PISA 2018
Technical Report
Chapter 2

Figures and Tables

Table 2.1 Number of PISA Items by Domain and Across Cycles in the Main Survey (numbers in red indicate the major domain in each cycle)

	2000	2003	2006	2009	2012	2015	2018
Reading	**129**	28	28	**131**	44	103	**245**[1]
Mathematics	43	**84**	48	35	**109**	83	83[2]
Science	45	34	**103**	53	53	**184**	115

[1]The number of reading items in the 2018 cycle was much larger than in previous cycles due to the multi-stage adaptive design. In addition to the 245 items shown, reading included 65 fluency sentences.

[2]The paper-based version of the mathematics assessment contained 83 items as shown. Because one of those items required a hand drawn response that could not be replicated in the computer version, there were 82 CBA items.

Table 2.2 Domain coverage for PISA 2018: CBA

DOMAIN	FIELD TRIAL		MAIN SURVEY	
	New	**Trend**	**New**	**Trend**
Reading Literacy	12 clusters: 254 items 65 fluency sentences	6 clusters*: 103 items	Adaptive design: 173 items 65 fluency sentences	Adaptive design: 72 items***
Scientific Literacy	No new item development for 2018	6 clusters: 115 items 76 from the 2015 cycle; 39 used prior to 2015	No new item development for 2018	Same as Field Trial Trend
Mathematical Literacy	No new item development for 2018	6 clusters*: 82 items All items used in 2015 and taken from the 2012 cycle**	No new item development for 2018	Same as Field Trial Trend
Global Competence	5 clusters: 86 items‡	New domain – no trend items	4 clusters: 69 items	New domain – no trend items
Financial Literacy	1 cluster: 20 items	2 clusters: 43 items	2 clusters (mixed new and trend items): 14 new items	29 trend items

Note that each cluster was designed to take approximately 30 minutes of testing time

* There were two versions of clusters R6 and M6 (6A = standard items; 6B = easier items) but each country used only one version, resulting in six clusters of administered items

** The number of mathematics items in CBA was one less than in PBA because one trend items required students to draw a graph and could not be replicated in CBA

*** Clusters R6A and R6B were not included in the MS adaptive design for reading because countries using the 6A cluster do not have translations for 6B and vice-versa

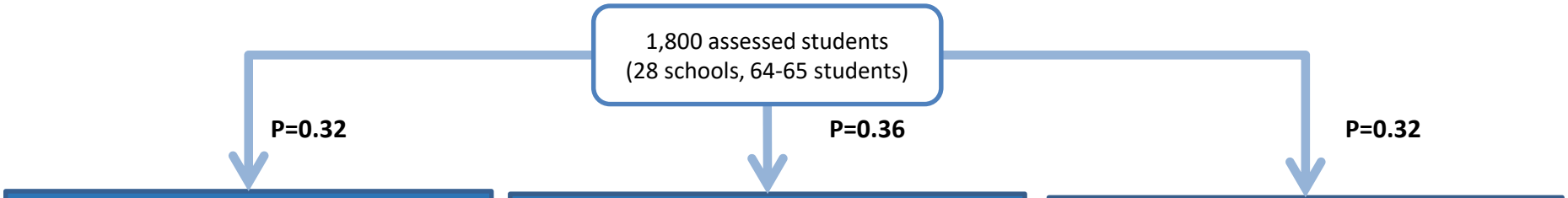
‡ Note that the global competence items were not part of the 2018 FT but were piloted on paper as part of a separate study in seven countries

Table 2.3 Domain coverage for PISA 2018: PBA (included trend items only)

DOMAIN	FIELD TRIAL & MAIN SURVEY
Reading	6 clusters*: 103 items Prior to 2015, these items were last used in 2012 and 2009
Scientific	6 clusters: 85 items Same set of items that PBA countries used in 2015 Prior to 2015, these items were last used in 2012, 2006 and 2003
Mathematics	6 clusters*: 83 items All items used in 2015 and taken from 2012 cycle

*There were two versions of clusters R6 and M6 in PBA (6A = standard items; 6B = easier items) but each country used only one version, resulting in six clusters of administered items

Figure 2.1 Field trial computer-based assessment design



GROUP 1 – CBA Trend
FUO (Forms 01-18)

Forms	Cluster 1	Cluster 2	Cluster 3	Cluster 4
01	S1	S4	M1	M2
02	S3	S6	M3	M4
03	S5	S2	M5	M6ab
04	M2	M3	S2	S5
05	M4	M5	S4	S1
06	M6ab	M1	S6	S3
07	M1	M4	**R1**	**R2**
08	M3	M6ab	**R3**	**R4**
09	M5	M2	**R5**	**R6ab**
10	**R2**	**R3**	M2	M5
11	**R4**	**R5**	M4	M1
12	**R6ab**	**R1**	M6ab	M3
13	**R1**	**R4**	S1	S2
14	**R3**	**R6ab**	S3	S4
15	**R5**	**R2**	S5	S6
16	S2	S3	**R2**	**R5**
17	S4	S5	**R4**	**R1**
18	S6	S1	**R6ab**	**R3**

GROUP 2 – CBA Trend/New R
VUO (Forms 19-42)

Forms	Cluster 1	Cluster 2	Cluster 3	Cluster 4
19	**R1**	R14	R12	R7
20	**R2**	R16	R14	R9
21	**R3**	R18	R16	R11
22	**R4**	R8	R18	R13
23	**R5**	R10	R8	R15
24	**R6ab**	R12	R10	R17
25	R13	**R1**	R10	R9
26	R15	**R2**	R12	R11
27	R17	**R3**	R14	R13
28	R7	**R4**	R16	R15
29	R9	**R5**	R18	R17
30	R11	**R6ab**	R8	R7
31	R11	R18	**R1**	R8
32	R13	R8	**R2**	R10
33	R15	R10	**R3**	R12
34	R17	R12	**R4**	R14
35	R7	R14	**R5**	R16
36	R9	R16	**R6ab**	R18
37	R16	R17	R15	**R1**
38	R18	R7	R17	**R2**
39	R8	R9	R7	**R3**
40	R10	R11	R9	**R4**
41	R12	R13	R11	**R5**
42	R14	R15	R13	**R6ab**

GROUP 3 – CBA New R/GC
FUO (Forms 43-54)

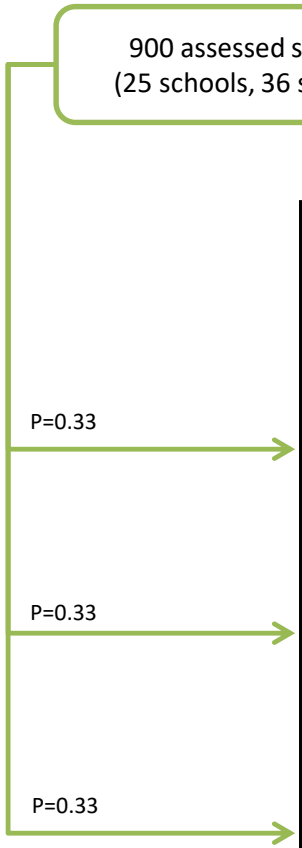
Forms	Cluster 1	Cluster 2	Cluster 3	Cluster 4
43	R7	R8	R10	R14
44	R8	R9	R11	R15
45	R9	R10	R12	R16
46	R10	R11	R13	R17
47	R11	R12	R14	R18
48	R12	R13	R15	R7
49	R13	R14	R16	R8
50	R14	R15	R17	R9
51	R15	R16	R18	R10
52	R16	R17	R7	R11
53	R17	R18	R8	R12
54	R18	R7	R9	R13

