RISE
RESEARCH ON IMPROVING SYSTEMS OF EDUCATION

Surveys of Enacted Curriculum

Approach and methods
overview

May 2022

Oxford Policy Management
BLAVATNIK SCHOOL OF GOVERNMENT
UNIVERSITY OF OXFORD
UKaid from the British people
Australian Aid
BILL & MELINDA GATES foundation

Curriculum – a practical definition

Curriculum as the prescribed content to be taught and learned which provides the basis for assessment in form of testing.

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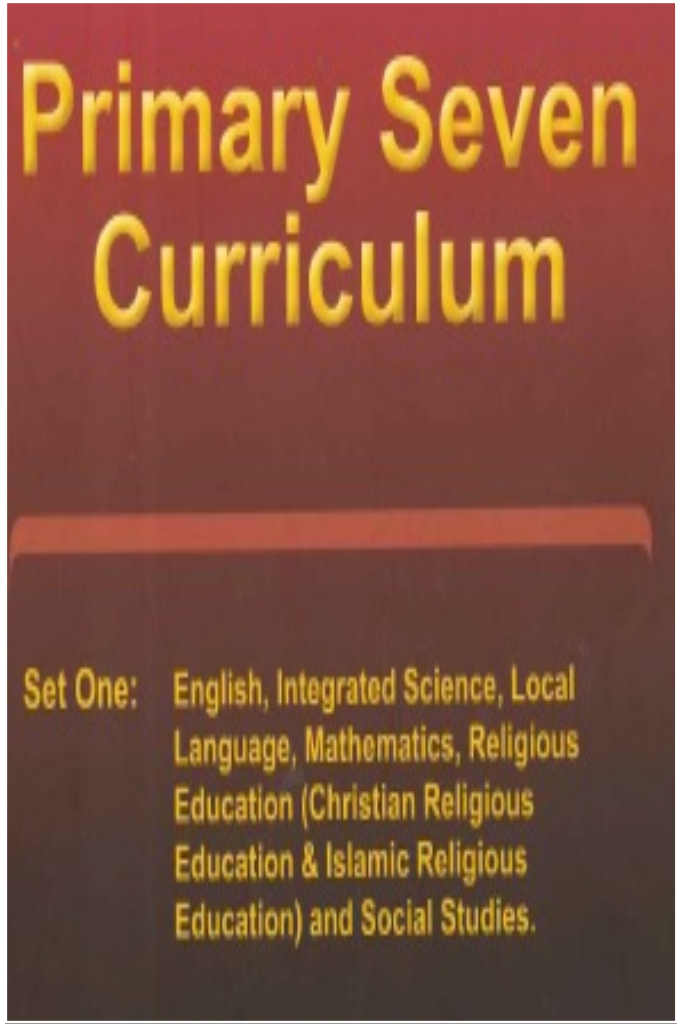
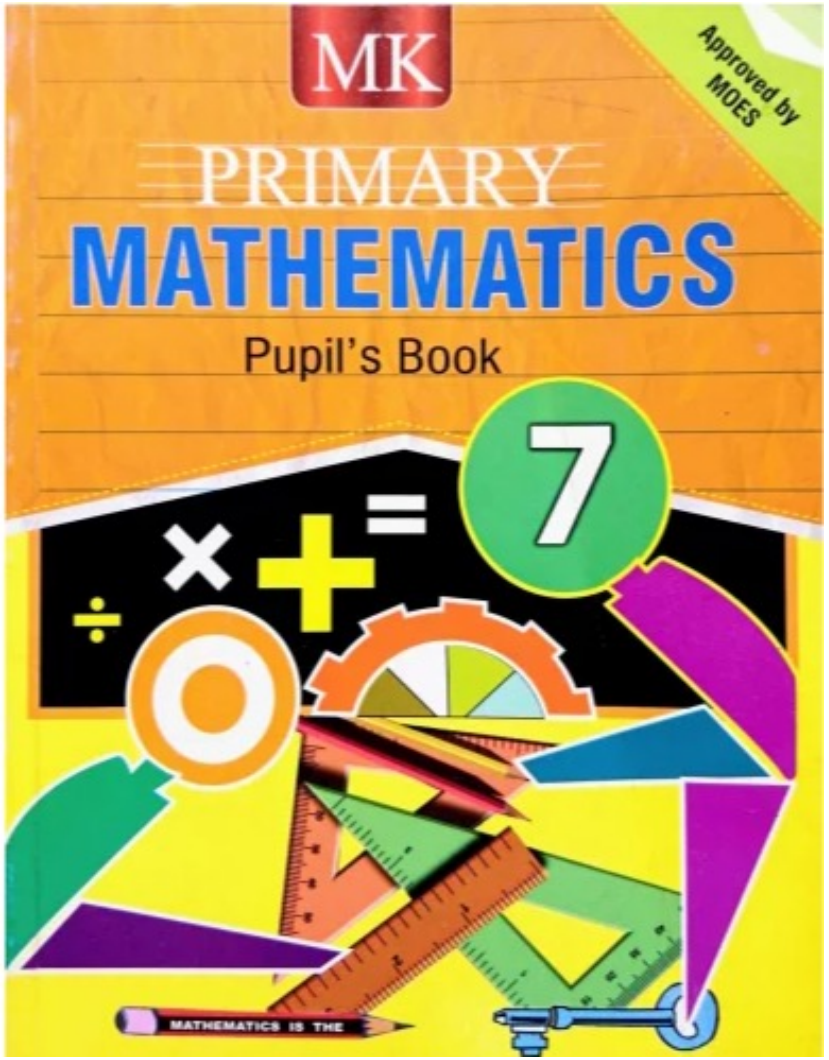
Instructional resources





THE REPUBLIC OF UGANDA
Ministry of Education and Sports

ABRIDGED CURRICULUM

For PRIMARY SCHOOLS

Teacher's Orientation Manual 2022

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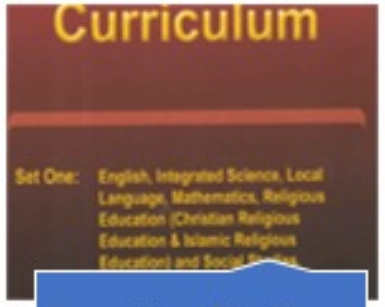
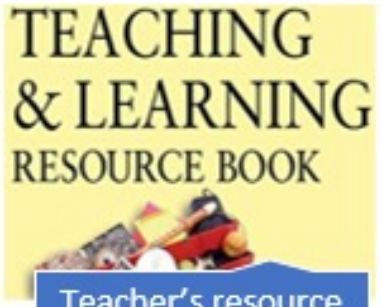
Surveys of Enacted Curriculum (SEC)

- Tools for academic content analysis, alignment analysis, and teacher support (Blank, Porter, & Smithson, 2001; Smithson, 2013)
- Systematic analysis, quantification of academic content embedded in curriculum resources.
- Map academic content on three dimensional displays that reveal relative emphases across different curricula content areas.
- Describe coverage, sequence and pace of curricula and diagnose sources of misalignment within and between curricula components.
- Produce a set of indicators to guide policy on educational curriculum development, review and reform.
- Facilitate teacher reflection, professional development and review of classroom instructional content and practices.

