Physical Education

2011 Assessment Report

Government of South Australia

SACE Board of SA

PHYSICAL EDUCATION

2011 ASSESSMENT REPORT

OVERVIEW

Assessment reports give an overview of how students performed in the school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, the quality of student performance, and any relevant statistical information.

SCHOOL ASSESSMENT

Assessment Type 1: Practical

Schools completed similar practical choices as in previous years, with badminton, volleyball, and aquatic practicals the most popular.

Some schools with more than one class undertook an active role in comparing students across classes within the school before moderation took place. This has resulted in more consistency between classes in the same school. This intra-school discussion about practical marks ensures reliability within the school context and is an excellent way for teachers to gain a better understanding of the assessment of the practicals.

This year, in comparison to 2010, teachers were more aware of the need to submit their preferred dates for Assessment Type 1: Practical by the due date, which enabled the early appointment of moderators to schools.

Teachers need to be aware that the purpose of final moderation (on site) is to confirm teachers' marks and to ensure equitable assessment for all students. Moderators play an important role by moderating practical classes following benchmarking activities to ensure the validity and reliability of the assessment process.

Schools continued to offer a balance of centrally developed practical options to cater for the skills, interests, and needs of students. This practice ensures that students can maximise opportunities for success in Assessment Type 1: Practical. A small number of schools completed class-negotiated practicals.

There were a smaller number of individual negotiated practical applications this year. Teachers recognised that students who undertake a negotiated practical only complete two school practicals. There were two main issues: late applications for approval and inappropriate allocation of grades to students from a coach compared to the allocation of a grade based on the performance standards. Teachers are reminded that they are ultimately responsible for the student's allocated grade in a negotiated practical, with reference to the performance standards.

Teachers are reminded that it is expected that students will be able to complete three practicals when they start the course.

The majority of students achieved performance in the A and B grade levels. The most successful consistently demonstrated a high level of proficiency in the performance of physical activities and displayed accurate interpretation and application of skills, concepts, ideas, strategies, and techniques in practical applications. Further, they were proactive in demonstrating initiative, self-reliance, and leadership, demonstrating constructive and confident collaboration in team situations.

The students who demonstrated specific features from separate grade bands were often highly proficient in the execution of their skills, but performance was more consistent with capable or competent interpretation and active application of concepts, ideas, and strategies.

Students should be given opportunities to perform at all levels of the performance standards, particularly demonstrating initiative and collaboration through class-based activities. Students who were given tasks such as organising and leading warm-up games and class-based sessions, or constructing new drills and tasks, were able to achieve at the highest level. Some of the higher performance from students was also evidenced in the ability to solve problems in technical and tactical situations and to communicate solutions to peers.

Teachers were generally well prepared for final moderation (on site). Teachers should be aware that student performance must be sighted in two practicals. A few schools offered a wide range of practical alternatives for students to choose from, but this meant that it was not practical to view all of them at practical moderation. A document called 'Guidelines for Selecting Practicals' will be available on the SACE website at the beginning of 2012. This is a valuable source of information for teachers to guide their selection of practicals.

Teachers utilised and provided a variety of specific skills criteria checklists as evidence of specific features against the performance standards. It must be noted that the number of specific skills criteria for the practical skills and application is greater than the specific skills criteria for initiative and collaboration. This is important in determining the overall grade for each practical. Teachers should also be aware that the SACE coordinator or school representative must also sign off on the mauve practical results sheets prior to on-site moderation.

Assessment Type 2: Folio

Teachers provided a range of between three and six tasks, to address the performance standards. At least two of these assessments should be integrated tasks that bring together the knowledge of terms and concepts from 'Principles and Issues' together with the knowledge and skills developed in the practicals. Integrated tasks should only be a maximum of 1000 words if written or a maximum of 6 minutes for an oral presentation, or the equivalent in multimodal form. Some students went over the word-limit this year.

Task design should allow opportunities for students to provide evidence of learning at the highest level of achievement. On many occasions, tasks did not explicitly address the specific features to allow opportunity for critical analysis and evaluation. Student responses often demonstrated in-depth knowledge and informed understanding of physical education concepts, but did not challenge students to respond with thorough and insightful critical analysis of principles and concepts. Some tasks attempted to assess too much content, therefore limiting the depth of students' responses.

