

Comparison of the National Senior Certificate Examinations Administered by the South African Comprehensive Assessment Institute: 2014 – 2015

Accounting, Business Studies, Economics,
Geography, History, Life Sciences, Mathematics,
Mathematical Literacy and Physical Sciences

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1.1 Accounting

1.1.1 Compliance in terms of format and structure

In Table 1 below, the format and structure of the SACAI Accounting papers that were analysed is presented.

Table 1.1 - Format and structure of Accounting Examination Papers

Exam paper	Focus area	Duration (hrs)	Mark allocation
SACAI 2014	Financial Accounting Managerial Accounting Managing resources	3	300
SACAI 2015	Financial Accounting Managerial Accounting Managing resources	3	300

All the SACAI papers comply with the requirements as specified in the CAPS as they cover the scope of the grade 12 curriculum: Financial Accounting, Managerial Accounting and Managing resources.

Both 2014 and 2015 SACAI papers are in accordance with the requirements as set out in the SACAI Examination Guidelines with regard to the format and structure. The mark allocation (300 marks) and duration (3 hours) of the examination paper complies with the suggestions in the SACAI Examination Guidelines.

The SACAI Examination Guidelines specifies that questions may vary from 5 to 8 questions (Grade 12 examination Guidelines, 2015/16: pg 3). Like the 2014 examination paper, the SACAI 2015 paper consists of 6 questions. All questions are compulsory and are to be answered in a specially prepared answer book.

It is stipulated in the SACAI Examination Guidelines subtopics from the three different fields may be integrated into each question. The team noted that the integration of

ethical issues in question 2 from the 2014 paper totaled 6 marks and only 4 marks in 2015 paper. Internal control was integrated into questions 1 and 2 for the 2014 paper and totaled 25 marks, while in the 2015 paper internal control was integrated more thoroughly into Questions 1, 2, 5 and 6 and totaled 24 marks. There is the possibility that educators might not teach or spend less time in the classroom on the topic of ethics if it plays such a small part of the final examination.

The team noted that the SACAI 2015 and 2014 final papers included the new content as specified in the CAPS. Creditors Reconciliation was examined in Question 1 in 2014, Repurchase (buy-back) of shares was examined in Questions 3 in 2014 and Question 4 in 2015 where the focus was on the repurchase (buy-back) of shares and its effect on the Balance sheet and notes. Other aspects related to the repurchase of shares were included in Statement of Cash Flow in Question 5 in 2015 from the point of view of how a repurchase would affect the cash flow of a business.

Although most of the new content was covered adequately in the SACAI 2014 and 2015 final papers, this has led to double testing of repurchase of shares across the questions, namely in Questions 4 and 5 in SACAI 2015. While this is not a desirable practice, the team believed that it was appropriate as it was tested in different contexts. In Question 4 learners had to distinguish between the amount that was recorded in the share capital note i.e. the average price and the amount recorded in the retained income note i.e. the difference between the average price and the purchase price. In Question 5 the impact of the repurchase of shares on the cash flows was examined.

In the CAPS and the SACAI Examination Guidelines it is stipulated that approximately 10% of all Accounting examinations should address problem-solving questions (CAPS, pg. 44) in the new and unfamiliar contexts where learners are required to use critical and creative thinking. Both SACAI 2014 and 2015 papers reflect adequate percentage of problem solving questions.

The CAPS (pg. 44) states that the Grade 12 examinations may contain a 20% weighting of content stipulated in previous grades which has an impact on Grade 12 content. The team's view was that this content was tested too explicitly in SACAI

2014 with a total of 81 marks. This totals 27% which is above the 20% specification in the CAPS. This content is more balanced in the SACAI 2015 paper with 56 marks allocated to work from previous grades, which totals 18.6%.

According to the CAPS, the target for content coverage is 50%-60% Financial Accounting; 20%-25% Managerial Accounting; 20%-25% Managing Resources.

Table 1.2 - Comparison of the topic or content and/or skill weightings specified with the weightings for SACAI 2014 and 2015 examination papers

FOCUS / TOPIC AREA	2014		2015	
FINANCIAL ACCOUNTING	Marks	%	Marks	%
TARGET 50 – 60%	157	52%	163	54%
Companies	118		131	
Interpret reconciliations - bank, debtors, creditors, age-analysis	28		16	
VAT	11		16	
MANAGERIAL ACCOUNTING				
TARGET 20 – 25%	73	24%	78	26%
Manufacturing concepts	2		4	
Production cost statement & notes	39		34	
Unit costs & break-even	8		10	
Cash budget - sole trader/company - analyse & interpret	24		30	
MANAGING RESOURCES				
TARGET 20 – 25%	70	23%	59	20%
Interpret & report on movement of fixed assets	11		0	
Perpetual & periodic inventory systems	7		0	
Validate & calculation inventories - FIFO, Weighted average, Specific Identification.	21		31	
Internal control & internal audit processes	25		24	
Ethical behaviour	6		4	

According to Table 2 above, both the SACAI 2014 2015 papers are within the content coverage as set out in the CAPS. However 2015 paper reflects a heavy focus on Managerial Accounting at 26% while neglecting the Managing Resources at 20%.

The SACAI 2014 paper covers all the main topics while the 2015 paper omits reporting on fixed assets and periodic inventory system.

1.1.2 Coverage of examinable curriculum

Of the 24 examinable topics in the grade 12 syllabus, below is the number of topics which were examined in each paper the team analysed.

Table 1.3 - Coverage of examinable curriculum for SACAI 2014 & 2015.

SACAI exam papers	2014	2015
No. of Topics examined	15	13
Percentage examined	63%	54%
Essential knowledge not examined	9	11
-Selected ledger accounts – companies	X	X
-Concepts - GAAP & IFRS	X	X
-Accounting equation – companies	X	X
-Final accounts – companies	X	X
-Financial statements - IS – companies	X	
-Analysis and interpretation of published financial statements	X	X
-Interpretation and report on movements of fixed assets.		X
-Short-form – manufacturing Income Statement & notes	X	X
-Projected Income Statement	X	X
-Professional bodies and code of conduct	X	X
-Company concepts		X
-Periodic and perpetual inventory systems		X

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From Table 3 above, the spread of questions across the topics in the curriculum is 54% for 2015 and 63% for 2014. As the duration of the Accounting paper is 3 hours and 300 marks, it is impossible for the examiner to examine all topics in the curriculum in the time allocated for this. The examiners are therefore selective because the curriculum is too broad. For example if the Balance Sheet (Statement of Financial Position) is examined it is not usual for the Income Statement (Statement of Comprehensive income) to be examined.

The levels of complexity in Accounting are incorporated within topics across the grade. The range of skills progresses from understanding concepts, recording information to analysis, interpretation and evaluation of the financial information. The main topics that are always assessed integrate knowledge and skills from other topics within the grade.

The following topics are usually not examined in the papers as stand-alone questions:

Ethical behaviour, company ledger accounts, GAAP concepts, Company Final accounts, Short form-manufacturing Income Statement & notes.

Company ledger accounts are normally assessed internally at school level in either formative and/or summative assessments. It is not included in the examination paper because the assumption is that learners need knowledge and skills from ledger accounts to complete the financial statements and notes. Ethical behavior is examined usually by asking learners to assess a particular internal control issue.

To avoid double testing the Projected Income Statement is not usually examined together with a Cash Budget neither are Final Accounts examined with an Income Statement as the income statement is simply a logical format of these ledger accounts.

The main topic omitted for the SACAI 2015 final paper was reporting on the movement of fixed assets, while for SACAI 2014 no main topics were omitted. Ethical

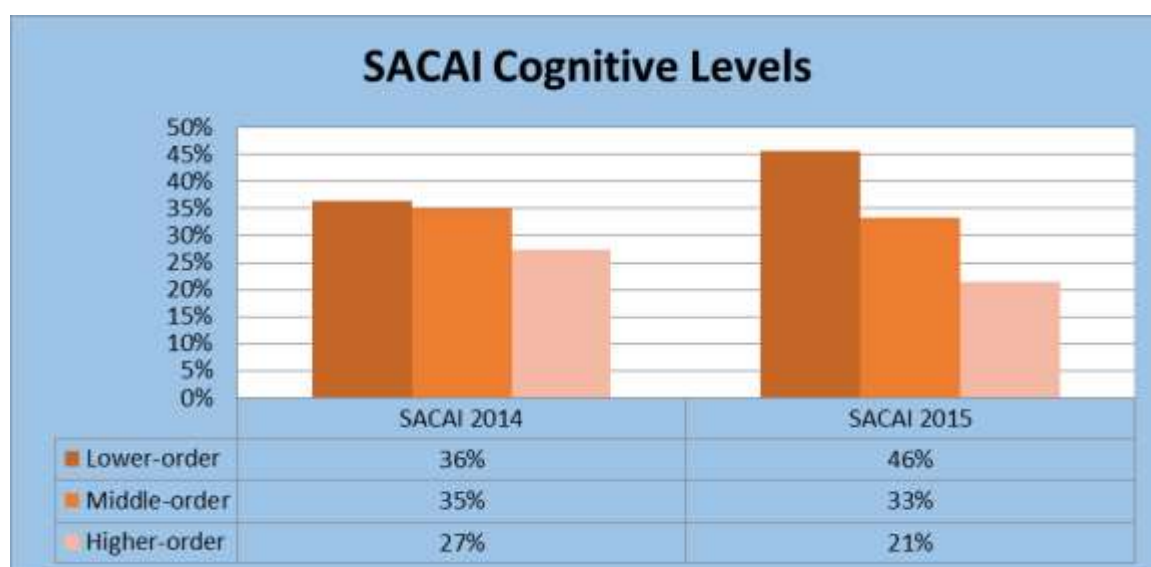
behaviour could have been assessed more explicitly in the various questions as it was only awarded 6 marks in 2014 and 4 marks in 2015.

There were no questions in the exam paper analysed that were non-examinable.

1.1.3 Distribution of cognitive demand in the papers

The CAPS stipulates a 30%:40%:30% distribution of questions across the cognitive levels.

Figure 1.1: Comparison of cognitive demand weightings in the SACAI 2014 and 2015 papers



From the graph above, it is clear that both SACAI 2014 and 2015 papers do not comply with the required target of 30%:40%:30%, although the SACAI 2014 is the closest to the desired target.

An analysis of the distribution of marks for SACAI 2015 reveals a substantial shift from the CAPS stipulations. The lower-order questions in particular are 16% higher than the expected norm, at the expense of middle-and higher-order questions. The middle-order and the higher-order questions are below the stipulated target at 33% and 21% respectively.

In both papers there was a leaning towards application questions. In 2015 paper, 67% of questions were regarded as application questions. This is due to a heavy emphasis of application across the questions but in particular Question 4 on the financial statements with a total of 74 marks awarded to application type questions. Of this 67% application level, 37% is at the level of basic application which contributes to the high % of lower level questioning. This leaves 30% of this level in advanced application. Questions in this level involve more in-depth processes where learners are asked to perform advanced accounting procedures and this was evident in five of the six questions.

The SACAI 2014 paper indicates that 64% of the marks were allocated to the application level type of questions. This is due to a heavy emphasis on the preparation of financial statements in particular Balance Sheet in Question 3 with a total of 51 marks all allocated to application. Although application level is heavily weighted, 34% of this level is advanced application. Questions in this level involve more in-depth processes where learners are asked to perform advanced accounting procedures and this was evident in all six questions.

Only 19% of the 2015 paper was extremely challenging cognitively compared to 24% of the 2014 paper. In this level learners were required to engage with financial information and to use their innovative and creative abilities to identify and provide solutions to various scenarios.

While the 2014 paper accommodates learners who have different levels of ability, the 2015 does not fairly accommodate learners who have different levels of ability. In the 2014 paper there are enough marks allocated to lower-order cognitive levels for the learners to attain at least 30%. In addition there are enough marks allocated to higher order cognitive levels which would challenge the brighter learners compared to 2015 paper.

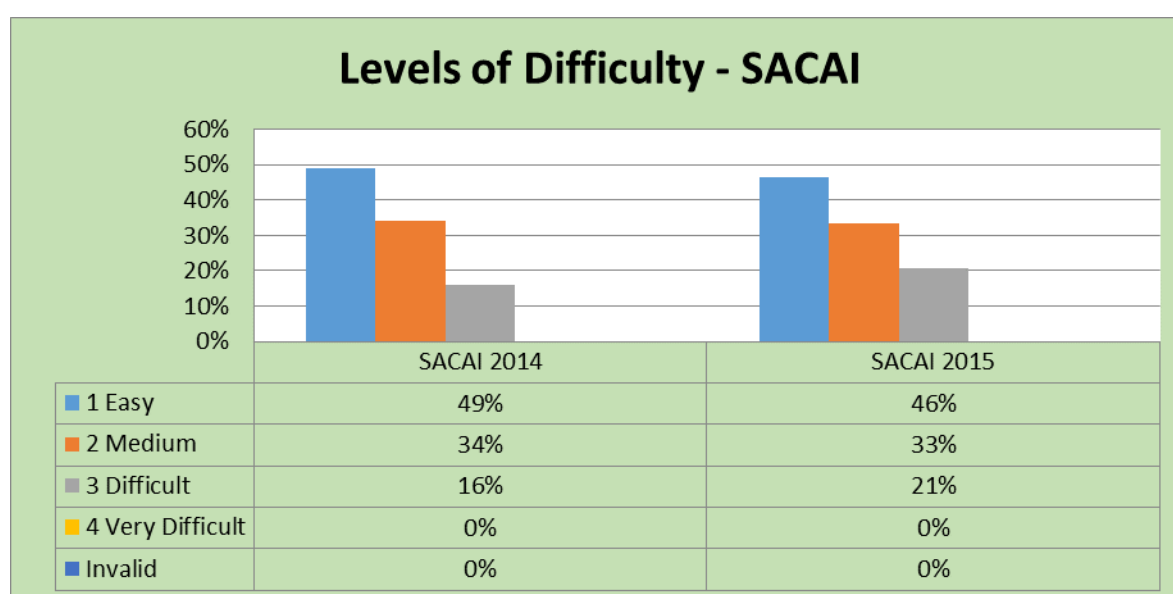
The 2015 paper reflects 46% lower-order cognitive levels for the learners to attain at least 30%. Nevertheless there are not enough marks allocated to higher order cognitive levels which would challenge the brighter learners. Unfortunately the lack of middle order cognitive levels does not accommodate the average learner. Due

to the excess of marks at the lower order level, the average learner should achieve adequate marks quite easily.

1.1.4 Distribution of levels of difficulty in the papers

It is stipulated in the SACAI Exam Guidelines that all examinations in Accounting, must reflect sub-questions of differing degrees of challenge, i.e. Easy, Moderate and Difficult to ensure that question papers cater for the full range of abilities of learners.

Figure 1.2: Comparison of difficulty level weightings in the SACAI 2014 and 2015 papers



With regard to the level of difficulty of questions, both papers reflect more easy questions at the expense of moderate and difficult questions. Although both papers were easy 2015 paper shows a decrease in easy questions from 49% to 46%, while difficult questions were increased from 16% to 21%.

1.1.5 Invalid sources of question difficulty or ease

There were no questions that were assessed as having invalid sources of difficulty or of ease in the SACAI 2014 and 2015 examination paper analysed.

1.1.6 Difficulty of stimulus/source material

The team identified stimulus that learners might consider difficult. In the SACAI 2014 paper there were instances where learners might have had difficulty in responding because of the following reasons:

- A lot of background reading
- Unpack a large amount of information for their response
- Select relevant and appropriate information from dense contextual information

Table 1.4 – Examples of questions with difficult stimulus

Exam paper	Question	Justification for difficult stimulus
SACAI 2014	2.7.1 & 2.7.2	Too much reading necessary to answer the questions

1.1.7 Comparability of 2014 – 2015 examination papers

The following discussion regarding the comparison of examination standards is based on the information provided above and the data gathered in the spreadsheet.

Table 1.5 – Comparing the different levels of difficulty and the cognitive demand weighting in the SACAI examination papers.

	LEVELS OF DIFFICULTY			LEVELS OF COGNITIVE DEMAND		
	1 E	2 M	3 D	L-O	M-O	H-O
SACAI 2014	49%	34%	16%	37%	36%	27%
SACAI 2015	46%	33%	21%	46%	33%	21%

Based on the data presented above:

With regard to the cognitive demand, the SACAI 2014 paper was more closely aligned to the CAPS benchmark requirements than the 2015 paper. The SACAI 2014 paper was more challenging cognitively than SACAI 2015. The team noticed a trend

for both papers to provide more easy questions at the expense of difficult questions. Although the 2014 paper reflects a high % of problem solving at 14%, these questions were less challenging

However SACAI 2015 paper also reflects fewer easy questions at 46% and more difficult questions at 21% compared to 2014 paper. Therefore the SACAI 2015 paper is significantly more difficult than the SACAI 2014 paper. This suggests that learners experienced the 2014 paper as significantly less challenging than the 2015 paper. Hence the team believes that the overall performance in 2015 will be lower when compared to the SACAI 2014 results.

Fewer learners at the bottom end of the scale will pass the 2015 paper compared to the 2014 paper and less A symbols will be achieved in 2015 due to the increase in the degree of difficulty. It is believed that in 2015 the average learner will attain lower marks than in 2014 due to less easy and medium type questions (a total of 79% in 2015 compared to 85% in 2014) than in the 2014 paper.

Based on the degrees of challenge and the significant improvement in the quality of the questions in the 2015 paper, the team believed that the standard of the 2015 paper is better than the 2014 paper.

The following questions could be used as a good model for future examinations:

SACAI 2014: Questions 4 and 5

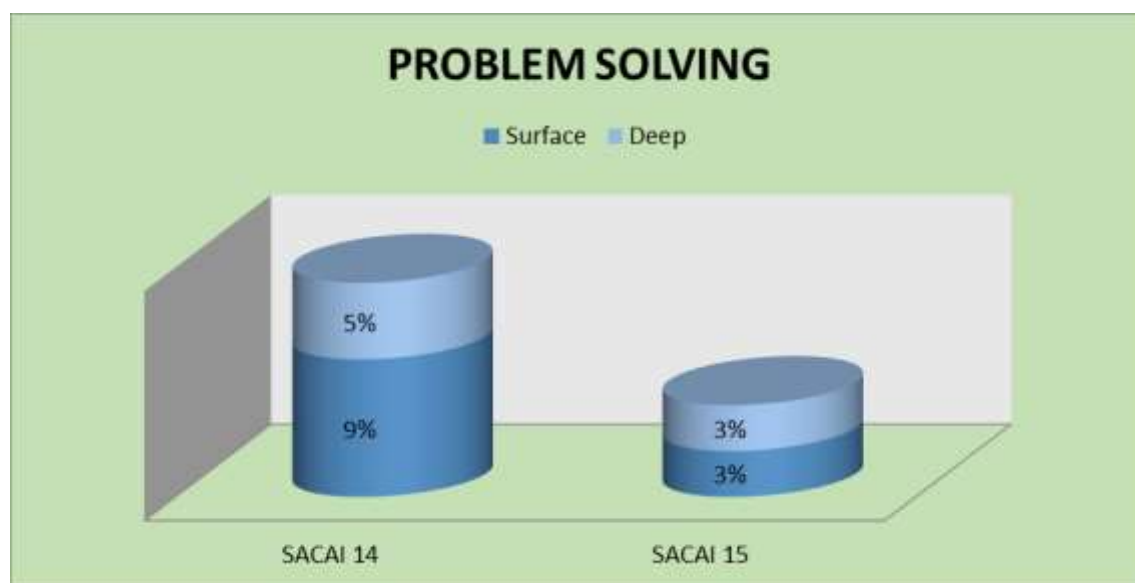
SACAI 2015: Questions 2, 3, 5 and 6

1.1.8 Other points regarding the standard of the examination

Problem solving

According to the CAPS, approximately 10% of all examinations should address problem-solving questions of a deep and surface nature using critical and creative thinking. These problem-solving questions must also cover a range of cognitive skills (lower, middle and higher-order) to cater for all learners but within the context of backgrounds the learners come from. The inclusion of these types of questions allows learners to use their innovative and creative abilities and distinguishes between learners of different abilities.