Content analysis

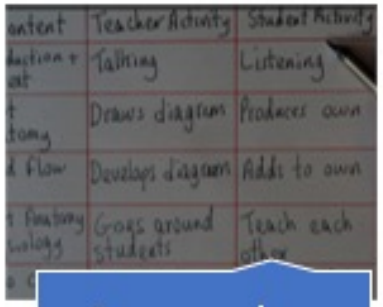


Learning objectives



Teacher's resource book

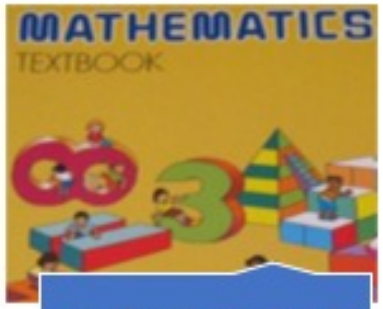
Teacher's guide



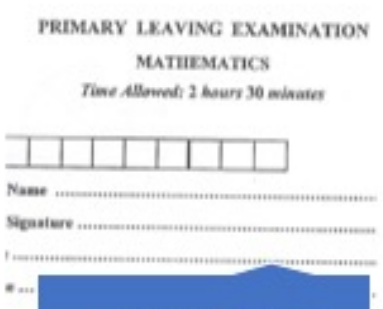
Lesson plan


Classroom instruction


Teaching aids



Student's textbook

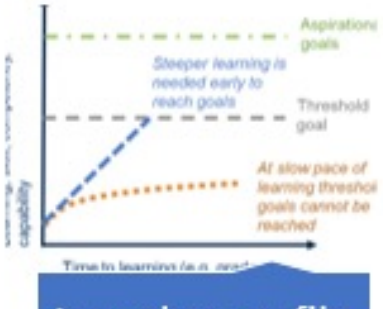


National Exam


Assessing learning


Assessing learning


Marking scheme



Learning profile

All these resources contribute to children's opportunity to learn.

Que. What content is embedded in these resources?

Que. How does one arrive at a decision on the relevance of these resources for children's learning?

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Content analysis

100	**Phonemic awareness**
101	Phoneme isolation(e.g.,the distinct sounds /c/,/a/,and /t/
102	Phoneme blending (e.g., c/a/t = cat)
103	Phoneme segmentation
104	Onset-rime
105	Sound patterns
106	Rhyme recognition
107	Phoneme deletion, substitution, and addition
108	Identify Syllables
190	Other
200	**Phonics**
201	Alphabetic principle (includes alphabet recognition and order)
202	Consonants
203	Consonant blends
204	Consonant digraphs (e.g., ch, sh, th, etc.)
205	Diphthongs (e.g., oi, ou, ow, oy [as in "boy"], etc.)
206	R-controlled vowels (e.g., farm, torn, turn, etc.)
207	Patterns within words
208	Vowel letters (a, e, i, o, u, y)
209	Vowel phonemes (15 sounds)
210	Sound and symbol relationships
211	Blending sounds
290	Other

500	**Fluency**
501	Prosody (e.g., phrasing, intonation, and inflection)
502	Automaticity of words and phrases (e.g. sight and decodable words)
503	Speed and pace
504	Accuracy
505	Independent reading (e.g. repeated/silent reading for fluency)
590	Other
600	**Comprehension**
601	Word meaning from context
602	Phrase
603	Sentence
604	Paragraph
605	Main idea(s), key concepts, and sequence(s) of events
606	Descriptive elements (e.g., detail, color, condition)
607	Narrative elements (e.g., events, characters, setting, and plot)
608	Persuasive elements (e.g. propaganda, advertisement, and emotional appeal)
609	Expository or informational elements (e.g., explanation, lists, and organizational patterns such as description, cause-effect, and compare-contrast)
610	Technical elements (e.g., bullets, instruction, form,

Level of cognitive demand	**Illustrative definition**
Memorize/Recall	Recognize, identify, or recall facts, definitions, or formulas
Explain/Perform Procedures	Perform procedures, solve routine problems, do computations, make observations, take measurements
Generate/Demonstrate understanding	Communicate ideas, explain findings from analysis, explain reasoning
Analyze/Conjecture	Make and investigate conjectures, infer and predict
Evaluate/Apply to non-routine problems	Apply and adapt strategies, solve novel problems, make connections

Quantifying the embedded content to generate a data set.

<u>What learners should know:</u>
For each learning objective (competence, item, etc.), identify the relevant topic/subtopic code(s).

<u>What learners should be able to do:</u>
For each learning objective (competence, item, etc.), rate the level(s) of cognitive demand required to fully engage with the content.

