Research technique: Multimodal presentation

This sample is intended to inform the design of assessment instruments in the senior phase of learning. It highlights the qualities of student work and the match to the syllabus standards.

Dimensions assessed

- Acquiring
- Applying
- Evaluating

Assessment instrument

The response presented in this sample is in response to a research task, presented as a multimodal feature article.

Comments	Context
The context describes the integration of the physical activity and focus area The task relates to students' personal experiences in netball, which allows for personalisation in the response The task provides opportunities to demonstrate the general objectives of the acquiring, applying and evaluating dimensions	In this netball unit, you have acquired knowledge about energy systems, training principles and training methods. As part of a team, use this knowledge to design and implement a single, 50-minute netball training session. The training session should: • develop the skills, tactics and fitness of your team • include 20 minutes of game play • be appropriate for the early competition phase of training • apply the principles of specificity and individuality. As a netball enthusiast, you have discovered a website that allows you to post information on netball training. After reviewing the links on the page you believe the training session your team has designed could be offered as an example of a quality netball-specific training session. **Task** Use the data you collected through your participation in a 50-minute netball training session, to evaluate the effectiveness of two consecutive training activities. Justify the effectiveness of the activities using the principles of individuality and specificity. Present your response through a multimodal feature article. Evidence of your primary and/or secondary data collected through research and personal reflections should be included in your article.

A multimodal feature article will: • combine at least two modes with a significant contribution of at least two modes • be presented to the teacher on disc or sent as a file • allow students to choose the modes and the method of presentation • not be required to be performed in front of the class or teacher. Appropriate textual features for written and spoken modes of communication	**Conditions** Genre: Feature article — analytical exposition Audience: Netball coaches or players Length: 1000–1500 words (combination of written and visual modes with significant contribution of the two modes of communication) Presentation: Multimodal Teacher assistance: One draft permitted. **Task guidelines** This independent research instrument requires you to gather primary data on two consecutive drills/activities in your netball training session. Collected data should include: • training session design, such as work: rest ratios, drill intensities, distances, duration and frequencies • diagrams or visual recording to depict drill and activity design • session phase (you may select the warm-up, game play or cool down sections of the training program as one of your two drills to investigate) • heart rates and anecdotal notes taken at two-minute intervals to help assist your group in refining and improving your training session. The full 50-minute training session will be implemented twice during physical education lessons. The first training session will be followed by a short refining period before the training session is implemented again. Your sessions will also be video recorded to assist with the visual mode of your presentation. Where appropriate your feature article will provide links to footage, still photos, graphs and diagrams which enhance the written words of the article. **Preparing and presenting your feature article** Construct a multimodal feature article using appropriate textual features. Each mode of communication should include components of text suitable to the context according to purpose and genre. Written features include: cohesion, clause and sentence structure, grammar, vocabulary, paragraphing, punctuation and spelling. Visual or auditory features include: layout of aural or print resources such as graphs and diagrams and video clips.

Instrument-specific criteria and standards

Student responses have been matched to instrument-specific criteria and standards; those which best describe the student work in this sample are shown below. For more information about the syllabus dimensions and standards descriptors, see www.qsa.qld.edu.au/11366.html.

Note: Colour highlights have been used in the table to emphasise the qualities that discriminate between the standards.

	Standard A
Acquiring	The student work has the following characteristics: • in-depth comprehension of a wide range of terminologies, principles and concepts relevant to both training and exercise and netball • sustained and accurate use of appropriate analytical and multimodal textual features.
Applying	The student work has the following characteristics: • insightful, independent and appropriate analysis and application of training, exercise and netball information • purposeful and effective selection, sequencing and organisation of relevant and substantial training, exercise and netball subject matter.
Evaluating	The student work has the following characteristics: • discerning, convincingly justified and independent evaluations, solutions and recommendations concerning the training and exercise for improved netball performance • discerning and effective choice of communication strategies to enhance meaning and impact of the multimodal.

Note: Colour highlights have been used in the table to emphasise the qualities that discriminate between the standards.

Key: Cognitive words
Quality words
Instrument-specific language

A bibliography has not been included with the annotated student response.

Student response — Standard A

The annotations show the match to the instrument-specific standards.