Tasks that made use of data analysis and application of principles and issues, reducing the focus from knowledge and understanding of terminology, allowed students to achieve at the higher levels of the performance standards. Assessment tasks should be explicit in identifying the need to acknowledge sources. The most effective tasks were thorough and focused in using information from different sources, with appropriate acknowledgement.

In situations where tests are used as evidence against the performance standards, the questions should range in difficulty from ones that identify knowledge and understanding to more challenging ones requiring application and critical analysis of concepts.

Additionally, if past examination questions are used in tests, it is advisable for the data, context statement, or direct questions to be modified to ensure reliability of the test result. In the same way, it is recommended that the same test question is not repeated if more than one test is used.

The issues analysis allowed students the opportunity to demonstrate critical analysis and evaluation of an issue relevant to local, regional, or global communities. Students who performed well demonstrated highly discerning and perceptive critical analysis of an issue, with insightful evaluation and discussion of source material. It should be noted that students must explore an issue that focuses on human physical activity. It is recommended that students who present oral presentations should also submit a script or hard copy of the PowerPoint or presentation for final moderation. Teachers should note the advice on submitting electronic files that is in the subject operational information for Physical Education (see the subject page on the SACE website, www.sace.sa.edu.au).

School assessments should clearly identify assessment design criteria and specific features. Task sheets and performance standards attached to individual student work enable moderators to confirm teachers' assessment more readily. Teachers should ensure that an addendum to the learning and assessment plan is included in the final package if there has been a change to the original plan.

EXTERNAL ASSESSMENT

Assessment Type 3: Examination

The mean mark for 2011, of 50.1% was significantly lower than the mean mark achieved in 2010.

The change from multiple-choice to short-answer questions as part of the examination format may have contributed to this difference. However, this year students found it challenging to accurately interpret questions and show their understanding and analysis of the concepts, particularly Energy and Biomechanics.

In general, 2 marks are awarded for one well-expressed piece of information. For a question worth 3 marks there is usually an expectation that students will use specific terms, or that they must apply a relevant and connected piece of information. Students should also endeavour to use the specific language of the subject in all their responses.

Teachers and students are reminded of the following:

- Students should practise reading the question carefully and heeding the instructions that accompany the questions. Many students appear to misunderstand the question. This indicates the need for more practice in the interpretation of examination questions using past examination papers that are available on the SACE website (www.sace.sa.edu.au).
- Students are encouraged to read the question carefully to ensure that their responses are relevant to the question asked.
- Students should be familiar with the requirements implied by the words used in the SACE Board examinations; for example, 'explain', 'state', or 'describe'.
- Successful students are able to use contextual information included in the question stem to help in gaining an understanding of the question.
- Examinations contain visual information, for example, tables, graphs, and diagrams. Students should be well practised in using these. Students should be able to interpret and manipulate data from tables and graphs. These skills are necessary to use as evidence in the application of concepts from the scope in sporting situations.
- Students should be able to use the specific terms found in the subject outline. Most students should become more familiar with the common terms used in the scope section of the subject outline.
- Some students need to develop their understanding of the terms 'acute' and 'chronic' in relation to physiological responses to aerobic and anaerobic training, and with the concept of the interplay of energy systems. Many students do not recognise the smooth blending and overlap of systems when analysing energy contributions in an activity.
- There is also a concern about the level of understanding students have of the terminology used in skills acquisition.

Section A of Part 1

Question 1

The mean mark for this question was 5.60 from a maximum of 10 marks.

Nearly all students were able to answer some parts of the question. The most common error occurred because the student response did not include a relevant sporting example.

In part 1 (c) (i) some students who chose 'specific' as a goal-setting requirement confused the concept with the training principle 'specificity'.

Part 1 (c) (ii) indicated some confusion with terminology, especially in the application of kinaesthetic feedback to aid performance and eliminate errors.

Question 2

The mean mark for this question was 14.62 from a maximum of 24 marks.