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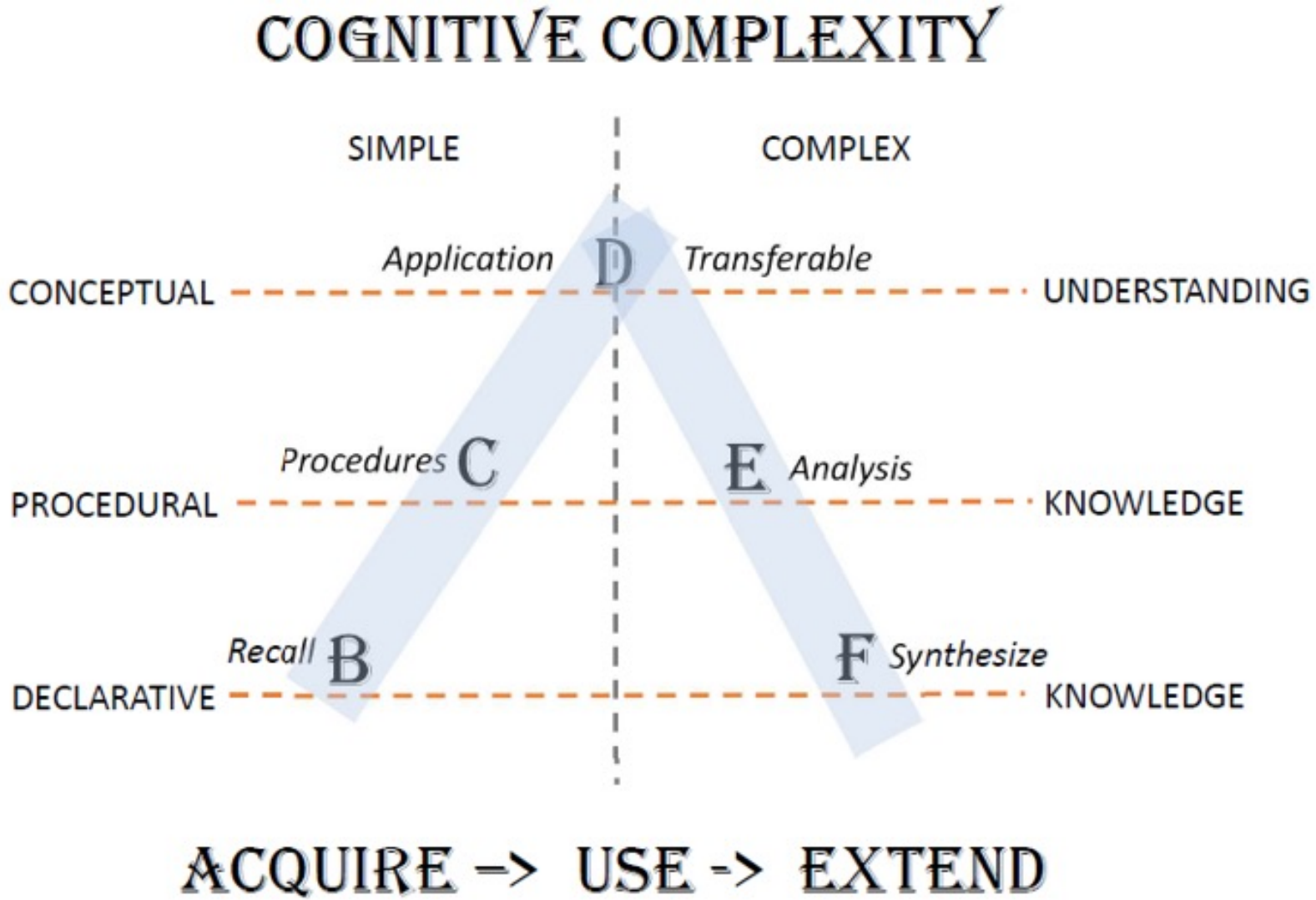
Content analysis



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Content analysis

26a	Using a ruler, a pencil and a pair of compasses only: Construct a parallelogram ABCD such that line AB = 7 cm, BC = 5 cm and angle ABC = 120°	P47.31	707	C		
	ii) Drop a perpendicular from D to meet AB at M.	P47.32	709	C		
26b	Measure the line DM	P47.33	316	C		
27a	The time table shows how a pupil spent his time one Saturday. How long did he take playing?	P47.34	312	D	204	C
27b	If he dug maize garden at a rate of 2 rows in every 30 minutes, find the number of rows he dug that day.	P47.35	314	D		
28	The exchange rate for Kenya Shillings (K sh.) to Uganda (Ug Sh. and the United states dollars (Us$) to Uganda shillings are shown below. Ksh 1 = Ug sh. 30. Us$ = Ug. sh. 2580. How many United states dollars will one get from 21,500 Kenya shillings?	P47.36	303	C	313	F
28b	If the cost of a new bicycle is 90 United States dollars, how much would this be in Uganda shillings	P47.37	303	C		
29	At Kampala Bus Park, buses travelling to Arua and Mbarara leave after every 40 minutes and 50 minutes respectively. The first buses to the two towns leave together at 6:00am. At what time will buses to the two towns leave Kampala together again?	P47.38	312	F	312	E
30a	The mean of numbers 7,9,5,x+2 and 6 is 8. Find the value of x	P47.39	1001	D	503	D
30b	In a bag there are 15 pens. Out of these 4 are red and the rest blue. What is the probability that a pen picked at random from the bag is blue?	P47.40	1101	C		
31a	Nanziri has two children a son and a daughter. If the son is half her age, the daughter is a third of her age and the total age of the two children is 30 years. Find Nanziri's age	P47.41	507	F	503	F
31b	How old is the daughter	P47.42	507	D	503	D
32 a	A school wants to fence a circular flower garden of diameter 14 m using poles placed at intervals of 80 cm. How many poles are needed to fence the flower garden? (Take Pi = 22/7).	P47.43	310	D	503	F
32b	If each pole costs sh. 3000, how much money will the school spend on the poles?	P47.44	202	D		

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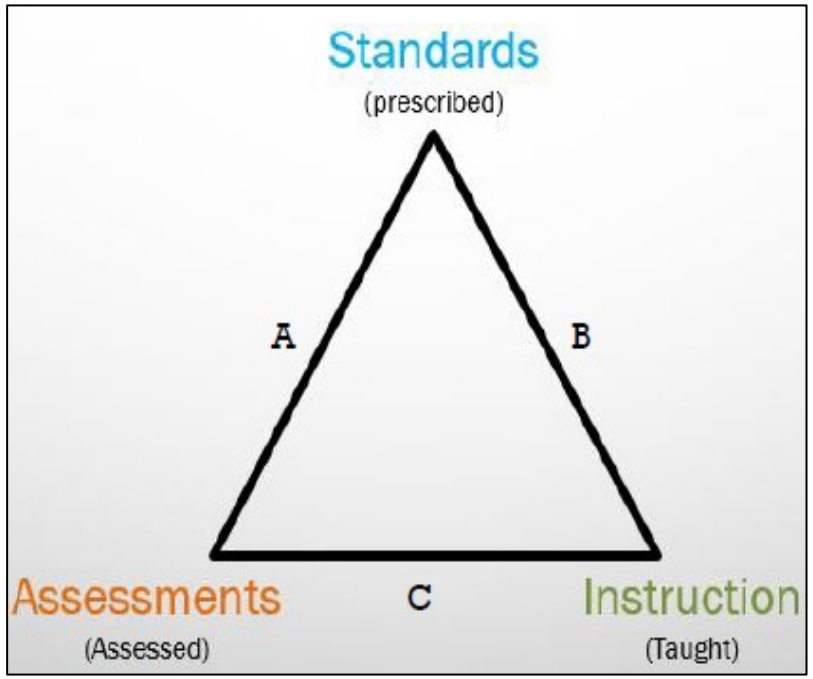
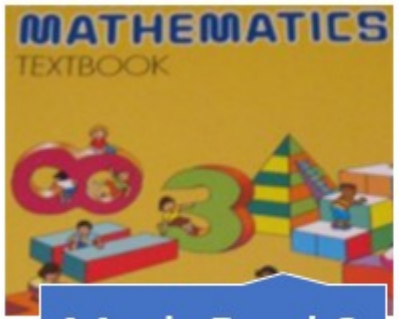
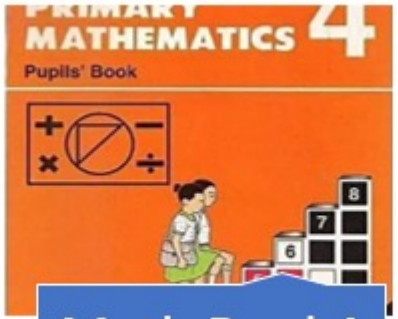
Alignment analysis

- Instructional alignment is important for learning (Gamoran et al., 1997; Porter, 2002; Smithson and Collares, 2007; Banerjee et al., 2016; Crouch and DeStefano, 2017; Piper et al., 2018; Crouch, 2020;)
- Alignment between different components assures system coherence.
- Alignment within a component facilitates the right level of ambition (progression pace).





