GUIDELINES FOR PHYSICAL EDUCATION THAT EMBRACES DIVERSITY

Curricular components of physical fitness and invasion games

Editors: Paula Batista | Amândio Graça | Luísa Estriga

fct Fundação para a Ciência e a Tecnologia

U.PORTO UNIVERSIDADE DO PORTO FACULDADE DE DESPORTO

CENTRO DE INVESTIGAÇÃO FORMAÇÃO INOVAÇÃO E INTERVENÇÃO EM DESPORTO CIFI2D

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FUNDING
The publication of this e-book was founded by national funds through FCT - Foundation for Science and Technology, I.O., within the scope of the project 'Empowering pre-service teachers as practitioner researchers toward PE inclusive practices' (with the reference: 2022.09013.PTDC; http://doi.org/10.54499/2022.09013.PTDC.FCT), and was developed at the Centre for Research, Training, Innovation and Intervention in Sport.

ACKNOWLEDGEMENTS
The authors would like to acknowledge the contributions and support of the individuals and organisations that made the development of this project and the production of this e-book possible.

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EDITORIAL DESIGN
Alexandra Xavier

TECHNICAL-SCIENTIFIC REVIEW
Ana Luísa Pereira

ISBN
978-972-8687-84-7

EDITION DATE
September 2024

EDITOR
EDITORA FADEUP

EDITORA

fct Fundação para a Ciência e a Tecnologia

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contents

Introduction

This e-book has been produced as part of the project "Empowering pre-service teachers as practitioner researchers toward Physical Education inclusive practices (PST-PRIPE)", funded by the Foundation for Science and Technology under the reference 2022.09013.PTDC. The project aims to establish and promote the adoption of the purpose of transforming Physical Education (PE) in terms of building the curriculum, pedagogy and assessment to serve the learning opportunities of students' diversity and social justice in schools. Framed within a collaborative dynamic between university and schoolteacher educators (a community of practice), the project aimed to encourage and support student teachers to examine their own practice with a view to promoting an inclusive PE that embraces the diversity of students. To this end, four phases were carried out: 1) building the foundations of a community of practice of teacher educators for inclusive practices; 2) diagnosing student diversity and preparing pre-service teachers (PST) to question their practices for inclusion; 3) developing inclusive practices; 4) global analysis and reflection after the intervention.

The set of chapters that make up this e-book is the result of the co-construction of knowledge and teaching experiences developed in school placement contexts and is intended to support professionals in their teaching practice as well as to support educational institutions in preparing teachers to promote quality and inclusive PE.

Structurally, the e-book is divided into five chapters and four sub-chapters.

The first chapter serves as a motto for the following chapters and revolves around systematising what quality PE for social justice is.

The second chapter recognises the importance of getting to know the students and presents a set of tools and activities that can be used in the classes for this purpose.

The third chapter is dedicated to assessment, which is primarily conceived as a central element of learning, and is developed around a set of principles and strategies aimed at involving students in the teaching and learning process.

The fourth chapter addresses the curricular component of physical fitness, starting with the fundamental assumptions and knowledge needed to design the intervention, followed by strategies and tools for implementing a health education model.

Chapter five consists of four sub-chapters, the first of which is the gateway to the others devoted to invasion games. The first sub-chapter (5.1) focuses on a series of reflections on the inclusive potential of games, as opposed to the difficulties of making them truly inclusive.

The following sub-chapters (5.2, 5.3 and 5.4) deal with three invasion sports - handball, basketball and football respectively - starting with pedagogical principles and assumptions and then developing an idea for teaching the game that embraces the diversity of the students.

In the chapters dedicated to curricular areas (physical fitness and intramural sports), several links are made to the pedagogical experiences (action-research studies) conducted by the PST in their school placement contexts, in the form of studies or publications. The aim is for the readers of this e-book to have access to information that will deepen their knowledge and help them to identify teaching strategies and artefacts that can support implementation in their professional practice. In the case of invasion sports, videos are also available to facilitate understanding and mobilisation for practice.

We hope that this e-book can support quality and inclusive PE teaching and the professional development of PE teachers, both in initial and continuing education.

