Invitation to Participate in Study

1. For how many (whole) years have you taught maths? *

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.

	Mark only one oval.	
	1 to 5	
	6 to 10	
	11 to 15	
	16 to 20	
	More than 20	
	Other:	
2.	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.	B. 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.

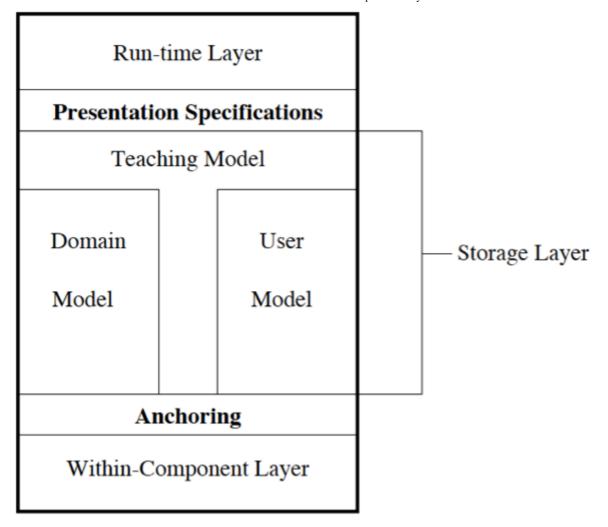


Figure 1: The AHAM model

	aware of the concept of Adaptive Learning prior to this Research Study * nly one oval.
	Yes No
5 Lda	
	rstood the concept of Adaptive Learning prior to this Research Study * nly one oval.
	Agree
	Neutral
	Disagree
	rstand the concept of Adaptive Learning having watched Screencast (Part 1 of 3) * nly 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.

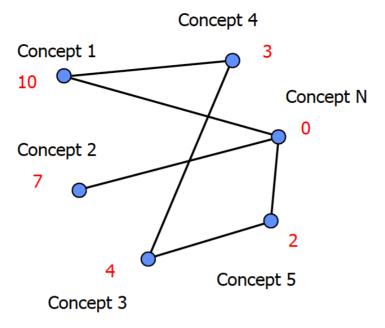


Fig. 1.3. A network domain model with a simple numeric overlay user model

was aware of the idea of a Domain Model prior to this Research Study. * Mark only one oval.
Yes
◯ No
understood the idea of a Domain Model prior to this Research Study. * Mark only one oval.
Agree
Neutral
Disagree
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

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

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

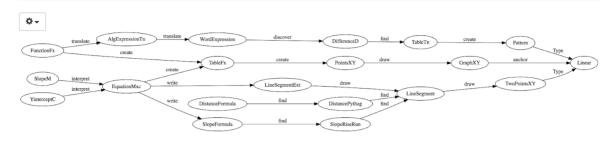
Domain Model (GAM Authoring Tool)

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 undersomers Mark only one oval.	tand. *
Strongly Agree	
Agree	
Neutral	
Disagree	
Strongly Disagree	
Other:	

 The concepts in this Domain Model are correctly sequenced. Mark only one oval.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

15.	The	concepts	in	this	Domain	Model	are	correctly	/ connected.	*
-----	-----	----------	----	------	--------	-------	-----	-----------	--------------	---

Mark only one oval.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

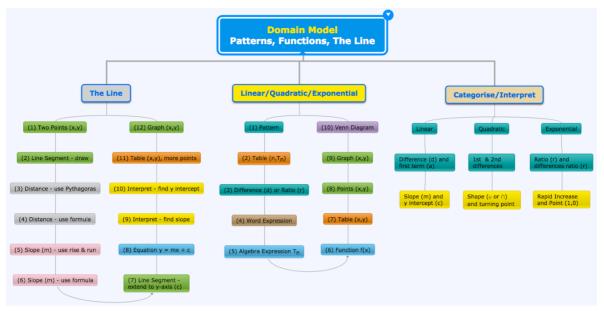
Other:

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)

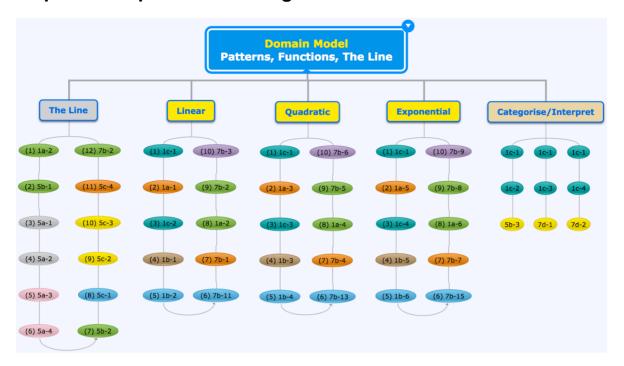


ual display for this Domain Model is easy to understand
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
Other:
ncepts in this Domain Model are correctly sequenced. * ally one oval.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
Other:
ncepts in this Domain Model are correctly connected. * aly 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

