The PlaySmart Programme.

"Thinking through Physical Education."

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The purpose of this paper is to discuss what knowledge, understanding and thinking abilities pupils need to become effective learners and performers in the context of Physical Education. It will also outline the Pedagogy designed to achieve these learning objectives bythe PlaySMART Physical Education" project team.

In 1993 Read put forward the criticism that a large proportion of the teaching of Physical Education in the U.K. at that time, was content driven where the acquisition of "facts" and narrowly defined techniques dominated both staff and pupils thinking. Recent advice from the UK Government via the National Curriculum 2000 recommended that in contrast to this approach, schools should have as their principle goal the development of independent critical and creative thinkers who were capable of understanding phenomena at a conceptual level. In addition the NC 2000 stated that by the time pupils reach key stage 4 (if not before) they should be capable of taking responsibility either individually or collectively for generating their own learning. This of course also indicates a need for pupils to become effective when working with groups and to develop their ability to communicate effectively.

The task that confronts physical educationalists therefore could be defined as not so much teaching pupils to play sport but to use sport as a learning opportunity for their pupils and what must be learned is more than a knowledge of psychomotor abilities. Physical Education is also concerned with social, cultural, affective and particularly cognitive development.

The PlaySmart project was initially set up by Physical Education staff at Manchester Metropolitan University in the UK to investigate ways in which pupils' performance in physical education at KS 3 could be enhanced. In particular its aim was to challenge the "traditional" view of skill development that Read (1993) found to predominate in UK schools. Read made the point that the view of skill development that prevailed at that point was one dimensional involving an almost exclusive preoccupation with the promotion of teacher defined and usually de-contextualised techniques. This approach, by omitting other important components of skill, may well have been guilty of impairing pupils' skill development as evidenced by the often disappointing "end of lesson" competitions. Oslin and Mitchell (1998) however offered an alternative and more holistic definition of skill that involved a combination of cognitive and motor control components all of which were fundamentally interrelated i.e. with a change in one being reflected in a reciprocal effect upon the other. PlaySmart methods, reflecting this alternative view, were designed to develop both the cognitive and the motor control components at the same time.

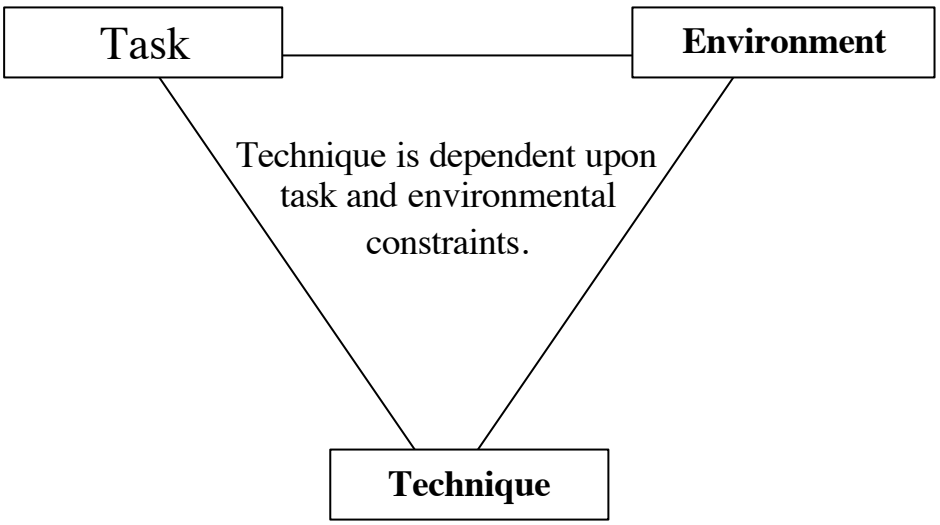


Diagram 1.

Whilst these components are all seen as important contributors of skilled performance they do not seem to be equally significant in determining expertise. Research has suggested that the maximum discriminator between the performances of expert and novice children was actually their knowledge and thinking skills, rather than their level of motor control or technical ability. Whilst changing the technical and physiological components of skill seem to be medium or even long-term goals, French and Thomas (1987) made the point that players' thinking and knowledge can be improved significantly in the short term. If this is the case, then the rather optimistic message for pupils who find Physical Education challenging is that they can improve their performance almost immediately simply by being smarter!

With this philosophy in mind, whilst retaining this holistic view of skill development, the PlaySmart programme's main emphasis is on developing the thinking skills and problem solving knowledge components of sports performance.