The project has enabled us to learn about critical barriers and potential solutions to enhance PE, inclusive education and teacher training. The evidence and lessons learned from this project will enable us to continue advancing effort towards inclusive education in the academic and professional communities.

The editors
Paula Batista
Amândio Graça
Luísa Estriga

1

Reflections on quality and inclusive physical education in support of social justice

Reflections on quality and inclusive physical education in support of social justice

Paula Batista | Luísa Estriga | Amândio Graça

Quality Physical Education (QPE), as stated by UNESCO (2015), is necessarily inclusive PE dedicated to combating all forms of disadvantage and discrimination related to socio-economic status, gender, ethnicity, sexual identity, and special needs arising from disabilities. It is an essential component for the integral development of pupils and must contribute to overcoming disadvantage and discrimination.

The pursuit of QPE requires the construction of a curriculum that goes beyond the mere transmission of content and objectives, endeavouring to provide meaningful learning. To achieve this, the curriculum needs to be structured around three pedagogical dimensions:[1]

- Intellectual quality refers to pedagogy that is concerned with producing a deep understanding of important, substantive concepts, skills and ideas.
- Learning environment quality refers to pedagogy that creates classroom environments in which students and teachers work productively and are orientated towards learning.
- Meaning refers to pedagogy that helps make learning a meaningful and important to students.

[1]NSW Department of Education and Training (2003), by Jennifer Gore and James Ladwig (2003).

Among the several dimensions, intellectual quality is central to the pedagogical process, as it is what ensures the quality of student results. Without cognitive involvement, there will be no attribution of meaning, and the learning environment will also be compromised.

From the point of view of curriculum operationalisation, QPE requires the choice of consistent, student-centred pedagogical perspectives:

- That they support the intended learning outcomes and reflect learning needs;
- That learning, teaching and assessment are considered in an integrated way;
- That learning and assessment tasks are authentic from the learner's perspective and inclusive of individual learning needs and interests;
- That the development of pedagogy is informed by research and wider professional communities.

In PE classes, evidence suggests significant challenges in ensuring access, participation and success for all students. Factors such as gender, ability level, special needs, ethnicity and social status continue to place many students at risk of marginalisation and underachievement (Fisette, 2013; Kirk, 2020; UNESCO, 2014). This reality is often exacerbated by an overly technique-oriented PE teaching, with a curriculum based on multiple activities and teacher-centred practices. To address these barriers, teachers need to create welcoming learning environments and high-quality programmes (Rouse & Florian, 2012) to promote inclusive practices that coherently align curriculum, pedagogy and assessment (Ennis, 2000; Graça, 2015; Kirk, 2010). To this end, it is important to prioritise not only technical skills but also values that can be extended to everyday life. Only then will there be room for an EFQ, i.e. an inclusive education that promotes social justice.

Inclusive Physical Education

Providing inclusive QPE requires looking diversity not as an obstacle but as an opportunity to organise and align the curriculum, pedagogy and assessment (Moura et al. 2021; Penney et al., 2018). This enriches the learning experience by creating an educational environment that inspires a love of sport.

The need for inclusive education is an issue that has gained relevance with the 17 Sustainable Development Goals announced by the ONU in 2015. Among these goals is the fourth, on quality education, which emphasises the importance of ensuring inclusive, quality and equitable education and promoting lifelong learning opportunities for all.

Portuguese legislation, namely Decree-Law 54/2018, has been highlighted internationally as a notable reference for guiding educational policies and practices in schools (Ainscow, 2021; All Means All, 2018). As Alves (2019) points out, the Portuguese law ensures the orientation of inclusive education towards students with disabilities but does not limit it. This law aims to overcome the problems and challenges arising from the growing diversity of students, taking into account their personal and social situation to find answers to their potentials, expectations and needs. It aspires to develop an education level that ensures learning under conditions of full participation, a sense of belonging, equity and social cohesion. Teachers, pupils, and educational communities must actively contribute to fostering a school culture geared towards inclusive education. This involves understanding and continuously addressing diversity, with the motto: “learning to live with difference and learning to learn from difference” (Ainscow, 2005, p. 118). This legal framework promotes the creation of an educational environment in which all students participate fully, feel valued and integrated, ultimately strengthening social cohesion.