The response includes sections from the student response. They are annotated to show the qualities of work that match aspects of the A standard. Video footage cannot be viewed.

Comments

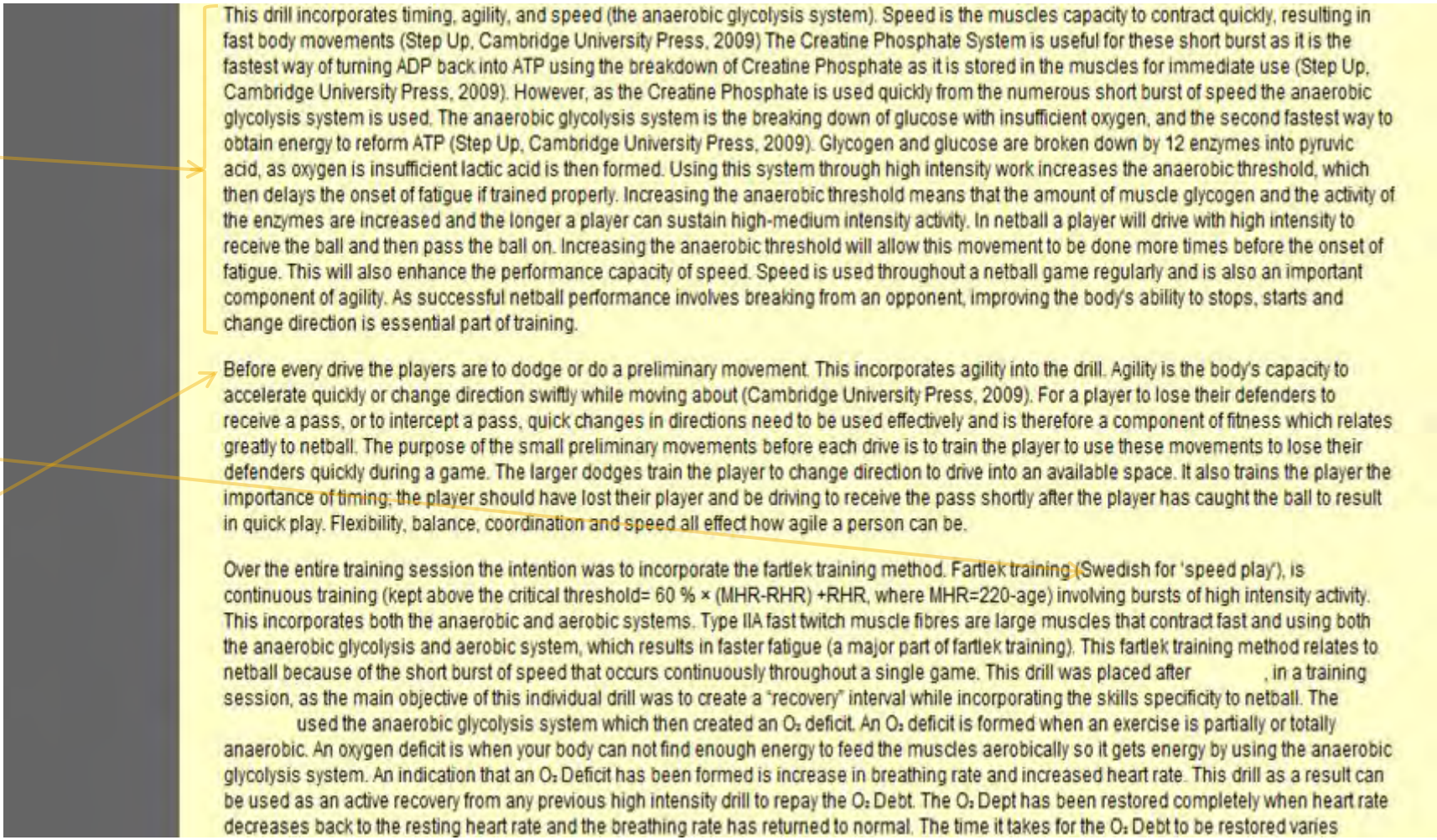
Sustained and accurate use of appropriate textual features of a multimodal feature article

Purposeful and effective selection, sequencing and organisation of information relevant to the selected netball drill and the effects of training

