Invitation to Participate in Study

You are invited to participate in this research. Your participation is voluntary. Agreement to participate is signified by clicking on the 'NEXT' button immediately below.   You will then reach the first page of the electronic survey. The last page of this electronic survey contains a 'SUBMIT' button. When you click on the 'SUBMIT' button, your completed survey will be electronically submitted to the principal investigator. If at any stage during the survey you decide you do not wish to complete and submit it, simply close your browser page/tab or exit your browser.

*Required

Teaching Experience
The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

1. **For how many (whole) years have you taught maths?** *
   Mark only one oval.

   ( ) 1 to 5

   ( ) 6 to 10

   ( ) 11 to 15

   ( ) 16 to 20

   ( ) More than 20

   ( ) Other: _____

2. **What percentage of your current timetable is maths?** *
   Mark only one oval.

   ( ) 0% to 25%

   ( ) 26% to 50%

   ( ) 51% to 75%

   ( ) 76% to 100%

3. **Is maths one of your final year degree subjects?** *
   Mark only one oval.

   ( ) Yes

   ( ) No

Adaptive Learning (Concept)
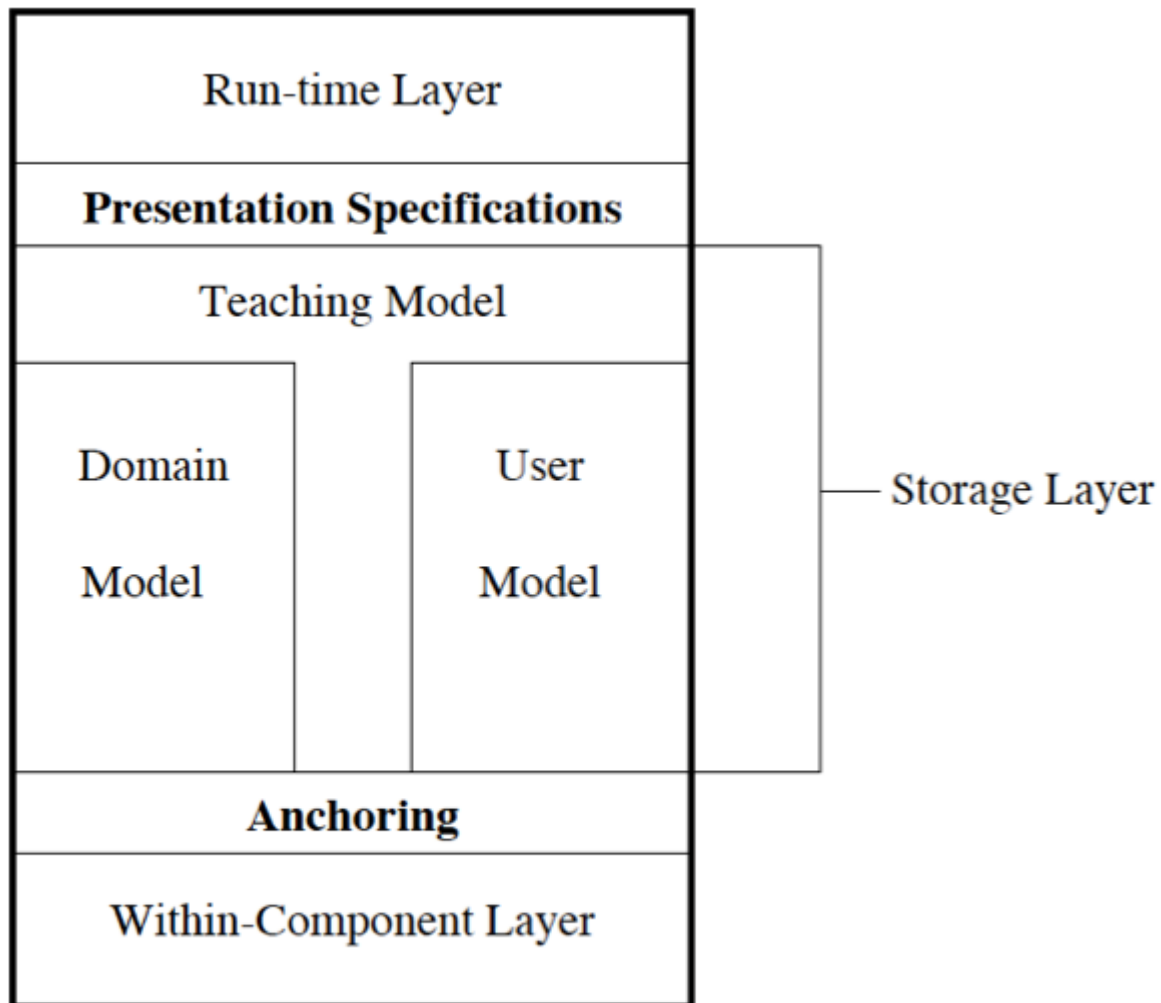The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Figure 1: The AHAM model