Math Book3



Math Book4

Math Book5

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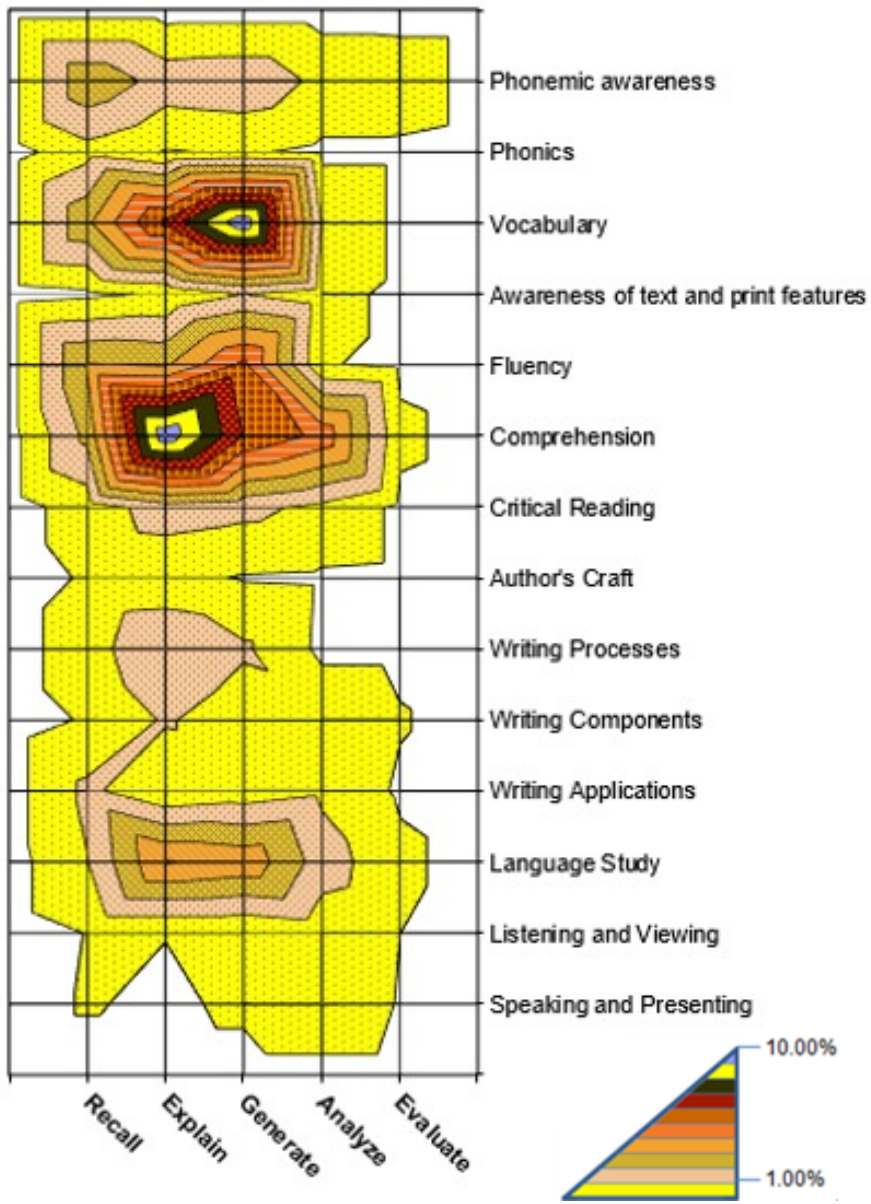
Teacher reflection

Question 1:
When do teachers reflect on their classroom teaching?

Question 2:
What tools do they use to facilitate this reflection?

SEC outputs – 3D content maps



<u>What learners should know:</u>
High emphasis on vocabulary (21%) and comprehension
(24%).
Moderately high emphasis on Language study (??%) and Phonemic awareness (8%).
Minimal emphasis on the remaining topics while phonics is mostly absent (only 1%).

<u>What learners should be able to do:</u>
Most emphasis is on “performing procedures” and “demonstrating understanding.”