Figure 1.3: Comparison of problem solving questions for SACAI 2014 and 2015



The SACAI 2014 paper is above the 10% target at 14%. Of this 14%, 9% is at a level of surface problem solving and the other 5% represents deep problem solving. The SACAI 2015 paper is below the 10% target at 6%. Of this 6%, 3% is at a level of surface problem solving and the other 3% represents deep problem solving. The team is concerned that this paper reflects a low focus on problem solving questions, in contrast to 2014. In the teams' view, a problem needs to be solved for it to fall into the problem solving category, not only identified by learners.

Problem solving aspects were integrated into Questions 1, 2, 5 and 6 in SACAI 2014, with a total of 41 marks which is above the 10% of 30 marks. In SACAI 2015, problem solving aspects were integrated into Questions 1, 2 and 5, with a total of 19 marks which is below the 10% of 30 marks.

1.1.9 Concluding discussion

1.1.9.1 There is inconsistency in mark allocations throughout the SACAI 2014 and 2015 papers and non-allocation of method marks, as well as few marks allocated to figures that require calculation and double penalty when transferring an amount to another part in the same question.

For example in the SACAI 2014 paper:

Question 2.6 - 2 marks was too little of the quantity of answer required.

Question 3.2.1 - the current portion of loan needed a calculation and should have been awarded more marks, as well as a method mark for transferring the amount correctly. This made that 1 mark difficult to achieve. Similarly in Cash and cash equivalents, the 100 000 and 810 000 required calculations but were only awarded 1 mark each. It is noted that the totals for Inventory and Cash and cash equivalents were not awarded any marks which is inconsistent with the other totals.

For example in the SACAI 2015 paper:

Question 1.1 - separate marks should have been awarded for the false and another mark for the reason.

Question 4.1 - accuracy marks were allocated for calculated figures at the bottom of the income statement, so if learners got 1 amount incorrect above the operating profit they will have lost all 7 marks. This made those marks difficult to achieve.

1.1.9.2 Incorrect amounts or wording in the marking memorandum for both SACAI 2014 and 2015 papers.

For example in the SACAI 2014 paper:

Question 5.1.1 - the 60% allocation for insurance is misleading as the learners will use 1200/2000 as their calculation and not the 60%.

Question 6.3 - the memo states "solve the problem in the future" whereas the question paper and answer book state "prevent the problem in the future".

For example in the SACAI 2015 paper:

Question 2.1.3 - the first amount under FIFO should read $200 \times R18.75 = 3\,750$, which affects the total which should be R12 800 and not R13 050.

Question 2.1.3b - the R20 should be replaced with R18.75

Question 2.2.2 - shop C, the solution should be to decrease prices and not to increase them.

Total of marks per sub-section incorrect in the SACAI 2015 paper:

Question 3.2.1 - 16 ticks, yet a total of 15 marks

Question 4.2.3 - 14 ticks, yet a total of 13 marks

Question 5.1 - the amount for Cash effects of operating activities was given on the answer book and yet allocated a method mark on the memorandum.

- 1.9.3 Learners could have been disadvantaged in Question 2.7 in the SACAI 2014 paper, as there was a lot of stimulus to read and weaker language learners might find this very challenging.

1.1.10 Recommendations for improving the quality and standard of Accounting examinations

- The curriculum needs to be updated on a more regular basis to reflect current practice: Terminology relating to financial statements e.g. **Balance Sheet** now called **Statement of Financial Position**.
- Ensure that the stimulus (background and information) provided is accurate and not confusing.
- The adequacy and accuracy of **marking memorandum** should be checked. Award method marks for calculation done and not just accuracy marks. Learners are unfairly penalised all the way through their answer when only accuracy marks are awarded and no consequential marks were given.
- More **thorough moderation** needs to be done to pick up on these errors in the memorandum, as well as poorly worded questions in the question paper (for example 1.3.1 in SACAI 2014 paper where the problem was given yet learners had to say whether a problem existed or not). Incorrect numbering (for example 3.2.1 in SACAI 2014, the notes could have been given their own number for clarity purposes) will also be alleviated with more thorough moderation.
- The number of higher-order and difficult questions should be increased to improve the standard of the papers.

1.2 Business Studies

1.2.1 Compliance with the Revised SACAI/CAPS 2015/2016

The format and structure of both SACAI November 2014 and 2015 papers complies with the requirements in the Revised SACAI/CAPS Subject Guidelines (2015/2016). This Business Studies Examination Guidelines for Grade 12 2015/2016 document, suggesting a 3 hour paper of 300 marks divided into three sections: **Section A** (40 marks, 30 min) is compulsory and consists of 20 short questions compulsory covers all topics (i.e. 20 short questions x 2); **Section B** (180 marks, 90 min) candidates choose any THREE questions in the section (i.e. 60 marks x 3 questions) these questions cover the entire curriculum. Five questions set, and each question cover a main topic and the fifth question cover all four main topics (i.e. miscellaneous question). This section has FIVE direct/indirect type questions, candidates have to answer any THREE in this section. This section has direct questions encompassing scenarios, case studies and calculations or numerical presentation. **Section C** has FOUR essay type questions, each covering one of the Four topics. Candidates have the choice to answer any TWO questions of the section. The section is comprised of longer type of questions, such as essay type of questions.

1.2.2 Coverage of examinable curriculum

The 2014 and 2015 examination papers adequately covers all the essential examinable components of the curriculum. These are questions linking entirely the FOUR MAIN TOPICS in sections A, B and C of the question paper. The SACAI Examination Guidelines (2015/2016) informs the critical examinable components which are: Business Environments, Business Ventures, Business Roles and Business Operations. The weighting is 25% for each topic.

Table 1.1 Coverage of examinable curriculum

PAPER		TOPIC 1 Business Environment s 25%	TOPIC 2 Business Ventures 25%	TOPIC 3 Business Roles 25%	TOPIC 4 Business Operations 25%	RATING 100%
SACAI	Nov 2014	31%	23%	23%	23%	100%
SACAI	Nov 2015	36%	26%	16%	22%	100%

Both the examination papers were able to cover the comprehensive range of the examinable curriculum for Business Studies Grade 12 in all four main topics. All critical knowledge were covered in both 2014 and 2015 examination papers and examinable components were covered through diverse forms of questions. According to SACAI Revised CAPS Guidelines (2015/2016) all Four (4) Main topics should cover 25% of each topic. However, the analysis point to that through the two academic years (i.e. 2014 & 2015), there are discrepancies or inconsistencies in relation to the norm of 25% per topic.

For 2014 discrepancies examination paper, three main topics were down with 2% in accordance the norm coverage of 25%. The calculation of percentages spreading topics for November 2014 point out that Business Environments was 31%, Business Ventures 23%, Business Roles 23% and Business Operations 23%. The analysis for November 2015 point out that Business Environment was on 36%, Business Ventures 26%, Business Roles 16% and Business Operations 22%. Analysis of both 2014 and 2015 examination papers confirms inconsistencies from the average norm.

1.2.3 Distribution of Cognitive demand in the papers

The formal SACAI assessments for variety of cognitive levels and abilities of learners can be abridged as follows: **Basic thinking skills = 30%; Middle-order thinking skills = 40%** and **Higher-order thinking skills = 30%**. This is according to the Revised Edition of SACAI Section B (2015: 31). There are incongruities or inconsistencies in both

documents of SACAI (herein referred to as SACAI Examination Guidelines Section A & B). **Section A** the norm for Low cognitive level = 30%; Middle = 50%; and High = 20% (see 2015/2016: 5).

According to the analysis, there are deviances from the “norm” required weighting in this regard the SACAI 2014 paper cognitive demand weightings for Low-order (i.e. knowledge and comprehension - L1 & L2) = **44%** thus an increased of **14%**, Middle-order (i.e. application and analysis L3 & L4)= **53%** thus an increase of **3%**, and Higher-order (i.e. synthesis and evaluation L5 & L6)= **4%** has decreased by **16%**.

For 2015 SACAI paper the cognitive demand weightings for Low-order (i.e. knowledge and comprehension - L1 & L2) = **70%** thus an increased of **40%**, Middle-order (i.e. application and analysis L3 & L4)= **10%** thus an decrease of **40%**, and Higher-order (i.e. synthesis and evaluation L5 & L6) = **10%** has decreased by **20%**. For both papers 2014 and 2015 our analysis on this section was done in cognisant with **SACAI document Section A 2015/2016:5**.

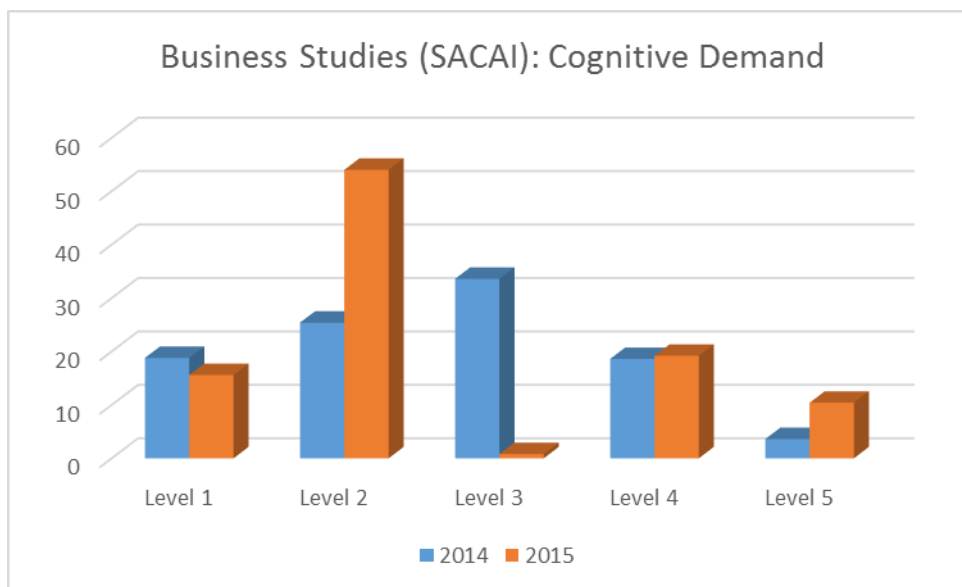


Figure 1.1 Comparison of cognitive demand weightings in the paper(s)

Table: 1.2 Comparison of cognitive demand weightings specified and percentages for the paper(s) analysed

PAPER	Cognitive levels		
	L1 & L2 Knowledge and Comprehension	L3 & L4 Application and Analysis	L5 & L6 Synthesis and Evaluation
SACAI: 2014	44%	53%	4%
SACAI: 2015	70%	10%	10%

1.2.4 Distribution of levels of difficulty in the papers

The spreading of levels of difficulty for the 2014 examination paper are: 17% for easy questions, 63% for moderate, 17% for difficult, 2% for very difficult and 0% for item invalid sources of difficulty. The 2014 paralleled to 2015; 28% for easy questions; 42% for moderate questions; 30% for difficult questions and no questions at a very-difficult level and nor questions with sources of invalid sources of difficulty. There is an increase in 2015 of easy questions with (11%), difficult questions (13%) and a decrease of moderate questions with (21%) and very difficult (0%).

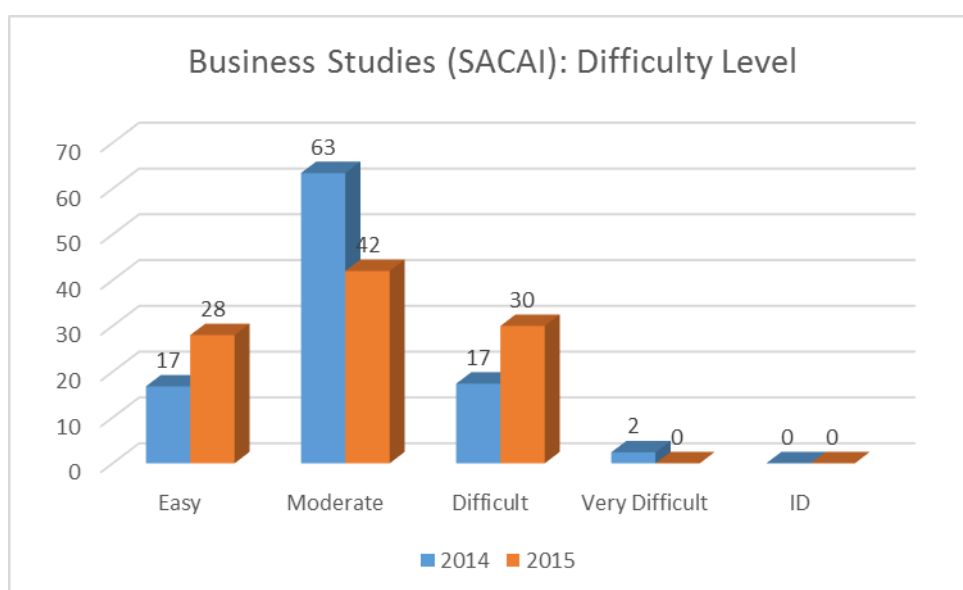


Figure 1.2 Comparison of difficulty level weightings in the paper(s)

Table 1.3: Percentage of marks awarded to different levels of difficulty in examination papers

PAPER	Easy	Moderate	Difficult	Very difficult	Invalid
SACAI: Nov 2014	17%	63%	17%	2 %	0%
SACAI: Nov 2015	28%	42%	30%	0%	0%

Table 1.4: Invalid sources of question difficulty or ease

PAPER	DIFFICULTY	EASE
SACAI: November 2014	0%	0%
SACAI: NOVEMBER 2015	0%	0%

According to the analysis team there were no questions with invalid sources of difficulty for both academic year 2014 and 2015.

Table 1.5: Difficulty of stimulus/source material analysed

Paper	EASY	MODERATELY CHALLENGING	DIFFICULT
SACAI: Nov 2014	5	2	2
SACAI: Nov 2015	6		

Analysis of the number of stimulus source material referred to above are drawn primarily from case studies and calculations or numerical presentation used in the examination papers for both 2014 and 2015 SACAI Business Studies. The linguistic style used for the easy sources is simple for a 30% average learner and the extent of stimulus source is not too condense. The moderately challenging scenario given is reasonable for both the 80% learners and the 30% average learner, is modest and reasonable for the reason that linguistic style used is easy to understand. However, there are difficult sources/stimulus call for candidates to unpack a large amount of information for their response. Some questions call for candidates to work through

steps to come to an answer and this call for both the 30% average learners and 80% learners to use a high level of mathematical operations.

Examples of difficult stimulus sources material for 2014 SACAI paper are: **Question 2.4 and 5.3** for the reason that both questions call for candidates to work through steps to arrive at an answer and to use a high level of mathematical operation. For moderate questions the candidates have to unpack a large amount of data for their answer, example of such is **Question 6.6**.

For 2015 all the stimulus sources material used were simple and easy for both the 30% average learners and 80% learners. Examples of these questions are: **Q 2.3; 4.2; 7; 8; 9; and 10**.

1.2.5 Comparability of 2014 – 2015 examination papers

Both 2014 & 2015 examination papers are graded good. Section A is a compulsory questions for all candidates, and this section consists of multiple choices, correct term, column A and B. For Section B is made up of Five questions, one question from each main topic and a combined question from the four main topics. Candidates are expected to answer Three of the Five questions from this section, and in this Section B there are Five direct/indirect choice questions. Section C consists of Four questions and candidates are expected to answer any Two of the Four questions from this section. These are Four essay type choice questions. For these reasons the analysis team would rate both these examination question papers for SACAI 2014 and 2015 as of good standard.

1.2.6 Other points regarding the standard of the examination

Both the 2014 and 2015 examination question papers by and large included all the levels of difficulty weightings. However, there were nonconformities against the backdrop of SACAI document Section A 2015/2016 in relation to the norm for Low cognitive level = 30%; Middle = 50%; and High = 20%.

The typical norm of examination in terms of choice of questions that candidate could choose from (e.g. Section A – Compulsory 20 short questions x 2 = 40 marks),

casing multiple choices, correct term, column A and B. covering the four main questions. Section B is five direct/indirect choice questions, one of question from each main topic and a combined question from four main topics. Sections C four essay type choice questions.

The linguistic style and/or level of both 2014 and 2015 are of a satisfactory standard. However, inconsistencies in terms of what is the acceptable norm of cognitive levels distributions (i.e. Low-order; Middle-order and Higher-order). The analysis team find it difficult to figure out which SCAI document to follow, because we were sandwiched between the two conflicting documents (i.e. SACAI Examinations Guidelines Section A and Revised Section B). The relevance and fitness of stimulus material for both papers were suitable for both the 30% average learners and the 80% learner. The suitability and precision of the marking memorandum for both 2014 and 2015 papers, which has comprehensive notes to markers as an explanation to guide the markers in the process of marking.

1.2.7 Recommendations for improving the quality and standard of the examinations

The following is recommended:

- The examination paper needs to be proofread and corrected. In question 4.2 the word "corporative" instead of "corporate" was used.
- Question 6: Combination question. The question needs to be divided into the four main topics and must be indicated.
- Section C: Essay questions. The main topic must accompany the question numbers.
- Section B has no case studies. Case studies will enable learners to demonstrate the cognitive skills they have mastered across the spectrum.
- Split ticks needs to be incorporated in section B questions. The implementation of this in 2016 was noted in no. 8 (Examination guidelines Part A p10).

1.2.8 Good model for future examinations (use)

- Most questions can be used in future and all FOUR main topics are covered in all sections.

- However, learners needs to be exposed to upper end cognitive verbs like “critically evaluate”.
- The format of the SACAI 2015: is a good model for future use especially section B that consist of five questions of which learners must answer three. These choice questions had standardised levels of difficulty. Learners were not advantaged nor disadvantaged in their choices. It gives learners a good chance to pass the examination.

1.3 Economics

1.3.1 Compliance with the CAPS and/or relevant assessment body.

The SACAI papers 1 and 2 for 2015 comply with the structure and format as suggested in the CAPS. The format and structure are in order.

1.3.2 Cognitive demand and weightings

In table 2 below a comparison of the cognitive demand weightings of the 2015 papers and the specifications of the CAPs is presented.

Table 2: Comparison of cognitive demand weightings

Cognitive demand	CAPS %	SACAI 2015 P1	SACAI 2015 P2	Combined
L1 and L 2	30%	57%	62%	60%
L3 and L4	40 %	43%	38%	40%
L5 and L 6	30 %	0%	0%	0

From the above table it can be seen that the percentage distribution of questions across the cognitive levels deviates significantly from the expectations of the CAPS for both the SACAI (combined) papers. While the CAPS prescribes a 30:40:30 proportional distribution of L1&2:L3&4:L5&6, the analysis reveals a SACAI combined ratio of 60:40:0. There is a heavy loading of questions in the level 1&2 cognitive category at the expense of Level 5&6.