The cognitive component of skill is often referred to in performance literature in problem solving terms. As a consequence the PlaySmart methodology has been designed to promote problem solving skills and logically, much of the teaching style recommended by the programme falls into the guided discovery / problem solving category.

The UK National Curriculum for Physical Education specifies that in order to become successful performers, learners need to develop appropriate "knowledge" and "understanding". The diagram (1.) shown above indicates the general nature of that knowledge i.e. a knowledge of what must achieved (the task) how it must be achieved (motor control issues) and finally a knowledge of how to restructure the prevailing game circumstances in a way that is both recognisable and helpful to them. The information that they require to do this is usually termed tactical knowledge and a discussion of how teachers can help pupils acquire this kind of knowledge will provide the main focus for this work.

Tactical knowledge refers specifically to the interactive movement ideas they try to use to improve positioning/relationships between key game factors i.e. competitors, targets, boundaries and the ball. Their ability to do this of course also depends upon their opponents' knowledge in this respect. Indeed McBride and Cleland (1998) claim that games are categorised by a struggle between competitors for control of the circumstances in which they must execute their solutions. A key issue in this battle for control lies with a team's ability to be proactive, i.e. to be first to establish a tactical advantage. Competent problem solving in game environments like basketball, that change in dynamic fashion, requires knowledge that is adaptable allowing the performer to deal with changes in problems in a proactive and flexible manner.

However, the traditional method used in P.E. to help pupils with this issue is to issuing them with teacher inspired tactical instructions or scripts that were both limited and highly context specific. As a consequence novices are often unable to use their knowledge beyond the narrow context in which it was generated.

The National Curriculum specifies that pupils develop both knowledge and understanding. With respect to tactical knowledge pupils in the UK often have some knowledge but all too frequently lack an understanding what to do!

It is beyond the scope of this work to explore the nature of understanding in depth but three ideas seem to have some relevance here.

Piaget (1978) proposed the idea that it was possible to replicate a fact without understanding it. On the other hand if that fact could be explained then some degree of understanding existed. Perkins (1994) added to this definition by suggesting that something was understood if it could be applied beyond the context in which it was learned. Finally Zazkis (1998) suggested that understanding was a developmental process involving the assimilation over time of increasingly rich, inter connected and abstract schema. These theories suggest that understanding involves the ability to adapt or act flexibly and that this involved knowing how to solve problems by using principles rather than mere facts. Second performers would not only know what to do but could explain why their solutions were appropriate for the solving of a particular problem and even, on those occasions when they failed to solve the problem, explain why their ideas were inappropriate.

It would appear then, that, if pupils are to be flexible problem solvers, they need to understand those problems at a conceptual level. Research into expertise in sport seems to confirm that elite performers are able to do exactly that. For example when Allard and Burnett (1985) compared novice and expert games players understanding of game tasks they found that novices often perceived games in terms of a bewildering stream of unconnected problems each requiring discrete solutions. In contrast they discovered that the experts developed cognitive sorting strategies that enabled them, significantly, to categorise game problems at a more conceptual level. As a consequence they were able to recognise that in any given game context they would only encounter a limited number of (conceptually different) episodes which would recur on a more or less frequent basis. Allard and Burnett (1985) noted that experts not only categorised problems in conceptual terms but that their knowledge of solutions was also conceptual in nature. This meant that solution principles that were appropriate for one particular type of problem could often be applied by them to solve other problems that they had categorised as similar.

Fisher (1993) has described this patterning of experience into conceptual categories as the basis of reasoning.

As stated previously dynamic sports environments are complex and constantly changing. As such it is difficult for novices to recognise during play where one problem context ends and a different one begins. It is necessary therefore to help them to structure games in terms of contexts such as attack, defence or the transitionary points between these contexts where neither team control the ball. They also need to set sub goals within these contexts that usually relate to moving the game object (i.e. a ball in basketball) to a new, more favourable location i.e. were a viable shot can be taken.

According to Ofsted (2000) there remains a significant number of new undergraduates who enter Physical Education teacher training unaware of how to set or assess for the achievement these kinds of ball movement goals. This suggests that some teachers at least may not be making explicit, to their pupils, the purpose behind the learning activities they experience. Bailey (1999) made the point that more "challenged" learners who encountered poor quality Physical Education which did not help them to see the point of the things they were being asked to replicate failed to value them and ultimately became disaffected.