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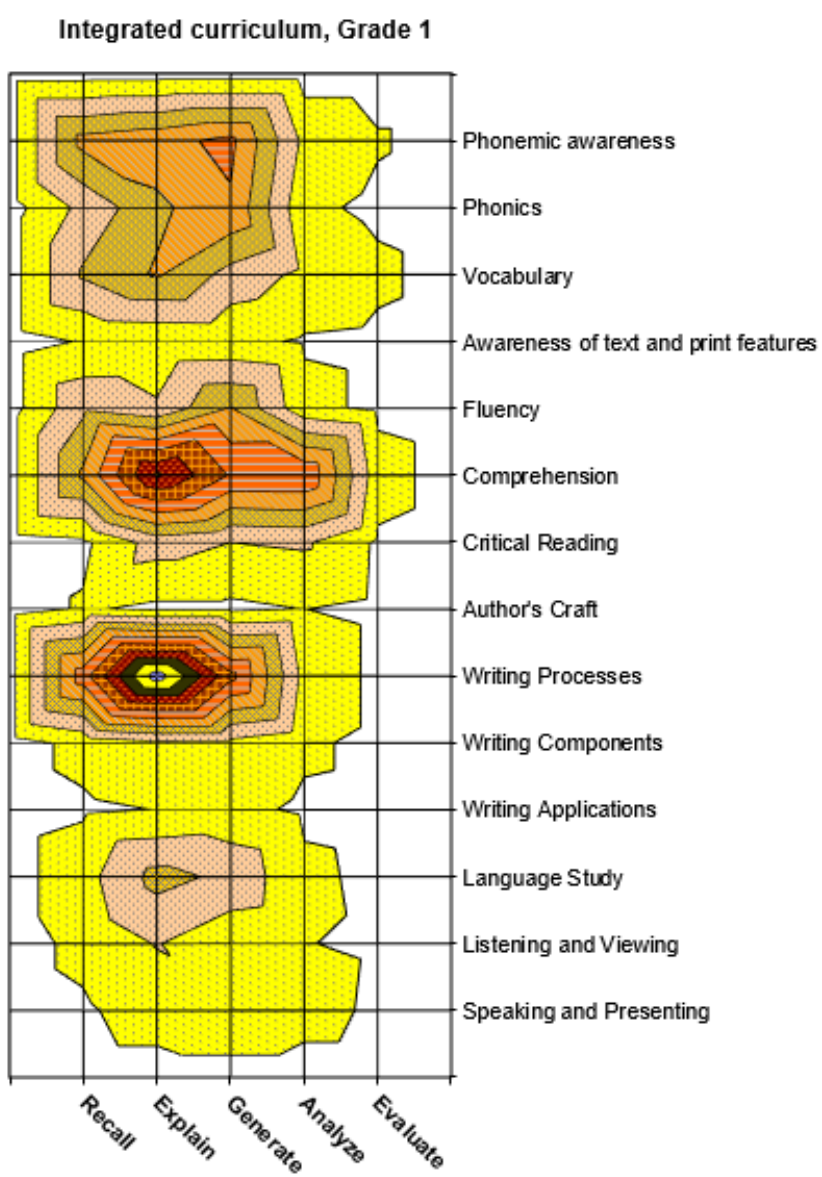
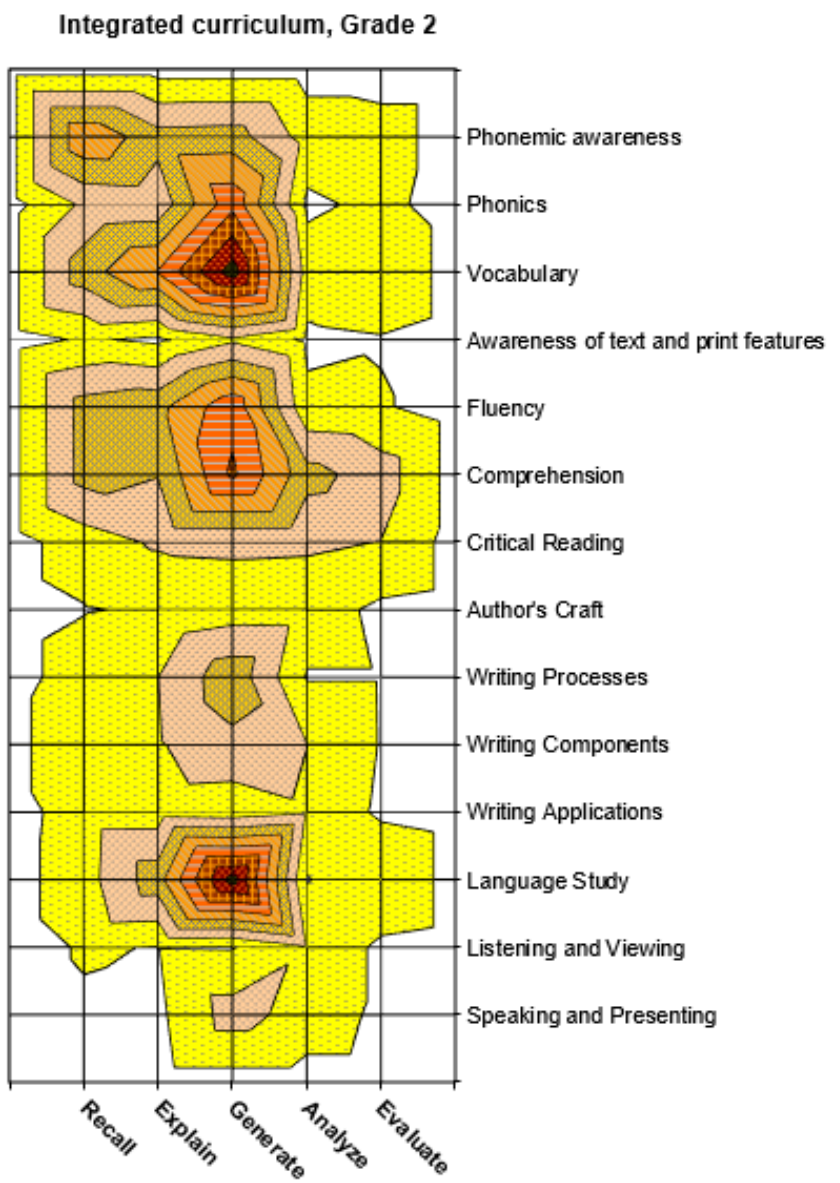
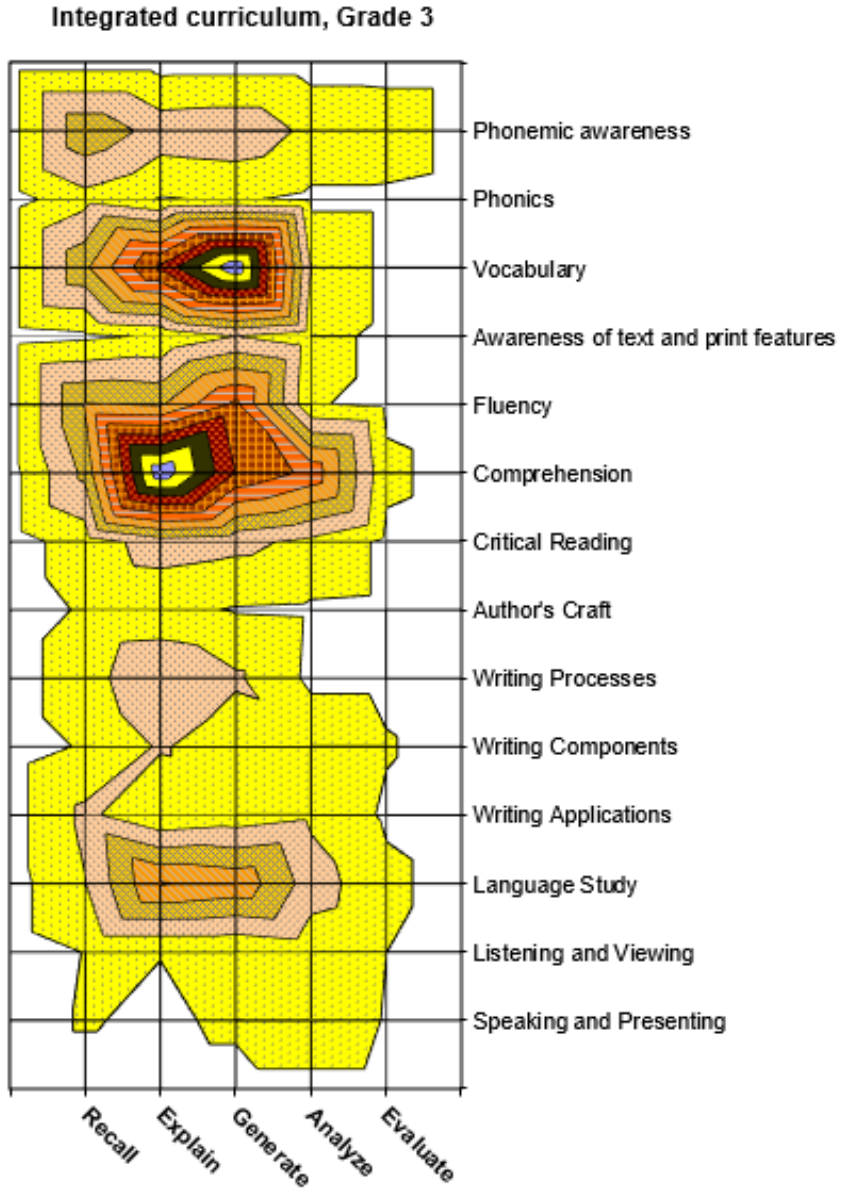
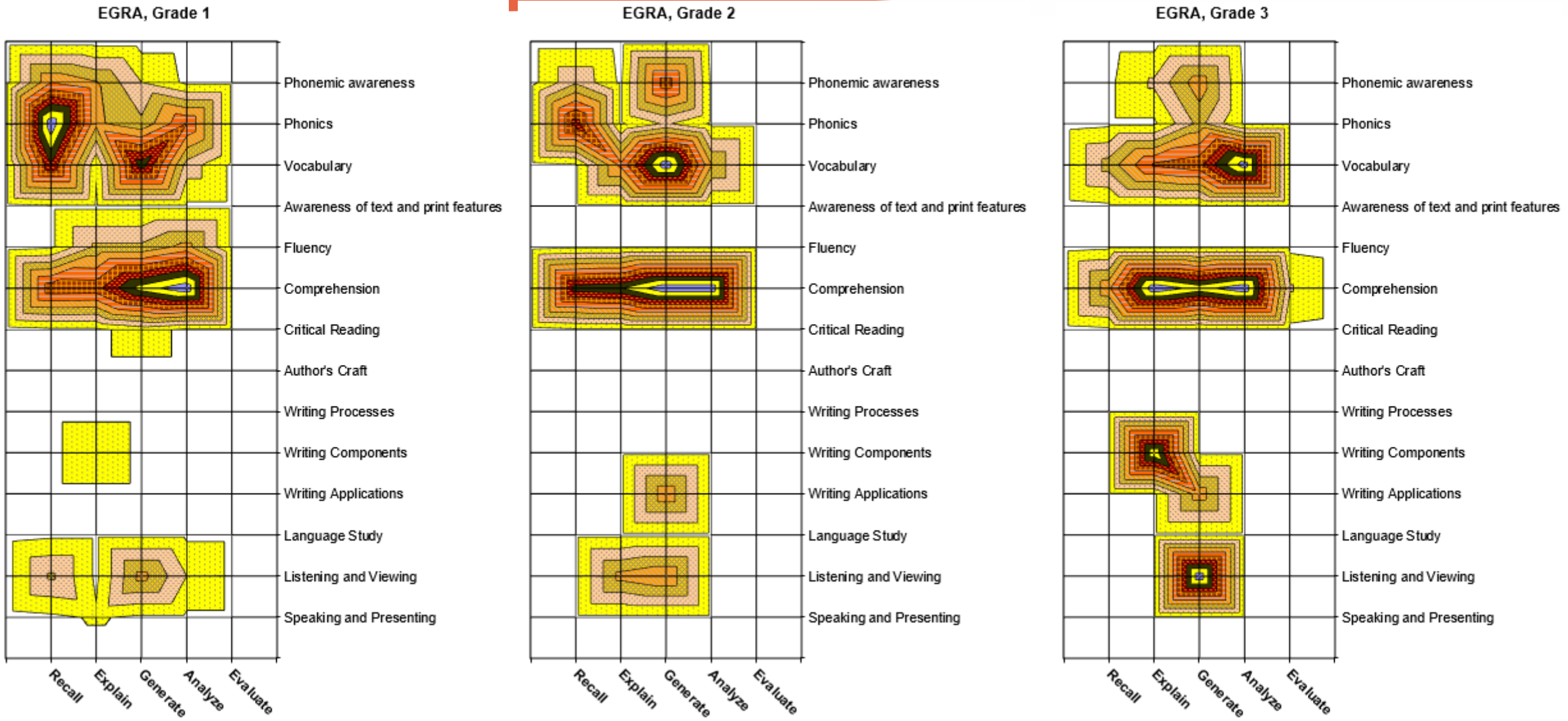
SEC outputs – coverage, sequence, pace