Level 5&6 in particular is a cause for concern as there are no questions pitched at this level.

1.3.3 Topic or content and/or skills area weightings

In the table below, the topic weightings are provided. The economics curriculum is divided equally into 4 broad topic areas with each topic area allocated 25% of the total.

Table 3: Comparison of the topic or content and/or skill weightings specified with the weightings for the examination paper(s)

Topic/Content	CAPS %	2015 SACAI P1	2015 SACAI P2	2015 SACAI Combined
Macro Economics	25%	51%	0%	26%
Micro Economics	25 %	0%	50%	25%
Economic Pursuits	25 %	49%	0%	24%
Contemporary Economic Issues	25%	0%	25%	25%

There is an acceptable distribution of questions in the combined SACAI papers across the four major topic areas in the economics curriculum.

1.3.4 Coverage of examinable curriculum

Table 4 presents data on the coverage of examinable curriculum in each paper.

Examination papers	100% coverage	90-100%	80-89%	70-79%	Under 70%
SACAI November 2015 Paper 1		X			
SACAI November 2015 Paper 2		X			

The SACAI papers covered over 90% of the curriculum.

1.3.5 Invalid sources of question difficulty

Table 5: Number of questions assessed as having invalid sources of difficulty of ease.

Paper	Number of questions	Explanation
SACAI P1	3 = 7.4% of paper	3.3.2 Memo provides incorrect answer 2.5 The use of the word 'analyse' is inappropriate as it suggests an answer that is different from what is presented in the memo 2.3.3 Typing error
SACAI P2	7 = 11% of paper	1.1.6 Distractors do not work with the stem 2.3.2, 2.3.4 Answer depends on getting the previous question correct. 3.2.4 Mark allocation is too few 4.1.1 Typing error ('accept' instead of 'except') 4.2.4 Ambiguous question 6.2 Memo does not correspond to the expectation of the question

There are several instances cited in the table where the mark allocation is inappropriate to the type of question asked. Such questions require longer explanations than the mark allocation suggests and may result in learners spending more time than is necessary on these questions. There are also examples of poorly constructed questions and ambiguous questions.

1.3.6 Other points regarding the quality of the examination

In table 6 below, examples of good questions/models are presented.

SACAI 2015 P1	SACAI P2
----------------------	-----------------

Q2.3	Q2.2.1
Q4.2.3	Q5
Q2.2.2	
Q4.3.4	
Q4.5	
Q6	

1.3.7 Rating the quality of the examination papers

Table 7 presents the team's ratings of the quality of the examination papers.

Paper	Rating of examination paper
SACAI 2015 P1	Satisfactory
SACAI 2015 P2	Satisfactory

There are still several areas that need to be considered as detailed above, in order to bring this paper up to an acceptable standard and quality.

1.3.8 Standard of the examinations

Levels of Difficulty

Table 8 below presents the levels of difficulty of the examination papers under study.

	LEVELS OF DIFFICULTY			
PAPER	L1	L2	L3	L4
SACAI 2015 P1	23%	34%	30%	13%
SACAI 2015 P2	30%	34%	36%	0
SACAI 2015 COMBINED P1&P2	27%	34%	33%	6%
SACAI 2014 COMBINED	27%	53%	20%	0%

The Combined 2015 SACAI (P1&P2) has a 27%, 34%, 33% and 6% spread of questions across Difficulty Levels 1, 2, 3 and 4 respectively. The very difficult category is under-represented and should be between 10 and 15% of the total paper, as this will assist to distinguish the high achievers.

In comparison to 2014, Difficulty level 4 has increased from nil to 6% in 2015. Difficulty level 3 has also increased from 20% to 33%. These are commendable moves.

Difficulty level 2 has decreased from 53% to 34%, while Difficulty level 1 has been remained unchanged at 27%.

Below average learners (30% candidates) are likely to perform more or less the same as in 2014. The 2015 examination is of a higher standard than the 2014 examination. The examination however still does not have sufficient questions to distinguish the high achievers (80% candidates).

Optional questions

Table 9: Comparison of Marks for Levels of Difficulty in optional questions in Section B and Section C for SACAI P1

SACAI 2015 P1	DL 1	DL 2	DL 3	DL 4	Total
Section B					
Question 2	5	35			40
Question 3	10	14	16		40
Question 4	8	20	12		40
Section C					
Question 5			40		40
Question 6		10	0	30	40

In Section B of P1, learners can choose two out of three questions. The distribution of questions across difficulty level 1 is fairly comparable for these three optional questions, ranging from 5 to 10 marks. For difficulty level 2, there is a wide range from 14 to 35 marks which makes the choice questions rather uneven. Questions at

difficulty level 3 range from 0 to 16 marks with Q2 having no questions at difficulty level 3. There is thus unevenness in the levels of difficulty across optional questions.

In Section C, learners choose one out of two questions. There is much unevenness in this section. All of Q5 is pitched at level 3, while for Q6, 10 marks are at level 2 and 30 marks at level 4.

Table 10: Comparison of Marks for Levels of Difficulty in optional questions in Section B and Section C of paper P2

SACAI 2015 P2	DL 1	DL 2	DL 3	DL 4	Total
Section C					
Question 2	12	20	8		40
Question 3	14	26			40
Question 4	12	24	4		40
Section C					
Question 5			40		40
Question 6		10	30		40

In Section C of P2, learners choose two out of three questions. Marks allocated to questions at difficulty levels 1 and 2 are comparable for each question. For difficulty level 2, there is a degree of unevenness with Q2 at 27 marks, Q3 at 30 marks and Q4 at 24 marks. Difficulty level 3 was only tested in Q2 and Q4. There was clearly unevenness in the difficulty levels being tested in this section.

In Section C, learners are expected to choose one out of two questions. Q5 has all 40 marks at Level 3, while Q6 has 10 marks at level 2 and 30 marks at level 3. This is also a section in which there is unevenness in the choice questions. In summary, the choice questions are not comparable.

1.3.9 Typical questions at different difficulty levels

Table 11 below presents examples of questions at the four difficulty levels:

Levels of difficulty	SACAI 2015 P1	SACAI 2015 P2
Easy	Q1.16, 2.12, 3.2.1, 4.2.1	Q1.1.5, 2.1.1, 3.3.1, 4.2.2
Moderate	Q2.2.1, 2.4, 3.2.3, 4.4	Q2.2.2, 2.5, 3.3.4, 4.5
Difficult	Q3.3.1, 3.3.4, 3.5, 4.3.4	Q2.4, 5.1
Very Difficult	6.1	-

There was only one example at Difficulty Level 4.

1.3.10 Difficulty of stimulus/source material

Table 12: Number of stimulus/source material analysed as easy, moderately challenging and difficult.

Name of paper	Difficulty of stimulus material				
	Easy	Moderately difficult	Difficult	Very difficult	Total
SACAI 2015 P1	5	1		0	6
SACAI 2015 P2	5	1		0	6

SACAI P1 contains 6 stimulus pieces, 5 of which were deemed easy and 1 moderately difficult. Paper 2 had 6 pieces, 5 of which were deemed easy and one moderately difficult. Learners would not have experienced any serious challenge in making sense of the stimulus material.

1.3.11 Recommendations for improving the quality and standard of the examinations

- Invalid sources of difficulty were present in both papers. The combined SACAI papers had 9 instances of invalid difficulty. The specific explanation for each of these was tabled in section 2 above.
- Uneven cognitive demand and levels of difficulty across choice questions is a recurring feature in both the SACAI examination papers (2014 and 2015). Examiners need to pay particular attention to this aspect in future papers if they want to continue to set optional/choice questions.

1.3.12 Recommendations for improving the standard of the examination:

- The cognitive demand distribution reflects a heavy loading at cognitive levels 1 & 2 (60%) and a nil loading at levels 5 & 6. The testing of high level cognitive demand is clearly a neglected aspect in all papers, and as such does not provide a sufficient scope of questions that will distinguish high achieving students.
- The distribution across the levels of difficulty for the combined 2015 SACAI papers indicates that the standard has improved from 2014.
- Level 3 questions increased to 33%, up from 20% in 2014. This is a positive move. 6% of the SACAI examination questions were categorised as very difficult for the average grade 12 learner, an improvement from 2014.
- The consequence of this is that the papers are unable to effectively distinguish high achieving learners. Examiners have to pay attention to this crucial aspect of the papers.
- While the team feel that the quality and standard of the examination papers are improving marginally each year, the current papers are not good models for future examinations for the reasons cited above. The SACAI examination papers could avoid the annual challenge of evenness in optional/choice questions by not offering any choices, a structural change (as is the case in the IEB paper). This will also avoid time wasting by learners as they deliberate/decide on which questions to choose and the possibility of

learners attempting ALL questions hoping that the markers will choose the best answered questions.

1.3.13 Comparing overall quality

Table 13: Comparability of overall quality of 2015 examinations relative to other exams

Paper	Much worse	Worse than	Equivalent to	Better than	Much better
SACAI 2014		X			

The team was of the view that the 2014 paper was of a better quality than the 2015 examination.

1.3.14 Comparison of Cognitive Demand distribution across all papers under review

The table below provides comparative data for all papers.

Table 14: Comparison of cognitive demand across all examinations under review

PAPERS	LEVELS OF COGNITIVE DEMAND		
	CL1&CL2	CL3 & CL4	CL5 &CL6
SACAI 2015 COMBINED P1&P2	60%	40%	0%
SACAI 2014 COMBINED P1&P2	71%	20%	9%

Both examinations are loaded at cognitive levels 1&2 at 71% and 60% for 2014 and 2015 respectively. There has been a positive move in the direction of reducing this inflated category (from 71%-60%) in 2015, but this remains too high.

The SACAI 2015 examination does not have any questions at cognitive levels 5 & 6. This is a cause for concern. Cognitive levels 3&4 have increased from 20% to 40% in line with the recommended guidelines. The 2015 examination in essence has shifted emphasis from L1&L2 to L3&L4.

1.3.14 Comparing levels of difficulty for each examination paper.

Table 15: Comparing levels of difficulty of all examination papers.

	LEVELS OF DIFFICULTY			
PAPER	L1	L2	L3	L4
SACAI 2015	27%	34%	33%	6%
SACAI 2014	27%	53%	20%	%

In terms of the distribution of questions across the levels of difficulty, the data indicates the SACAI 2015 examination was more difficult than the 2014 examination with a 13% increase in questions at Level 3 and 6% increase at level 4. From the data in the two tables above, a distinct finding is that the number of questions that distinguish the 80% candidates have increased. Below average learners (under 30%) candidates are likely to be in the same position as in 2014.

1.4 Geography

1.4.1 Compliance in terms of format and structure

In both years, the examination as a whole and both papers comply with the specified format and structure of the CAPs and of the assessment body.

1.4.2 Coverage of examinable curriculum

In both years, questions were set on all the major curriculum topics; at least three quarters of the subtopics were covered across the two papers. There were no major gaps, nor was any non-examinable content included.

1.4.3 Distribution of cognitive demand in the papers (300 words)

The CAPs has three levels of cognitive demand, weighted as shown below:

- Low order (Knowledge/Remembering: 25%
- Middle order: Understanding/Applying) 50%
- High order (Analysing, Evaluating, Creating) 25 %

The weighting of cognitive demand across these levels in the SACAI 2014 and 2015 papers is shown in Figure 3.1.1.

The graph shows that:

- **For the lowest order:** both papers are more heavily than they should be (42% and 49% respectively instead of 25%)
- **For the middle order:** In 2014, the weighting in the middle level(47%) is close to the required 50%; however, in 2015, the weighting is noticeably lower than specified(33%)
- **For the highest order:** the weighting in both years is lower than the specified 25%; however the weighting in this order has increased from 2014 to 2015 by 7% (11% to 18%). This is a positive trend.

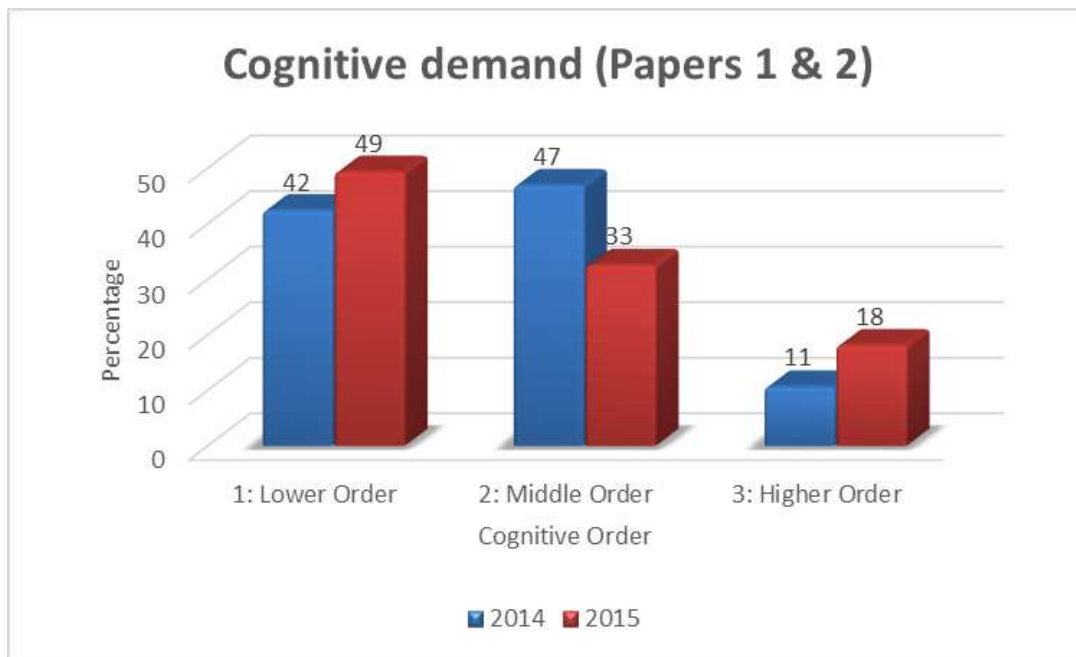


Figure 3.1.1: Comparison of cognitive demand weightings in the paper(s)

1.4.4 Distribution of levels of difficulty in the papers (300 words)

Neither the CAPS nor the assessment body have any specifications for the distribution of marks across levels of difficulty, and so the papers cannot be compared with these.

Figure 3.1.2 shows compares the weighting of marks across the levels of difficulty in the 2014 and 2015 examinations.

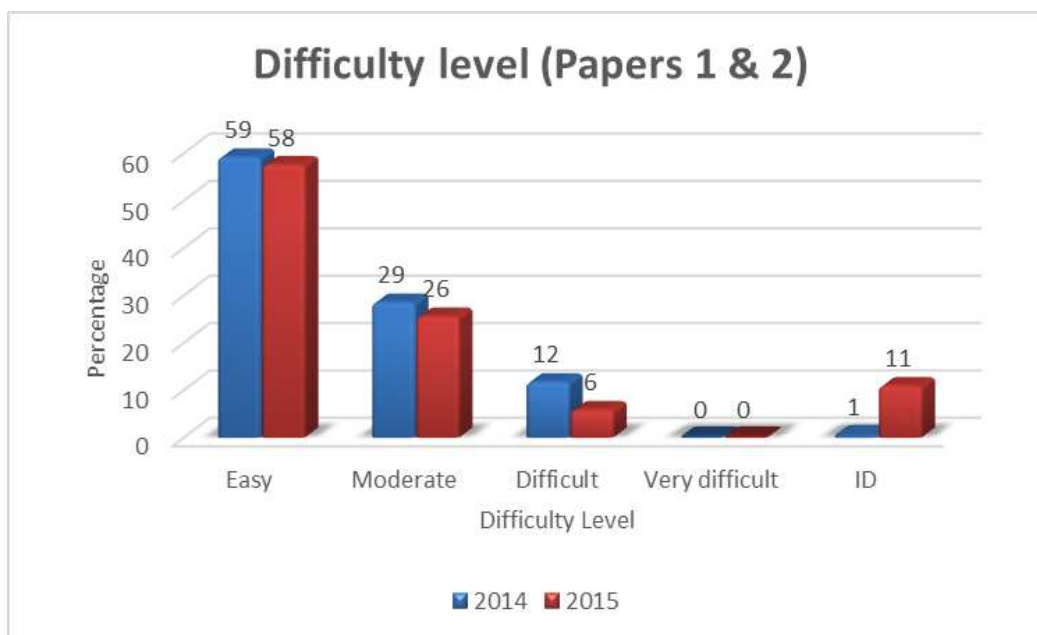


Figure 3.1.2: Comparison of difficulty level weightings in the paper(s)

The graph shows that:

- Both examinations are most weighted in the easy category, with 59% (2014) and 58% (2015) of the marks being awarded for questions the team considered to be easy.
- Both examinations are similarly weighted in the moderately difficult category (29% of the marks in 2014 and 26% in 2015)

There is a noticeable difference, however, in the weighting of marks in the difficult category. In 2014 12% of the marks were in this category, but in 2015 there are only 6%. However, in 2015 11% of the marks were considered to be for invalidly difficult questions suggesting that candidates therefore experienced 17% of the marks as being for questions in this category, making this a more difficult paper to write.

The team believes the weightings across levels of difficulty should be as follows"

Easy: 35 % as this allows even weak candidates a chance of passing at the pass mark of 30%.

Moderately difficult: 40% as this would allow for candidates worthy of a C or a B to achieve these grades.

Difficult: 20% - achievable by candidates worthy of a distinction

Very difficult: 5% for the high-end achievers in the distinction category.

In the light of this it is the team's view that for both examinations analysed, the marks are far too heavily weighted in the easy category, and that there are too few marks in either of the other categories.

The weightings in the easy and moderately difficult categories where the bulk of the marks lie are very similar in both years, suggesting that overall the candidates' performances will be very similar. However, given the higher proportion of marks in the difficult category (including invalidly difficult) we expect that top candidates might perform less well in 2015 than in 2014.

1.4.5 Invalid sources of question difficulty or ease (200 words)

The contribution of invalidly difficulty questions to total marks for 2104 was 1% and in 2015 it was 11%. This suggests that top candidates in 2015 will be relatively disadvantaged. In addition, as there are choice questions in Paper 1 where most of the invalidly difficult questions are located, learners who chose questions 3 and 4 will be more disadvantaged than those who chose alternatives.

1.4.6 Difficulty of stimulus/source material (200 words)

The Geography team did not evaluate the stimulus/source material separately with regard to level of difficulty of stimulus material. The difficulty of the stimulus material was considered as part of the assessment of the difficulty of the question – particularly with regard to the construct 'stimulus difficulty' and the nature of the stimulus material was also considered in analysing the cognitive demand of the papers. However, some general points can be made:

In 2014, all the stimulus material should have been accessible to all learners and was overall at an appropriate level. The stimulus material was useful for candidates, and the quantity was reasonable, and not overwhelming. There was little that would have challenged or surprised learners, and the bar graph was very simple for learners at this grade. In question 3.3, it would have been helpful to present the

images in the order in which candidates were required to refer to them, but this did not present a barrier to their accessibility.