Overall most students achieved success, although perhaps not gaining full marks for their responses. This was a long question and combined the concepts of fitness factors, training, energy, psychology, skill, and Biomechanics.

Students seem to be competent in their application of fitness factors to specific activities. In this question students were mostly able to use the data provided as evidence of their statements.

Students demonstrated that they found question 2 part (d) quite challenging. Responses that did not show how the suggested training method improved the performance of the fast bowler were not awarded full marks. Some students successfully stated that short interval training could improve the speed of the bowler's run-up and therefore increase the final momentum translated into maximal velocity for the release of the bowl. (Summation of forces.)

Question 2 (e) showed that most students had some appreciation of the use of the information from the table to verify when the Creatin Phosphate or aerobic energy system would have the highest contribution to energy. Most students used the 'distance sprinting in to bowl' as an example of the Creatin Phosphate system and 'jogging 6 km' as an example of the Aerobic system.

Parts 2 (g) and (h) indicated that there is confusion with the skill terminology. Many responses did not decipher the difference between signal detection and selective attention. The most effective responses clearly explained the effect on performance, such as improvement in decision making, possible increased accuracy and speed of response, and reduction in processing time when selective attention and signal detection were improved.

Answers to question 2 (h) (i) were generally disappointing. The application of Biomechanical principles to enhance performance is obviously not well understood by a large majority of students. Some students were able to identify a Biomechanical factor but were not awarded full marks as their responses did not clearly explain the relationship between improvement and bowling speed. Although any Biomechanical factor could have been used, most students used one aspect of Projectile Motion to explain how changes to speed of release could be maximised. Full marks for this part of the question were also awarded for explanations relating to angular velocity using the example of straightening the bowlers arm to increase the length of the lever and consequent increase in speed at the distal end which would increase the velocity of the ball release.

Question 3

The mean mark for this question was 7.55 from a maximum of 14 marks.

Most responses indicated a sound understanding of steady state and were able to correctly identify this parameter from the graph.

Question 3 (c) was not well answered overall, and only a few students correctly identified the required response. The majority of students scored 2 marks for this question. A few students correctly used all the information from the graph. Many student responses did not clearly explain, using the data, the changes in *energy contribution* between minutes 3 and 7. The more accurate responses correctly noted low heart rate on the graph at minutes 3 to 4, an indication of intensity, and stated that the aerobic system was able to provide a high contribution of the required energy at this stage. From approximately minute 4 to minute 6 there is a quick rise in heart rate to just below 160 bpm, which is still at a submaximal level, and the 18 year old reaches steady state again. Some students were able to explain that as the exercise intensity changed the increased demand for ATP could be provided by an increased Aerobic contribution with Anaerobic glycolysis increasing in contribution to meet the total demand required by the quick change of intensity.

3 (d). Most students were able to identify a relevant acute response such as an increase in heart rate, blood flow, or stroke volume and the likely effect, such as increased oxygen to the muscles.

3 (e). The shaded area F in the graph was well recognised as EPOC (excess post-exercise oxygen consumption) and most students were able to explain that an endurance training program would be likely to increase the speed of recovery and hence show a steeper decrease in heart rate as indicated in the shaded area F.

Question 4

The mean mark for this question was 5.00 from a maximum of 10 marks.

This indicated students had some appreciation of the concept of $VO_{2\ maximum}$. However, the relationship between improvements to $VO_{2\ maximum}$ and training adaptations appears less well understood.

4 (b) The most successful responses explained the improvement to $VO_{2\ maximum}$ from adaptations, such as cardiac output, minute ventilation, increased AVO_2 difference, caplliarisation, increased red blood cells, and lung diffusion, which allow a trained athlete to take up and utilise more oxygen than an untrained athlete.

Few students were awarded full marks for question 4 (b). A common error for students was to discuss Vital Capacity and lung volumes and they were unable to link oxygen utilisation with increases in MVO_2.

4 (c). It appears that students were confused by the measurements listed. Full marks were awarded when the response explained the importance of mass to compare the volumes of oxygen absorbed and utilised by the cells in the individual. A common error was to suggest that measurement in millilitres is more precise, which did not directly relate to the required response.