4. **I was aware of the concept of Adaptive Learning prior to this Research Study** *
   Mark only one oval.

   ( ) Yes

   ( ) No

5. **I understood the concept of Adaptive Learning prior to this Research Study** *
   Mark only one oval.

   ( ) Agree

   ( ) Neutral

   ( ) Disagree

6. **I understand the concept of Adaptive Learning having watched Screencast (Part 1 of 3)** *
   Mark only one oval.

   ( ) Agree

   ( ) Neutral

   ( ) Disagree

Domain Model (in Adaptive Learning)

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.
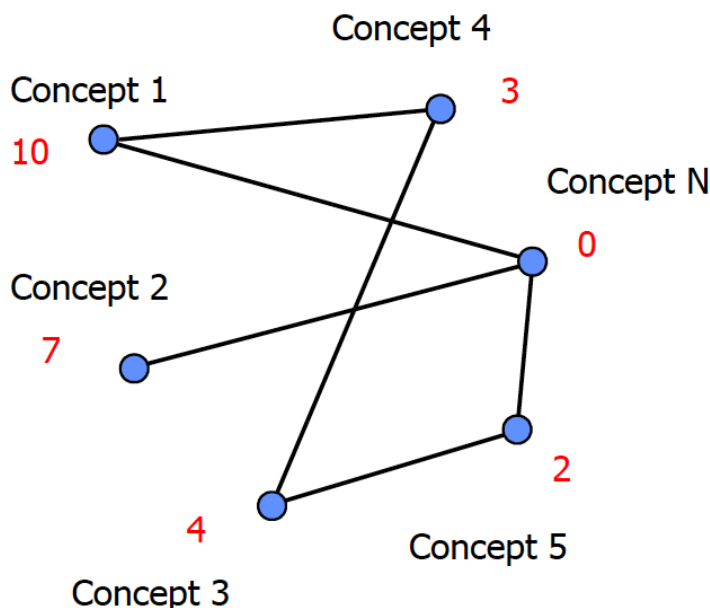
Fig. 1.3. A network domain model with a simple numeric overlay user model

7. **I was aware of the idea of a Domain Model prior to this Research Study. ***
Mark only one oval.

○ Yes

○ No

8. **I understood the idea of a Domain Model prior to this Research Study. ***
Mark only one oval.

○ Agree

○ Neutral

○ Disagree

9. **I understand the idea of a Domain Model having watched Screencast (Part 1 of 3). ***
Mark only one oval.

○ Agree

○ Neutral

○ Disagree

Domain Model for Maths (Unpacking Learning Outcomes)

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Excel Spreadsheet of 45 Unpacked Learning Outcomes