4	A	В	С	D
1	Strand	Outcome	Unpacked Learning Outcomes	Level
2				
3	GT	5a-1	find distance (slant), using Pythagoras theorem	0
4	GT	5a-2	find distance (slant), using formula	0
5	GT	5a-3	find and interpret slope, using rise and run	0
5	GT	5a-4	find slope, using formula	0
7	GT	5b-1	draw graphs of line segments	0
В	GT	5b-2	extend line to find y intercept graphically	0
9	GT	5b-3	interpret linear functions/line segments in context, including discussing rate of change (slope) and y intercept	0
0	GT	5c-1	find the equation of a line in the form y = mx + c	0
1	GT	5c-2	interpret the equation of a line in the form y = mx + c, including finding the slope	0
2	GT	5c-3	interpret the equation of a line in the form y = mx + c, including finding the y intercept	0
3	GT	5c-4	interpret the equation of a line in the form y = mx + c, including finding more points	0
4	AF	1a-1	represent linear patterns and relationship in tables	0
5	AF	1a-2	represent linear patterns and relationships in graphs	0
6	AF	1a-3	represent quadratic patterns and relationships in tables	0
7	AF	1a-4	represent quadratic patterns and relationships in graphs	0
8	AF	1a-5	represent exponential patterns and relationships in tables	0
9	AF	1a-6	represent exponential patterns and relationships in graphs	0
0	AF	1b-1	write a generalised expression for linear patterns in words	0
1	AF	1b-2	write a generalised expression for linear patterns algebraically	0
2	AF	1b-3	write a generalised expression for quadratic patterns in words	0
3	AF	1b-4	write a generalised expression for quadratic patterns algebraically	0
4	AF	1b-5	write generalised expressions for exponential patterns in words	Н
5	AF	1b-6	write generalised expressions for exponential patterns algebraically	Н
6	AF	1c-1	categorise patterns as linear, non-linear, quadratic, and exponential	0
7	AF	1c-2	find difference (d) and first term (a) for a linear pattern	0
8	AF	1c-3	find first and second differences for a quadratic pattern	0
9	AF	1c-4	Find ratio (r) and differences ratio (r) for an exponential pattern	Н
0	AF	7a	demonstrate understanding of a function	0
1	AF	7b-1	represent linear functions in tables - using x, f(x), y, domain, range, co-domain	0
2	AF	7b-2	represent linear functions graphically - using x, y, domain, range, co-domain	0
3	AF	7b-3	represent linear functions diagrammatically - using f:x ↔ y, domain, range, co-domain	0
4	AF	7b-4	represent quadratic functions in tables - using x, f(x), y, domain, range, co-domain	0
5	AF	7b-5	represent quadratic functions graphically - using x, y, domain, range, co-domain	0
6	AF	7b-6	represent quadratic functions diagrammatically - using f:x → y, domain, range, co-domain	0
7	AF	7b-7	represent exponential functions in tables - using x, f(x), y, domain, range, co-domain	Н
8	AF	7b-8	represent exponential functions graphically - using x, y, domain, range, co-domain	Н
9	AF	7b-9	represent exponential functions diagrammatically - using f:x ++ y, domain, range, co-domain	Н
0	AF	7b-10	represent linear functions in words	0
1	AF	7b-11	represent linear functions algebraically - using f(x) = ax + b	0
2	AF	7b-12	represent quadratic functions in words	0
3	AF	7b-13	represent quadratic functions algebraically - using f(x) = ax2 + bx + c	0
4	AF	7b-14	represent exponential functions in words	Н
5	AF	7b-15	represent exponential functions algebraically - using f(x) = a2x and f(x) = a3x	Н
6	AF		interpret quadratic functions, including predicting the shape algebraically and identifying the turning point graphically	0
7	AF	7d-2	interpret exponential functions, including connecting rapid increase with variable as exponent and significance of point (1,0)	Н