Newton (2000) refers to the idea that game solutions aimed at achieving these sub goals might be better understood as being like a form of narrative made up of three components. First the narrative includes a significant moment in a game episode in which, if key game factors are configured in such a way that a tactical advantage exists, they will have available to them an opportunity to achieve the desired goal.

in terms of their subsequent relationship with each other understand what any changes mean in terms of opportunities to solve game problems.

This narrative also includes two movement sequences, one that is designed to improve the configuration of or relationships between key variables (i.e. competitors, boundaries, game object and the targets) at this significant moment, and the other that is used subsequently to exploit the opportunities that this set of relationships offers.

PlaySmart encourages pupils to understand such a pivotal moment in terms of a "still picture" that clearly illustrates the way in which key factors relate to each and how they provide a tactical advantage. In PlaySmart these "still pictures" have been labelled "Moments of Advantage". (M.O.A.s).

The movement sequence that precedes and creates the "Moment of Advantage" is termed a "Set Up" pattern in the PlaySMART programme whereas the set of movement decisions the team makes to exploit this opportunity is called an "Endgame" sequence.

It is important for dynamic games players during any given game episode to be able to compare and contrast the situation they currently find themselves in with a mental model the "moment of advantage" that represents for them the ideal configuration of variables in that situation. They also need to understand how the current variables can be manipulated to achieve the desired favourable conditions offered by the "M.O.A. and subsequently what movement ideas could be used to exploit this advantage.

The most frequently referenced research relating to this kind problem solving knowledge is Anderson's work on the "Acquisition of cognitive skill" (1982). He proposed the "*If-Then Production"* theory in which a "production" solved a problem by offering the performer an appropriate association between certain problem conditions and an action (solution) i.e. ***if*** the challenge is situation (A) ***then*** an appropriate response would be to

use these game principles to satisfy condition (B). PlaySmart has adapted Anderson's idea so that each production also includes an explanation to facilitate understanding of the conceptual basis of that solution. As such in PlaySmart a production now would be phrased as:
"if this is the situation, **then** create this **MOA**, because it offers these tactical **advantages** that can be exploited in this way!".
Performers are encouraged to employ these productions as both team- game rules that could be used for goal setting and also as criteria that they could use subsequently to evaluate their performance.
Anderson (1982) went on to suggest that processing the vast amount of information described in these productions in the form of discrete facts would prove to be a daunting task particularly for a novice in the context of a dynamic game. Consequently experts tend to "Chunk" or reduce all the components of a solution into one exemplar movement pattern. This is much more memory and energy efficient for the problem solver and can be an effective way of storing movement sequences providing critical details are not abandoned. This exemplar solution is then named to facilitate shared terms of reference between team members stands as an analogy for all variations of that pattern.

The PlaySMART methodology sees teachers and learners going through three

development phases:

- Experience of the full game;
- A focus on a 'core task' that relates to one identified part of that game;
- Participation in 'SMART challenges' that are directly linked to the core task.

SMART challenges tend to be highly simplified adapted versions of the focus sport, usually involving small numbers of players and restricted rules. As such the number of variables the players have to deal with are reduced to manageable levels. Whilst the technical challenge is also reduced these activities are designed to offer authentic cognitive demands and the game principles that emerge are expected to be fully authentic.
It is expected that experienced staff will adapt the basic structure and rules of the game both to differentiate on the basis of the learners' capabilities and to make the task developmentally more challenging as the learners' progress.
A key learning goal for PlaySmart, consistent with National curriculum recommendations, is to encourage learners to take responsibility for what can be seen as a cyclic problem solving process involving the planning, execution and the subsequent review of self generated solutions. In the PlaySmart programme learners are guided or scaffolded through this problem solving process by their teachers via a carefully structured five stage programme programme of teaching / learning strategies represented by the acronym "SMART". The solutions this analytic system produces are (perhaps inevitably) called "Smart Plans".

The "SMART" problem-solving acronym stands for "Situation", "Methods", "Adaption", "Reduction" and "Transfer" respectively. This process has several theoretical underpinnings and particularly owes much to the work of Adey and Shayer (1994) who were responsible for Cognitive Acceleration work in Science and Mathematics, i.e. CASE and CAME. These thinking skills programmes were designed with the aim of "accelerating" learners from as Jean Piaget (1978) termed it a "Concrete" to a more "Formal operational" level of cognition. Pupils who are able to operate at a "Formal operational" level are able to solve problems by generating and employing abstract concepts. As with CASE it is clear goal of the PlaySmart programme to help pupils deal with problems and understand their solutions at this conceptual level.