Comments

In-depth comprehension of a wide range of terminologies, principles and concepts relevant to the processes and effects of training and netball

Insightful, independent and appropriate analysis and application of information related to Netball and the effects of training



This drill incorporates timing, agility, and speed (the anaerobic glycolysis system). Speed is the muscles capacity to contract quickly, resulting in fast body movements (Step Up, Cambridge University Press, 2009) The Creatine Phosphate System is useful for these short burst as it is the fastest way of turning ADP back into ATP using the breakdown of Creatine Phosphate as it is stored in the muscles for immediate use (Step Up, Cambridge University Press, 2009). However, as the Creatine Phosphate is used quickly from the numerous short burst of speed the anaerobic glycolysis system is used. The anaerobic glycolysis system is the breaking down of glucose with insufficient oxygen, and the second fastest way to obtain energy to reform ATP (Step Up, Cambridge University Press, 2009). Glycogen and glucose are broken down by 12 enzymes into pyruvic acid, as oxygen is insufficient lactic acid is then formed. Using this system through high intensity work increases the anaerobic threshold, which then delays the onset of fatigue if trained properly. Increasing the anaerobic threshold means that the amount of muscle glycogen and the activity of the enzymes are increased and the longer a player can sustain high-medium intensity activity. In netball a player will drive with high intensity to receive the ball and then pass the ball on. Increasing the anaerobic threshold will allow this movement to be done more times before the onset of fatigue. This will also enhance the performance capacity of speed. Speed is used throughout a netball game regularly and is also an important component of agility. As successful netball performance involves breaking from an opponent, improving the body's ability to stops, starts and change direction is essential part of training.

Before every drive the players are to dodge or do a preliminary movement. This incorporates agility into the drill. Agility is the body's capacity to accelerate quickly or change direction swiftly while moving about (Cambridge University Press, 2009). For a player to lose their defenders to receive a pass, or to intercept a pass, quick changes in directions need to be used effectively and is therefore a component of fitness which relates greatly to netball. The purpose of the small preliminary movements before each drive is to train the player to use these movements to lose their defenders quickly during a game. The larger dodges train the player to change direction to drive into an available space. It also trains the player the importance of timing; the player should have lost their player and be driving to receive the pass shortly after the player has caught the ball to result in quick play. Flexibility, balance, coordination and speed all effect how agile a person can be.

Over the entire training session the intention was to incorporate the fartlek training method. Fartlek training (Swedish for 'speed play'), is continuous training (kept above the critical threshold= 60 % × (MHR-RHR) +RHR, where MHR=220-age) involving bursts of high intensity activity. This incorporates both the anaerobic and aerobic systems. Type IIA fast twitch muscle fibres are large muscles that contract fast and using both the anaerobic glycolysis and aerobic system, which results in faster fatigue (a major part of fartlek training). This fartlek training method relates to netball because of the short burst of speed that occurs continuously throughout a single game. This drill was placed after , in a training session, as the main objective of this individual drill was to create a "recovery" interval while incorporating the skills specificity to netball. The used the anaerobic glycolysis system which then created an O_2 deficit. An O_2 deficit is formed when an exercise is partially or totally anaerobic. An oxygen deficit is when your body can not find enough energy to feed the muscles aerobically so it gets energy by using the anaerobic glycolysis system. An indication that an O_2 Deficit has been formed is increase in breathing rate and increased heart rate. This drill as a result can be used as an active recovery from any previous high intensity drill to repay the O_2 Debt. The O_2 Dept has been restored completely when heart rate decreases back to the resting heart rate and the breathing rate has returned to normal. The time it takes for the O_2 Debt to be restored varies

Some words and names have been deleted in the process of publishing the student response.

Comments

Discerning, convincingly justified and independent evaluations, solutions and recommendations concerning the effectiveness of the netball timing drill

Discerning and effective choice of communication strategies to enhance meaning and impact using visual and written features.