Where:

- R1-R6ab represent CBA trend reading clusters
- R7-R18 represent CBA new reading clusters
- M1-M6ab represent CBA trend mathematics clusters
- S1-S6 represent CBA trend science clusters (assembled from 2015 trend and new items)
- GC1-GC4 represent CBA new global competence clusters

Note: FUO = fixed unit order; VUO = variable unit order

Figure 2.2 Field trial paper-based assessment design



Booklets	Cluster 1	Cluster 2	Cluster 3	Cluster 4
01	PS1	PS4	PM1	PM2
02	PS3	PS6	PM3	PM4
03	PS5	PS2	PM5	PM6ab
04	PM2	PM3	PS2	PS5
05	PM4	PM5	PS4	PS1
06	PM6ab	PM1	PS6	PS3
07	PM1	PM4	PR1	PR2
08	PM3	PM6ab	PR3	PR4
09	PM5	PM2	PR5	PR6ab
10	PR2	PR3	PM2	PM5
11	PR4	PR5	PM4	PM1
12	PR6ab	PR1	PM6ab	PM3
13	PR1	PR4	PS1	PS2
14	PR3	PR6ab	PS3	PS4
15	PR5	PR2	PS5	PS6
16	PS2	PS3	PR2	PR5
17	PS4	PS5	PR4	PR1
18	PS6	PS1	PR6ab	PR3

Where:

- PR1-PR6ab represent PBA trend reading clusters
- PM1-PM6ab represent PBA trend mathematics clusters
- PS1-PS6 represent PBA trend science clusters (same clusters from 2015)

Figure 2.3 Overview of the PISA 2018 main survey integrated design

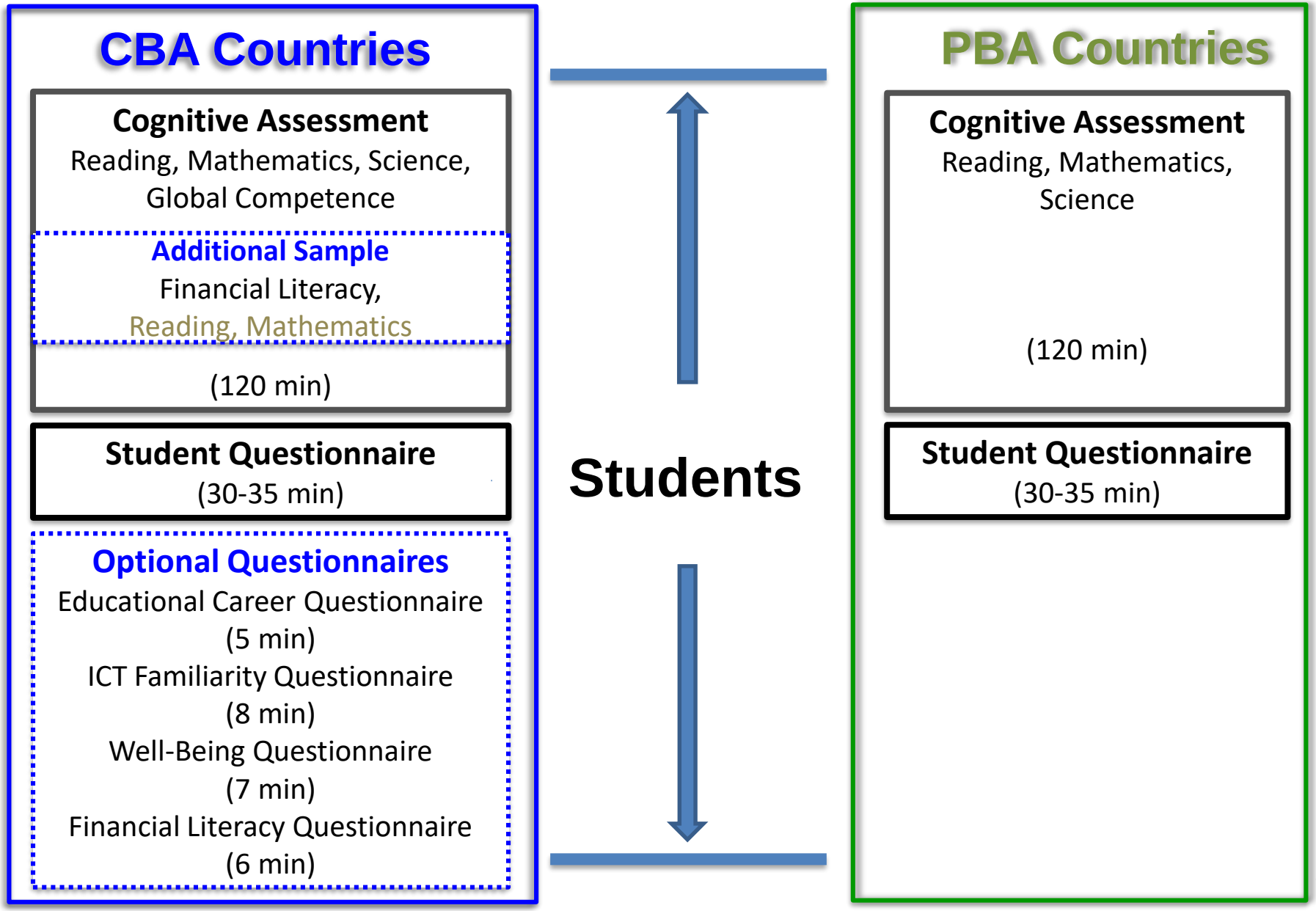


Figure 2.4 Main survey paper-based assessment design

Percentage of Students	Book Number	Cluster 1	Cluster 2	Cluster 3	Cluster 4
46%	1	PR01	PR02	PS01	PS02
	2	PR03	PR04	PS02	PS03
	3	PR05	PR06a/b	PS03	PS04
	4	PR02	PR03	PS04	PS05
	5	PR04	PR05	PS05	PS06
	6	PR06a/b	PR01	PS06	PS01
	7	PS01	PS03	PR01	PR02
	8	PS02	PS04	PR03	PR04
	9	PS03	PS05	PR05	PR06a/b
	10	PS04	PS06	PR02	PR03
	11	PS05	PS01	PR04	PR05
	12	PS06	PS02	PR06a/b	PR01
46%	13	PR01	PR03	PM01	PM02
	14	PR02	PR04	PM02	PM03
	15	PR03	PR05	PM03	PM04
	16	PR04	PR06a/b	PM04	PM05
	17	PR05	PR01	PM05	PM06a/b
	18	PR06a/b	PR02	PM06a/b	PM01
	19	PM01	PM03	PR01	PR03
	20	PM02	PM04	PR02	PR04
	21	PM03	PM05	PR03	PR05
	22	PM04	PM06a/b	PR04	PR06a/b
	23	PM05	PM01	PR05	PR01
	24	PM06a/b	PM02	PR06a/b	PR02
8%	25	PR01	PR02	PS01	PM01
	26	PR03	PR04	PM02	PS02
	27	PR05	PR06a/b	PS03	PM03
	28	PM04	PS04	PR02	PR03
	29	PS05	PM05	PR04	PR05
	30	PM06a/b	PS06	PR06a/b	PR01