In 2015, similar points to those above pertain. However, there were three concerns:

- In Fig 1.1, the wind in weather station D is from the wrong direction; if candidates only referred to the thunderstorm symbol they would probably have made the correct choice despite this, but some might have been puzzled and left the answer blank.
- In Figure 3.2, the perspective of Diagram A did not show a settlement pattern – but learners would have made the right choice anyway..
- Fig 4.1 is a poor representation of the spatial pattern of land use zones as the regional shopping centre and the CBD are shown as equally accessible by road, the regional shopping centre is located beyond the rural urban fringe. Candidates who engaged with the diagram would have been puzzled by it, and might well have not made correct choices.

1.4.7 Comparability of 2014 – 2015 examination papers (200 words)

The analysis of levels of difficulty given above suggests that the 2014 and 2015 examinations were generally very similar to each other in regards to this criterion of the standard of the examinations. However, the 2015 paper is of a lower standard in terms of the percentage of marks deemed difficult, and also in terms of the percentage of marks for questions considered to be invalidly difficult.

1.4.8 Other points regarding the standard of the examination (200 words)

Some general points regarding the 2015 examination include:

- There were some good examples of different ways of assessing the candidates' understanding of content: In Paper 1 questions 1.1.2 and 1.2.6 provide examples.
- The provision of a separate booklet of stimulus material facilitated access to the various resources to which candidates were referred.
- Language: **The team was very concerned about the number of language errors in the papers.** These included innumerable concord errors, and also too

many examples of poor and clumsy wording which in fact made it difficult to be absolutely sure what the question required of candidates.

- Answers in the memo: The team did not always agree with the answers given, and sometimes felt that in fact the answers were for a different question from the one set.
 - In 2014 questions of concern in this regard were:
 - Paper 1: 1.3.3; 1.5.3; 1.6.3; 3.5.5; 4.5.4; 4.6.5
 - Paper 2: 2.2.3; 3.3.3;
 - In 2015, questions of concern in this regard were:
 - In Paper 1: 1.2.5; 1.6.2; 2.6.6.a,b and c; 3.1.2; 3.3.5; 4.2.1c;
 - In Paper 2: 3.1.4; 3.2.3; 3.4.1; 3.4.2
- Similarity in questions: the team noted that of the 15 sub-questions in Question 1 of 2015, eight were the same as questions in 2014, apart from details related to the specific map in some of these. Even the distractors were identical. It is hoped that this trend will not persist into 2016.

1.4.9 Concluding discussion

- 1.4.9.1 In both examinations, as noted above, there were some questions where poor formulation of the question could have disadvantaged learners, or where a graphic was poor. The marks for these are reflected in the invalidly difficult category in the analysis of level of difficulty of the paper.
- 1.4.9.2 There were some very easy questions in all papers, but the team did not feel that there were so many of these as to unfairly advantage learners in either year.
- 1.4.9.3 The team did not feel that any questions were so easy or so difficult that they should be discounted as everyone would get them right or wrong. Even where there was some sense of invalid difficulty, the questions were usually longer questions and at least some learners would be likely to earn some marks.

- 1.4.9.4 In Paper 1, none of the optional questions were of an equal level of difficulty, and so choices would inevitably favour or disadvantage learners making different choices.

1.4.10 Recommendations for improving the quality and standard of the SACAI Geography examinations

- **Employ an English language editor – this is essential**
- Include more variety in the way questions are asked in map work paper.
- Rely less on computer generated diagrams unless using a special graphics package,
- Ensure that all figures have a caption unless it would give the answer to candidates.
- Ask more moderately difficult and difficult questions, and fewer easy questions
- Ask more questions with greater cognitive demand; ensure that those that are demanding are not obfuscated by clumsy wording.
- Consider having three questions in Paper 1, one compulsory question across all topics, and one physical and 1 human question. This will decrease the time taken for reading and making choices (not necessarily wisely made) and will afford more time for engaging with more complex questions.

The papers provide an adequate model for future papers though the points above should be considered.

1.5 History

1.5.1 Compliance in terms of format and structure

All the 2014 and 2015 SACAI papers comply with the DBE Examination guidelines.

CAPS examination structure	
Paper 1: 150 marks	
	Choose three questions in each paper. Choose ONE source-based and ONE essay question, and ONE other. 3 x 50 marks = 150
50	Q 1 The Cold War (origins, Cold War in Europe and Cuban crisis) source-based questions
50	Q2 Independent Africa (Africa in the Cold War, case study: Angola) source-based questions
50	Q3 Civil society protests 1950s to 1970s (Civil rights and Black power movements) source-based questions.
50	Q4 Cold War (Case study of either China or Vietnam in alternate years) essay
50	Q 5 Independent Africa (Comparative case studies of Congo and Tanzania) essay
50	Q 6 Civil society protests 1950s to 1970s (Civil rights and Black power movements) essay
Paper 2: 150 marks	
	Choose three questions in each paper. Choose ONE source-based and ONE essay question, and ONE other. 3 x 50 marks = 150
50	Q1 Civil resistance in SA 1970s to 1980s (Black consciousness) source-based questions
50	Q2 Coming of democracy in SA (Truth and Reconciliation Commission) source-based questions
50	Q3 End of the cold war and new world order (A new world order) source-based questions
50	Q4 Civil resistance in SA 1970s to 1980s (the crisis of apartheid in the 1980s) essay
50	Q2 Coming of democracy in SA (Negotiated settlement and the Government of National Unity) essay
50	Q3 End of the cold war and new world order (The events of 1989) essay

1.5.2 Coverage of examinable curriculum

As can be seen in the table above, the entire Grade12 curriculum is covered in the two exam papers. However since learners can choose three of the six examination questions, only 50% of the curriculum is actually examined. Since the Examination Guidelines provide clear information on which topics will be examined, it is possible for learners to only study 50% of the curriculum in order to write the examination.

There are no gaps in essential knowledge that are not covered in paper(s). All topics are comprehensively covered in the exam paper. As far as skill areas are concerned, there are two main skill areas covered in the paper:

- a) essay writing (which includes demonstrating knowledge and understanding of the topic, planning and structuring of the essay, using evidence to support an argument and writing coherently and logically) and
- b) working with sources (which includes extracting and interpreting information from the source, comparing sources, evaluating the reliability and usefulness of sources, and synthesising information from sources) (CAPS History 2011, p 40 and 42).

The proportions these make up would be dependent on the various options exercised by candidates. For instance for essay writing it could be as low as $33\frac{1}{3}\%$ or as high as $66\frac{2}{3}\%$.

1.5.3 Distribution of cognitive demand in the papers

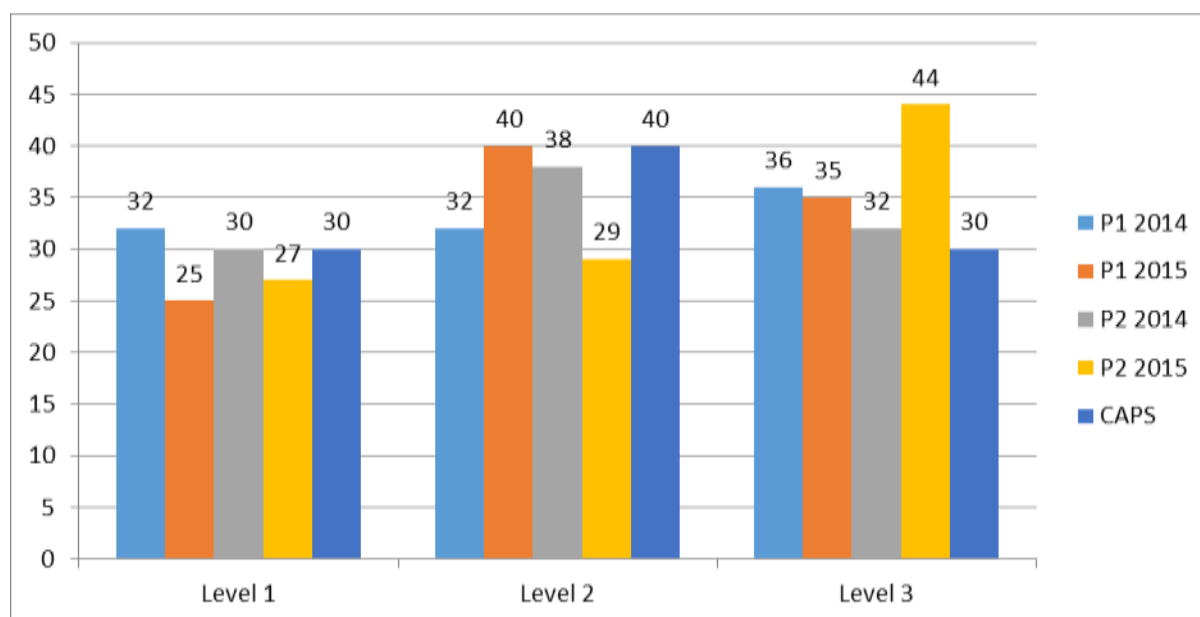


Figure 1: Comparison of cognitive demand weightings in the SACAI 2014 and 2015 papers (source-based questions only)

P1 2015 has the required percentage of Level 2 questions (40%) but 5% fewer Level 1 questions and 5% more Level 3 questions that is required by CAPS.

P2 2015 has a much higher weighting of level 3 questions (44%) while Level 2 questions is 29%.

1.5.4 Distribution of levels of difficulty in the papers

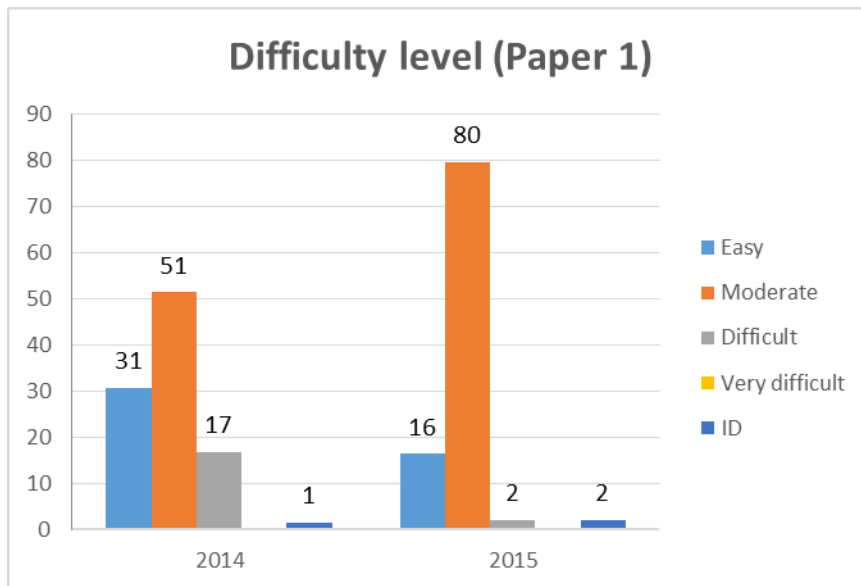


Figure 2: Comparison of difficulty level weightings in SACAI P1, 2014 and 2015

There is no set of requirements regarding levels of difficulty in the CAPS. The team believes that an 'ideal' paper may have 30% easy (all candidates can get these correct), 50% moderate 15% difficult and 5% very difficult to discriminate amongst the top learners.

SACAI 2014 P 1 reflects this ideal, and has a fair proportion of marks allocated at each level of difficulty, but the 2015 paper has 80% of marks allocated to moderate difficulty, and only 2% are difficult. There is an uneven distribution of marks in the 2015 papers regarding difficulty.

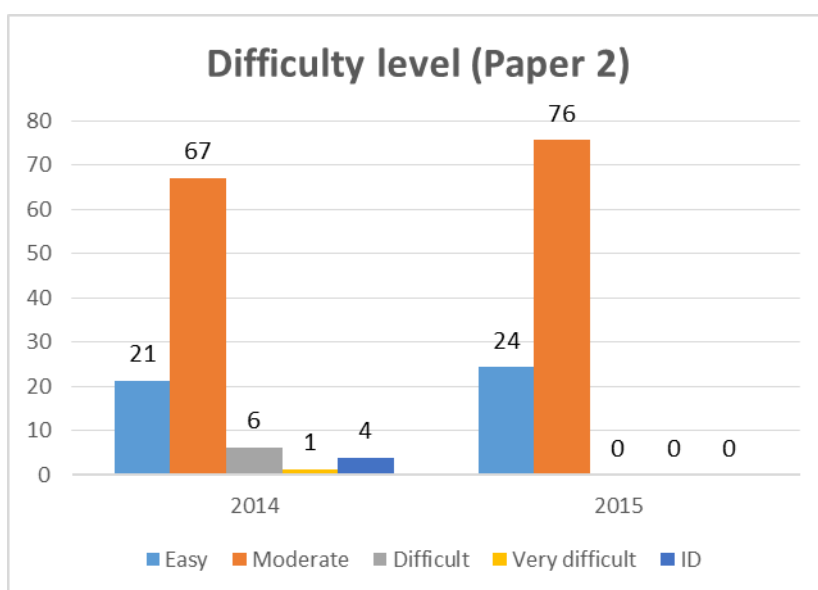


Figure 3: Comparison of difficulty level weightings in SACAI P2, 2014 and 2015

For Paper 2, there is a similar trend to the 2015 P1, but both years show a very high level of moderate questions, and very few difficult questions.

Neither 2014 and 2015 papers have sufficient difficult questions, and have a very strong weighting on moderate questions.

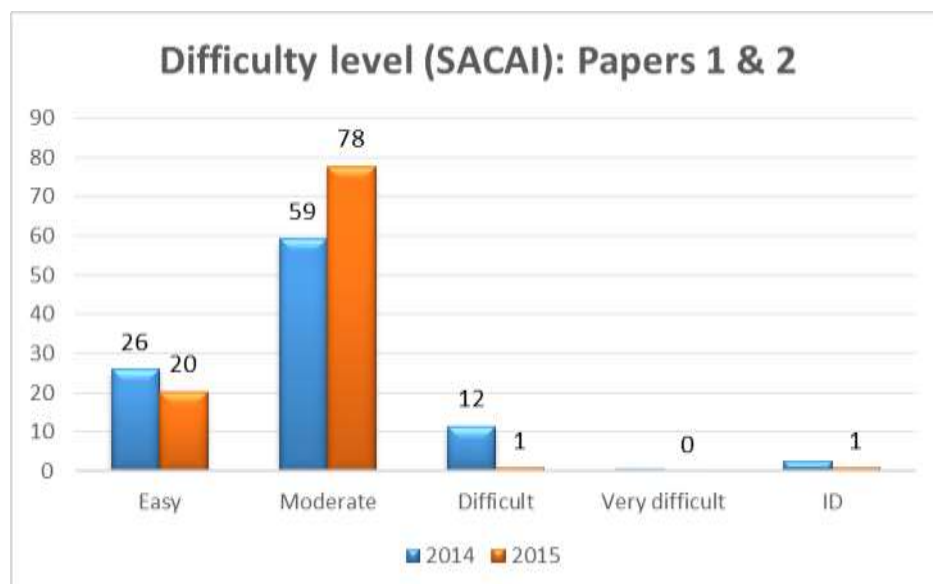


Figure 4: Comparison of difficulty level weightings in SACAI Papers 1 and 2, 2014 and 2015

1.5.5 Invalid sources of question difficulty or ease

PAPER	Invalid difficulty question	No of marks	Source of invalidity
SACAI 2014 P1	3.2.6 Explain how the viewpoints of the authors in Source 3A and 3 B differ regarding the situations they are in.	4	Expected response Memo gives a description of the captions but does not describe the viewpoints. The question is invalid as both of the authors were on the same side.
SACAI 2014 P2	1.2.5 In which way is Pakendorf and Koka considered unilateral	4	The term 'unilateral' source does not exist.

	sources?		
	2.2.2 What do the figures in the cartoon symbolise?	2	Expected response The memo is incorrect and examiner has misinterpreted the cartoon. The witches represent leaders of the NP.
	3.4.3 In what ways are Source 3 B biased?	6	Expected response Memo answers the question for both Source 3B and 3C. But bullet on 3C makes no mention of bias which is the focus of the question. Invalid memo.
SACAI 2015 P1	2.3.2 Explain why you think Judith Matloff wrote this article?	4	Stimulus difficulty. Matloff did not write the article, she is quoted in the article.
	3.3.3. According to the source what role did publicity play in the campaign?	2	Expected response Memo does not answer the question. Who is Baker?
SACAI 2015 P2	NONE		

1.5.6 Difficulty of stimulus/source material

PAPER	Source	Comment
SACAI 2014 P1	Question 1. Source 1 C.	A short 3 line source, and has 8 marks allocated to questions on this source
	Question 2. Source 2A.	Sources are dense, high reading level required, Glossary not provided for all words (e.g. façade)
	Question 2. Source 2 C	The combination of visual and written source means that the written source is very short.
	Question 3. Source 3A	Too little contextualisation about who Jim Zwerg was.

	Question 3. Source 3C	Photograph needs more contextualisation. Who was the photographer?
SACAI 2014 P2	Question 1. Source 1 B	Needs more contextualisation. What date were these sources written?
	Question 2. Source 2B, Visual source 1 and source 2.	Both are difficult cartoons that require a lot of background knowledge about 'witch hunts' and the idioms 'sweeping under the carpet'; Harry Potter, fairy tales, and three monkeys (see no evil, hear no evil and do no evil). Not all South African learners have access to this background knowledge.
	Question 3. Source 3A	Not a historical source, this is an extract from 'Investopaedia'.
	Question 3, Source 3B	A cartoon that draws on the analogy of a circus master with a whip.
SACAI 2015 P1	Question 1, Source 1C	Extracts taken from an internet sourcebook and a textbook. These are not historical sources. Better primary or secondary sources are available on this topic.
	Question 3, Source 3A	Need to include the date that the editorial was written, include that the NY Times had a wide circulation.
	Source 3C	Poor contextualisation. Who wrote this, when and why?
SACAI 2015 P2	Question 1. Source 1A	Three photographs of Steve Biko are not necessary and very short quotes are not very useful sources.
	Question 1. Source 1B	Poor source- extract from a school textbook. This is not an historical source.
	Question 2. Source 2A	Need better contextualisation – when did Tutu make these remarks, and to whom?
	Question 2. Source 2B	Description of the cartoon is not contextualised – who wrote this?

	Question 3. Source 3B	No contextualisation of this text – who wrote it, when and why? It is a balanced perspective, and yet there is a question on bias.
	Question 3. Source 3C	Poor source - extract from a school textbook. This is not an historical source.

The team noted that there were too many sources that were textbook extracts, which are not historical sources and that contextualisation of sources was often poor.

1.5.7 Comparability of 2014 – 2015 examination papers

In terms of cognitive demand, the 2014 papers were closer to the CAPS stipulations. They had 32% Level 1, 36% Level 2 and 34% Level 3 questions. These papers reflected difficulty levels of 29% easy, 59% moderate and 12% difficult, which seems appropriate.

The 2015 papers together had 26% Level 1, 34% Level 2 and 40% Level 3 questions.

The papers had the following levels of difficulty: 20% easy, 78% moderate and 1% difficult. The team did not think these were appropriate levels of difficulty.

However, in terms of the quality of sources selected and the appropriateness of questions, the 2015 papers showed some improvement on the 2014 papers.