Despite recognising the excellence of Portuguese law in dealing with inclusive education in teaching and extracurricular practices, particularly in teaching of sports games and physical fitness in PE, we are still far from overcoming the problems of access, participation, and empowerment of the diversity of students to play in teams and practice according to their fitness levels and goals.

Creating inclusive environments in PE has been challenging, revealing similar gaps to other disciplines (Lieberman et al., 2017). Rubio (2008) links these shortcomings to the hegemony of an individualistic, competitive and meritocratic culture, representing the reproduction of a liberal model that values winning regardless of the context.

According to DeLuca (2013), inclusion can be understood from four competing perspectives:

- A normative perspective directed at the hegemonic level: Everyone can learn, but everyone must be judged by the same standard;
- An integrative perspective: Everyone can learn, but students of different status learn separately, at the level they are at. Assessment can be specific to each level, but the reference level of the hegemonic level is maintained;
- A dialogical perspective: Recognises the different abilities of the diversity of students, but advocates learning through co-participation, interaction and collaboration between students of different status, be it socio-economic, cultural, gender, ethnicity, religion, country or region of origin or people with disabilities;
- A transgressive perspective that is antagonistic to ableism, to normative hegemony: This requires everyone to learn everything they can learn and to learn with everyone, to collaborate with everyone. Learning is not understood as standardised: everyone must recognise and try to understand each other in solving problems and overcoming common challenges, in the possibilities of co-creation and in the perception of personal transformation and in the relationship of reciprocity.

The last concept, the transgressive concept, allows students to express their uniqueness and is key to a more authentic representation of student diversity and the configuration of more genuine contexts of inclusion.

The adoption of student-centred pedagogical models, such as Sports Education (Siedentop, 1987, 1994, 1996; Siedentop, Hastie & Mars, 2004), Cooperative Learning (Dyson & Casey, 2012) and Personal and Social Responsibility (Hellison, 1996, 2010; Hellison & Martinek, 2006) have also been identified as elements that contribute to this goal, as they enable all students, regardless of gender or ability, to participate in an inclusive curriculum and pedagogical practices that stimulate and contribute to well-being and physical literacy (Casey & Kirk, 2020; UNESCO, 2015). To this end, teachers must be empowered to deal with the diversity of students in their classes. This requires ongoing training and institutional support so that they can successfully implement inclusive practices.

FINAL REMARK

There is an urgent for an epistemological shift from a teacher-centred curriculum to a student-centred one (Rogers-Shaw et al., 2017). Batista and Resende (2023) reinforce this idea by arguing that achieving the goal of including every student in PE deeply depends on redeveloping the inadequate, 'one-size-fits-all' teacher--centred curriculum, instruction and assessment.

The Universal Design for Learning (UDL) model argues that we can create truly inclusive learning environments by applying design that recognises the different strengths and weaknesses of students (Rose, 2000). Designing PE that is both high quality and inclusive is therefore not just a matter of social justice, but a primary necessity to ensure that all students, regardless of their circumstances, can succeed and participate fully in school and community life. A commitment to inclusive pedagogical practices is therefore essential for building active, healthy and socially aware citizens.

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2

Getting to know the students

Getting to know the students[1]

Tânia Bastos | Catarina Cachapuz | Paula Batista

Dealing with the diversity of students enrolled in Physical Education (PE) settings is challenging for any teacher (Kirk, 2019). Therefore, getting to know the students and their backgrounds, interests, motivations, and engagement in the learning process is important for designing classroom settings that can foster a sense of belonging among all (Dyson, 2006). To achieve it, the teacher must go beyond a simple biographical characterisation, seeking to understand the students in different contexts, both in and outside the PE class. Thus, it is important to understand the students to create a safe and comfortable environment for everyone, regardless of diversity.

Goal: To learn about what students' thoughts and feelings, specifically in the context of PE.

The following set of questions is suggested as a starting point:

- How do students behave in class?
- What emotions/feelings do students express during the different class activities?
- What factors seem to influence students' engagement and enjoyment in class?