Adey and Shayer (1994) influenced by the theories of Vigotsky (1962) as well as Piaget established a five-part structure for their "Thinking Skills " lessons that involved what they called the five pillars of CASE. These phases where termed, Concrete Preparation, Cognitive Conflict, Construction, Metacognition and Bridging respectively.

Concrete Preparation introduces the leaner to the task and facilitates goal setting. It is also an opportunity to limit the learners' focus to a key or pivotal issue and to identify those things that can and cannot be varied when searching for a solution. Finally it provides both teacher and learner with an opportunity to explore how they define and understand relevant linguistic concepts. In a P.E. context these might be problem variables, constraints, relationships, sequences and movement pathways. This important task ensures that they have shared reference points when analysing the task together.

The key idea of cognitive conflict owes much to Piagetian thinking, which proposes that by deliberately presenting learners with ideas that appear to challenge their existing and possibly superficial or partial knowledge they would be prompted to re examine that knowledge and thereby deepen their understanding of a given phenomena. Piaget also recommended that learners in this state of conflict could be "scaffolded" or assisted to reconstruct their knowledge in such a way that understanding was helped.

The Construction phase refers to the point in a lesson where pupils generate possible solutions, whilst Metacognition describes the ability to reflect not only upon what has been done but also the thinking processes that contributed to a performance. In games playing contexts Metacognition refers to the conscious methods players employ to monitor their own and others' thinking whilst developing, and making use of the tactical knowledge.

Finally "Transfer" refers to the somewhat contentious idea that an idea developed in one context can act like an analogy for the use of a similar idea to solve a problem situated in another context. Adey and Shayer's work indicate that transfer crucially requires some form of "Bridging", perhaps by the teacher, where the value of and the means by which the idea to be transferred is made apparent in both contexts.

It should be emphasised that the sections of a typical PlaySmart session are not designed to correspond exactly with Adey and Shayer's thinking but rather has borrowed ideas from them. For example in PlaySmart the "Situation", "Method" and "Adaptation" phases have borrowed ideas from CASE's cognitive preparation, construction and cognitive conflict phases respectively. The "Transfer" section in PlaySmart combines ideas from the "Metacognitive" and "Bridging" phases used in CASE.

PlaySmart also differs from the CASE programme by having a "Reduction" section in which learners are encouraged to synthesise information into solution principles and to

"Chunk" all the components of a solution into one exemplar movement pattern. The team then labels an ideal example of their tactical plan to facilitate a shared mental model and to stand as an analogy for all variations of that solution.
The teaching / learning strategies employed in each section of PlaySmart programme are exemplified below in the context of the Asian game **Kabbadi**. (See diagram 2.) .
This challenge and the activities developed from it (also illustrated below) are part of a programme used in conjunction with the core task previously described i.e. that have been designed to help learners to develop an understanding of effective performance at a point of transition in an invasion game. As such the Kabbadi activity exemplifies the inter-connected and developmental nature of PlaySmart pedagogy. The reader should, however be reminded that these teaching strategies are generic and are designed to facilitate learning through all PlaySmart materials.
At its most basic level, this version of Kabbadi requires an attacker to enter a square defensive area through one side (designated as the entrance/exit). The square can be marked out with non slip mats or small cones.
Within a time limit, the attacker must tag one of two "defenders" located in this box and run back to a target mat located several metres outside this box before one of the defenders can tag them back. The defenders are constrained in their response by a series of rules. First the defenders are not allowed to leave the box or attempt to tag the attacker until one of them is tagged first! However when one defender has been tagged their team-mate can then leave the defensive area to chase the attacker. Second the defender who is tagged may **not** tag the attacker back or leave the box. This defender is therefore reliant upon his or her team-mate to chase the attacker. Typically this game is played in teams of four, with defenders rotating in and out and the attacking team taking it in turns to attack. When all four attackers have had a turn the teams swap roles.