	A	B	C	D
1	Strand	Outcome	Unpacked Learning Outcomes	Level
2				
3	GT	5a-1	find distance (slant), using Pythagoras theorem	O
4	GT	5a-2	find distance (slant), using formula	O
5	GT	5a-3	find and interpret slope, using rise and run	O
6	GT	5a-4	find slope, using formula	O
7	GT	5b-1	draw graphs of line segments	O
8	GT	5b-2	extend line to find y intercept graphically	O
9	GT	5b-3	interpret linear functions/line segments in context, including discussing rate of change (slope) and y intercept	O
10	GT	5c-1	find the equation of a line in the form y = mx + c	O
11	GT	5c-2	interpret the equation of a line in the form y = mx + c, including finding the slope	O
12	GT	5c-3	interpret the equation of a line in the form y = mx + c, including finding the y intercept	O
13	GT	5c-4	interpret the equation of a line in the form y = mx + c, including finding more points	O
14	AF	1a-1	represent linear patterns and relationship in tables	O
15	AF	1a-2	represent linear patterns and relationships in graphs	O
16	AF	1a-3	represent quadratic patterns and relationships in tables	O
17	AF	1a-4	represent quadratic patterns and relationships in graphs	O
18	AF	1a-5	represent exponential patterns and relationships in tables	O
19	AF	1a-6	represent exponential patterns and relationships in graphs	O
20	AF	1b-1	write a generalised expression for linear patterns in words	O
21	AF	1b-2	write a generalised expression for linear patterns algebraically	O
22	AF	1b-3	write a generalised expression for quadratic patterns in words	O
23	AF	1b-4	write a generalised expression for quadratic patterns algebraically	O
24	AF	1b-5	write generalised expressions for exponential patterns in words	H
25	AF	1b-6	write generalised expressions for exponential patterns algebraically	H
26	AF	1c-1	categorise patterns as linear, non-linear, quadratic, and exponential	O
27	AF	1c-2	find difference (d) and first term (a) for a linear pattern	O
28	AF	1c-3	find first and second differences for a quadratic pattern	O
29	AF	1c-4	Find ratio (r) and differences ratio (r) for an exponential pattern	H
30	AF	7a	demonstrate understanding of a function	O
31	AF	7b-1	represent linear functions in tables - using x, f(x), y, domain, range, co-domain	O
32	AF	7b-2	represent linear functions graphically - using x, y, domain, range, co-domain	O
33	AF	7b-3	represent linear functions diagrammatically - using f :x ↦ y, domain, range, co-domain	O
34	AF	7b-4	represent quadratic functions in tables - using x, f(x), y, domain, range, co-domain	O
35	AF	7b-5	represent quadratic functions graphically - using x, y, domain, range, co-domain	O
36	AF	7b-6	represent quadratic functions diagrammatically - using f :x ↦ y, domain, range, co-domain	O
37	AF	7b-7	represent exponential functions in tables - using x, f(x), y, domain, range, co-domain	H
38	AF	7b-8	represent exponential functions graphically - using x, y, domain, range, co-domain	H
39	AF	7b-9	represent exponential functions diagrammatically - using f :x ↦ y, domain, range, co-domain	H
40	AF	7b-10	represent linear functions in words	O
41	AF	7b-11	represent linear functions algebraically - using f(x) = ax + b	O
42	AF	7b-12	represent quadratic functions in words	O
43	AF	7b-13	represent quadratic functions algebraically - using f(x) = ax2 + bx + c	O
44	AF	7b-14	represent exponential functions in words	H
45	AF	7b-15	represent exponential functions algebraically - using f(x) = a2x and f(x) = a3x	H
46	AF	7d-1	interpret quadratic functions, including predicting the shape algebraically and identifying the turning point graphically	O
47	AF	7d-2	interpret exponential functions, including connecting rapid increase with variable as exponent and significance of point (1,0)	H

10. **The Learning Outcomes in the Maths Syllabus should be the main data source for a Domain Model.** *

Mark only one oval.

◯ Agree

◯ Neutral

◯ Disagree

11. **I understand the unpacking process from 6 to 45 Learning Outcomes having watched Screencast (Part 2 of 3).** *

Mark only one oval.

◯ Agree

◯ Neutral

◯ Disagree

12. **Which set of Learning Outcomes would you prefer in the New Syllabus?** *

Mark only one oval.

◯ Small number (6) - packed, with long text descriptions

◯ Larger number (45) - unpacked, with short text descriptions
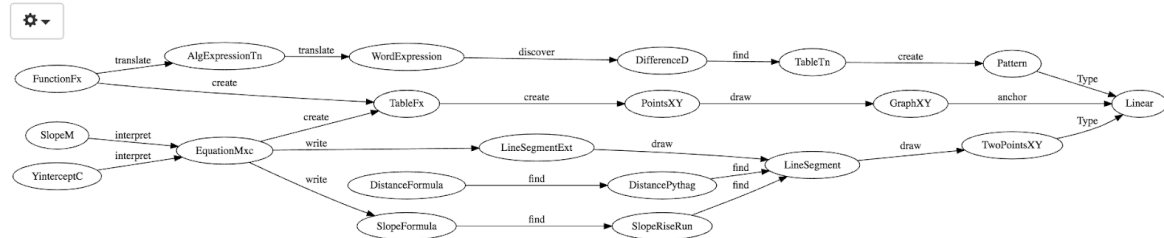
Domain Model (GAM Authoring Tool)