Where:

- *PR01-PR06* represents reading clusters in paper (trend)
- *PM01-PM06* represent mathematics clusters in paper (trend)
- *PS01-PS06* represent science clusters in paper (trend)
- *a* represents standard clusters and *b* represents easier clusters

Figure 2.5 Main survey computer-based assessment design (Part 1/2)

Percentage of Students	Forms	Cluster 1	Cluster 2	Cluster 3	Cluster 4
33% No GC=46%	1	R(adaptive)		M01	M02
	2	R(adaptive)		M02	M03
	3	R(adaptive)		M03	M04
	4	R(adaptive)		M04	M05
	5	R(adaptive)		M05	M06a/b
	6	R(adaptive)		M06a/b	M01
	7	M01	M03	R(adaptive)	
	8	M02	M04	R(adaptive)	
	9	M03	M05	R(adaptive)	
	10	M04	M06a/b	R(adaptive)	
	11	M05	M01	R(adaptive)	
	12	M06a/b	M02	R(adaptive)	
33% No GC=46%	13	R(adaptive)		S01	S02
	14	R(adaptive)		S02	S03
	15	R(adaptive)		S03	S04
	16	R(adaptive)		S04	S05
	17	R(adaptive)		S05	S06
	18	R(adaptive)		S06	S01
	19	S01	S03	R(adaptive)	
	20	S02	S04	R(adaptive)	
	21	S03	S05	R(adaptive)	
	22	S04	S06	R(adaptive)	
	23	S05	S01	R(adaptive)	
	24	S06	S02	R(adaptive)	
4% No GC=8%	25	R(adaptive)		S01	M01
	26	R(adaptive)		M02	S02
	27	R(adaptive)		S03	M03
	28	R(adaptive)		M04	S04
	29	R(adaptive)		S05	M05
	30	R(adaptive)		M06a/b	S06
	31	M01	S01	R(adaptive)	
	32	S02	M02	R(adaptive)	
	33	M03	S03	R(adaptive)	
	34	S04	M04	R(adaptive)	
	35	M05	S05	R(adaptive)	
	36	S06	M06a/b	R(adaptive)	

Figure 2.5 Main survey computer-based assessment design (Part 2/2)

Percentage of Students	Forms	Cluster 1	Cluster 2	Cluster 3	Cluster 4
22% No GC=NA	37	R(adaptive)		GC01	GC02
	38	R(adaptive)		GC02	GC03
	39	R(adaptive)		GC03	GC04
	40	R(adaptive)		GC04	GC0
	41	R(adaptive)		GC01	GC03
	42	R(adaptive)		GC02	GC04
	43	GC02	GC01	R(adaptive)	
	44	GC03	GC02	R(adaptive)	
	45	GC04	GC03	R(adaptive)	
	46	GC01	GC04	R(adaptive)	
	47	GC03	GC01	R(adaptive)	
	48	GC04	GC02	R(adaptive)	
4% No GC=NA	49	R(adaptive)		GC01	S01
	50	R(adaptive)		S02	GC02
	51	R(adaptive)		GC03	S03
	52	R(adaptive)		S04	GC04
	53	R(adaptive)		GC02	S05
	54	R(adaptive)		S06	GC03
	55	S01	GC03	R(adaptive)	
	56	GC04	S02	R(adaptive)	
	57	S03	GC01	R(adaptive)	
	58	GC02	S04	R(adaptive)	
	59	S05	GC04	R(adaptive)	
	60	GC01	S06	R(adaptive)	
4% No GC=NA	61	R(adaptive)		M01	GC03
	62	R(adaptive)		GC04	M02
	63	R(adaptive)		M03	GC01
	64	R(adaptive)		GC02	M04
	65	R(adaptive)		M05	GC04
	66	R(adaptive)		GC01	M06a/b
	67	GC01	M01	R(adaptive)	
	68	M02	GC02	R(adaptive)	
	69	GC03	M03	R(adaptive)	
	70	M04	GC04	R(adaptive)	
	71	GC02	M05	R(adaptive)	
	72	M06a/b	GC03	R(adaptive)	

Where:

- *R(adaptive)* represents the reading assessment in computer (trend and new) in an adaptive design
- *M01-M06* represent mathematics clusters in computer (trend)
- *S01-S06* represents science clusters in computer (trend)
- *GC01-GC04* represent global competence clusters in computer (new)
- *a* represents standard clusters and *b* represents easier clusters.