These questions aim to characterise students in the classroom and can lead to the listing of several parameters that reflect their profile in action, as shown in the following two examples.

[1]This chapter was written based on the main concepts of Fisette, J. (2010). Getting to Know Your Students. Journal of Physical Education, Recreation & Dance, 81(7), 42-49. DOI: https://doi.org/10.1080/07303084.2010.10598508

My students seem...

- Be very active and interested in class;
- To be very motivated and eager to take part in activities and lessons;
- To want to be the first to organise the teams and start the activities;
- To feel challenged and enjoy the activities and the class dynamics.

Source: Generated by AI. Gencraft platform, September 6th, 2024

OR

My students seem...

- Not being interested in the lessons;
- Not getting involved in the dynamics of the lessons;
- Resisting the proposed activities or shared instructions;
- Being shy and insecure.

Source: Generated by AI. Gencraft platform, September 6th, 2024

In addition to getting to know the students at work in class, it's important to understand them better through characterising elements outside the PE class. This can be achieved by:

- Talking to other teachers and family members (parents and siblings);
- Attending to extracurricular activities in and out of school;
- Talking directly to the students.

It should be taken into consideration that many students may feel hesitant and vulnerable when asked to share their feelings. Discussing insecurities related to movement or the public exposure of the body during lessons is not easy for them.

Strategies:

1. Take the students' feelings seriously and sensitively;
2. Keep the information shared by students confidential;
3. Maintain anonymity when debates or sharing take place in a group/class;
4. Allow students to decide whether to put their name on a written task;
5. Suggest creating an individual portfolio to document activities and work.

TOOLS AND ACTIVITIES TO GET TO KNOW THE STUDENTS

In this section, are suggested a group of activities and the corresponding tools to get to know the students. Both the activities and the tools should be designed and adapted to the identified needs and can be used in part or in full (Figure 3).

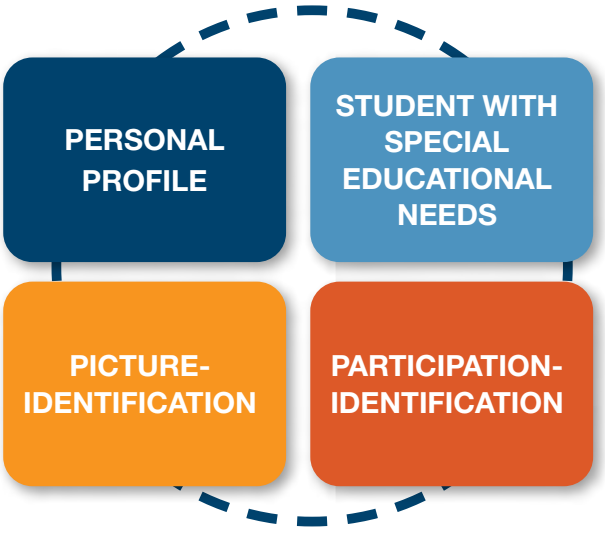

Figure 3 – Dimensions to consider in students' knowledge

PERSONAL PROFILE

Why is it important?

- It allows for a dialogue with students based on their tastes, preferences, motivations, and specific characteristics to create bonds among all;
- It offers students an informal moment to talk about themselves and reflect on what they like, what they don't like, their abilities, limitations, or medical issues;
- It allows us to know the student's perceptions in relation to the school and the PE class;
- It allows for adjust the planning by considering the suggestions for activities proposed by the students and involving them in the process;
- It allows the capture of personal and sports experiences according to the Sports Culture Differentiation Model.

General information/questions to consider:

1. Favourite classes in school
2. Least favourite classes in school
3. Favourite hobbies
4. Favourite food
5. Something you never have done but would like to do
6. Something you dislike
7. What goals do you have for this school year?
8. What are your goals/dreams to the future?

Specific information/questions about peers and sports:

1. Which sports/activities do you feel most skilled during PE lessons?
2. Which sports/activities do you feel least skilled during PE lessons?
3. How would you describe the interaction you have with your classmates in the PE class?
4. To what extent do the characteristics of your colleagues restrict your interactions with them, making them different?