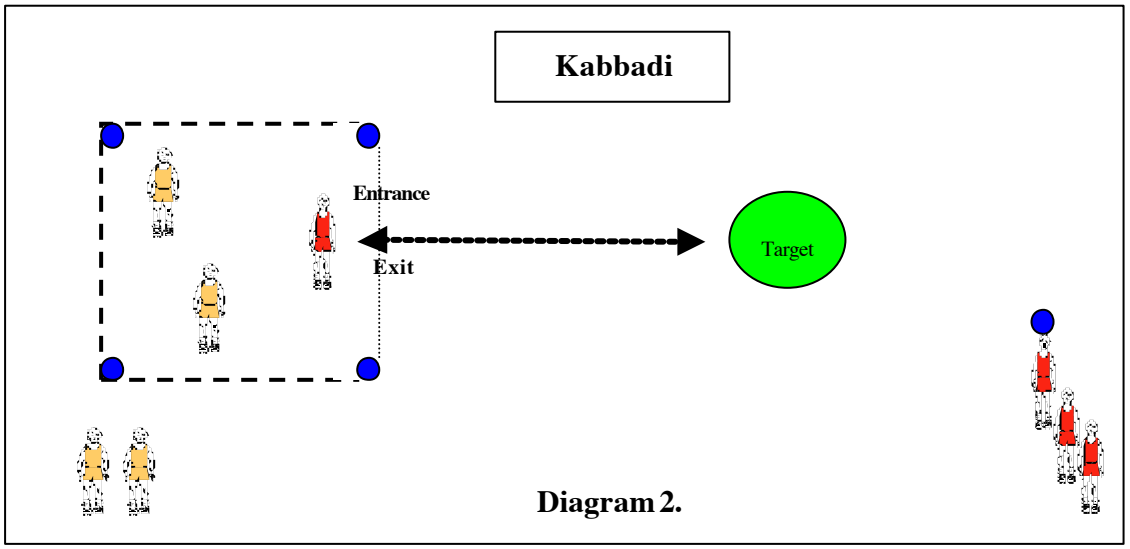


Diagram 2.

Typically a "SMART" inspired planning session would involve staff questioning groups of pupils to generate the following kind of knowledge.

1. Situation

This phase borrows ideas from the concrete preparation section in CASE.
Pupils would be told that the key learning objectives for this session would be for team members to identify the nature of the task from either the perspective of the attack or the defence, the movement skills required for its solution i.e. chasing, dodging and sprinting and the constraints the rules place upon them in this respect.
The expected knowledge outcome here would be for the defence to realise that the real challenge here is, not to avoid being tagged which in such a confined area is probably impossible, but to interact with colleagues to prevent the attacker from escaping back to the target zone after a one of them is (inevitably) tagged. However many novices will misrepresent the task as finding ways to avoid being the one who is tagged. Consequently they frequently employ non co-operative evasive manoeuvres such as sudden changes in direction and speed.
The teacher also asks the pupils to identify problem variables and constraints i.e. things they can and cannot alter. They should also be alerted to the concepts of movement pathways and temporal issues such as sequencing. This important task ensures that pupils know which relationship and movement factors to focus on when they come to develop their own solutions in the next section.

2. Method.

In this part of the session performers explore plan how they might establish a tactical advantage at a key moment in the game. As previously described they are encouraged to view this in the form of a "narrative" made up of three phases, "Endgame", "Moment of Advantage" and "Set Up".

a) Key moment (when)

The first task here is ask players to analyse the game problem from either a defensive or attackers perspective in order to establish if there is a key moment in time when they would most like to have an advantage. It is highly likely that the players will recognise that the moment when the attacker tags a defender is literally pivotal in this game and is the moment when they would most like to have a tactical advantage.

b) "Endgame" (why)

This component requires performers to identify and understand **the nature** of the tactical advantage that they want to exist at the moment when a defender is tagged. Pupils tend to couch their answer in terms of improvements to the movement opportunities that currently exist i.e. that they become "*Easier, shorter or quicker*" than before. In this example Kabbadi players recognise that when the chase begins they would like their runner to have a *significantly shorter* pathway to the target mat than their opponent.

c) "Moment of Advantage" (What?)

The information required here is a description and a rationale for the way in which game variables could be reconfigured or improved when a defender is tagged if the advantage they require is to exist.
The idea of a "Moment of Advantage" is a difficult concept to get over to novices and requires skilful scaffolding. One technique that may be of use here is to ask players to imagine a short, video sequence, involving a "still picture" (similar to effect one gets if a

video of a game is put on "freeze frame") Whilst doing this they should imagine key game variables configured (realistically) in a way that is helpful them. They then imagine that the pause button is released and the video runs forward showing the "viewer" how the team exploited the opportunity provided by this particular set of circumstances. This "mind movie" idea owes much to a similar idea developed by David Leat (1999) for his thinking skills programmes.