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Map of 23 Concepts

Add relation

Visual overview

13. **The visual display for this Domain Model is easy to understand.** *
Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Other:

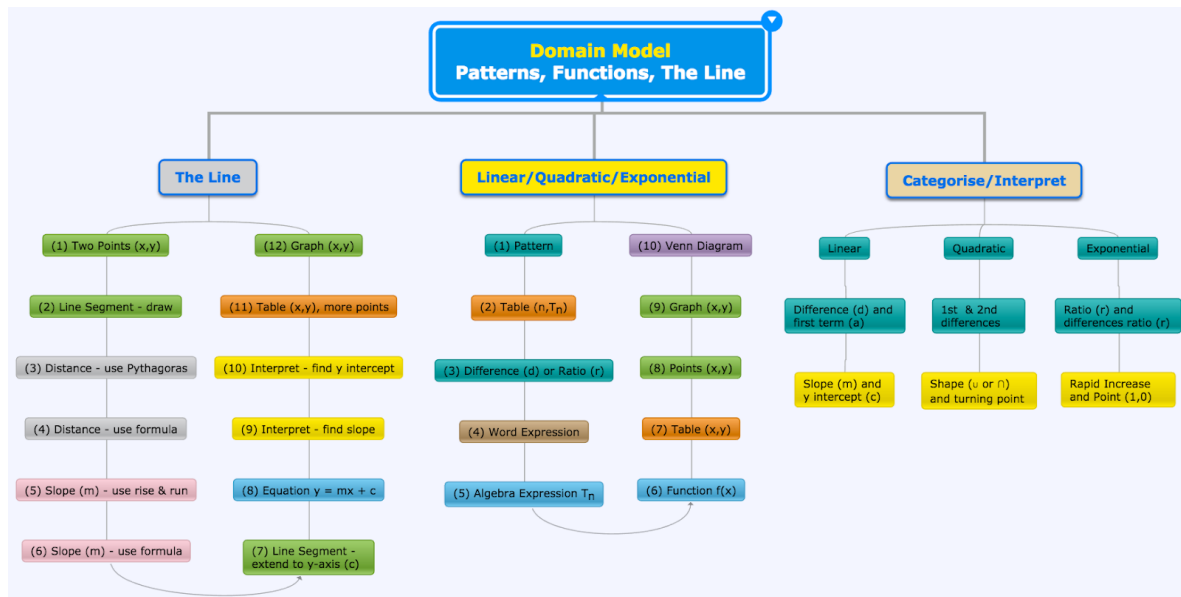14. **The concepts in this Domain Model are correctly sequenced.** *
Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Other:

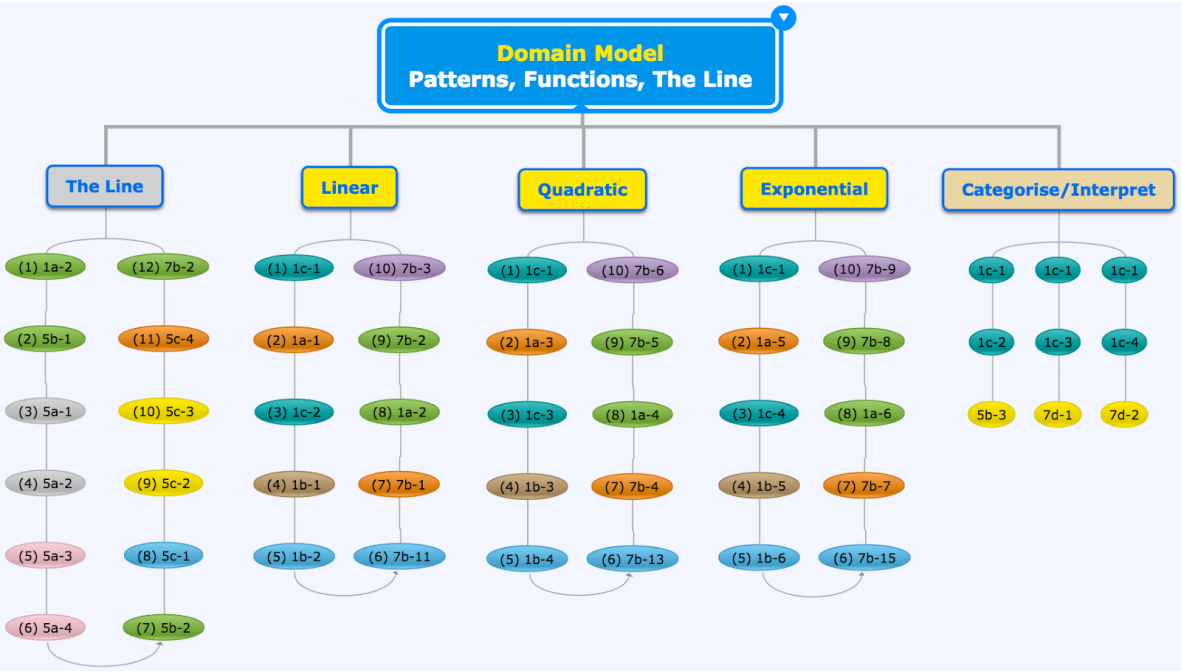15. **The concepts in this Domain Model are correctly connected.** *
Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Other:

Domain Model (Mindomo Organigram 1)
The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Map of 23 Amalgamated Learning Outcomes (as Concepts)

16. **The visual display for this Domain Model is easy to understand. ***
    Mark only one oval.

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

    ( ) Other: _____

17. **The concepts in this Domain Model are correctly sequenced. ***
    Mark only one oval.

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

    ( ) Other: _____

18. **The concepts in this Domain Model are correctly connected. ***
    Mark only one oval.

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

    ( ) Other: _____

Domain Model (Mindomo Organigram 2)

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Map of 45 Unpacked Learning Outcomes

Description of 45 Unpacked Learning Outcomes

	Strand	Outcome	Unpacked Learning Outcomes	Level
1				
2				
3	GT	5a-1	find distance (slant), using Pythagoras theorem	O
4	GT	5a-2	find distance (slant), using formula	O
5	GT	5a-3	find and interpret slope, using rise and run	O
6	GT	5a-4	find slope, using formula	O
7	GT	5b-1	draw graphs of line segments	O
8	GT	5b-2	extend line to find y intercept graphically	O
9	GT	5b-3	interpret linear functions/line segments in context, including discussing rate of change (slope) and y intercept	O
10	GT	5c-1	find the equation of a line in the form y = mx + c	O
11	GT	5c-2	interpret the equation of a line in the form y = mx + c, including finding the slope	O
12	GT	5c-3	interpret the equation of a line in the form y = mx + c, including finding the y intercept	O
13	GT	5c-4	interpret the equation of a line in the form y = mx + c, including finding more points	O
14	AF	1a-1	represent linear patterns and relationship in tables	O
15	AF	1a-2	represent linear patterns and relationships in graphs	O
16	AF	1a-3	represent quadratic patterns and relationships in tables	O
17	AF	1a-4	represent quadratic patterns and relationships in graphs	O
18	AF	1a-5	represent exponential patterns and relationships in tables	O
19	AF	1a-6	represent exponential patterns and relationships in graphs	O
20	AF	1b-1	write a generalised expression for linear patterns in words	O