1.5.8 Other points regarding the standard of the examination (200 words)

- Mark allocation per cognitive level was sometimes inappropriate. For example, allocating 4 marks to Level 1 questions, and one mark to Level 3 questions.
- Phrasing of some questions was poor.
- There were a number of instances where the memo answers did not provide an answer to the question that was asked. For example, P2, 2014, Question 2.4 "In what ways are the visual sources 1 and 2 in Source 2 B not supported by evidence in Sources 2A and 2C? Explain in a paragraph". The memo does not seem to address the question as the question does not deal in any way with the controversy of the TRC.
- There was an over-emphasis on questions relating to usefulness.

- It seems that the examiner did not have a thorough understanding of the Black Consciousness and TRC sections in particular.
- Poor contextualisation of sources is problematic, as is the use of textbook extracts which are not historical sources. These extracts are then simply a source of information.
- The examiner uses the term 'explain' when in fact learners simply have to extract or recall. This gives the appearance of a Level 2 question, while in fact the cognitive level is Level 1.

1.5.9 Concluding discussion

- 1.5.9.1 Was there anything on the exams that could disadvantage learners taking this exam? (e.g. a picture/graphic that could not be read; an instruction that was confusing; an unexpected question; a question that was much too difficult)

A possible disadvantage is that many sources were not well contextualised, which makes it difficult to answer questions about the source reliability or bias. There were some questions that were confusing – these have been discussed under invalid difficulty.

Paper 2, 2014 contained two political cartoons that were quite complex to interpret if candidates did not have the background information necessary.

- 1.5.9.2 Was there anything on the paper that could unfairly advantage learners taking this examination? (e.g. a question that was much too easy)
- The fact that there were very few marks allocated to difficult questions means that most learners would be advantaged.

In P1, 2014, there were two questions (2.2.4 and 2.2.5) that required responses that were very similar. One asked about the transformation of Angola, and the second about 'new life' in Angola after the peace settlement.

- 1.5.9.3 Were there any non-questions on the exam paper (i.e. questions which everyone will get wrong or right – they do not discriminate between learners)?
- All the questions categorised as easy will not discriminate between learners. There are also questions that simply require speculation which should be avoided as any answer must be marked correct. E.g. Why do you think this

photograph was taken? (SACAI P1 2014, 3.3.1).

Some questions were not historical questions, and it was difficult to see the purpose these would serve in a history examination. For example, 3.1.1. "Who did Jim Zwerg rely on?" with the answer being "God". However there is no engagement with why this may be significant in the history context of the US civil rights movement.

- 1.5.9.4 Were there any other questions where choices are made, where the choices were not at the same level of difficulty?
- 1.5.9.5 In each paper, candidates choose from 3 source-based questions, and three essay questions. The essay questions were all judged to be moderate. However, the table below shows that the source based questions are not at the same level of difficulty. Q1 on Black Consciousness in P2 had a high level of easy questions (64%).

Table 1: Comparison of difficulty levels of the source-based questions in SACAI 2015 P1 and P2, as a percentage of marks.

	Easy	Moderate	Difficult	Very difficult	Invalid
2015 P1					
Q1 (Berlin Wall)	40	60	0	0	0
Q2 (Angola)	24	68	0	0	8
Q3 (Little Rock)	38	58	0	0	4
2015 P2					
Q1 (Black Consciousness)	64	36	0	0	0
Q2 (TRC)	46	54	0	0	0
Q3 (Globalisation)	48	52	0	0	0

1.5.10. Recommendations for improving the quality and standard

Improving the quality

a) Do not use textbooks or wikipedia information as sources.

Improve the contextualization of sources – students need to know who produced a

source, when, and why.

Be aware of the use of the word 'explain' – it should infer interpretation and not simply an extraction of information from a source.

Questions should have a historical purpose, and should not simply be random extractions from the sources.

b) the **standard** of history examinations

There need to be more difficult questions – at least 10 – 15%, in order to discriminate between learners.

Ensure mark allocation is appropriate, and more marks are allocated to Level 3 than Level 1 questions.

The team did not feel that the SACAI papers were a good model, although there was an improvement in 2015 from the 2014 papers.

1.6 Life Sciences

1.6.1 Compliance in terms of format and structure

No specific guidelines were provided for 2014. The format of the 2014 SACAI papers suggested that the examination body has used the DBE Examination Guidelines of 2011. The 2015 SACAI Final papers comply with the prescribed format and length of examination papers, as given in the SACAI Examination Guidelines 2015/2016.

<i>Table 3.1.1(b) Prescribed format and structure and examination paper(s) analysed</i>				
Official document	Name	Paper	Sections	Total marks (h)
1. Curriculum and Assessment Policy Statement	SACAI 2014	1	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer, objective questions such as MCQ, terminology, columns and statements (50 marks) B: Two questions divided into 3-4 subsections (2 x 40 mark) C: Choice of 2 essay questions (20 marks)	150 (2½)
		2	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer, objective questions	150 (2½)

	SACAI 2014		such as MCQ, terminology, columns and statements (50 marks) B: Two questions divided into 3-4 subsections (2 x 40 mark) C: One essay question (20 marks)	
1. Curriculum and Assessment Policy Statement 2. Examination Guidelines 2014	SACAI 2015	1	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer, objective questions such as MCQ, terminology, columns and statements, true and false (50 marks) B: Two questions divided into 3-4 subsections (2 x 30 mark) C: Data response question (20 marks) and an essay or a flow diagram (20 marks).	150 (2½)
		2	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer,	150 (2½)

			<p>objective questions such as MCQ, terminology, columns and statements, true and false (50 marks)</p> <p>B: Two questions divided into 3-4 subsections (2 x 30 mark)</p> <p>C: Data response question (20 marks) and an essay or a flow diagram (20 marks).</p>	
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1.6.2 Coverage of examinable curriculum

The topics examined in 2014 and 2015 Papers 1 and 2 correspond to the SACAI Examination Guidelines 2015/2016.

Topic area weightings for SACAI papers for 2014 to 2015

Table 3.1.2(c) Comparison of the topic weightings (% of marks) specified and the weighting for SACAI examination papers for 2014 to 2015.

Year	Paper	Prescribed Topics	Prescribed weighting	Actual weighting
2014	2014 SACAI Paper 1	Meiosis	7	2,7
		Vertebrate	4	4
		Reproduction		
		Human reproduction	21	24,7
		Nervous system	27	28
		Endocrine system	10	3,3
		Homeostasis	7	7,3
		Plant Hormones	7	5,3

		Human Impact	17	16,7
		Nature of Science	Not weighted	8
	2014 SACAI Paper 2	DNA	19	18,7
		Meiosis	7	8
		Genes and Inheritance	30	26,7
		Evolution	44	42
		Nature of Science	Not weighted	4,7
2015	2015 SACAI Paper 1	Meiosis	7	6
		Vertebrate	4	4,7
		Reproduction		
		Human reproduction	21	22
		Nervous system	27	25,3
		Endocrine system	10	16
		Homeostasis	7	1,3
		Plant Hormones	7	6,7
		Human Impact	17	10
		Nature of Science	Not weighted	8
	2015 SACAI Paper 2	DNA	19	24
		Meiosis	7	8
		Genes and Inheritance	30	20
		Evolution	44	39,3
		Nature of Science	Not weighted	8,7

The panel assumes that SACAI were using the CAPS document in 2014 as an indication of topic area weightings. According to the SACAI examination guidelines the number of marks per topic is not expected to be exactly according to the weighting in the examination papers. The 2015 SACAI Life Sciences papers cover the whole examinable curriculum as prescribed in the SACAI examination guideline. The weightings appearing in the 2015 examinations are acceptable.

The actual weighting of topics is close to the weighting specified, given that the questions the analysts have assigned to Nature of Science would be incorporated in the content topics by the examiners.

Table 3.1.2(d) Coverage of examinable curriculum in each paper

Year	Paper	Coverage
2014 SACAI Final	1	All
	2	All
2015 SACAI Final	1	All
	2	All

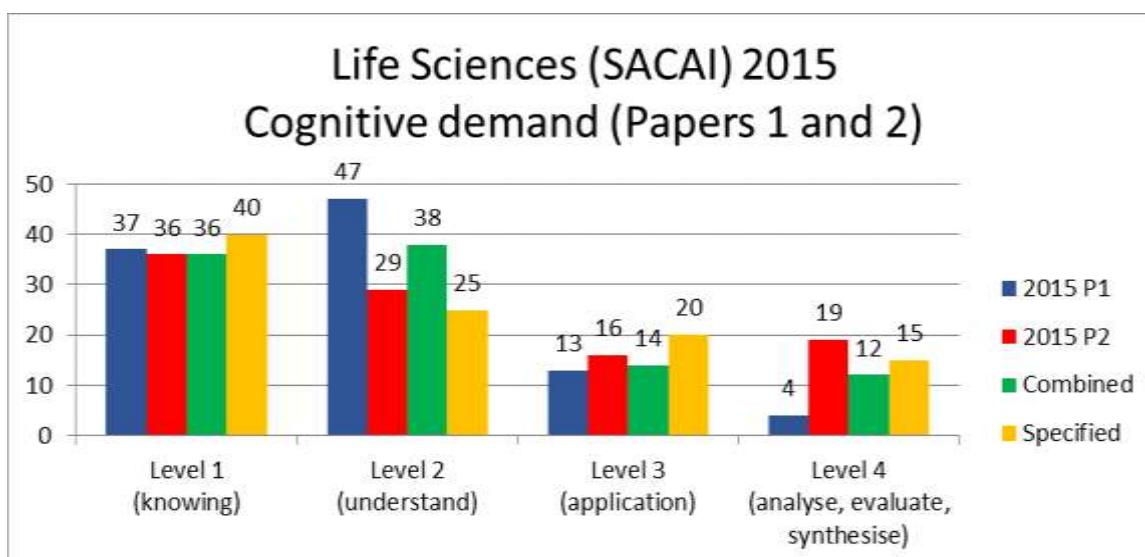
1.6.3 Distribution of cognitive demand in the papers

Team members analysed papers of the three examination bodies individually and compared and discussed the results. We continued until there was reasonable agreement among team members in the total scores for each type of cognitive demand.

Comparison of cognitive demand weightings in the SACAI papers for 2015

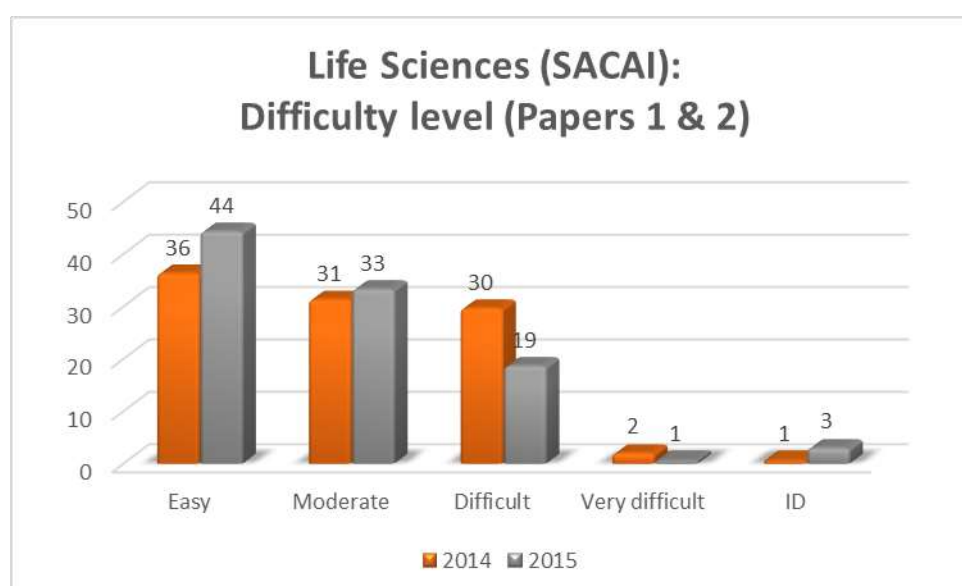
Table 3.1.3(b) Comparison of cognitive demand weightings specified and the weighting for examination papers for 2015 (% of total marks)

Exam	Paper	Types of cognitive demand			
		Know (A)	Understand (B)	Apply (C)	Analyse, Evaluate, Create (D)
Specified		40	25	20	15
2015 SACAI Final	P1	37	47	13	4
	P2	36	29	16	19
	Total	36	38	14	12



SACAI Final Paper 1 was overweighted in level 2 questions, and underweighted in higher order cognitive demand of levels 3 and 4. Final Paper 2 is slightly underweighted in levels 1 and 3 and overweighted in levels 2 and 4. Overall in both papers there are too many lower order questions in levels 1 and particularly in level 2. The amount of higher order questions that involve levels 3 and 4 are less than the required weightings. Paper 2 had a good number of level 4 questions demanding higher order thinking skills such as analysing and evaluating which has helped to balance the overall picture for the Examinations although the level 3 and 4 questions are still below the required specifications.

1.6.4 Distribution of levels of difficulty in the papers



A small percentage of marks were judged to have invalid difficulty in 2014. Final Papers 1 and 2 of 2014 had 1% of the marks assigned to invalid difficulty compared to 3% assigned to Papers 1 and 2 of 2015.

In 2015, Paper 1 and 2 were fairly similar in the number of questions judged to be easy however there was a large discrepancy between the questions judged to be moderate. Paper 1 had 43% of the paper allocated to moderate and Paper 2 had 23%. Only 9% of Paper 1 was judged to be difficult and none were very difficult. In Paper 2, 29% were judged to be difficult and 1 very difficult. For this reason the team considered Paper 1 to be much easier than Paper 2.

In 2014, Paper 1 had 41% easy questions and 33 % moderate questions with Paper 2 having 31% easy and 29% moderate. In 2014, both Paper 1 and Paper 2 had more questions that were judged to be difficult than in 2015.

Over the two years, from 2014 to 2015, the team considers the SACAI papers to be a little easier with very few questions allocated to difficulty level 4.

There are sufficient marks at Level 1 and 2 to enable weaker learners to pass, but too few to differentiate at the upper end.

1.6.5 Invalid sources of question difficulty or ease

State how many questions in each paper were judged as having invalid sources of difficulty or ease, how much they contribute towards the total marks, and discuss how that could impact significantly on candidates' performance.

Table 3.1.5(b) <i>Number of questions assessed as having invalid sources of difficulty of ease in SACAI papers 2014 and 2015</i>				
Year	Paper	Q No.	Marks	Reasons for invalidity
2014 Final	1	1.3.2	2	Use of non-scientific diagrams
	Total		2	
	2	-	-	No questions of invalid difficulty

	Total			
2015 Final	1	1.1.2	2	No one correct answer given (very subjective)
		1.1.3	2	Question scientifically inaccurate
		1.1.4	2	Two possible answers
		2.1.3	1	Memo should be expanded
	Total		7	
	2	1.1.4	2	Most correct answer was not given as an option
	Total		2	

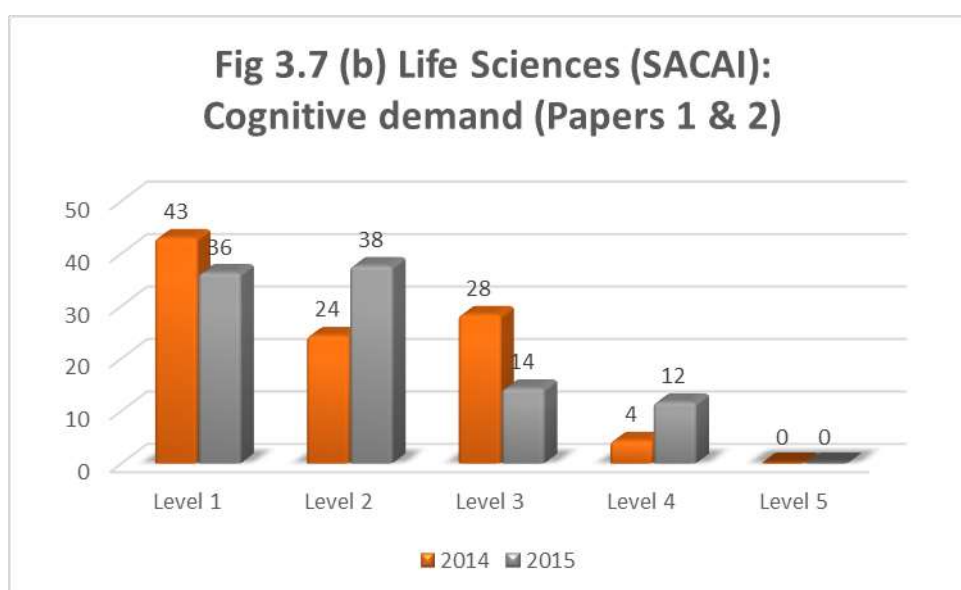
There was only one question of invalid difficulty in 2014 and this will have very little impact on the learners.

In 2015 there were slightly more questions of invalid difficulty. Examiners should take care to use scientifically accurate diagrams that are clear. Most of these discrepancies will hopefully be rectified in the memo discussions and the learners will not be disadvantaged.

1.6.6 Difficulty of stimulus/source material

Table 3.1.6(a) Number of questions assessed as having stimulus/source of difficulty in SACAI papers 2014 and 2015				
Year	Paper	Q No.	Marks	Reasons for invalidity
2014 Final	1	1.3.1	2	Poor quality diagram
		1.3.2	2	Diagram non-scientific
		1.3.3	2	Diagram non-scientific
		2.1.2	2	Diagram too small and label line A not clear
	Total		8	
	2	-	-	
	Total		-	

2015 Final	1	1.1.3	2	Scientifically incorrect diagram and labels
	Total		2	
	2	2.2.5	1	Question refers to non-viable and some learners might not be familiar with this term
		3.1	1	Key larger than pedigree diagram – might be distracting. Unfamiliar key used. Key placed as if it represents offspring.
	Total		2	



There were no Examination Guidelines for 2014 and the team assumed that SACAI were following the DBE Examination Guidelines. In 2014, Paper 1 was judged as being much easier than Paper 2. Paper 1 had over 50% of their questions in level 1 (Knowing). Paper 2 had a large number of questions in level 3 (application) and required a much higher level of comprehension and language ability. The combination of the papers in 2014 had a low number of level 4 type questions requiring analysis, synthesis and evaluation. Paper 1 had a choice of essays whereas in paper 2 there was no choice.

2015 was felt to be cognitively at a higher standard than 2014. The Essay topic in Paper 2 required more analysis and synthesis as it required integration of complex concepts and this has increased the number of marks afforded to level 4. However

there was a decrease in level 3 type questions. Paper 1 enabled learners to choose between an essay and a table format which covered the same content area. Paper 2 also offered a choice between an essay and a flow diagram which covered the same content area.

The combination of Level 1 and Level 2 cognitive demands ie the lower order questions are slightly higher (74%) in 2015 than the combination of Level 1 and 2 in 2014 (67%). The team does not believe that there will be much difference in the performance of the learners over the two years. In total 74% of 2015 Papers are assigned to Lower Order Thinking skills which means that the weaker students should find this subject accessible in terms of cognition.

1.6.7 Other points regarding the standard of the examination

There are no other points regarding the standard of the papers of the different examination bodies.