When they believe that they have devised a static configuration that they like, teams predict the likely outcome and then trial it for real, starting the game at the moment when a defender is tagged.

AS with most PlaySmart challenges there is no absolutely "correct" answer to this problem and teams are encouraged to devise different ideas. However many defending teams will construct a MOA that involves one defender being tagged in a corner furtherest from the target mat with the other defender occupying a corner diagonally opposite. This configuration is a viable idea because it offers teams a tactical advantage that is consistent with that determined previously in the "endgame section" i.e. a shorter pathway to the target for their player.

Diagram 3 below illustrates a situation where one of the defenders (D1) is about to be tagged by the attacker (A) in a back corner away from the exit. This situation provides his defensive team-mate (D2) with the opportunity to take up a (safe) covering position in the corner, diagonally opposite him.

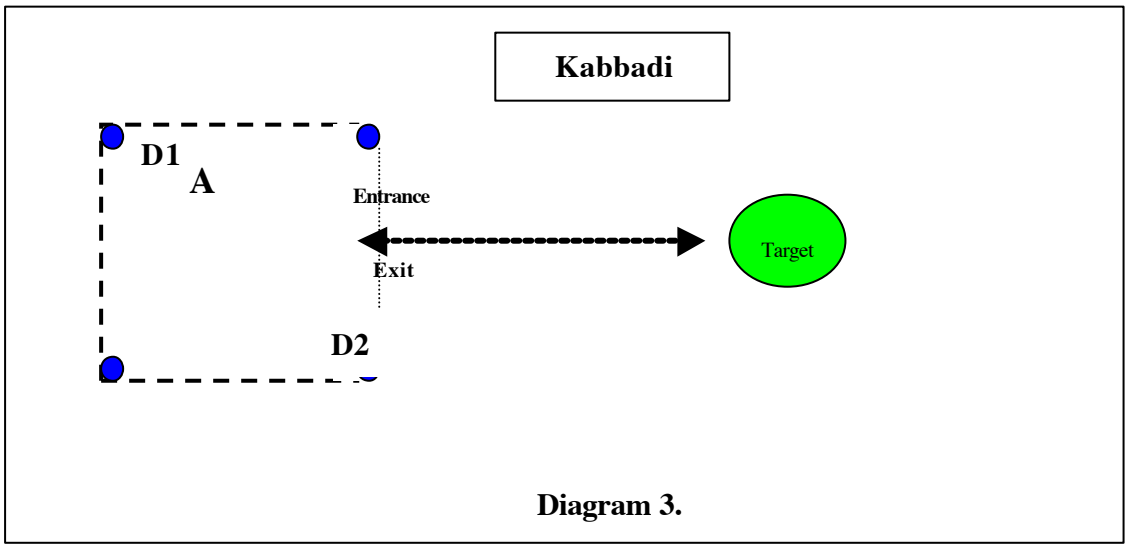


Diagram 3.

Also, during this part of the lesson teams start to consider what movements they would use to exploit such opportunities i.e. to chase down the retreating attacker. In this version of Kabbadi defenders will recognise that they must react as soon as possible when their colleague is tagged. In order to help with timing here teams should develop both an auditory and a visual signal to mark this event. (The tagged player usually decides to yell "Go"! at this point)

d) "Set Up" phase

Finally in this section, players have to consider what movement ideas they could use to construct the MOA they have selected. With respect to the possible solution outlined

above, teams have to work out how to draw the attacker down to a bottom corner. They can achieve this situation if they initially fill both bottom corners (see diagram 4 below). If they achieve this they then have to find a way of moving a player into the corner diagonally opposite the attacker. These positional switches are relatively straightforward from a motor control perspective. However their timing is not and usually requires practice and probably a series of adjustments before some degree of competence can be achieved.