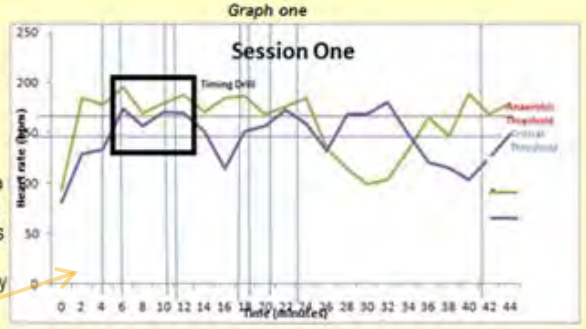
SESSION ONE

During this timing drill only stayed above her critical threshold (150bpm) and maintained this for the whole 4 minutes 30 seconds (*see graph one*). Looking at heart rate it can be seen that it drops to around 120bpm before rising again. An explanation for these results may be that the rest period before the timing drill (after the) was too long allowing for his heart rate to drop, or that the drill was too easy for his ability levels. As plays soccer his anaerobic and aerobic capacities are already established. This drill was meant as an active recovery session with everyone's heart rates to be kept above the critical threshold to have a training benefit. Personally, my heart rate lowered considerably throughout this drill and as a result received little to no training benefit. The created fatigue in my legs, and I was short of breath proving the success of that drill in creating an O_2 Deficit. After the rest break I had caught my breath, lowering my heart rate, repaying my O_2 Dept. Having had played netball before and training with players that hadn't I had to train to their ability in order for the timing drill to be performed accurately. As the same as my anaerobic and aerobic capacities are already established from playing netball outside of physical education. This drill did not allow for individuality which affected both and I. The lack of practise of this drill meant that instead of driving hard onto the ball with medium i

ntensity and adding in preliminary movements, the players were concentrating on what to do and where to go. The drill was simply too complex for the beginner netballers.

Video two (right click, play)

Graph one

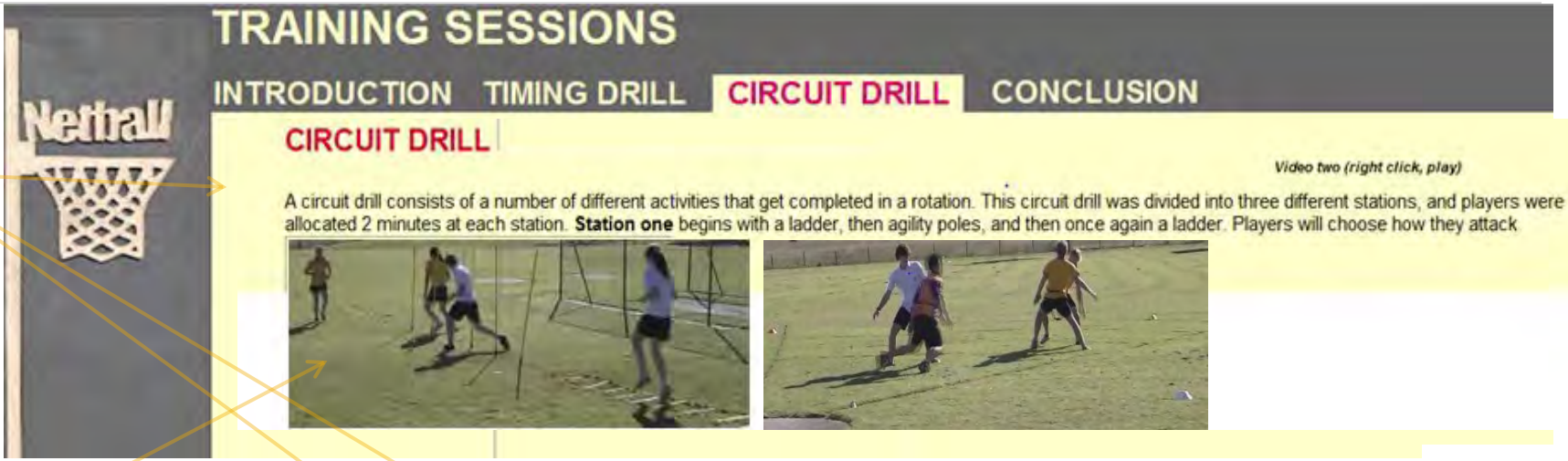


It is predicted that if we were to continue with this timing drill the players critical and anaerobic thresholds would increase as the drill would become more fluent and less rest periods would result. To result in further training benefit we need to use 'progressive overload'. Our body adapts to the strains we place on it (fitness improves) so we are able to sustain these strains. Progressive overload is making the training drill harder by changing the frequency, intensity or duration. This timing drill could be made more difficult by making the drives larger (greater distance) or making the drill go for a longer time.