1.6.8 Concluding discussion

The following are examples of questions which should be avoided by examiners:

- (a) Example of a question where diagram(s) are not clear and not scientifically accurate:
SACAI 2014 P1:
Q1.3.2 Drawing of the chick to differentiate between precocial and altricial reproductive strategies. (2 marks)
- (b) Example of a question where diagrams are used that are not readily available to everyone – many diagrams are commonly used and available on the internet:
SACAI P2 2015:
Q2.3.1 DNA fingerprinting diagram
- (c) Example of a question where information is given in a previous question which can be used to answer a question later on in the paper:

SACAI P 2 2014:

Q1.1.6 and Q1.4: Information in table Q1.4 can be used to answer Q 1.1.6 – characteristics of *Homo erectus*.

- (d) Example of a question repeating the same skill in the same paper or in two consecutive questions:

SACAI 2014 P2:

Q 2.2.4 and Q2.3.1 Both ask for Punnett diagrams

1.6.9 Recommendations for improving the quality and standard of SUBJECT examinations

The team recommends that there should be fewer questions worth 1 and 2 marks, which constitute a significant proportion of the SACAI papers. Examiners should be careful not to use diagrams that are not clear and scientifically inaccurate or use diagrams that are readily available to everyone. Care should be taken not to provide information in a previous question which can be used to answer a question later on in the paper. The repetition of the same skill in the same paper or in two consecutive questions is also not a good practice.

2015 SACAI Paper 1 enabled learners to choose between an essay and a table format which covered the same content area. Paper 2 also offered a choice between an essay and a flow diagram which covered the same content area. The team felt that the choice allows for differentiation in skills and this made this question more accessible to learners. Examiners need to be careful that by giving a choice in the essay question will not change the levels of difficulty or cognition.

1.7 Mathematics

1.7.1 Compliance in terms of format and structure

The table below indicates the number of marks indicated in the CAPS document per topic area and the number of marks in the 2014 and 2015 paper for each of the topic areas. This indicates that the 2014 and 2015 complied with the stipulation of the CAPS document.

	Algebra	Sequences	Finances	Functions	Calculus	Probability	geometry	Trigonometry	Statistics	geometry
SACAI 14	23	26	17	33	39	12	42	41	20	45
SACAI 15	25	28	14	29	40	14	40	42	21	47
Required Marks as per CAPS document	25	25	15	35	35	15	40	40	20	50

Table 1: Weighting of topic areas

1.7.2 Coverage of examinable curriculum

The examination papers analysed covered the examinable curriculum. Clearly no examination paper can examine every detail of the curriculum. So for example, the SACAI 2015 paper 2 does not examine the graph of the tan function in trigonometry. However the graph of the sin function is examined here and the tan function is used in other trigonometry questions. Thus although no single examination paper examines every detail of the curriculum, all the examination papers provide full coverage of the examinable curriculum at a broader level (e.g. trigonometric graphs are examined even if it is not possible to examine EVERY trigonometric graph mentioned in the curriculum).

However we did notice that in paper 2 of 2014, 8.2.1 and 8.2.2 test the same concept in the same way. This should be avoided to allow space for testing different concepts.

1.7.3 Distribution of cognitive demand in the papers

Table 2 shows the percentage of marks that fell into each of the categories of cognitive demand for the 2013, 2014 and 2015 examinations. The weighting stipulated by CAPS is also provided. However, as discussed in more detail below, the team do not feel the categories of cognitive demand are sufficiently well defined to provide a reliable analysis.

SACAI Paper 1&2	Knowledge	Routine	Complex Procedure	Problem Solving
2014	18	76	7	0
2015	14	66	21	0
CAPS requires	20	35	30	15

Table 2: Comparison of cognitive demand weightings in the papers

The table suggests that the 2015 papers did not comply with the weighting of cognitive demand as stipulated in CAPS. The team's analysis suggested that the papers were too heavily weighted towards routine procedures and did not contain sufficient weighting for problem solving. However the team felt that the problem might be a result of inadequacies in the taxonomy itself rather than a result of problems with the examination per se.

The CAPS document of 2011 and the SACAI Examination Guidelines for 2015/16 provide descriptions of the levels of cognitive demand. However, the descriptors of the levels are contradictory in places. (e.g. "estimation and appropriate rounding of numbers" is classified as "knowledge" in the Examination Guidelines, but as "routine procedures" in CAPS). In addition to the problems of contradictory descriptions in the two documents, the description of each of the levels in both these documents is not entirely clear. For example, it is not clear how "complex procedures" differ from

“problem solving” as the descriptors for both allude to higher order reasoning, solving problems and having no obvious route to the solution. The team queried whether it would be possible, in a time-limited examination to include 15% worth of true problem solving questions (i.e. questions where there is no clear starting point or clues as to the approach to take). It is also not clear whether a well-known procedure that contains many steps or tricky algebraic manipulation should be classified as a routine or complex procedure. This makes the taxonomy very difficult to work with, and, means that differences between the team's analysis of the papers and the stipulated weighting in CAPS might be a result of different interpretations of the categories.

1.7.4 Distribution of levels of difficulty in the papers

The team judged the level of difficulty of questions based on the assumption that learners writing the examination would have been taught the full curriculum in an adequate manner. The team considered whether a question would be easy, moderate, difficult or very difficult for the average learner to answer. In order to help ourselves make clear and consistent judgments we further refined this as follows: Easy questions would be those questions that the learner who just passes should be able to do. Moderate questions would be more challenging than this but still be accessible to the student aiming for a “solid pass” and should indicate a mastery of the routine procedures in mathematics. Difficult questions are challenging questions that would be aimed at those wanting to demonstrate a good grasp of mathematics. Very difficult are aimed at the top students. With these judgments in mind the teams proposed ideal split of weights were as follows:

	Easy	Moderate	Difficult	Very difficult
Team's proposed ideal weighting	30%	30-35%	20-25%	15%

Table 3: The team's proposed weighting of levels of difficulty in the examination

SACAI Paper	Easy	Moderate	Difficult	Very Difficult	Invalid
1					
2014	29	35	33	0	3
2015	29	43	25	0	3

Table 4: Comparison of level of difficulty in the SACAI Paper 1

SACAI Paper 1 in both 2014 and 2015 did not have any questions classified by the evaluation team as very difficult. This means that they would not provide sufficient challenge to distinguish between the top students. The evaluation team also noted that the difficulty in questions was often in the complexity of the manipulation involved rather than in the conceptual ideas. Paper 1 of 2015 was judged to be easier than that of 2014 because of the higher weighting of moderate questions.

SACAI Paper 2	Easy	Moderate	Difficult	Very Difficult	Invalid
2014	39	56	5	0	0
2015	23	51	24	2	0

Table 5: Comparison of level of difficulty in the SACAI Paper 2

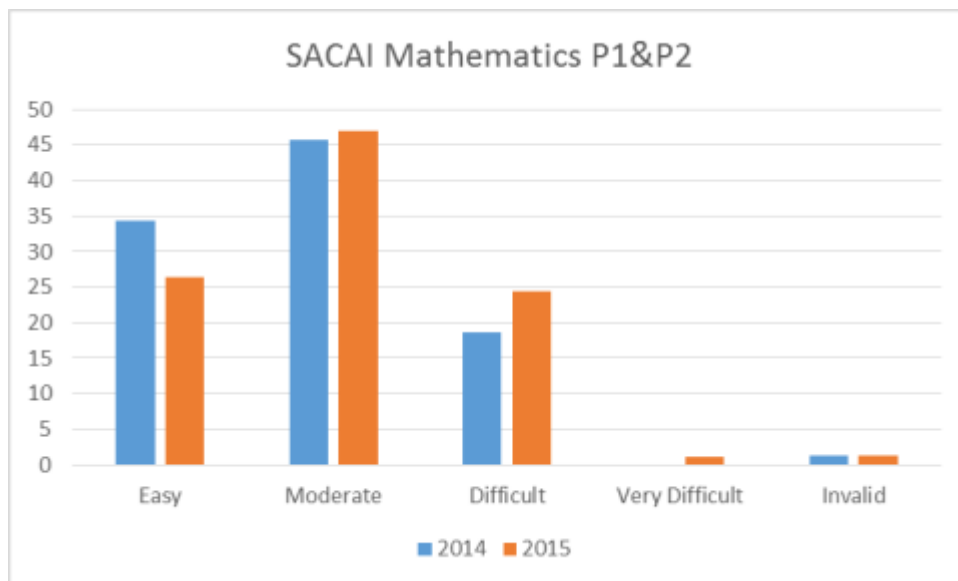
SACAI Paper 1 in both 2014 and 2015 hardly had any questions classified by the evaluation team as very difficult. This means that they would not provide sufficient challenge to distinguish between the top students. In both years there was a very heavy weighting of moderate questions.

The 2015 paper was judged to be significantly more demanding than the 2014 paper because of the inclusion of difficult questions in 2015, that were largely absent in 2014.

However it is important to note that Euclidean geometry is essentially a new topic in the CAPS and constitutes a third of the marks of paper 2. The evaluation team did not have insights into who the teachers and learners involved in the SACAI system are, but note that if they were inadequately prepared to deal with Euclidean geometry, they might experience the papers as more difficult than the analysis presents. In analysing the examination papers we made the assumption that learners had been adequately taught all aspects of the curriculum.

SACAI Paper 1&2	Easy	Moderate	Difficult	Very Difficult	Invalid
2014	34	46	19	0	1
2015	26	47	24	1	1

Table 6: Comparison of level of difficulty in the SACAI Paper 1 and 2 combined



Graph 1: Comparison of difficulty level weightings in the paper(s)

Both the 2014 and 2015 examinations had no (or almost no) very difficult questions. This means that they are unlikely to provide sufficient challenge for the top candidates. Both the 2014 and 2015 papers were too heavily weighted towards a moderate level of difficulty. The 2015 examination was a bit more demanding than the 2014 examination.

1.7.5 Invalid sources of question difficulty or ease

There was one question in the 2014 papers and one question in the 2015 papers that the evaluation team felt presented an invalid source of difficulty.

In the 2014 paper 1 qu 1.3 asks to determine the nature of the roots, but does not stipulate whether it is an equation in x or θ . Although learners are likely to have assumed that it is an equation in x , this cannot be taken for granted.

2015 paper 1, question 2.3 asks the learners to calculate the value of x "if x is an integer". After solving the equation the value of x turns out not to be an integer. The stipulation " x is an integer" adds nothing to the question and could cause unnecessary confusion.

1.7.6 Recommendations and comments on specific questions

There were a few places in both the 2014 and 2015 where there were issues with a question which did not necessarily detract from the learner's ability to answer the question, but which could be improved. These are listed below:

- 2014 paper 1: Qu 3.2 states 8,5% p.j. instead of p.a.
- 2014 paper 1: Qu 4.1.3 the phrasing of the question ("explain") makes it seem there is more expected from the learner than is given in the memo .
- 2014 paper 1: Qu 4.3 the use of the phrase "function of f " and the notation f^{-1} to refer both to the inverse relation of f and the inverse function of f on a restricted domain could be improved.
- 2014 paper 1: Qu 6.5 meter used instead of metre
- 2014 paper 2: Qu 1.3.1 The word "average" can be used for mean, median or mode
- 2014 paper 2: Qu 5.2.2 is $2 \sin 2x \cos 3x$ really simpler than $\sin 5x - \sin x$?
- 2015 paper 1: Qu 5.2.5 "an equation" instead of "the equation"
- 2015 paper 2: Qu 5.2.2 is an easy question that asks for the range of a trigonometric functions, but relies on a more difficult previous question.
- 2015 paper 2: Qu 8.1 has been allocated a lot of marks.
- There were errors in the memo, but we understand that the memos we receive might not be the final memoes so assume these were subsequently corrected.

1.7.7 Recommendations for improving the quality and standard of the Mathematics examinations

In terms of the overall quality of the papers, the evaluation team felt the following could be improved for future papers. The papers need to include more question that could be classified as "very difficult" questions that would challenge the top

candidates. The team felt that in many cases the difficulty in questions related to the complexity of the calculations or manipulations involved and felt that more emphasis could be placed on questions that required conceptual understanding.

1.8 Mathematical Literacy

1.8.1 Compliance in terms of format and structure

Table 1: Format and structure of Mathematical Literacy Examination Papers

Exam	Duration (hrs)	Mark allocation	Number of questions and type	Probability	Basic topics
2014 SACAI P1	3	150	4 per topic + 1 integrated Q1 and Q3 not supposed to be integrated	Integrated to one or more	Integrated to all questions
2014 SACAI P2	3	150	4/5 all integrated		
2015 SACAI P1	3	150	4 per topic + 1 integrated		
2015 SACAI P2	3	150	4/5 all integrated		

The SACAI 2014 and 2015 Final Mathematical Literacy Papers generally complied in every respect with the format and structure of the examination as described in the Examination Guidelines for the CAPS.

*In both 2015 papers the grand total is indicated at the end of the last question, unlike in the previous year, where the grand total was not shown at the end of the paper.

1.8.2 Coverage of examinable curriculum

Table 2: Coverage of examinable curriculum in 2014 and 2015 SACAI papers

	Paper 1	Paper 2	Combined Overall
2014 SACAI	Most of the curriculum	Most of the curriculum	Almost all
2015 SACAI	Most of the curriculum	Most of the curriculum	Almost all

The design of the Mathematical Literacy examination requires that the whole curriculum be covered by the two papers which are equally weighted. Therefore it is unrealistic to expect that each paper will cover the whole curriculum. The sub-topics that were omitted constitute very little of the total number in the whole curriculum. All the papers covered the essential knowledge of the curriculum.

Table 3: Topics that were omitted in all examinations

2014 SACAI	Loans and investments
2015 SACAI	Banking, loans and investments
All papers: Topics which are impossible to examine in a written examination	Measuring weight, mass and volume Developing questionnaires Collecting and classifying data Building models

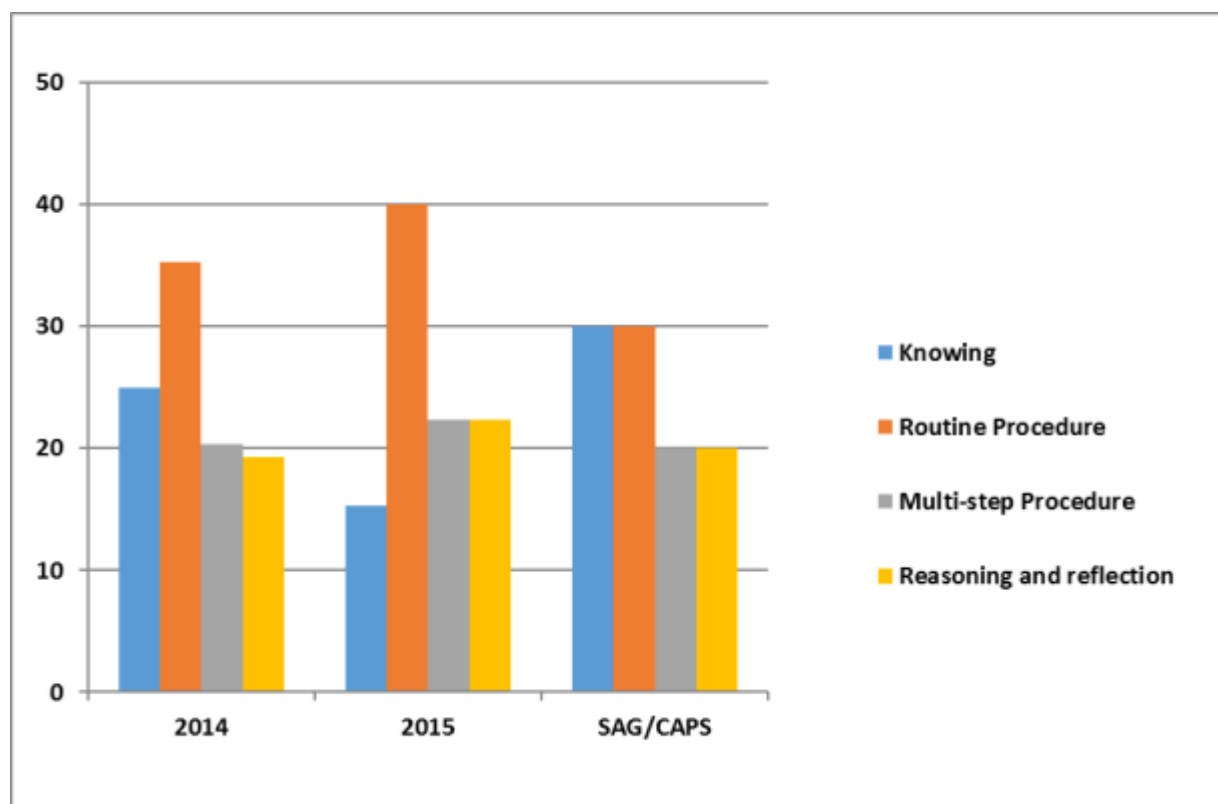
1.8.3 Distribution of cognitive demand in the papers

Table 4 below shows the combined overall weighting of cognitive demand levels in the SACAI papers for 2014 and 2015. This table of values was used to generate the graph in Figure 3.1.1 below.

Table 4: Combined overall percentage weighting of cognitive demand levels

Cognitive demand	2014	2015	SAG
Knowing	25	15	30
Routine Procedure	35	40	30
Multi-step Procedure	20	22	20
Reasoning and reflection	19	22	20

Figure 1.8.1: Comparison of cognitive demand weightings of SACAI papers with CAPS



From Table 4 and Figure 3.1.1 above, the following comments can be made about the comparison between the SACAI Final Mathematical Literacy Papers for 2014 and 2015:

- The percentage marks allocated to **Knowing** in the 2015 papers were significantly lower than the 2014 papers and the CAPS. Although the percentage did not meet the requirements as stated in the CAPS, it will be significantly closer should the first two cognitive levels be combined.
- The percentage marks allocated to **Routine Procedure** is slightly higher than stipulated in CAPS, but not problematic.
- The percentage marks allocated to **Multi-step Procedure** has gradually increased from 2014 to 2015, but is still within a 10% range of what is expected from CAPS.

- The percentage marks allocated to **Reasoning and Reflection** is almost perfectly aligned to the CAPS requirements.

The team believes that there still is a significant area of overlap between cognitive levels 1 and 2. It is our opinion that these two cognitive levels are actually at the same level of cognitive demand and should be conflated into one level with two strands or types of question. With that being said, if the first two levels of cognitive demand are joined in the 2014 and 2015 SACAI papers, it will carry a weighting of 60% and 55% respectively, as where the CAPS requirements stipulates 60%. This indicates a very good compliance with the CAPS in terms of Knowing and Routine Procedure in the SACAI papers.