SEC outputs – coverage, sequence, pace



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SEC outputs – alignment measures

	Grade / Cycle	Coarse grain alignment measures										
		S1	**S2**	**S3**	**S4**	**S1-S4**	**S5**	**S6**	**S7**	**S5-S6**	**S6-S7**	**S5-S7**
Fine grain alignment measures	**S1**	**1.0**	0.79									
	S2	0.54	**1.0**	0.55								
	S3		0.41	**1.0**	0.51							
	S4			0.38	**1.0**		0.65					
	S1-S4					**1.0**	0.61					0.66
	S5				0.38	0.34	**1.0**	0.60			0.64	
	S6						0.31	**1.0**	0.59			
	S7							0.17	**1.0**			
	S5-S6									**1.0**		
	S6-S7						0.34				**1.0**	
	S5-S7					0.35						**1.0**

Grades/ Cycles	**Overall Alignment indices**							
	Standards vs. Exams		Standards vs. Instruction		Standards vs. Instruction			
					Rural		Urban	
	Fine	*Coarse*	*Fine*	*Coarse*	*Fine*	*Coarse*	*Fine*	*Coarse*
P1-P7	0.26	0.36						
P4-P7	0.26	0.37						
P5-P7	0.36	0.52						
P6-P7	0.17	0.35						
P3			0.05	0.15	0.04	0.15	0.05	0.14
P5	0.42	0.42	0.01	0.05	0.01	0.05	0.01	0.06
P6	0.14	0.25						
P7	0.19	0.41						

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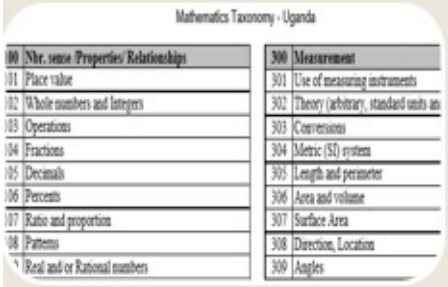
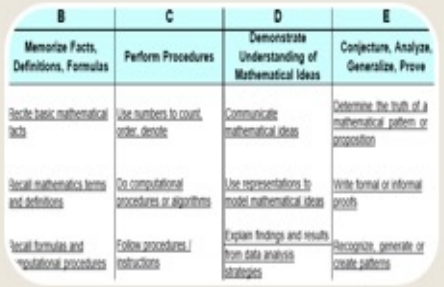
Conducting an SEC study