4 (d). A significant number of students were allocated 2 marks for this part. Many students were unable to specifically relate increasing oxygen availability or the increased level of OBLA to the delay of fatigue. However, other appropriate responses were accepted including an increase in strength and power, which can allow sustained intensity and delay slowing by the athlete.

Section B of Part 1

Question 5

The mean mark for this question was 5.9 from a maximum of 10 marks.

Overall question 5 was well answered, with nearly half of the students providing a correct response. The concept of fatigue was new to the examination in 2011 and appears to be well understood. Some responses reiterated the cause of fatigue and did not clearly explain the relationship between a reduction in fatigue and training adaptations or the training method stated.

Question 6

The mean mark for this question was 9.2 from a maximum of 18 marks.

Most parts of question 6 were answered with some success. Students were able to show a clear understanding of training methods and principles in their responses.

Part 6 (d) proved challenging for some students. The less successful responses did not explain that strength can improve performance through increasing power and hence speed, or that increasing muscle fibre recruitment can increase the force of contractions with resulting increases in muscle power and speed. Some students were awarded marks for explaining the increasing size of the muscle fibre and cross-sectional area of the muscle, which can also contribute to speed and delay fatigue.

Question 7

The mean mark for this question was 3.1 from a maximum of 6 marks.

Question 7 was one of the best-answered questions, with a significant number of responses awarded full marks.

Part 7 (b) (ii) required students to give a physiological cause of the change in systolic blood pressure, such as increasing cardiac output, increasing stroke volume, vasoconstriction of blood vessels in non working areas of the body, or increases in friction in the arteries.

Question 8

The mean mark for this question was 2.10 from a maximum of 7 marks.

This was the least successfully completed question in the examination. It is clear that students need to extend their understanding of the concepts of Biomechanics, specifically summation of force, and of the application of these concepts to sporting contexts.

Many students gained only 1 mark for 8 (b) because they gave an accurate response without using correct terminology. Responses which gained full marks clearly explained that the correct timing of the action in Diagram 1 would maximise summation of force. Each body part moves at or near-peak velocity of the previous body part, to maximise the velocity the body produces.

Part 8 (c) showed that a significant number of students were unable to apply the principles of summation of force to errors in technique in a sporting context. Common errors included explanations about sporting outcomes such as ‘hitting the tennis ball out of court’ because of too much force, rather than problems occurring because of timing or using all muscle groups.

Question 9

The mean mark for this question was 6.1 from a maximum of 11 marks.

A significant number of students understood the characteristics of the autonomous learner and were able to use appropriate terminology.

In part 9 (b) the most common error occurred when no relevant sporting example was given.

Part 2: Extended-response Question

The mean mark for the extended-response question was 4.35 from a maximum of 10 marks.

The overall number of students attempting this question and the accuracy of the response improved in comparison to 2010.

High marks were awarded to responses that used the data provided to explain accurately the interplay of energy contributions of the referee. Significant information was given, both in the graph and in the contextual statements, for students to use as evidence.

For example, high marks were awarded to relevant responses that related the changing energy contributions to the level of the spiking heart rate, the time component from the graph, the age of the referee, and the description of the activities performed.

Most students recognised the submaximal efforts of the referee as mostly using the aerobic energy system, although the role of the aerobic energy system in the replenishment of the ATP–PC system was largely overlooked. There was a common error: the fact that the repeated long sprints required anaerobic energy from the lactic energy system and not simply the ATP–PC system.

It appears that many students do not understand the interplay of the energy systems, and so incorrectly describe one system operating after the other rather than all systems providing some energy, the level of energy contribution depending on the intensity and duration of the activity. There is a blending and overlap of one energy system over another.

Some students explained the energy contributions during the warm-up. However, only the more explicit responses were able to relate this correctly to energy supply at the start of the game, indicating that a warm-up would increase blood flow to the working muscle and therefore allow improved aerobic energy supply at the beginning of the game. Students who used appropriate terminology in their response were awarded full marks.

Chief Assessor
Physical Education