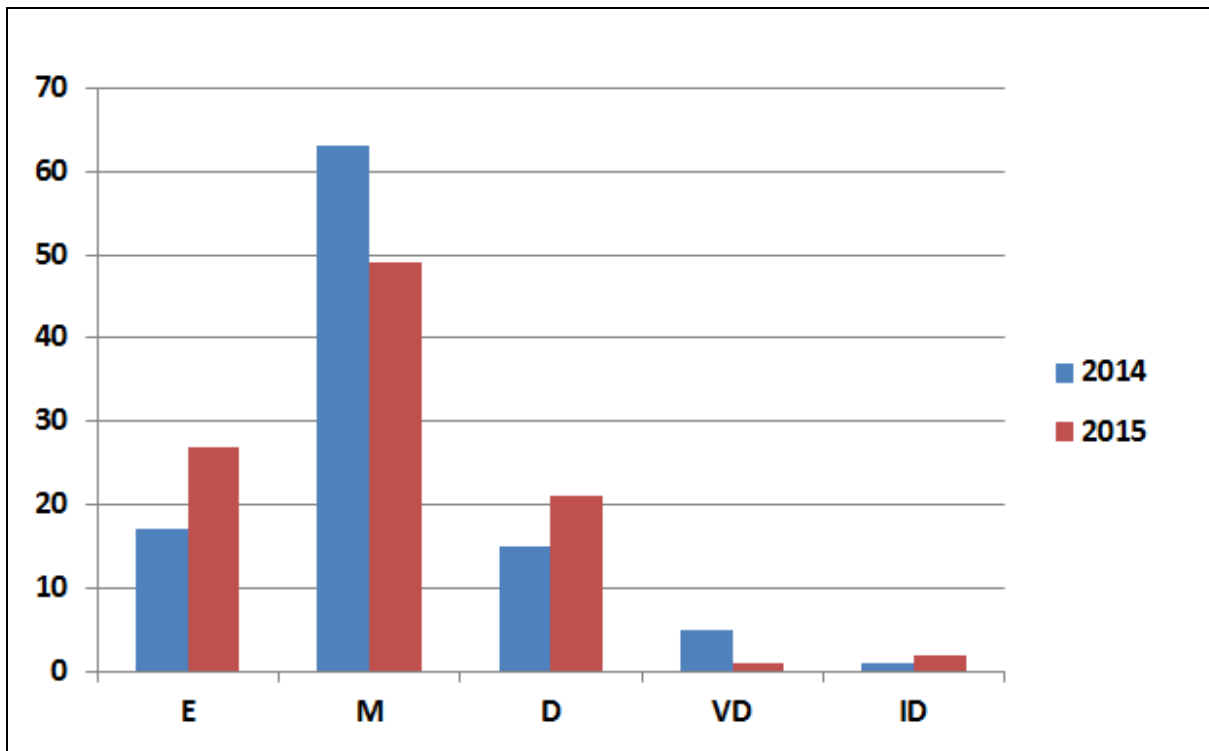
The **Multi-step** questions in the SACAI 2015 papers are approximately 10% higher than the CAPS, whereas the 2014 papers fell within the 5% range of acceptable weighting.

The questions at the highest level of cognitive demand were perfectly aligned with the CAPS requirements.

1.8.4 Distribution of levels of difficulty in the papers

There are no specifications in CAPS in as far as the distribution of levels of difficulty in the examination papers is concerned. Hence, the Team uses their own professional judgement and experiences in determining whether an item under analysis is regarded as Easy (E), Moderate (M), Difficult (D), Very Difficult (VD) or Invalid Difficult (ID). The graph below indicates the overall spread of these categories for the examinations pertaining to 2014 and 2015.

Figure 1.8.2: Comparison of overall percentage weightings of difficulty level in the paper(s)



From Figure 3.1.2 above, the following comments can be made:

(a) The Easy and Moderate questions accounted for

- 80% of the marks in 2014
- 76% of the marks in 2015

These combined weightings for Easy and Moderate questions show that candidates could easily pass the 2014 and 2015 examinations even without attempting the Difficult and Very Difficult questions.

(b) The Difficult questions accounted for

- 15% of the marks in 2014
- 21% of the marks in 2015

(c) The Very Difficult questions accounted for

- 5% of the marks in 2014
- 1% of the marks in 2015

(d) The Invalid Difficult questions accounted for

- 1% of the marks in 2014

- 2% of the marks in 2015

The 2015 papers indicate that overall there is at least 21% of the questions of a difficult degree and at least 1% of the questions of a very difficult degree, giving a total of 22% for these two categories. The implication here is that according to our analysis the 2015 papers overall are not significantly more difficult than the 2014 (20%) papers. Nevertheless, the inclusion of questions in these categories do allow for fairly good differentiation of the A-grade learners (extremely high-achieving/ability learners) to be discriminated from other high ability/proficiency learners. On the other hand the calculations above show that, as is expected the 'Very difficulty' level is the least weighted overall. It is noted that the Invalid Difficult questions have increased from 1% 2014 to 2% in 2015.

1.8.5 Invalid sources of question difficulty or ease

Table 5: Number of questions and marks allocated to invalid sources

Exam	Number of questions	Number of marks
2014 SACAI P1	1	2
2014 SACAI P2	1	2
2015 SACAI P1	0	0
2015 SACAI P2	2	7

The following comments provide details of the invalid sources of difficulty that were found:

- Q4.3.1 in 2014 p1, Line indicates continuous, but the data is discrete, this made it difficult for learners to get the correct answer
- Q1.3.1 in 2014 p2, Constantia nek not on diagram, learners could not answer the question
- Q 3.3.1 in 2015 p2, Death rate per 1 000 people, is not the unit representation of what is in the table. As in the table we have real figures. This will be difficult for learners to get the correct answer
- Q5.4.2 in 2015 p2, Formula for speed is incorrect, speed should be distance over time, and the answer they will get will be incorrect.

From the table the marks the learners could not attain increased in paper 2 each year. In 2014, 2 marks and in 2015, 7 marks were at risk of not being attained. Meanwhile in paper 1 the marks learners could not get decreased, from 2 in 2014, to zero in 2015. This constitutes a small percentage of the marks for the exam. Time spent on these questions may have negatively affected the attention given to further questions.

1.8.6 Difficulty of stimulus/source material

Table 6: The appropriateness of stimulus material

Exam	Question number	Mark allocation	Explanation
2014 SACAI P1	5.3.3 (b)	3	Calculation of an area of an irregular shape J is made very easy by the source. The source presents this shape in terms of small squares of the same size, their area is also given. The learners just need to count the number of them and multiply by the given area of a small square. No need to divide the shape into different rectangles; find the dimensions; and work out each area to get the area of "J".
2014 SACAI P2	3.5.1 (a)	2	Ideally the question is based on misleading graph, and can be confusing. But the presence of the table makes this question easy, as there may be some learners who will not answer this based on the graph but the table. The table was unnecessary placed there as it contains the same information as the graph.
2015 SACAI P1	2.4.1	2	Determining the area of a wall by simply dividing the given area by 3, makes this question very easy.
2015 SACAI P2	1.7.3	3	The values on the graph are labelled, making this question easy.

1.8.7 Comparability of 2014 – 2015 examination papers

Table 7: Comparability of examination papers

Paper	2015 SACAI P1	2015 SACAI P2	2015 SACAI Overall
2014 SACAI P1	Much better than		
2014 SACAI P2		Much better than	
2014 Overall			Much better than

The quality of the 2015 SACAI Final papers did not improve substantively in comparison to the 2014 papers. For example, the Invalid Difficult questions (see 3.1.5 above) whose number and marks almost doubled from 2014 to 2015. Further, there were also many problematic questions; there were many errors in both the question papers and respective memoranda; and there were many language issues identified in the papers. All of these issues have been explained in more detail in 3.8 below.

1.8.8 Other points regarding the standard of the examination

Problematic questions and the reason

- Paper 2, Question 1.2
Question requires rounding to nearest kl, but the answer is already rounded
- Paper 2, Question 2.3
Although diagrams are not on scale, the two dimensions of 60cm are not the same length
- Paper 2, Question 3.3
Indicates 'mortality rate per age group', but represents the 'number of mortalities per age group', this is misleading. 'Deaths per 1 000 people'
- Paper 2, Question 5.2.3
The 5% has already been added to the value given. The fact that it was mentioned again, will lead to students adding another 5%
- Paper 2, Question 5.4.1
Lines, which connect towns, are not visible; hence question is difficult to answer
- Paper 2, Question 5.4.2

The question does not state which route they must choose, hence an ambiguous question.

- Paper 2, Question 5.4.2

The formula is incorrect

Errors in the question paper

- Paper 1, Question 1.1.1

'p/month' should be 'per minute' and not written 'p/month'

- Paper 1, Question 1.3.4

Allocation of marks to the question insufficient compared the amount of work that needs to be done

- Paper 1, Question 2.1.1

It is an uncommon way of asking an omitted value, by writing '(...)'. This might be misleading

- Paper 2, Question 1.2

Question requires rounding to nearest kl, but the answer is already rounded

- Paper 2, Question 2.3.2

Formula for area of square given, but not necessary

- Paper 2, Question 5.2.2

Area formula given, but not needed

Errors in the memorandum

- Paper 1, Question 1.2.1

Rounded number of R81 000 used and not R81 657,55. Unrounded answer should be marked as well.

- Paper 1, Question 1.2.3

UIF value is R816,76 which is not consistent with the calculated value in Question 1.2.1

- Paper 1, Question 3.2.1

Noted that not all abbreviations mentioned in key were used on memo in tree diagram

- Paper 1, Question 3.3.2 and Q3.3.3

The answer in the memo must be a CA not an A mark, as these will depend on the learner's answer to Question 3.3.1

- Paper 2, Question 1.4
Memo should allow CA mark from Q1.3
- Paper 2, Question 2.1.3
Memo should allow CA mark as the values are carried to the next bracket, mistakes will be carried over as well
- Paper 2, Question 3.3.1
Typing error on memo. 'Then' should be 'than'
- Paper 2, Question 4.1.3
Answer in memo is incorrect, the correct answer is 2 divided by 16, which is 1 divide by 8.
- Paper 2, Question 5.2.3
The 5% has already been added to the value given. The fact that it was mentioned again, will lead to students adding another 5%
- Paper 2, Question 5.4.2
The formula is incorrect.

Language issues

- Paper 1, Question 1.2.1
Determine the amount 'that the owner has to pay' is misleading. Question could have read 'Determine the total amount payable to UIF...'
- Paper 2, Question 3.1.2
Euro symbol not given question, but only in Appendix
- Paper 2, Question 4.1
'Ranch' is not a common word, it should have been explained
- Paper 2, Question 4.1.1
'Purebred' unfamiliar terminology, maybe 'mare' too
- Paper 2, Question 4.2
"trot, canter and gallop" are all uncommon words to many learners and should have been explained
- Paper 2, Question 5.2.2
Question paper says '**One** brick wall uses 108 bricks per square metre', It does not make a difference if it is one or all, might be confusing for learners.

General and/or Technical issues

- Paper 2, Question 4.2.1

There is no Question 4.2.2, maybe 4.2.1 should have been just 4.2

1.8.9 Concluding discussion

1.8.9.1 Was there anything on the exams that could disadvantage learners taking this exam? (e.g. a picture/graphic that could not be read; an instruction that was confusing; an unexpected question; a question that was much too difficult)

- Paper 1, Question 5.1
The pictures of the cars should be identical
- Paper 2, Question 5.4
Map is unclear

1.8.9.2 Was there anything on the paper that could unfairly advantage learners taking this examination? (e.g. a question that was much too easy)

- None

1.8.9.3 Were there any non-questions on the exam paper (i.e. questions which everyone will get wrong or right – they do not discriminate between learners)?

- None

1.8.9.4 Were there any other questions where choices are made, where the choices were not at the same level of difficulty?

- None

1.8.10 Recommendations for improving the quality and standard of SUBJECT examinations

- There should be thorough moderation of question papers and memoranda prior to the examination. Mistakes like wrong formulae, the use of incorrect values and unit errors are problematic.
- Cognitive level weightings were very good, but the Difficulty weightings need to be addressed as indicated in 3.1.3 and 3.1.4 respectively.
- Incorrect memorandum answers are unacceptable.

1.9 Physical Sciences

1.9.1 Compliance with the CAPS

Table 1 - Format and structure of Physical Sciences Examination Papers			
Exam paper	Focus area	Duration (hrs)	Mark allocation
SACAI P1 2014	Physics	3	150
SACAI P2 2014	Chemistry	3	150
SACAI P1 2015	Physics	3	150
SACAI P2 2015	Chemistry	3	150

In Table 1 above, the SACAI Physical Science papers that were analysed for 2014 to 2015 are presented. The papers were consistent with the required format in all cases.

According to CAPS, all 2015 Physical Science papers are required to consist of:

- 20 marks multiple choice questions
- 130 marks structured response questions

None of the 2015 SACAI examinations deviate from these.

1.9.2 Coverage of examinable curriculum

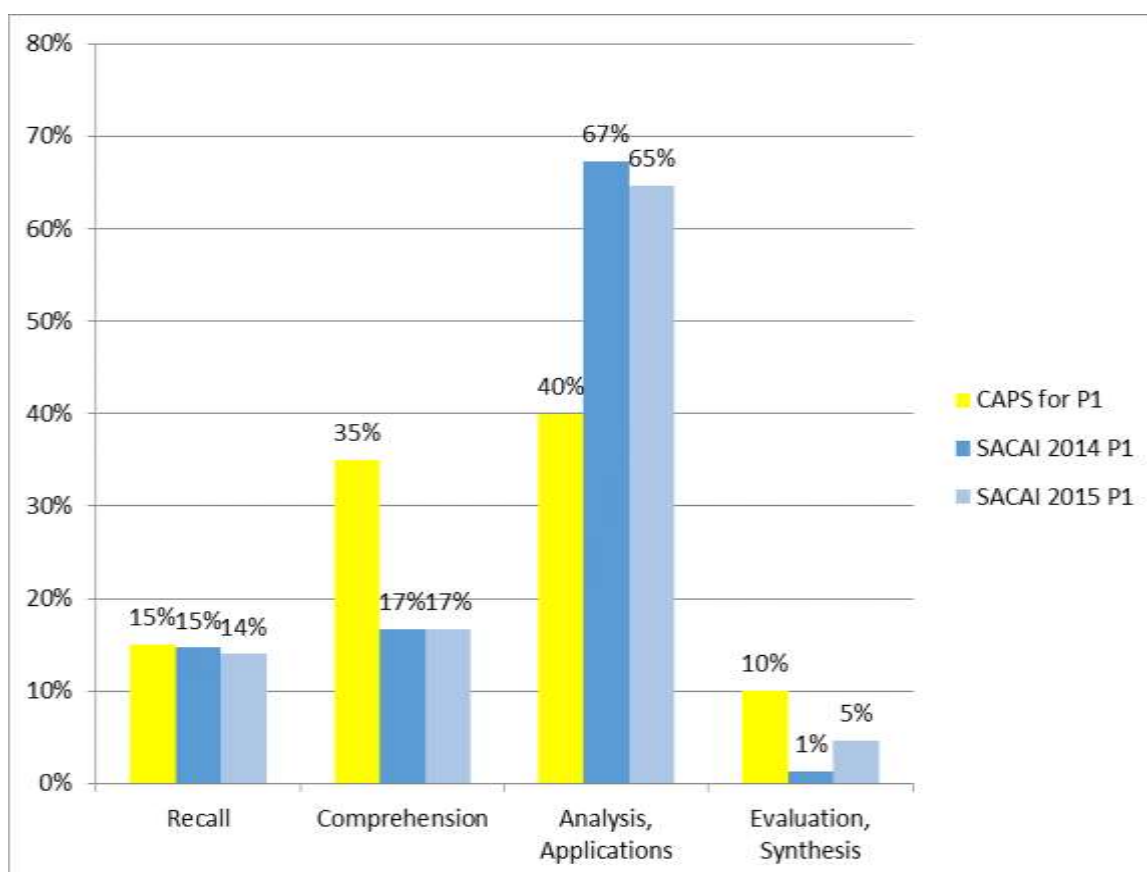
Table 2 - Coverage of examinable curriculum in each paper	
Paper	Coverage of Content Areas
SACAI P1 2014	All of the curriculum is covered
SACAI P2 2014	All of the curriculum is covered
SACAI P1 2015	All of the curriculum is covered
SACAI P2 2015	All of the curriculum is covered

1.9.3 Distribution of cognitive demand in the papers

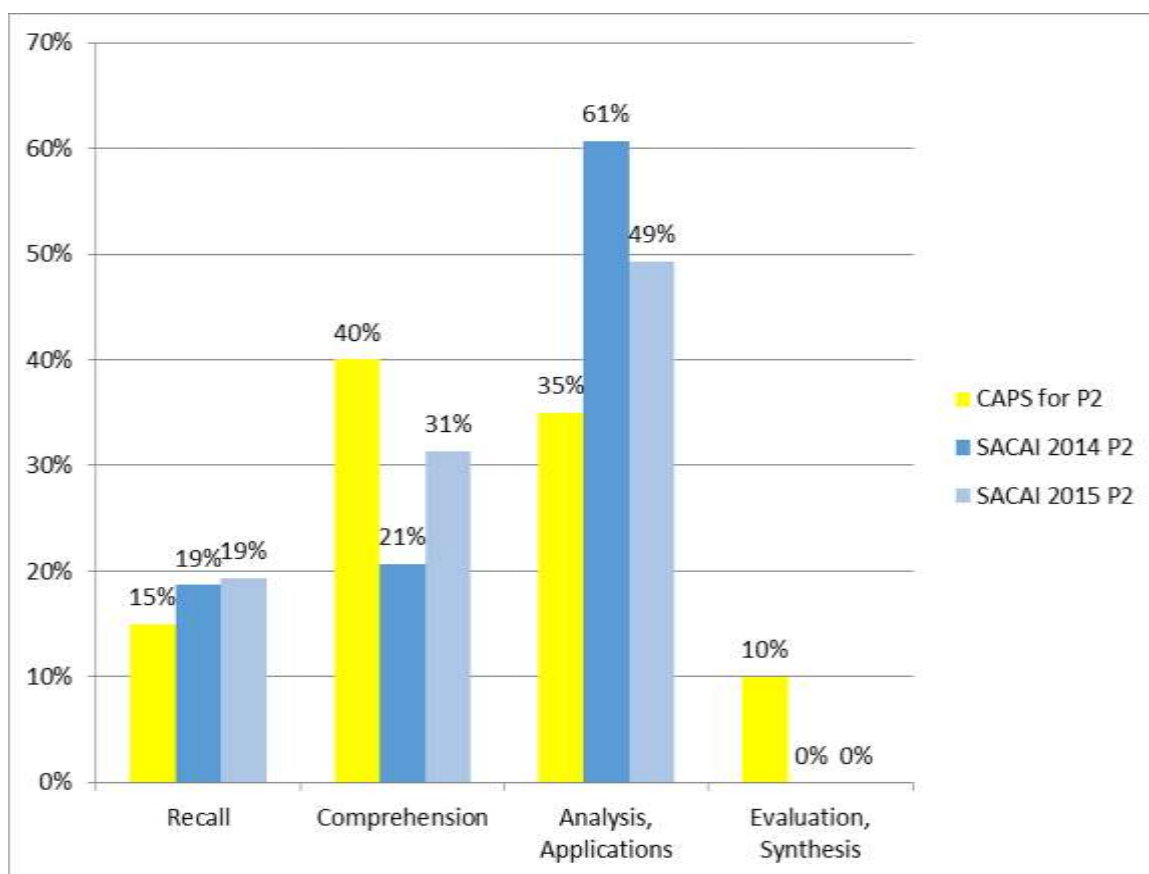
Table 3 - Comparison of cognitive demand weightings specified and the percentage for the paper(s) analysed

Paper	Percentage of marks allocated to questions at each of the different types of cognitive demand			
	Recall	Comprehension	Analysis, Applications	Evaluation, Synthesis
SACAI P1 2014	15%	17%	67%	1%
SACAI P2 2014	19%	21%	61%	0%
SACAI P1 2015	14%	17%	65%	5%
SACAI P2 2015	19%	31%	49%	0%
CAPS for P1	15%	35%	40%	10%
CAPS for P2	15%	40%	35%	10%

Paper 1 Cognitive Demand



Paper 2 Cognitive Demand



From the table and graphs above, the following comments can be made about the papers:

- The percentage of marks allocated to Analysis and Application is generally higher than stipulated in CAPS, for both Paper 1 and Paper 2 for both 2014 and 2015.
- The percentage of marks allocated to Comprehension is generally lower than stipulated in CAPS, for both Papers 1 and 2.
- The recall questions are within a 5% variation from the stipulated percentage.
- The Evaluation and Synthesis questions are lower than stipulated in CAPS for both papers. It is notable that Paper 2 had no questions in this category for either 2014 or 2015.