21	AF	1b-2	write a generalised expression for linear patterns algebraically	O
22	AF	1b-3	write a generalised expression for quadratic patterns in words	O
23	AF	1b-4	write a generalised expression for quadratic patterns algebraically	O
24	AF	1b-5	write generalised expressions for exponential patterns in words	H
25	AF	1b-6	write generalised expressions for exponential patterns algebraically	H
26	AF	1c-1	categorise patterns as linear, non-linear, quadratic, and exponential	O
27	AF	1c-2	find difference (d) and first term (a) for a linear pattern	O
28	AF	1c-3	find first and second differences for a quadratic pattern	O
29	AF	1c-4	Find ratio (r) and differences ratio (r) for an exponential pattern	H
30	AF	7a	demonstrate understanding of a function	O
31	AF	7b-1	represent linear functions in tables - using x, f(x), y, domain, range, co-domain	O
32	AF	7b-2	represent linear functions graphically - using x, y, domain, range, co-domain	O
33	AF	7b-3	represent linear functions diagrammatically - using f :x ↦ y, domain, range, co-domain	O
34	AF	7b-4	represent quadratic functions in tables - using x, f(x), y, domain, range, co-domain	O
35	AF	7b-5	represent quadratic functions graphically - using x, y, domain, range, co-domain	O
36	AF	7b-6	represent quadratic functions diagrammatically - using f :x ↦ y, domain, range, co-domain	O
37	AF	7b-7	represent exponential functions in tables - using x, f(x), y, domain, range, co-domain	H
38	AF	7b-8	represent exponential functions graphically - using x, y, domain, range, co-domain	H
39	AF	7b-9	represent exponential functions diagrammatically - using f :x ↦ y, domain, range, co-domain	H
40	AF	7b-10	represent linear functions in words	O
41	AF	7b-11	represent linear functions algebraically - using f(x) = ax + b	O
42	AF	7b-12	represent quadratic functions in words	O
43	AF	7b-13	represent quadratic functions algebraically - using f(x) = ax2 + bx + c	O
44	AF	7b-14	represent exponential functions in words	H
45	AF	7b-15	represent exponential functions algebraically - using f(x) = a2x and f(x) = a3x	H
46	AF	7d-1	interpret quadratic functions, including predicting the shape algebraically and identifying the turning point graphically	O
47	AF	7d-2	interpret exponential functions, including connecting rapid increase with variable as exponent and significance of point (1,0)	H