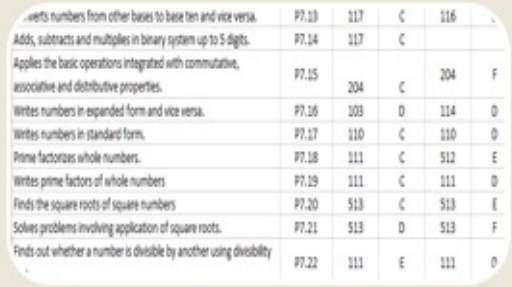
SEC inputs – outputs



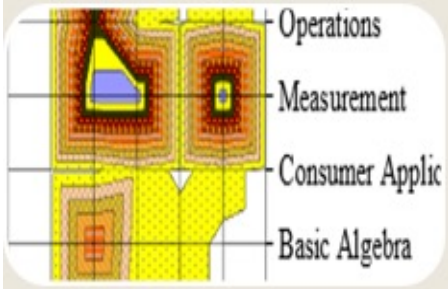
Taxonomy of topics/subtopics



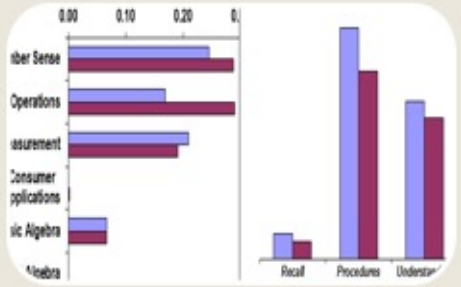
Performance expectations for students learning



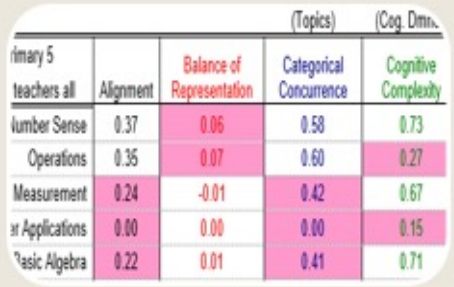
Teacher or expert judgement of content & practices



Descriptive content maps

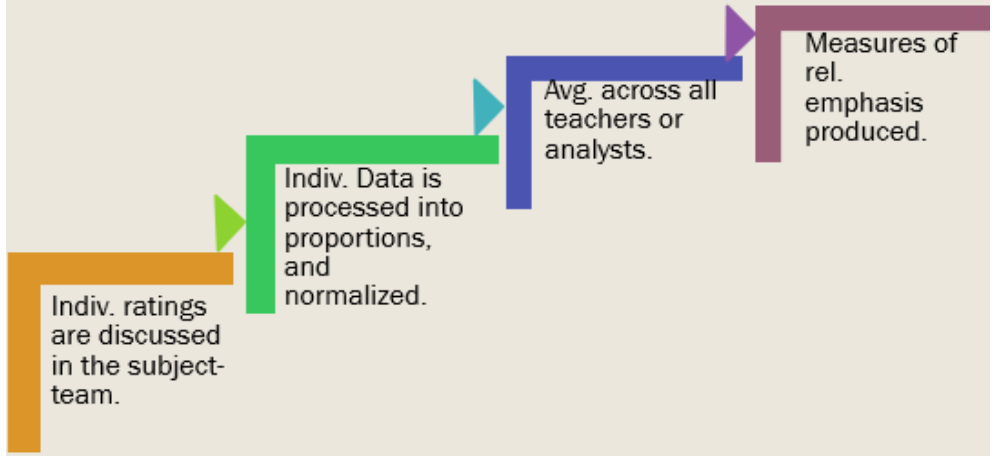


User-friendly marginal charts



Alignment tables & indices

SEC data analysis & processing



- Analysis results reported as alignment indices on a 0 – 1 scale

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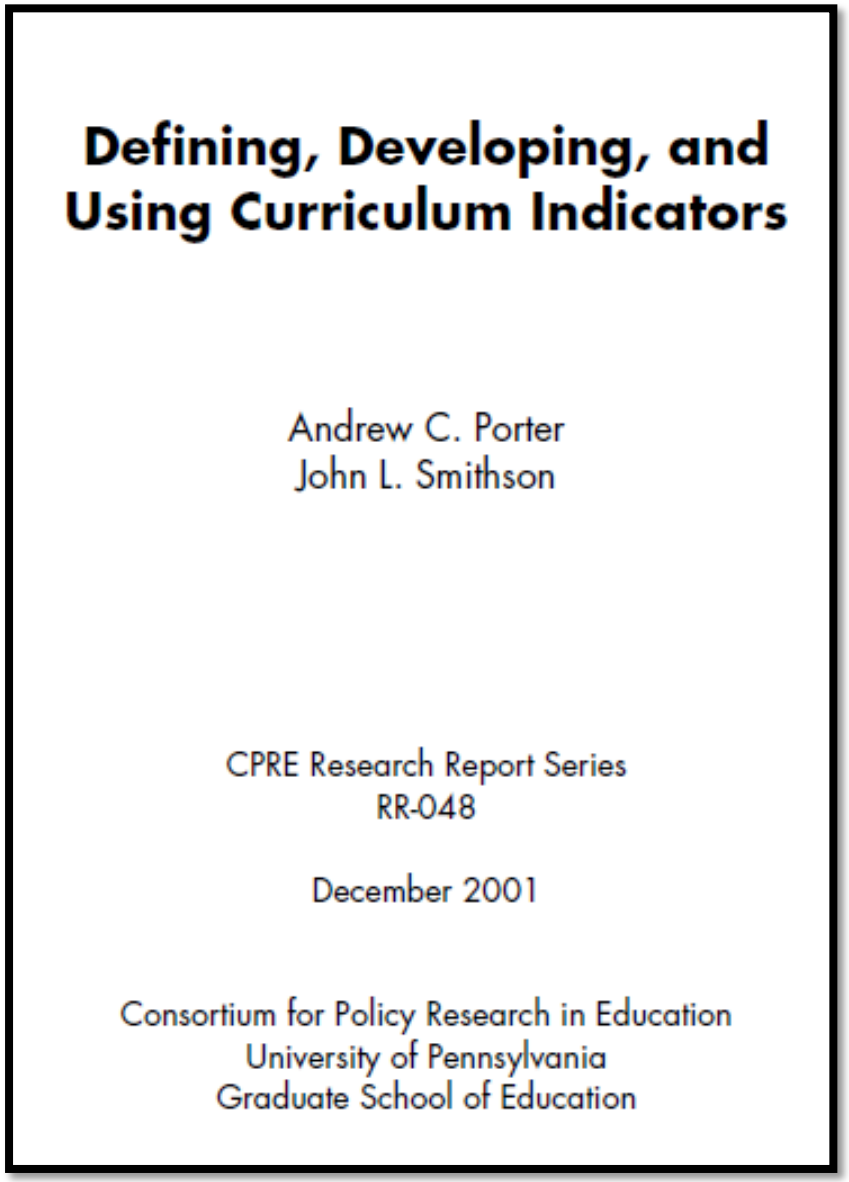
Brief history of SEC research