However, it needs to be borne in mind that these categories of cognitive demand are very difficult to judge accurately for Physical Sciences examinations, as they do not adequately describe the types of thinking that are typically involved in the exam

questions. As a result, different evaluators might arrive at varying judgments on these. One can therefore not make strong judgments on the basis of these percentages. The levels of difficulty are far more informative for Physical Sciences examinations (see Section 4 of this report).

1.9.4 Distribution of levels of difficulty in the papers

Table 4: Percentage of marks awarded to the different levels of difficulty in the examination paper(s)						
	Easy	Moderate	Difficult	V. Difficult	Invalid	Overall Difficulty Score
Paper 1						
SACAI 2014 P1	7%	56%	34%	2%	1%	2.31
SACAI 2015 P1	3%	46%	31%	18%	1%	2.65
Paper 2						
SACAI 2014 P2	9%	37%	49%	0%	5%	2.41
SACAI 2015 P2	8%	46%	46%	0%	0%	2.38

Table 5: Percentage of marks awarded to the different levels of difficulty for all examination papers combined						
	Easy	Moderate	Difficult	V. Difficult	Invalid	Overall Difficulty Score
Paper 1&2 Combined						
SACAI 2014 (P1&P2)	8%	47%	41%	1%	3%	2.36
SACAI 2015 (P1&P2)	6%	46%	39%	9%	1%	2.51

An overall difficulty score for each paper was determined by assigning a value score as follows:

- Easy questions (EQ) = 1
- Moderate questions (MQ) = 2
- Difficult questions (DQ) = 3
- Very difficult questions (VDQ) = 4

The formula applied to determine the difficulty score is:

$$\text{Overall difficulty score} = (\%EQ \text{ marks} \times 1) + (\%MQ \text{ marks} \times 2) + (\%DQ \text{ marks} \times 3) + (\%VDQ \text{ marks} \times 4)$$

Therefore, the higher the overall difficulty score for a paper, the higher the standard of the paper, with 4 as a maximum. Experience has shown that this is a very useful way of rating the level of challenge of Physical Science papers, and that a rating of between 2,2 and 2,4 is appropriate for a Grade 12 exit-level examination.

The appropriateness of the levels of difficulty of these papers will be commented on in the comparative analysis, as there is no set standard in the CAPS document against which to compare these difficulty values. Hence the only valid comment can be made in comparison with other papers.

1.9.5 Invalid sources of question difficulty or ease

Table 6 - Number of questions assessed as having invalid sources of difficulty of ease	
Paper	Number of Questions
SACAI P1 2014	1
SACAI P2 2014	4
SACAI P1 2015	1
SACAI P2 2015	0

The following comment provides details of the invalid source of difficulty that was found in the 2014 and 2015 Paper 2:

- In 2014 Paper 1, the memo answer for Question 3.5.1 is incorrect and may have led to learners losing marks if this was not corrected during the marking process. Learners who hadn't understood the complexity of the problem would be likely to have scored these marks, and learners who understood the

concept correctly would have lost the marks, as the answer in the memo is the usual misconception that learners have in this context. (1 mark)

- In 2015 Paper 1, Question 1.9 does not give sufficient information to make it unambiguous to the learners. (2 marks)
- In 2014 Paper 2, Question 2.1.3 the word monohydric is nowhere in the CAPS syllabus. (1 mark)
- In 2014 Paper 2, Question 4.7 and 4.8 an incorrect reactant is given in the question paper, making the questions unanswerable. (5 marks)
- In 2014 Paper 2, Question 5.5.1 is incorrectly worded, the term “volume” should be replaced with “change in volume” to make the memo answer correct. (1 mark)

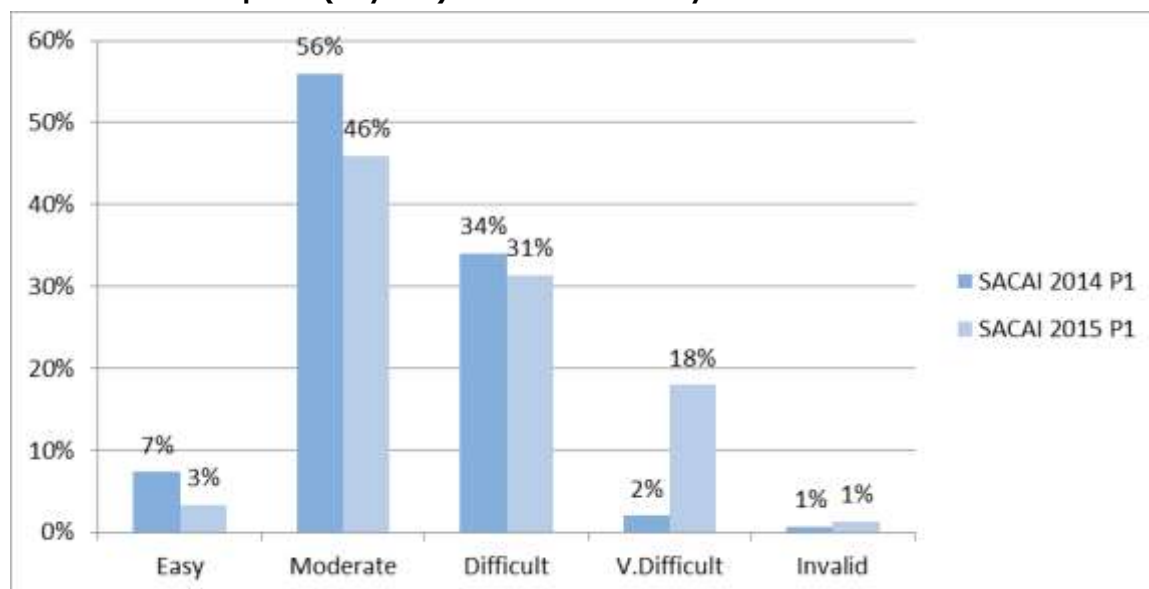
1.9.6 Difficulty of stimulus/source material

No issues were found regarding the level of difficulty of the stimuli or source material for any of the papers analysed. Where the stimuli were challenging, this was appropriate to the intention of the question. This issue is not very relevant to Physical Sciences examinations which tend to have limited text.

1.9.7 Comparability of examination papers

The results of the examination analysis are shown below for each of the papers, and for the combinations of the papers. We represented the information graphically, as this clearly allows the comparisons to be seen.

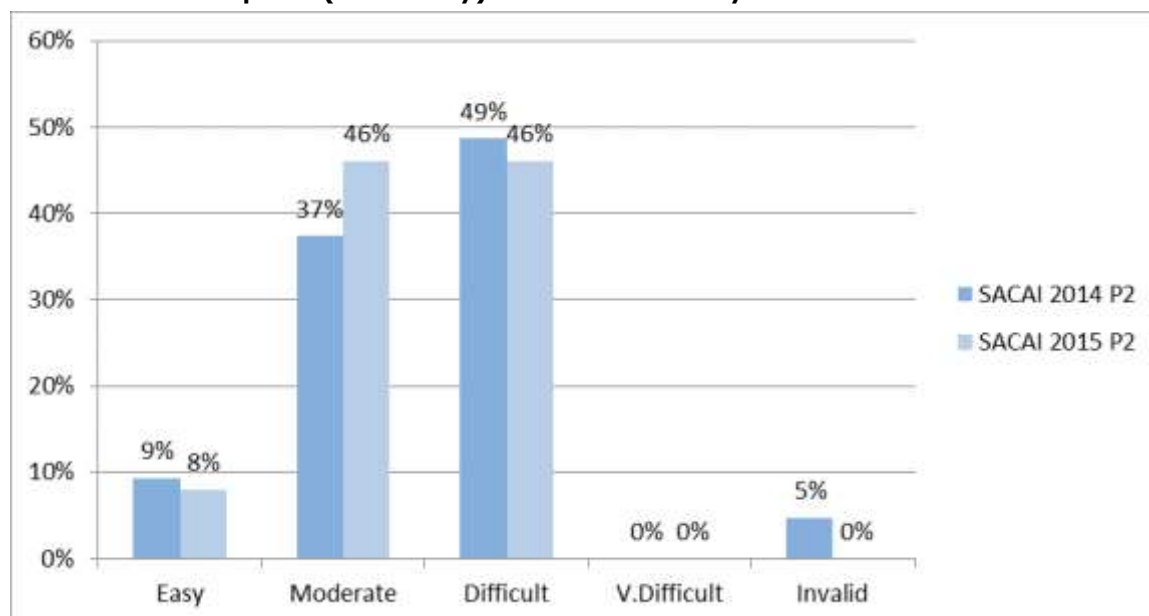
1.9.7.1 SACAI Paper 1 (Physics) Levels of Difficulty:



Regarding the standard of the 2015 Paper 1:

- The data shows that the 2015 November Paper 1 is more difficult than the 2014 paper. This is evidenced by:
 - The significant increase of “Very Difficult” questions from 2% in 2014 to 18% in 2015
 - The drop in percentage of “Easy” questions from 7% in 2014 to 3% in 2015 and the drop in percentage of “Moderate” questions from 56% to 46%.
- This suggests that learners will experience the Physical Sciences November Paper 1 as more challenging than the 2014 paper.

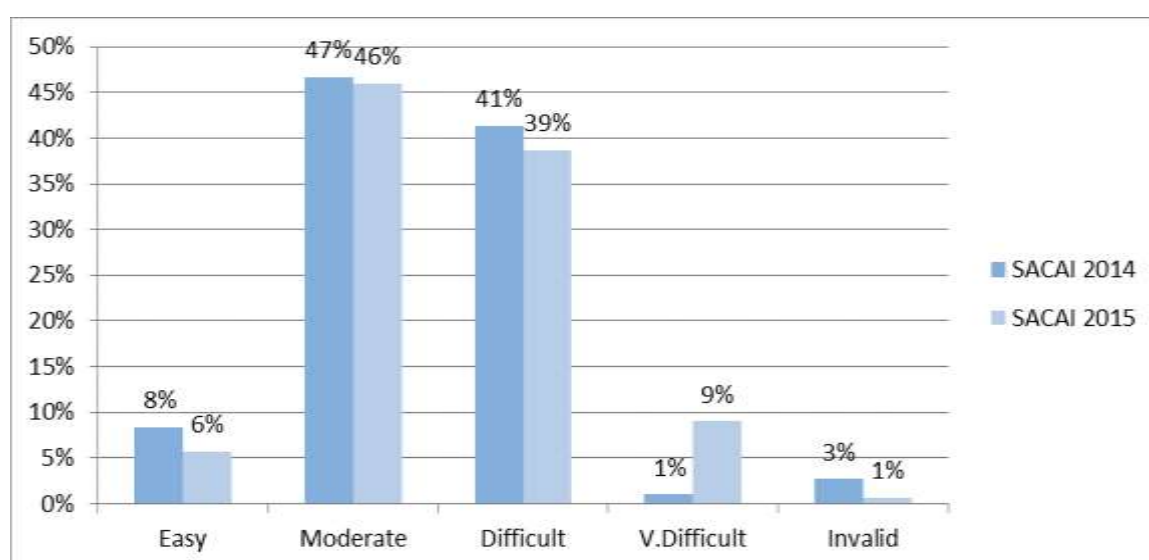
1.9.7.2 SACAI Paper 2 (Chemistry) Levels of Difficulty:



Regarding the standard of the 2015 Paper 2:

- The data shows that the 2015 November Paper 2 is slightly easier than the 2014 paper, but not significantly so.
- This suggests that learners will experience the 2015 Physical Sciences November Paper 2 as having a similar challenge to the 2014 paper.

1.9.7.3 Combined Paper 1 and Paper 2: Levels of Difficulty



Regarding the standard of the November Combined Physical Sciences Examination:

- The November exam has a higher overall percentage of “Very Difficult” questions (9% compared with 1% for 2014), at the expense of all of the other difficulty levels.
- In addition, the overall difficulty rating of the 2015 examination was found to be 2.51, which is greater than that for 2014 (2.36).
- This suggests that learners will experience the combined 2015 Physical Sciences November Papers 1 and 2 as more challenging than the 2014 examinations.

This information is summarized in Table 7 below for the November paper:

Table 7 – Rating the standard of the 2015 paper(s) against each of the other papers		
Paper	2015 November P1	2015 November P2
SACAI P1 2014	More demanding	
SACAI P2 2014		Similar demand
Combined P1 & P2 2014	November 2015 is more demanding	

1.9.8 Concluding discussion

The percentage of marks readily available to the 30% passing candidate was determined as follows:

- 100% of the marks in the “Easy” category + 50% of the marks in the “Moderate” category, expressed as a percentage of the overall marks.

The percentage of marks readily available to the 80% candidate was determined as follows:

- 100% of the marks in the “Easy” category + 100% of the marks in the “Moderate” category + 75% of the marks in the “Difficult” category, expressed as a percentage of the overall marks.

Table 8 below reflects these marks for all papers under evaluation:

Table 8 – Marks achievable by sets of candidates

	Marks achievable by 30% passing candidate	Marks achievable by 80% candidate
Paper 1		
SACAI 2014 P1	35.3%	88.8%
SACAI 2015 P1	26.3%	72.8%
Paper 2		
SACAI 2014 P2	28.0%	83.2%
SACAI 2015 P2	31.0%	88.5%
Paper 1&2		
SACAI 2014	31.7%	86.0%
SACAI 2015	28.7%	80.7%

The following comments are made about these:

- In the 2015 November Paper 1 a slightly lower percentage of marks is accessible to the 30% passing candidate than in 2014. For the 2015 November Paper 2 the percentage is slightly higher than in 2014.
- Similarly, in the 2015 November Paper 1 a lower percentage of marks is readily accessible to the 80% candidate than in 2014, while the percentage is higher for Paper 2.
- For the combined papers the 2015 November paper is more difficult for the 30% than the 2014 papers.
- Similarly there is a lower percentage of readily available marks for the 80% candidate in the combined November 2015 papers.

1.9.9 Recommendations for improving the quality and standard of the examinations

The following recommendations are made:

- The current taxonomy given in the CAPS does not allow for discrimination of difficulty levels of questions, and therefore is not a useful tool for guiding the standard of the examination.
- Some guidelines for the acceptable distribution of percentages for the levels of difficulty of the examinations should be established to set a benchmark to guide the required standards of a Grade 12 exit level examination. This will

ensure a greater continuity in the standard, and allow for the proper discrimination of levels of learner attainment.

Appendices

Appendix A: Umalusi examination analysis tool

C1	C2	C3	C4	C5	C7	C8
Item	Marks	Content / topic / skill	Type of cognitive demand (1,2,3,4,OR 5)	Difficulty level (1, 2 3, 4 OR ID)	Identify and list the main source/s of difficulty (Levels 3 or 4) (i.e. Content, Stimulus, Task and/or Expected Response)	Make a note justifying levels 3 or 4 difficulty or Invalid rating. Also make a note here if there are any unresolved differences in ratings and opinions between individual evaluators.
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
1.10						
1.11						
1.12						
Total						

(Add as many rows as necessary)

Appendix B: Typology of cognitive demand

Level of cognitive demand	Type of cognitive demand	Explanation of categorization. Question which require students:	Examples
Lower order processes	1. Recognize or recall	To locate, identify and retrieve any kind of explicitly stated information, ideas, facts or details in reading material provided, or from memory of previously learned or read material (for example, names of places), and recognition of the relevance of the information, ideas, facts or details in relation to the question	<p>The contextual questions on Shakespeare's drama Romeo and Juliet:</p> <p>Complete the following sentence by filling in the missing words. Write down only the question number and the words.</p> <p>Juliet sends the Nurse to Friar Lawrence's cell to take Romeo a ... and tell him to come to her that night and say ...</p> <p>The comprehension question: Give two reasons why children become overweight. Refer to paragraph 3 (of the given passage).</p>
	2. Apply or reorganize	To use or apply a basic procedure (for example, a basic grammatical rule), to replicate a model or version (for example, a basic visual representation, a report, memo, invitation in a highly scaffolded way where students have to recreate rather than create), or to reorganize explicitly stated information , ideas, facts or details from reading material or from memory of previously	<p>Rewrite the following sentence in the passive voice starting with the given word: The 18-year-old had developed an illness causing paralysis. Start with: An ...</p> <p>Rewrite the following sentence so that it is grammatically correct. 'When wearing their apparently sprayed-on outfits, it gives them a false sense of being stylish.'</p>

		learned or read material in a different way or form from what was presented (for example, to sort, classify, match, categorize, compare, contrast, summarise or paraphrase, or consolidate explicitly stated information, ideas, facts or details.)	
Medium order processes	3. Infer, interpret or analyse	To engage in more abstract (inferential) reasoning and interpretation , and use conjecture, background knowledge, clues or implicit information , ideas, facts or details in reading material provided or from memory of previously learned or read material as a basis of forming hypotheses, interpreting, inferring or analysing details, relationships or ideas (for example, the significance of a theme, the motivation or nature of a character) which are not explicitly stated in reading or other source material	<p>The contextual questions on Shakespeare's drama Romeo and Juliet: Juliet sends the Nurse to Romeo. What does this show the audience about the relationship between Juliet and the Nurse?</p> <p>The question on an extract from the novel Animal Farm: Refer to lines 12–13: 'the animals <u>crept silently</u> away.' What do the underlined words convey about the animals' feelings at this stage of the novel?</p>
Higher order processes	4. Evaluate or appreciate	To make critical judgement (for example, on qualities of accuracy, consistency, acceptability, desirability, worth or probability) using criteria provided by other sources or authorities, or students' own values, experiences, or background	<p>The question on a Madam and Eve cartoon: The cartoonist does not show the mother-in-law in any of the frames. Do you think that this is an effective technique? Justify your response.</p> <p>The question on an unseen</p>

		<p>knowledge of the subject</p> <p>To show emotional and aesthetic or literary sensitivity or a reaction to the worth of psychological and artistic elements of reading material (including literary techniques, language, forms, styles, and structuring). (For example, commenting on the effectiveness of a poetic device or image).</p>	<p>poem, An Abandoned Bundle by M. O. Mtshali: Discuss how the poet employs diction and imagery to reveal his state of mind to readers.</p>
	<p>5.</p> <p>Synthesise or create</p>	<p>To integrate ideas and information and relate parts of material, ideas, or information to one another and to an overall structure or purpose in a way that is relational.</p> <p>To engage in original creative thought and design and put elements together to form a coherent whole and make a new or unique product showing emotional, aesthetic or literary sensitivity</p>	<p>You are selling a second-hand item (e.g. a Walkman, a CD player, an item of clothing). Create an advertisement which will be placed on the notice board at school.</p> <p>Write an essay of between 250 and 300 words titled 'As I looked at that photograph...'</p>

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