Figure 2.6 Overview of the main survey computer-based assessment design

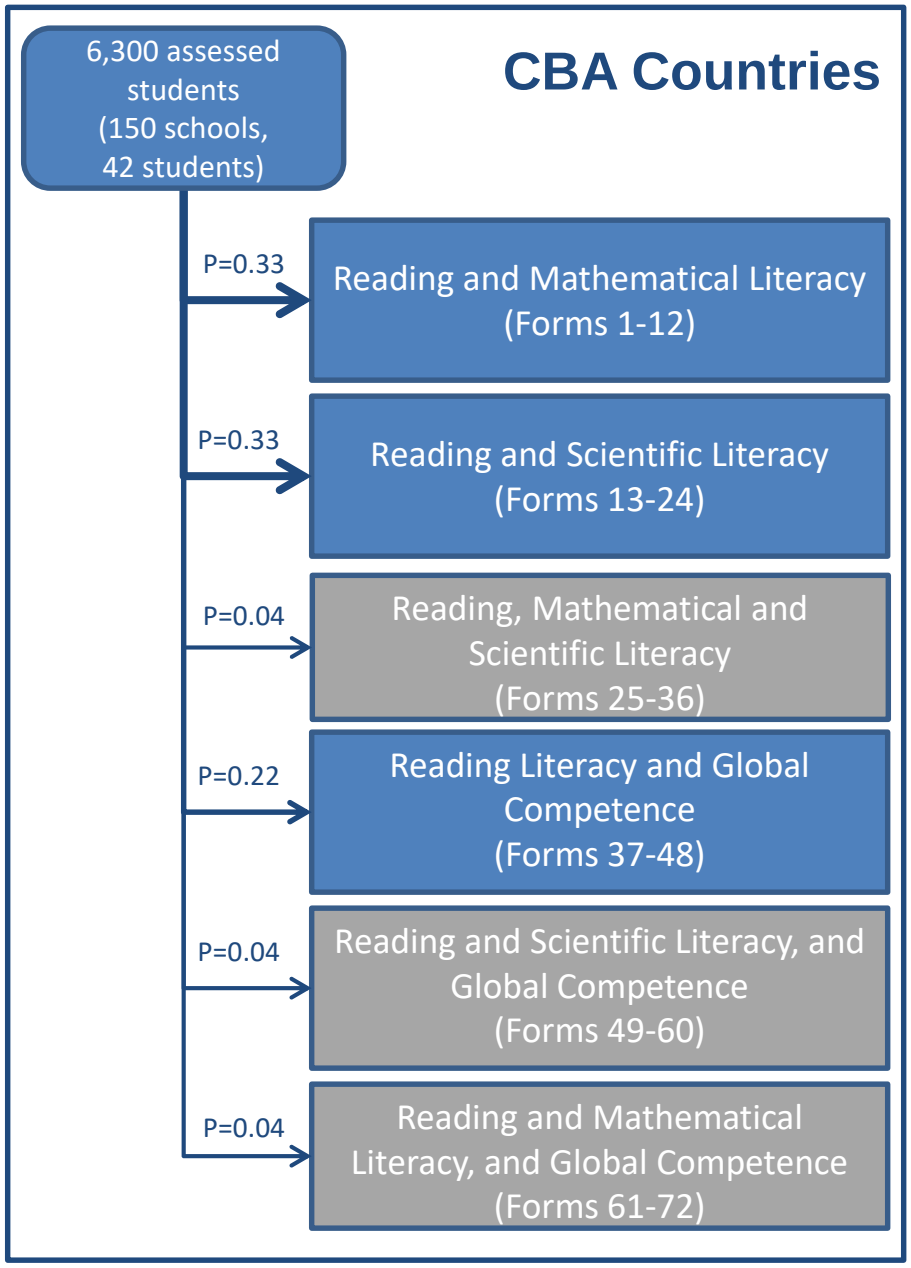


Table 2.4 Main survey computer-based MSAT design – Core reading testlets

Core Testlets*	Sets of Core Units					Core Testlets Total items	Core Testlets Auto-Scored items
	C1.1	C1.2	C1.3	C1.4	C1.5		
Number of items (#MC items)	**5 (4)**	**5 (5)**	**4 (4)**	**3 (3)**	**5 (4)**	**22**	**(20)**
RC1	X	X				10	9
RC2	X			X		8	7
RC3			X	X		7	7
RC4		X			X	10	9
RC5				X	X	8	7
RC6		X	X			9	9
RC7	X		X			9	8
RC8	X				X	10	8
Number of appearances in testlets	**4**	**3**	**3**	**3**	**3**		

ALTERNATIVE

Table 2.4 Main survey computer-based MSAT design – Core reading testlets

Core Testlets*	Sets of Core Units					Total items
	C1.1	C1.2	C1.3	C1.4	C1.5	
Number of items (Number of Auto-Scored Items)	**5 (4)**	**5 (5)**	**4 (4)**	**3 (3)**	**5 (4)**	**22 (20)**
RC1	X	X				10 (9)
RC2	X			X		8 (7)
RC3			X	X		7 (7)
RC4		X			X	10 (9)
RC5				X	X	8 (7)
RC6		X	X			9 (9)
RC7	X		X			9 (8)
RC8	X				X	10 (8)
Number of appearances in testlets	**4**	**3**	**3**	**3**	**3**	

Table 2.5 Main survey computer-based MSAT design – Stage 1 reading testlets

Stage 1 Testlets*	Sets of Stage 1 Units (Number of Items ≈ 5 in each unit)																								Total Items	Auto-Scored items
	S1. 01	S1. 02	S1. 03	S1. 04	S1. 05	S1. 06	S1. 07	S1. 08	S1. 09	S1. 10	S1. 11	S1. 12	S1. 13	S1. 14	S1. 15	S1. 16	S1. 17	S1. 18	S1. 19	S1. 20	S1. 21	S1. 22	S1. 23	S1. 24		
Number of items (#MC items)	5 (3)	6 (4)	6 (5)	6 (4)	3 (2)	4 (2)	5 (4)	5 (4)	6 (5)	5 (4)	6 (5)	4 (1)	6 (3)	4 (3)	3 (3)	4 (3)	6 (3)	5 (3)	4 (0)	5 (4)	3 (1)	6 (4)	5 (2)	4 (2)	116	(74)
R11H	X		X											X											15	11
R11L							X	X													X				13	9
R12H	X			X	X																				14	9
R12L										X	X								X						15	9
R13H		X				X										X									14	9
R13L								X		X		X													14	9
R14H			X			X												X							15	10
R14L									X			X											X		15	8
R15H		X											X		X										15	10
R15L									X										X	X					15	9
R16H													X			X	X								16	9
R16L							X															X	X		16	10
R17H				X										X				X							15	10
R17L																				X		X		X	15	10
R18H					X										X		X								12	8
R18L											X										X			X	13	8
# of appearances in testlets	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		

ALTERNATIVE

Table 2.5 Main survey computer-based MSAT design – Stage 1 reading testlets

Stage 1 Testlets	Sets of Stage 1 Units																							Total Items
	S1. 01	S1. 02	S1. 03	S1. 04	S1. 05	S1. 06	S1. 07	S1. 08	S1. 09	S1. 10	S1. 11	S1. 12	S1. 13	S1. 14	S1. 15	S1. 16	S1. 17	S1. 18	S1. 19	S1. 20	S1. 21	S1. 22	S1. 23	S1. 24	
Number of items (Number of auto-sored items)	5 (3)	6 (4)	6 (5)	6 (4)	3 (2)	4 (2)	5 (4)	5 (4)	6 (5)	5 (4)	6 (5)	4 (1)	6 (3)	4 (3)	3 (3)	4 (3)	6 (3)	5 (3)	4 (0)	5 (4)	3 (1)	6 (4)	5 (2)	4 (2)	116 (74)
R11H	X		X											X											15 (11)
R11L							X	X													X				13 (9)
R12H	X			X	X																				14 (9)
R12L										X	X								X						15 (9)
R13H		X				X										X									14 (9)
R13L								X		X		X													14 (9)
R14H			X			X												X							15 (10)
R14L									X			X											X		15 (8)
R15H		X											X		X										15 (10)
R15L									X										X	X					15 (9)
R16H													X			X	X								16 (9)
R16L							X															X	X		16 (10)
R17H				X										X				X							15 (10)
R17L																				X		X		X	15 (10)
R18H					X										X		X								12 (8)
R18L											X										X			X	13 (8)
# of appearances in testlets	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

Table 2.5 Main survey computer-based MSAT design – Stage 2 reading testlets

Stage 2 Testlets	Sets of Stage 2 Units (Number of Items ≈ 7 in each unit)																Stage 2 Testlets Total Items	Stage 2 Testlets Auto-Scored items
	S2.01	S2.02	S2.03	S2.04	S2.05	S2.06	S2.07	S2.08	S2.09	S2.10	S2.11	S2.12	S2.13	S2.14	S2.15	S2.16		
Number of items (#MC items)	7 (3)	7 (6)	7 (5)	7 (4)	7 (6)	7 (5)	8 (4)	7 (6)	7 (5)	7 (5)	7 (6)	6 (2)	5 (4)	7 (2)	5 (4)	6 (2)	107	(69)
R21H					X				X								14	11
R21L	X												X				12	7
R22H	X														X		12	7
R22L							X				X						15	10
R23H					X					X							14	11
R23L		X													X		12	10
R24H		X											X				12	10
R24L							X					X					14	6
R25H						X			X								14	10
R25L			X											X			14	7
R26H			X													X	13	7
R26L								X			X						14	12
R27H						X				X							14	10
R27L				X												X	13	6
R28H				X										X			14	6
R28L								X				X					13	8
Number of appearances in testlets	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		