ACTIVITIES TO PROMOTE

The PE lesson is not infinite. Therefore, the teacher must select the most appropriate activities to get to know their students and to manage the length of the activities according to the time available. We suggest between 5 and 15 minutes, depending on the activity. We will provide some examples of the duration of some steps within the different activities.

1 – School for me is…

STEP 1 – Challenge students to reflect on the meaning of school for them, including both good and bad aspects. In small groups (randomly formed), pupils write down their thoughts about school (suggested duration: 5 minutes).

STEP 2 – Each group elects a spokesperson for the "terrible aspects" and a spokesperson for the "very good aspects". The class sits in a half-moon formation. Two zones are created in the free space of the half-moon, marked off by different coloured signposts. The pupils can choose which colour is assigned to the 'terrible aspects' area and which to the "very good aspects" area. Two empty chairs are placed opposite each other, representing each area.

STEP 3 – The student spokesperson goes to the respective area and mentions "the good things" or the "terrible things" about the school. As the "terrible things" are listed, some students are being invited to occupy the empty chairs.

STEP 4 – Role play: The students occupying the chairs are invited to dramatise the situations listed. Pupils pretend to be on their way to school and talk about different issues. One student should suggest strategies to the other to deal with the "terrible aspects" of school (suggested duration: 15 minutes).

2 – Travelling through time and sports memories

STEP 1 – Challenge the pupils to create a 'timeline' highlighting the positive and negative aspects of their experience in PE and sports.

The teacher should explain that all sport memories are valid, whether good or bad, whether experienced alone, with family or friends, at home, on the street, at school or in club.

Students use numbers to mark the approximate dates of any kind of sport experience they remember (as a participant or spectator) (suggested duration: 5 minutes).

Figure 4 – Timeline example

Note: When categorising the timeline, you must consider the age of the students for whom it is intended. In the example above, the timeline was designed for students who were at the 7th school level in 2021.

STEP 2 – In small groups, the students share their memories with their classmates.

STEP 3 – Set up the collaborative class board.

Put a sheet of scenery paper on the floor and divide it into four parts according to the Sports Culture Differentiation Model: Professional sport; Sport as a means of leisure culture; Sport and movement as a means of social institutions; and School sport (Batista, Rêgo & Azevedo, 2013).

The teacher should briefly explain the meaning of each part of the Model and ask the students to record the memories (the students can choose the most significant memories) in the appropriate places, according to the explanation given.

Note: Four separate sheets of cardboard can also be provided to make it easier for students to move around the space.

STEP 4 – Finally, the class analyses the model together and identifies the most common category.

3 – I like this because…

STEP 1 –Place in the gym identifying materials/equipment (e.g., basketball ball, badminton racket, gym mat) specific to the different sports that will be taught during the school year. The equipment should be grouped next to cones 5 placed metres apart from each other.

STEP 2 – Students are invited to go to the cone with the material corresponding to their favourite sports. Once the different groups have been formed according to their sports preferences, the students are asked to answer the following questions as a group: 1) Why do you like this subject the most? 2) What can we do in class to make this subject more attractive to the rest of our classmates (suggested time: 15 minutes)?

PERSONAL PROFILE – When, how and for what use?

- Students can complete their profiles individually or in groups;
- Depending on the content, profiles can be shared with colleagues or kept confidential;
- Sharing situations should be optional and should take place in small groups so that students feel less exposed and more comfortable talking about themselves. Moreover, a small group approach allows all students to participate and share their memories, making the activity motivating and dynamic;
- The timeline can be made at the beginning of the school year or at the beginning of each semester/term. If the activity is carried out more than once, the timeline should refer to the experiences of the period between the first application and the subsequent applications;
- The teacher can use the information gathered to start a dialogue with the student and build a relationship of trust and empathy.

STUDENTS WITH SPECIAL EDUCATIONAL NEEDS

The inclusion of students with special educational needs (SEN) in PE class challenges teachers to deepen their knowledge about the students.

In addition to the aspects mentioned above, teachers should gather information on specific aspects related to the nature of their students' needs and their implications for the classroom (Lytle, Lavay & