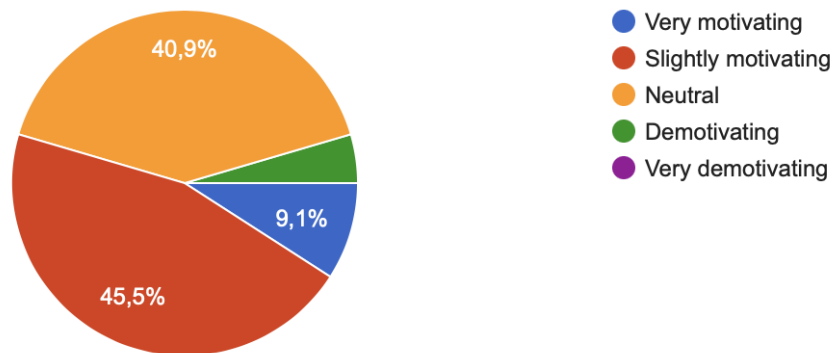
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Question 12

How motivating was it to see your progress in each category?

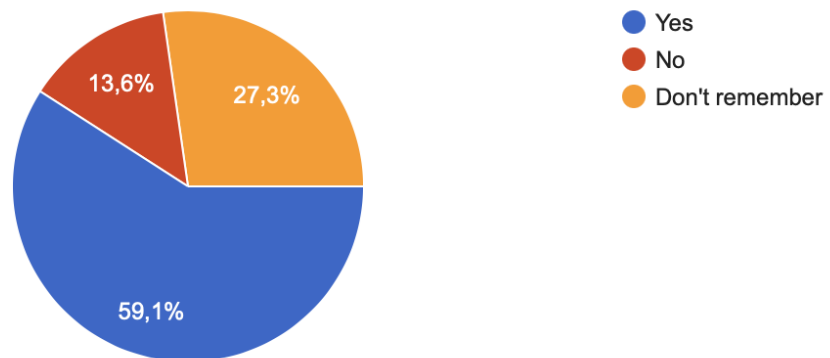
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Question 13

Did you get to level up in one or some of the categories?

22 svar

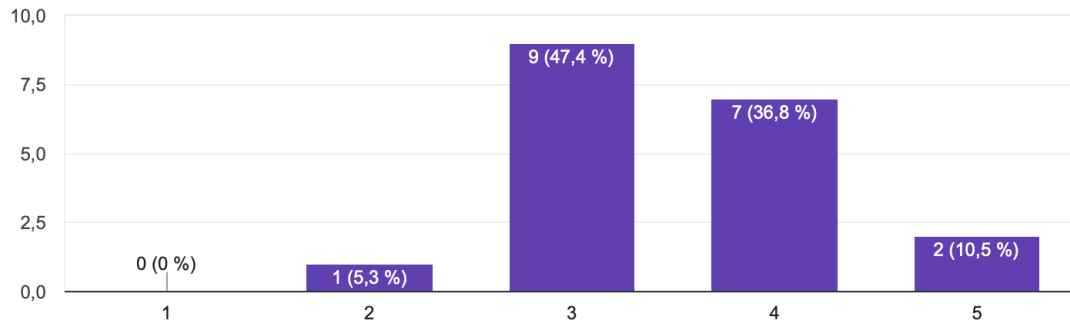


Question 14

If yes, then on scale from 1 to 5, how much did you enjoy this part?

 Kopier

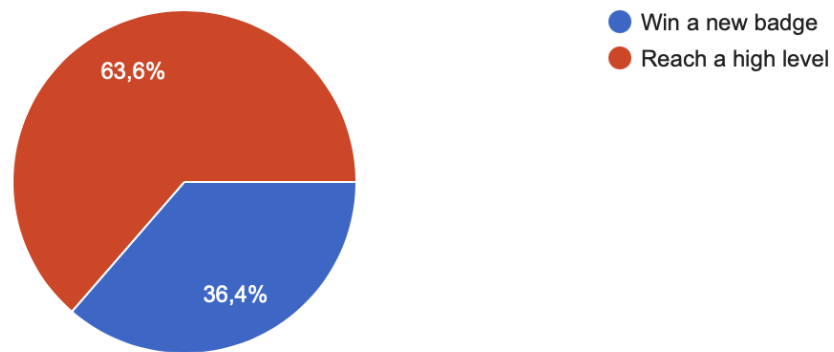
19 svar



Question 15

Was it most fun to win a new badge or reach a high level?

22 svar



Question 16

1. No i probably wouldnt
2. I don't know
3. Maybe, to refresh my mind in some topics
4. Yes, until I have to stop.
5. i dont know
6. yes I don't know how long
7. no
8. maybe for a few weeks
9. ?
10. Yes, Maybe when I am practicing for a test, and I need multiple resources.
:))))
11. Yes, maybe for a few weeks
12. as long as i can
13. Possibly if I feel like I want a challenge
14. yes and i dont know how long
15. probably i will keep using it if our class wants to do it, but there was a glitch
that didn't let me do any questions it just came up blank
16. YES 1 week
17. Yes for 1 week
18. 60
19. Yes when the teacher tells us but mostly I don't have time
20. yes but i dont know maybe next year
21. don't know
22. i don't know