19. **The visual display for this Domain Model is easy to understand.** *

Mark only one oval.

◯ Strongly Agree

◯ Agree

◯ Neutral

◯ Disagree

◯ Strongly Disagree

◯ Other: _____

20. **The learning outcomes in this Domain Model are correctly sequenced.** *

Mark only one oval.

◯ Strongly Agree

◯ Agree

◯ Neutral

◯ Disagree

◯ Strongly Disagree

◯ Other: _____

21. **The learning outcomes in this Domain Model are correctly connected.** *

Mark only one oval.

- ( ) Strongly Agree
- ( ) Agree
- ( ) Neutral
- ( ) Disagree
- ( ) Strongly Disagree
- ( ) Other: _____

Domain Model (Excel Spreadsheet for Rhumbl)

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Building Connections (Relationships) between Topics and Learning Outcomes

22. **This matrix of Topics and Learning Outcomes is easy to understand.** *

Mark only one oval.

- ( ) Strongly Agree
- ( ) Agree
- ( ) Neutral
- ( ) Disagree
- ( ) Strongly Disagree
- ( ) Other: _____

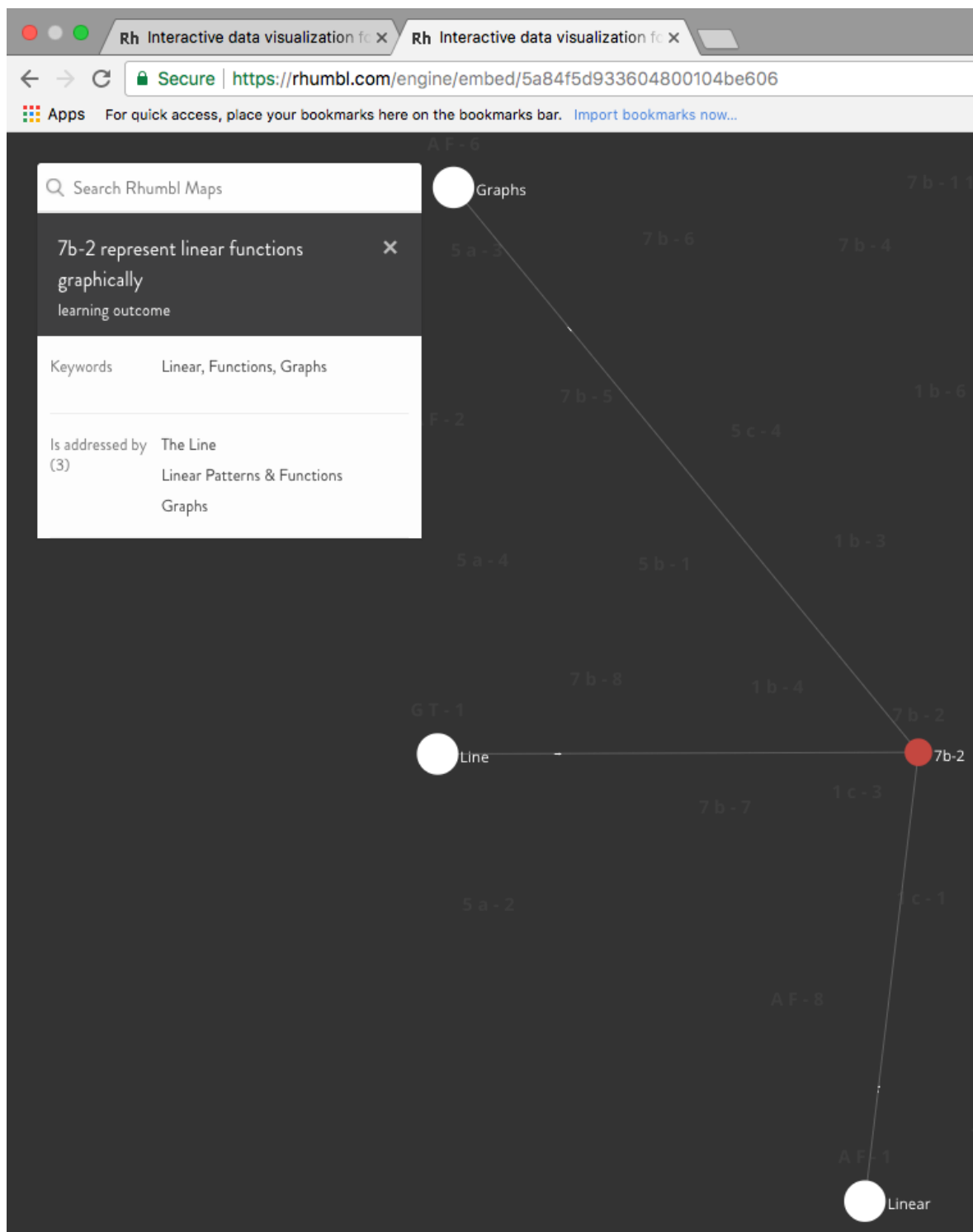23. **The Topics and Learning Outcomes are correctly connected.** *

Mark only one oval.

- ( ) Strongly Agree
- ( ) Agree
- ( ) Neutral
- ( ) Disagree
- ( ) Strongly Disagree
- ( ) Other: _____

Domain Model (Rhumbl Map)

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

Map View by Topic

Map View by Learning Outcome

24. **The map views for this Domain Model are easy to understand.** *

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

25. **The learning outcomes in this Domain Model are correctly connected.** *

Mark only one oval.

- ⬭ Strongly Agree
- ⬭ Agree
- ⬭ Neutral
- ⬭ Disagree
- ⬭ Strongly Disagree
- ⬭ Other: _____

26. **I prefer the following map view...** *

Mark only one oval.

- ⬭ by Topic
- ⬭ by Learning Outcome
- ⬭ no preference

Learning Outcomes and Topics

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

27. **Do you use the syllabus learning outcomes to teach maths?** *

Mark only one oval.

- ⬭ Always
- ⬭ Sometimes
- ⬭ Never

28. **Do you use textbook topics (chapters) and sub-topics (sections) to teach maths?** *

Mark only one oval.

- ⬭ Always
- ⬭ Sometimes
- ⬭ Never

Sequencing and Connecting Maths Concepts

The design, development and evaluation of an adaptive learning domain model for post-primary mathematics.

29. **It is important to teach maths as a hierarchical system of sequenced concepts.** *

Mark only one oval.

- ⬭ Strongly Agree
- ⬭ Agree
- ⬭ Neutral
- ⬭ Disagree
- ⬭ Strongly Disagree

30. **It is important to teach maths as a system of connected concepts. ***

Mark only one oval.

- ( ) Strongly Agree
- ( ) Agree
- ( ) Neutral
- ( ) Disagree
- ( ) Strongly Disagree

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