Comments

In-depth comprehension of a wide range of terminologies, principles and concepts relevant to the processes and effects of training and netball

Discerning and effective choice of communication strategies to enhance meaning and impact using visual and written features



A circuit drill is designed to simultaneously target a diverse range of systems specific to netball by incorporating components of fitness that relate to netball. In this circuit drill the components of fitness involved are agility, speed, the anaerobic glycolysis system, coordination, balance, muscular endurance and muscular strength. As well as specificity, this cir drill also allows for individuality as all stations are completed at the players individual abilities.

Station one incorporates agility. Agility is the body's capacity to accelerate quickly or change direction swiftly while moving about (Cambridge University Press, 2009). The small feet movements through the ladder and the weaving movement through the poles a involve agility. These small controlled feet movements relate to netball as in a game players can use these small movements to ge around other players quickly when necessary (both defending and attacking).

Station two also involves agility as without agility the attacker would not be able to get away and the defender would not keep up. This exercise doesn't just improve the player's agility but also puts netball into play. As players are trying to get away or stick to the other player this relates to a netball situation. This c also incorporates speed. Speed is your muscles capacity to contract quickly resulting in fast body movements (Step Up, Cambridge University Press, 2009 Speed is a part of agility. These two stations are designed to improve the players' agility. The more agile a netball player is the more fluent and quick a netba game is, and the easier it is for a player to receive an un-intercepted pass or to intercept/ defend their opponents.

Comments

Insightful, independent and appropriate analysis and application of information related to netball and the effects of training (using visual and written modes to enhance meaning and impact)

SESSION ONE

During this drill was able to maintain above her anaerobic threshold which meant that her body produced lactic acid, resulting in a training effect (improving the anaerobic system). heart rate however took a quick dive and took a while to get back up *(see graph one)*. This may be a result of soccer experience as soccer incorporates many of the same fitness components as netball. Soccer uses both anaerobic and aerobic capacities which may mean capacities are already established thus the only way he can benefit is to use progressive overload (increasing the difficulty; intensity). During the agility belts station heart rate did remain above the critical threshold however when he began the resistance station his heart rate dropped to 114bpm (*see graph one)* . This drop in heart rate is a result of previous soccer training and also because resistance training doesn't call on the anaerobic glycolysis system like the other stations do. This meant that when he began station one he had to work harder to get his heart rate above the critical threshold again, and this only occurred at the end. heart rate dropped similarly, however it stayed above the critical threshold. Personally the resistance section was physically demanding on my body and core but did not work my anaerobic glycolysis system, affecting me the same way that was affected.

Graph one

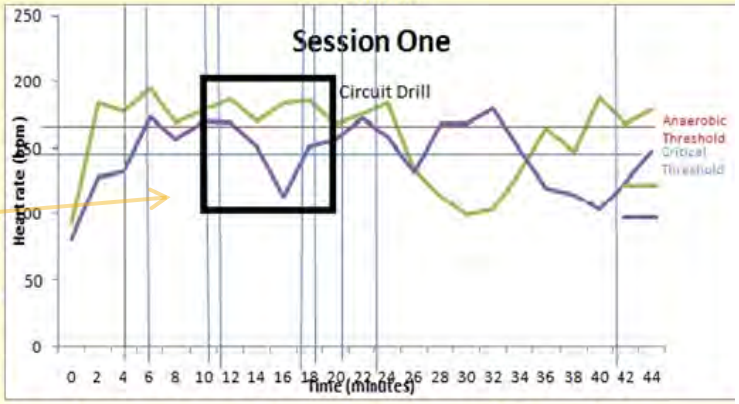


Diagram one

Although the players reached above the critical threshold there is only a small increase in the intensity between the timing and the circuit drill. Therefore if this training session was to be repeated the circuit drill would be made a very high intensity hopefully showing definite changes. This affected the fartlek wave that we were trying to produce during this session.

Acknowledgments

The QSA acknowledges the contribution of Meridan State College in the preparation of this document.