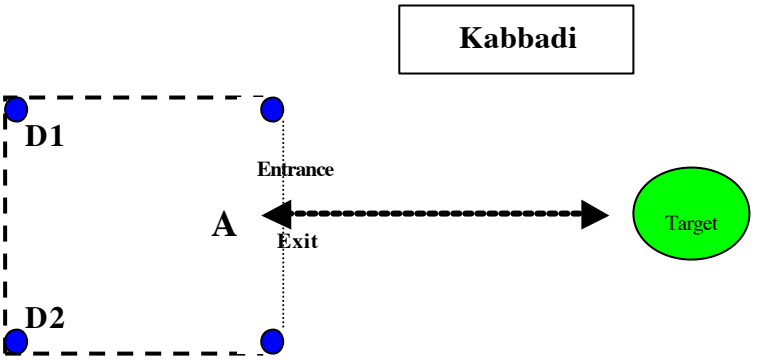
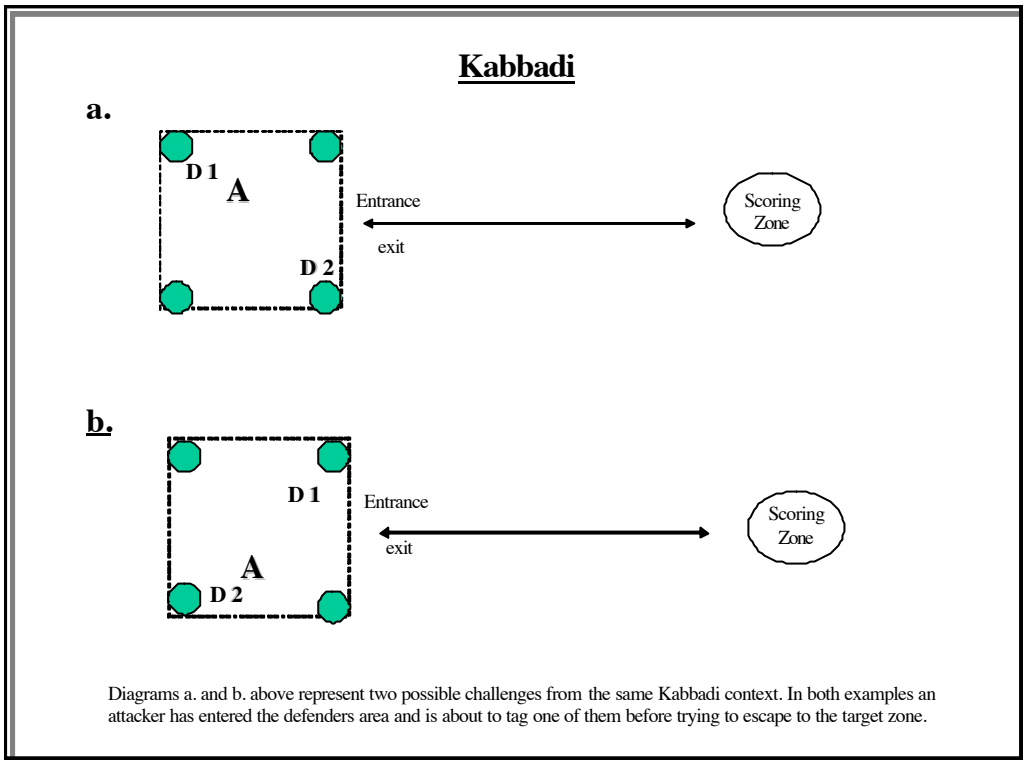


Diagram 4.

3. Adapt

During this part of the session, ideas are presented to pupils that challenge their existing and possibly partial knowledge with the purpose of encouraging them to develop knowledge in the form of movement or relationship principles principally. This is done by placing constraints on them that require them to adapt their knowledge. If this process (termed cognitive conflict in CASE literature) is successful, teams will find alternative ways of reconfiguring relationships that despite superficial variations will provide the same tactical advantages. By comparing and contrasting these adaptations it is possible that they will be able to synthesis principles that are common and important to both.

In Diagram 5 shown below, example a. represents the configuration favoured by the defensive team. (This might be because D2 is the faster defender!)
Example b. shows a simple example of cognitive conflict where the attacker has decided to tag D2 and as a consequence the defenders have been challenged to adapt their MOA. They have done this by swapping roles and creating a mirror version of their first MOA. Despite these superficial variations in positioning the tactical advantage remains the same. They are, with the underlying principles in mind, actually the same solution!



Diagrams a. and b. above represent two possible challenges from the same Kabbadi context. In both examples an attacker has entered the defenders area and is about to tag one of them before trying to escape to the target zone.

Diagram 5.