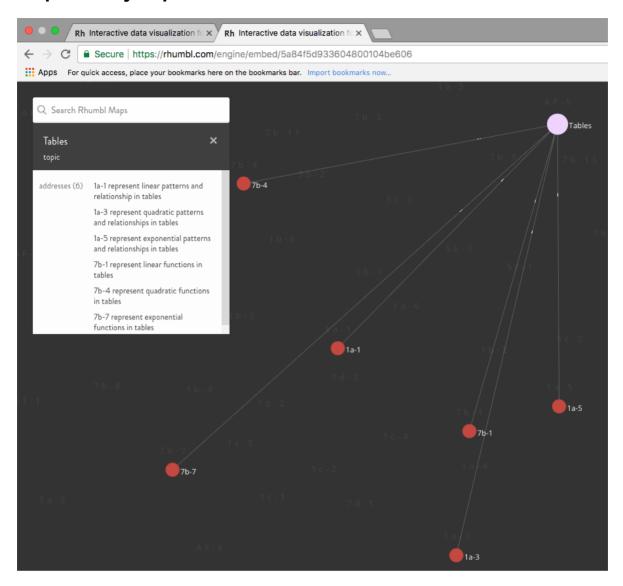
sual display for this Domain Model is easy to understand. * only one oval.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
Other:
arning outcomes in this Domain Model are correctly sequenced. *
arning outcomes in this Domain Model are correctly sequenced. *
arning outcomes in this Domain Model are correctly sequenced. * only one oval.
arning outcomes in this Domain Model are correctly sequenced. * only one oval. Strongly Agree
arning outcomes in this Domain Model are correctly sequenced. * only one oval. Strongly Agree Agree
arning outcomes in this Domain Model are correctly sequenced. * only one oval. Strongly Agree Agree Neutral

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	21. The learning outcomes in this Do Mark only one oval.	main	Mode	el are	corre	ctly c	onne	cted.	*			
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	Strongly 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												
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												
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												
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												
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The design, development and evaluation of an adaptive learning domain model for post-primary mathematics. Building Connections (Relationships) between Topics and Learning Outcomes	Other:											
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This state Thi		distance (slant), using	distance (slant),	and interpret		graphs of	line to find y	discussing rate of change	the equation of a line in the	form y = mx + c, including	form y = mx + c, including	form y = mx + c, including
Composite Patterns & Functions									+ c			
Their Topics The Topics and Learning Outcomes are correctly connected. * Mark only one oval. Strongly Disagree Other:	4 Quadratic Patterns & Functions 5 Exponential Patterns & Functions											
1	7 Tables 8 Graphs					1	1	1				
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 Strongly Disagree	10 Algebraic Expressions (Linear) 11 Algebraic Expressions (Quadratic)							1	1	1	1	1
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Disagree Strongly Disagree Other: 23. The Topics and Learning Outcomes are correctly connected. * Mark only one oval. Strongly Agree Agree Neutral Disagree Strongly Disagree	Agree											
Strongly Disagree Other: 23. The Topics and Learning Outcomes are correctly connected. * Mark only one oval. Strongly Agree Agree Neutral Disagree Strongly Disagree	Neutral											
Other: 23. The Topics and Learning Outcomes are correctly connected. * Mark only one oval. Strongly Agree Agree Neutral Disagree Strongly Disagree	Disagree											
23. The Topics and Learning Outcomes are correctly connected. * Mark only one oval. Strongly Agree Agree Neutral Disagree Strongly Disagree	Strongly Disagree											
Mark only one oval. Strongly Agree Agree Neutral Disagree Strongly Disagree	Other:											
Agree Neutral Disagree Strongly Disagree	-	ıes ar	e cor	rectly	conn	ected	i. *					
Neutral Disagree Strongly Disagree	Strongly Agree											
Disagree Strongly Disagree	Agree											
Disagree Strongly Disagree												
Strongly Disagree	Disagree											
	Other:											

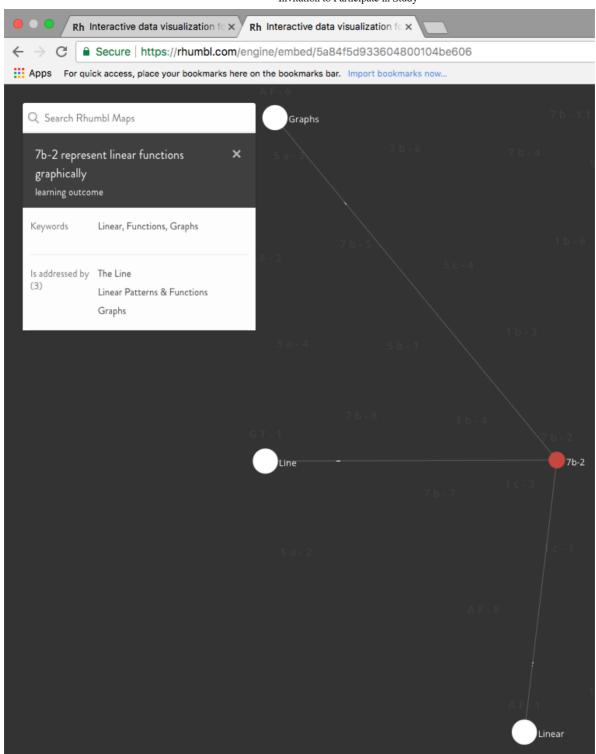
Domain Model (Rhumbl Map)

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. *

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
Other:

Mark only one oval.

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

Strong	ly Agree		
Agree			
Neutra	I		
Disagr	ee		
Strong	ly Disagree		

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