ALTERNATIVE

Table 2.5 Main survey computer-based MSAT design – Stage 2 reading testlets

Stage 2 Testlets	Sets of Stage 2 Units																Total Items
	S2.01	S2.02	S2.03	S2.04	S2.05	S2.06	S2.07	S2.08	S2.09	S2.10	S2.11	S2.12	S2.13	S2.14	S2.15	S2.16	
Number of items (Number of auto-scored items)	**7 (3)**	**7 (6)**	**7 (5)**	**7 (4)**	**7 (6)**	**7 (5)**	**8 (4)**	**7 (6)**	**7 (5)**	**7 (5)**	**7 (6)**	**6 (2)**	**5 (4)**	**7 (2)**	**5 (4)**	**6 (2)**	**107 (69)**
R21H					X				X								14 (11)
R21L	X												X				12 (7)
R22H	X														X		12 (7)
R22L							X				X						15 (10)
R23H					X					X							14 (11)
R23L		X													X		12 (10)
R24H		X											X				12 (10)
R24L							X					X					14 (6)
R25H						X			X								14 (10)
R25L			X											X			14 (7)
R26H			X													X	13 (7)
R26L								X			X						14 (12)
R27H						X				X							14 (10)
R27L				X												X	13 (6)
R28H				X										X			14 (6)
R28L								X				X					13 (8)
Number of appearances in testlets	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	

Figure 2.7 Routing paths in the standard computer-based MSAT design – Design A – that connect Core>Stage 1>Stage 2 (64 paths in total, applicable to 75% of students)

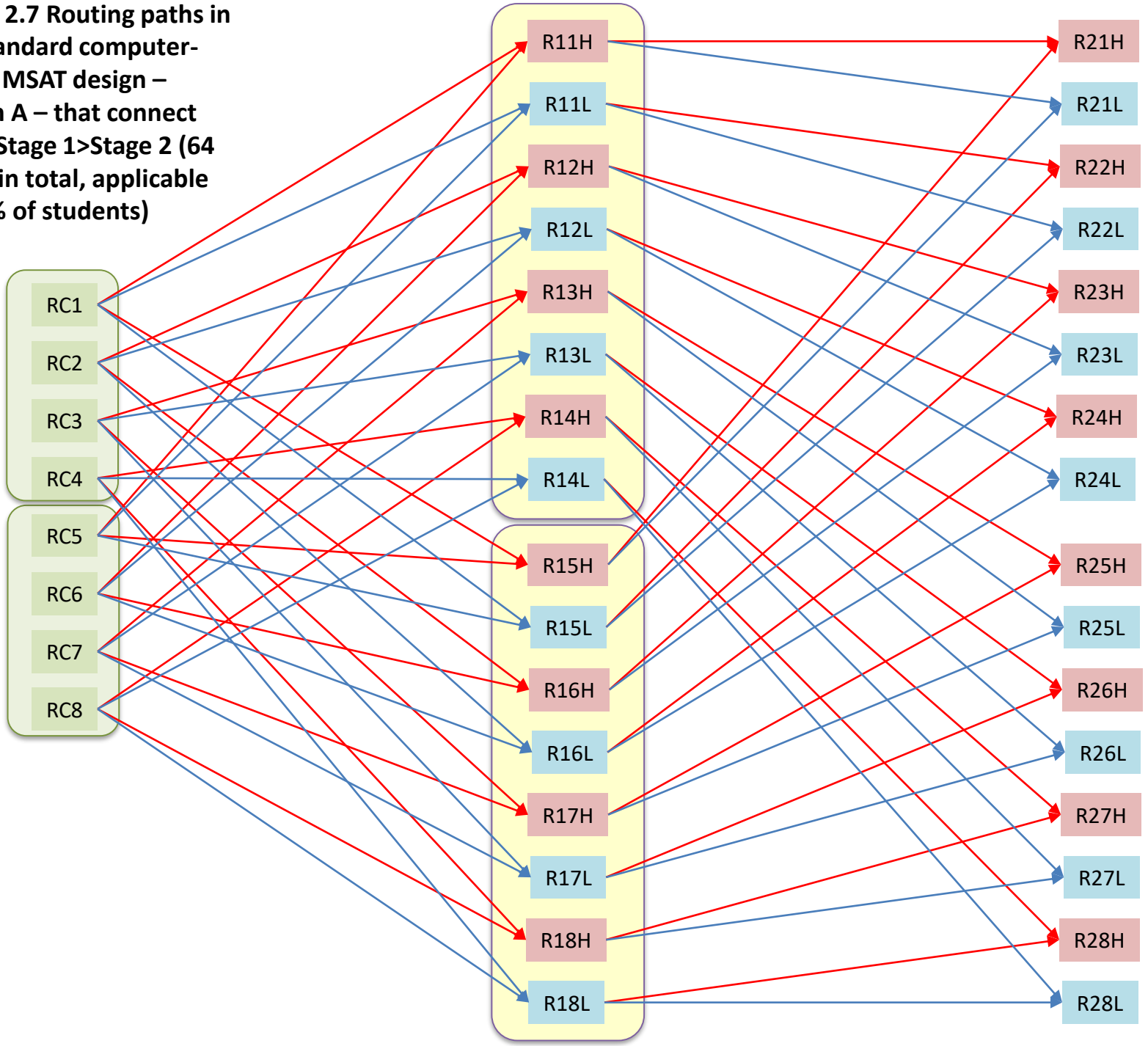


Figure 2.8 Routing paths in the alternative computer-based MSAT design – Design B – that connect Core>Stage 2>Stage 1 (128 paths in total, applicable to 25% of students)

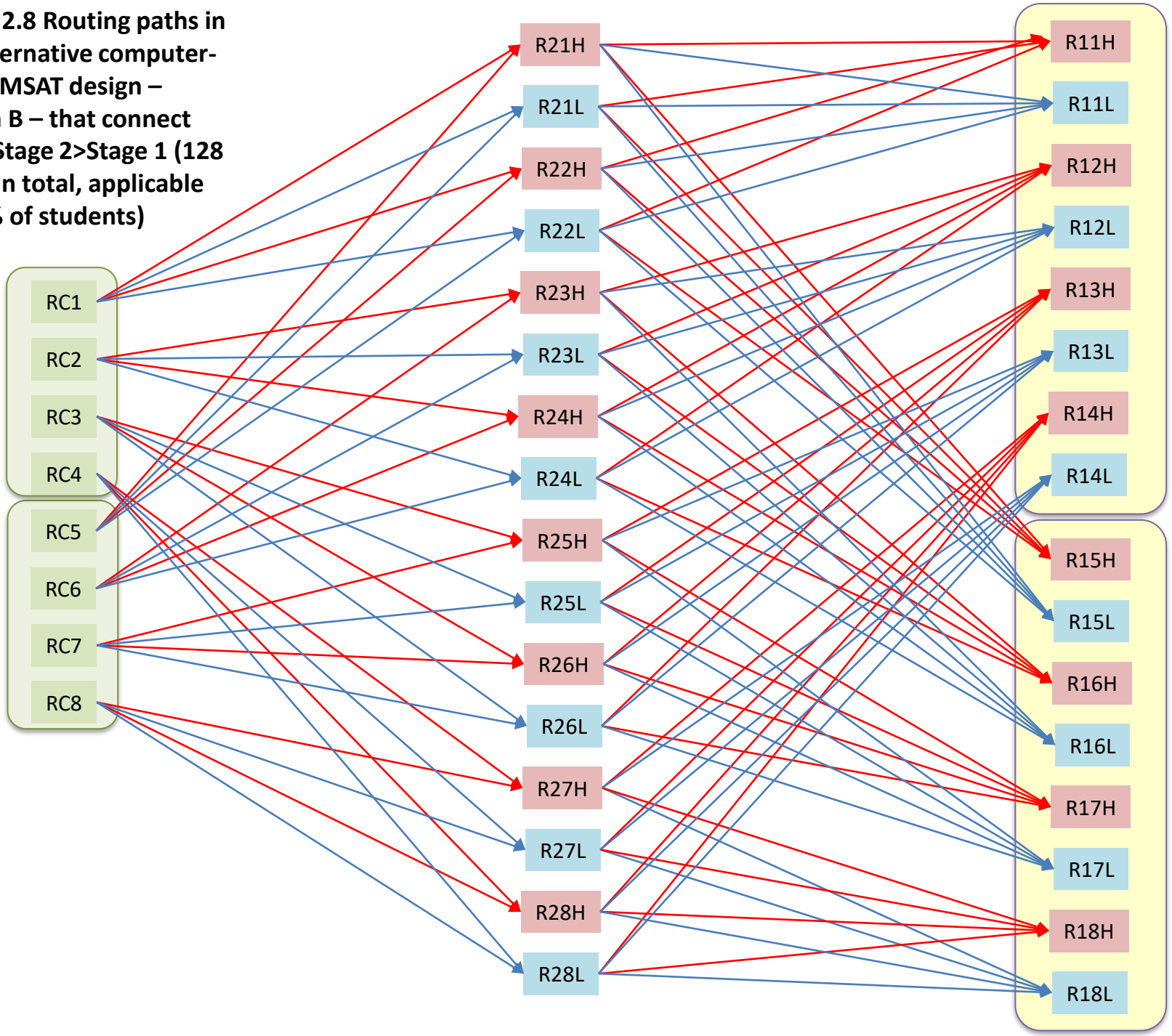


Figure 2.9 Main survey computer-based UH form design

Form	Cluster 1	Cluster 2	Cluster 3	Cluster 4
99(UH)	RU1	RU2	MU1	SU1

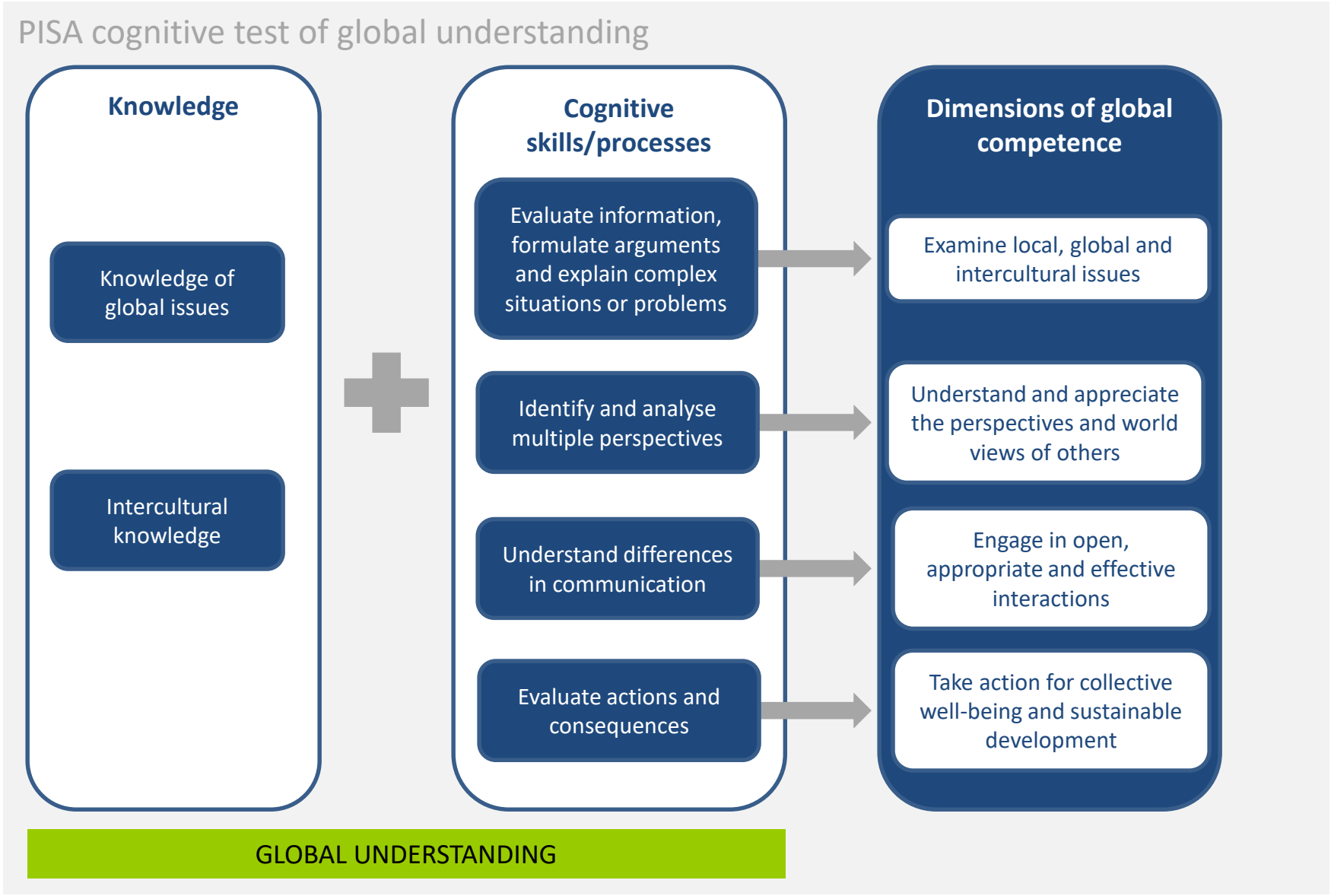
Figure 2.10 Field trial computer-based financial literacy design

Form	Cluster 1	Cluster 2	Cluster 3	Cluster 4
67	M1	R1	FL1	FL2
68	R2	M2	FL1	FL3
69	M3	R3	FL2	FL1
70	R4	M4	FL2	FL3
71	M5	R5	FL3	FL1
72	R6ab	M6ab	FL3	FL2
73	FL1	FL2	M6ab	R4
74	FL1	FL3	R5	M1
75	FL2	FL1	M4	R2
76	FL2	FL3	R3	M5
77	FL3	FL1	M2	R6ab
78	FL3	FL2	R1	M3

Figure 2.11 Main survey computer-based financial literacy design

Form	Cluster 1	Cluster 2	Cluster 3	Cluster 4
70	M1	M2	FL1	FL2
71	M3	M4	FL2	FL1
72	M5	M6	FL1	FL2
73	$R_{(adaptive)}$		FL2	FL1
74	$R_{(adaptive)}$		FL1	FL2
75	$R_{(adaptive)}$		FL2	FL1
76	FL2	FL1	M4	M1
77	FL1	FL2	M6	M3
78	FL2	FL1	M2	M5
79	FL1	FL2	$R_{(adaptive)}$	
80	FL2	FL1	$R_{(adaptive)}$	
81	FL1	FL2	$R_{(adaptive)}$	

Figure 2.12 The relationship between the cognitive test of global understanding and the dimensions of global competence



Note: Image taken from OECD publication http://www.oecd.org/pisa/Handbook-PISA-2018-Global-Competence.pdf. Not sure whether special referencing is needed.

Figure 2.13 Tabs and scrolling display

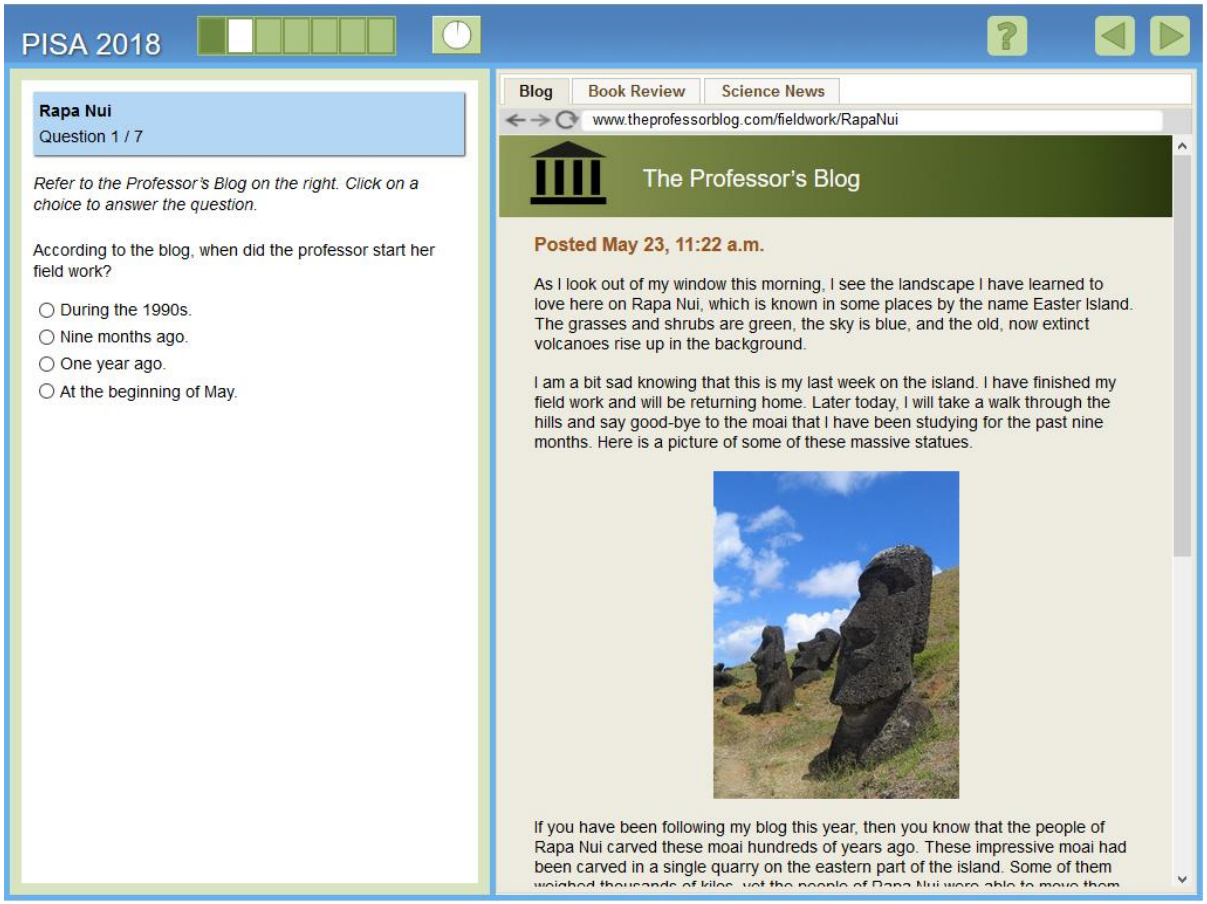


Table 2.7 Item counts (field trial and main survey) by domain and delivery mode

Domain	Field trial		Main survey	
	Paper-based	Computer-based	Paper-based	Computer-based
Reading	103	357	103	245
Mathematics	83	82	83	82
Science	85	115	85	115
Global competence	86	NA	NA	69
Financial literacy	NA	63	NA	43

Table 2.8 Reading item counts by framework category (CBA)

Cognitive Processes	Trend		New		Combined (Trend + New)		Framework Recommendation
	Number	%	Number	%	Number	%	%
SINGLE text							
Scan and locate	14	19%	17	10%	31	13%	15%
Represent literal meaning	15	21%	38	22%	53	22%	15%
Integrate and generate inferences	26	36%	37	21%	63	26%	15%
Assess quality and credibility	15	21%	31	18%	46	18%	20%
Reflect on content and form							
MULTIPLE Text							
Search and select relevant text	0	0%	19	11%	19	8%	10%
Integrate and generate inferences (MS)	0	0%	15	9%	15	6%	15%
Corroborate and handle conflict	2	3%	16	9%	18	7%	10%
Total	72	100%	173	100%	245	100%	100%

Table 2.9 Global competence item counts by framework category: Cognitive processes

Cognitive Processes	Selected Items	
	Number	%
1. Evaluate information, formulate arguments and explain issues/situations	37	54%
2. Identify and analyze multiple perspectives	18	26%
3. Understand differences in communication	0	0%
4. Evaluate actions and consequences	14	20%
Total	69	100%

Table 2.10 Global competence item counts by framework category: Cognitive subprocesses

Cognitive Subprocesses	Selected Items	
	Number	%
1a. Selecting sources	2	3%
1b. Weighing sources	7	10%
1c. Employing sources	6	9%
1d. Describing issues/situations	6	9%
1e. Explaining issues	16	23%
2a. Recognizing perspectives	11	16%
2b. Recognizing contexts	6	9%
2c. Identifying connections	1	1%
3a. Understanding communicative contexts	0	0%
4a. Considering actions	7	10%
4b. Understanding consequences and implications	7	10%
Total	69	100%

Table 2.11 Financial literacy item counts by framework category: Cognitive processes

Cognitive Processes	Selected Items	
	Number	%
Analyse information in a financial context	11	26%
Apply financial knowledge and understanding	11	26%
Evaluate financial issues	14	32%
Identify financial information	7	16%
Total	43	100%

Table 2.12 Financial literacy item counts by framework category: Cognitive content

Cognitive Processes	Selected Items	
	Number	%
Education and work	5	12%
Home and family	14	33%
Individual	21	49%
Society	3	7%
Total	43	100%

Appendix 1 Overview of the adaptive process for the standard design – Design A – that connects Core>Stage 1>Stage 2 (64 paths in total, applicable to 75% of students)

Core Testlets	Number of Auto-Scored Items	Process of Selecting Testlets in the First Stage			Core + First Stage Testlets	Number of Auto-Scored Items	Process of Selecting Testlets in the Second Stage			Testlets in Second Stage		
		Low Level	Medium Level	High Level			Low Level	Medium Level	High Level			
		(P=0.9 to L; P=0.1 to H in first stage)	(P=0.5 to L; P=0.5 to H in first stage)	(P=0.1 to L; P=0.9 to H in first stage)			(P=0.9 to L; P=0.1 to H in second stage)	(P=0.5 to L; P=0.5 to H in second stage)	(P=0.1 to L; P=0.9 to H in second stage)			
		Scores lower than:	Scores between:	Scores higher than:			Scores lower than:	Scores between:	Scores higher than:			
RC1	9	4	4 – 6	6	A: RC1, R11H	20	8	8 – 13	13	R21L	or	R21H
					A: RC1, R15H	19	8	8 – 13	13			
					A: RC1, R11L	18	10	10 – 14	14	R22L	or	R22H
					A: RC1, R15L	18	10	10 – 14	14			
RC2	7	3	3 – 5	5	A: RC2, R12H	16	7	7 – 11	11	R23L	or	R23H
					A: RC2, R16H	16	7	7 – 12	12			
					A: RC2, R12L	16	7	7 – 11	11	R24L	or	R24H
					A: RC2, R16L	17	10	10 – 13	13			
RC3	7	3	3 – 5	5	A: RC3, R13H	16	8	8 – 11	11	R25L	or	R25H
					A: RC3, R17H	17	8	8 – 12	12			
					A: RC3, R13L	16	8	8 – 12	12	R26L	or	R26H
					A: RC3, R17L	17	10	10 – 14	14			
RC4	9	4	4 – 7	7	A: RC4, R14H	19	9	9 – 13	13	R27L	or	R27H
					A: RC4, R18H	17	7	7 – 11	11			
					A: RC4, R14L	17	9	9 – 13	13	R28L	or	R28H
					A: RC4, R18L	17	8	8 – 13	13			
RC5	7	4	4 – 5	5	A: RC5, R11H	18	8	8 – 12	12	R21L	or	R21H
					A: RC5, R15H	17	8	8 – 12	12			
					A: RC5, R11L	16	10	10 – 13	13	R22L	or	R22H
					A: RC5, R15L	16	9	9 – 13	13			
RC6	9	3	3 – 6	6	A: RC6, R12H	18	7	7 – 12	12	R23L	or	R23H
					A: RC6, R16H	18	8	8 – 13	13			
					A: RC6, R12L	18	7	7 – 13	13	R24L	or	R24H
					A: RC6, R16L	19	10	10 – 15	15			
RC7	8	3	3 – 6	6	A: RC7, R13H	17	8	8 – 12	12	R25L	or	R25H
					A: RC7, R17H	18	9	9 – 13	13			
					A: RC7, R13L	17	9	9 – 13	13	R26L	or	R26H
					A: RC7, R17L	18	10	10 – 14	14			
RC8	8	4	4 – 6	6	A: RC8, R14H	18	8	8 – 13	13	R27L	or	R27H
					A: RC8, R18H	16	7	7 – 11	11			
					A: RC8, R14L	16	9	9 – 13	13	R28L	or	R28H
					A: RC8, R18L	16	8	8 – 12	12			

Appendix 2 Overview of the adaptive process for the alternative design – Design B – that connects Core>Stage 2>Stage 1 (128 paths in total, applicable to 25% of students) (part 1)

Core Testlets	Number of Auto-Scored Items	Process of Selecting Testlets in the First Stage				Core + First Stage Testlets	Number of Auto-Scored Items	Process of Selecting Testlets in the Second Stage				Testlets in Second Stage		
		Low Level	Medium Level	High Level				Low Level	Medium Level	High Level				
		(P=0.9 to L; P=0.1 to H in first stage)	(P=0.5 to L; P=0.5 to H in first stage)	(P=0.1 to L; P=0.9 to H in first stage)				(P=0.9 to L; P=0.1 to H in second stage)	(P=0.5 to L; P=0.5 to H in second stage)	(P=0.1 to L; P=0.9 to H in second stage)				
		Scores lower than:	Scores between:	Scores higher than:				Scores lower than:	Scores between:	Scores higher than:				
RC1	9	4	4 – 6	6		A: RC1, R21H	20	8	8 – 13	13		R11L or R15L	or	R11H or R15H
						A: RC1, R22H	16	8	8 – 12	12				
						A: RC1, R21L	16	8	8 – 12	12		R11L or R15L	or	R11H or R15H
						A: RC1, R22L	19	10	10 – 15	15				
RC2	7	3	3 – 5	5		A: RC2, R23H	18	8	8 – 12	12		R12L or R16L	or	R12H or R16H
						A: RC2, R24H	17	8	8 – 13	13				
						A: RC2, R23L	17	9	9 – 13	13		R12L or R16L	or	R12H or R16H
						A: RC2, R24L	13	7	7 – 10	10				
RC3	7	3	3 – 5	5		A: RC3, R25H	17	7	7 – 11	11		R13L or R17L	or	R13H or R17H
						A: RC3, R26H	14	6	6 – 10	10				
						A: RC3, R25L	14	6	6 – 10	10		R13L or R17L	or	R13H or R17H
						A: RC3, R26L	19	11	11 – 15	15				
RC4	9	4	4 – 7	7		A: RC4, R27H	19	9	9 – 13	13		R14L or R18L	or	R14H or R18H
						A: RC4, R28H	15	7	7 – 10	10				
						A: RC4, R27L	15	7	7 – 11	11		R14L or R18L	or	R14H or R18H
						A: RC4, R28L	17	10	10 – 14	14				

Appendix 2 Overview of the adaptive process for the alternative design – Design B – that connects Core>Stage 2>Stage 1 (128 paths in total, applicable to 25% of students) (part 2)

Core Testlets	Number of Auto-Scored Items	Process of Selecting Testlets in the First Stage				Core + First Stage Testlets	Number of Auto-Scored Items	Process of Selecting Testlets in the Second Stage				Testlets in Second Stage		
		Low Level	Medium Level	High Level				Low Level	Medium Level	High Level				
		(P=0.9 to L; P=0.1 to H in first stage)	(P=0.5 to L; P=0.5 to H in first stage)	(P=0.1 to L; P=0.9 to H in first stage)				(P=0.9 to L; P=0.1 to H in second stage)	(P=0.5 to L; P=0.5 to H in second stage)	(P=0.1 to L; P=0.9 to H in second stage)				
		Scores lower than:	Scores between:	Scores higher than:				Scores lower than:	Scores between:	Scores higher than:				
RC5	7	4	4 – 5	5		A: RC5, R21H	18	8	8 – 12	12		R11L or R15L	or	R11H or R15H
						A: RC5, R22H	14	8	8 – 12	12				
						A: RC5, R21L	14	8	8 – 11	11		R11L or R15L	or	R11H or R15H
						A: RC5, R22L	17	10	10 – 14	14				
RC6	9	3	3 – 6	6		A: RC6, R23H	20	8	8 – 13	13		R12L or R16L	or	R12H or R16H
						A: RC6, R24H	19	9	9 – 14	14				
						A: RC6, R23L	19	9	9 – 14	14		R12L or R16L	or	R12H or R16H
						A: RC6, R24L	15	7	7 – 11	11				
RC7	8	3	3 – 6	6		A: RC7, R25H	18	7	7 – 12	12		R13L or R17L	or	R13H or R17H
						A: RC7, R26H	15	7	7 – 11	11				
						A: RC7, R25L	15	6	6 – 10	10		R13L or R17L	or	R13H or R17H
						A: RC7, R26L	20	11	11 – 16	16				
RC8	8	4	4 – 6	6		A: RC8, R27H	18	8	8 – 13	13		R14L or R18L	or	R14H or R18H
						A: RC8, R28H	14	6	6 – 10	10				
						A: RC8, R27L	14	7	7 – 10	10		R14L or R18L	or	R14H or R18H
						A: RC8, R28L	16	10	10 – 13	13				