Another more difficult cognitive challenge involves the teacher using a **"But what if?"** questio n.
In this situation the teacher asks "But what if the attacker fakes to tag one defender and then reverses direction to attack the other defender in the safety role?" This requires the covering defender to move down to the nearest bottom corner and for their role to be taken up by their colleague who is now (temporarily) out of danger. Teams will sometimes refer to the yoyo movement pattern this produces as "the seesaw" defence. It is good teaching practice to allow teams to both observe and play against teams that have developed this kind of knowledge. Whilst doing this they should be encouraged to reflect upon the similarities and differences between their solutions. This dialogue between teacher and pupils is helped considerably by having the already shared methods game analysis and indeed because of language constructs that they will have developed together previously in the "Situation" (concrete preparation) phase.

Reduction Section

At this stage teams will have explored and selected from alternative methods which they understand at a conceptual level. As a consequence they are able to adapt them if game circumstances dictate. In order to reduce information processing demands pupils are now encouraged to find memory efficient ways of restructuring their knowledge. PlaySmart methods encourage them to construct **If then (because)** production rules. For example defenders in Kabbadi might reduce what they know in the following form:

- *"**If** the attacker is not trying tag anyone defenders should fill both bottom corners.*

- ***If*** *the attacker tries to tag you,* ***then*** *only be tagged in a bottom corner. (Yell "Go" if this happens)*
- ***If*** *the attacker decides to tag your colleague* ***then*** *move to a position in the opposite top corner*
- *Because this MOA present the attacker with the longest possible distance to travel after they have tagged an opponent and provides the covering defender the time and space to move into a position where they can either prevent the attackers escape or return to a bottom corner if the attacker changes direction to attack them instead.*

It should be noted, however, that such team-game rules are not prescriptive in that players still have to make informed choices and judgements. For example in Kabbadi players in the safety role must judge if they are satisfying simultaneously, both of the positional concepts involved (i.e. being close enough to intercept the attacker whilst also being far enough away to evade capture themselves). In order to do this effectively, players must be given the opportunity to practice making judgements about critical changes in relationship which in turn depends upon experimentation and experience (i.e. of different opponents' speed relative to their own). Inevitably such experimentation will lead to errors and is yet again time consuming. However, rather than being a problem these mistakes are a useful, perhaps even essential part of skill development. Unfortunately, as Read (1993) points out learners all too often encounter a teaching environment, where, because it is premised on the exact replication of instructions, errors are consistently criticised.

Also with the aim of reducing the amount of knowledge that player shave to store and retrieve from memory, they are encouraged to adopt an analogy that stands for all MOAs that offer similar conceptual advantages .One recurring example in Kabbadi is "**The sweeper system**" which highlights the importance of a tactical system that enables a defender to fill this role. Players would probably hold in mind a specific example of this tactic and yet be able to recognise that during play reconfigured variations of it were actually the same solution.

5. Transfer

In this final section teams are required to employ the tactical ideas they have devised in another round of competition. Once again the number of times attackers score is recorded over a series of trials. However as previously stated this game is designed to favour the defence slightly and as the main focus of the session has been on developing defensive tactics it is expected that the attackers' scores would actually go down!

Teams are asked to use the team game rules they have devised both for goal setting and evaluation purposes i.e. they should not only asses their performance in terms of whether they prevent the attacker from escaping but also if they their tactics proved instrumental in this.

After playing these games teams should reflect upon the validity of their ideas and their ability to execute them in competition. In addition they should also reflect upon and rate their own and other colleagues' contributions towards generating these ideas. This metacognitive activity is highly significant with respect to pupils' cognitive development, not only in terms of knowledge and understanding but also in terms of promoting important thinking skills

Finally a key educational goal here is to promote the use of game principles and the more general thinking processes developed here in other contexts. This process of transfer usually requires careful bridging to be effective. This bridging process should endeavour to demonstrate to pupils that their team game rules and perhaps the analogies they have developed are also applicable in a new yet related context.
There are many challenges to this kind of teaching and learning approach not least that staff may well find the switch from traditional didactic teaching to a more dialectic approach threatening. However if the learning that has taken place on route is as profound as is hoped for, pupils' sports performances should, in cognitive terms at least show real signs of improvement. But this is not the only benefit. If this approach succeeds in achieving its main purpose then pupils will have been empowered and motivated to take responsibility for their own and their classmates learning. We will have produced children who understand how to think for themselves and how to learn in a physical education context. If that learning could then be bridged, deliberately, to help attainment in other curriculum areas then we will have achieved something of real educational significance!

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