Defining, Developing, and Using Curriculum Indicators

Andrew C. Porter
John L. Smithson

CPRE Research Report Series
RR-048

December 2001

Consortium for Policy Research in Education
University of Pennsylvania
Graduate School of Education

- Reform-Up-Close (Porter, Kirst, Osthoff, Smithson, Schneider, 1993)

  Validation of teacher self-report survey data.

- Upgrading Mathematics (Gamoran, Porter, Smithson, White, 1997)

  First content analysis of assessment using content language.

  Predictive validity of alignment index comparing instruction & assessments

- Data on Enacted Curriculum (Porter, Smithson, Blank, 2004)

  Use of SEC data to facilitate school improvement efforts

  First content analysis of state standards

- MSP-PD Study (Smithson, Blank, 2006)

  Use of SEC data for program evaluation

- SEC-PDM Study (Smithson, Blank 2010.)

  Use of SEC data to support assessment literacy and formative assessment practice

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Brief history of SEC research

- Curriculum effectiveness studies in East Africa (since 2015)
  - Kenya, Tanzania, Uganda
  - Curriculum standards, national exams, classroom instruction
  - Content and alignment analyses
  - Primary: Math, Language, Science , Social studies & Civics

- Integrated Curriculum reform in Nepal (2021, ongoing study)
  - Lower primary: Nepali Language Arts and Reading (NLAR)
  - Curriculum standards, Classroom instruction, children's learning achievements.

- West Africa: RISE & CSEA – curriculum effectiveness analyses (Study at setup stage).
  - Nigeria: Oyo state, Jigawa state; Primary – literacy & numeracy

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Brief history of SEC research

Basic Education curriculum effectiveness analysis in East Africa: Using the 'Surveys of Enacted Curriculum' framework to describe primary mathematics and English content in Uganda

Atuhurra, Julius and Alinda, Violet (2017): *Basic Education curriculum effectiveness analysis in East Africa: Using the 'Surveys of Enacted Curriculum' framework to describe primary mathematics and English content in Uganda.*

PDF
MPRA_paper_79017.pdf
Download (2MB) | Preview

Blog

System (In)Coherence Seen through a Curriculum Lens: Ugandan Teachers Face Conflicting Demands from Curriculum and Examination Bodies

23 May 2019

Basic Education curriculum effectiveness in East Africa: A descriptive analysis of primary mathematics in Uganda using the 'Surveys of Enacted Curriculum'

Julius Atuhurra[+] and Violet Alinda[+]

June, 2018

Working Paper 20/057

System (In)Coherence: Quantifying the Alignment of Primary Education Curriculum Standards, Examinations, and Instruction in Two East African Countries

7 December 2020

Measuring education system coherence: Alignment of curriculum standards, examinations, and teacher instruction in Tanzania and Uganda

Julius Atuhurra, Michelle Kaffenberger

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Important references

Atuhurra, J., & Alinda, V. (2017). Basic education curriculum effectiveness analysis in East Africa: Using the 'Surveys of Enacted Curriculum' framework to describe primary mathematics and English content in Uganda. https://mpra.ub.uni-muenchen.de/79017/

Atuhurra, J., & Alinda, V. (2018). Basic education curriculum effectiveness in East Africa: A descriptive analysis of primary mathematics in Uganda using the 'Surveys of Enacted Curriculum. https://www.riseprogramme.org/sites/www.riseprogramme.org/files/inline-files/Atuhurra_1.pdf

Atuhurra, J., & Kaffenberger, M. (2019). System (In)Coherence Seen through a Curriculum Lens: Ugandan Teachers Face Conflicting Demands from Curriculum and Examination Bodies. https://riseprogramme.org/blog/system_incoherence_curriculum

Atuhurra, J. and Kaffenberger, M. 2020. System (In)Coherence: Quantifying the Alignment of Primary Education Curriculum Standards, Examinations, and Instruction in Two East African Countries. RISE Working Paper Series. 20/057. https://doi.org/10.35489/BSG-RISE-WP_2020/057

Atuhurra, J., & Kaffenberger, M. (2022). Measuring education system coherence: Alignment of curriculum standards, examinations, and teacher instruction in Tanzania and Uganda. IJED vol. 92 https://www.sciencedirect.com/science/article/pii/S0738059322000487

Porter, A., & Smithson, J. (2001). Defining, Developing, and Using Curriculum Indicators. *CPRE Research Report Series, RR-048*.

Smithson, J. (2013). *Measuring opportunity to learning (OTL): Benefits for research and practices* . Madison: Wisconsin University.

Gamoran, A., Porter, C. A., Smithson, J., & Paula, W. A. (1997). Upgrading high school mathematics instruction: Improving learning opportunities for low-achieving, low-income youth. *Educational Evaluation and Policy Analysis, 19*(4), 325-338

Polikoff, S. M., Porter, C. A., & Smithson, J. (2011). How well aligned are state assessments of student achievement with state content standards? *American Educational Research Journal, 48*(4), 965-995

Porter, A., & Smithson, J. (2001). Defining, Developing, and Using Curriculum Indicators. *CPRE Research Report Series, RR-048*.

Porter, C. A. (2002). *Measuring the content of instruction: Uses in research and practice. 2002 presidential address.* Madison: University of Wisconsin.

Webb, Norman L.(1997). Criteria for Alignment of Expectations and Assessments in Mathematics and Science Education. Research Monograph No. 6. *National Inst. for Science Education, Madison, WI.; Council of Chief State School Officers, Washington, DC.*

Webb, Norman L.(1999). Alignment of Science and Mathematics Standards and Assessments in Four States. Research Monograph No. 18. *National Inst. for Science Education, Madison, WI.; Council of Chief State School Officers, Washington, DC.*

Krathwohl, D. R. (2002). *A revision of Bloom's Taxonomy: An overview. Theory into Practice, 41(4), 212-218.*

Smithson, J. (2017). *The science of standards-based education. The journal of the national association of state boards of education, 17(2), 15-21.*

Smithson, J., & Collares, C. (2007). *Alignment as a predictor of student achievement gains. Chicago: 2007 annual meeting of the American Education Research Association (AERA)*

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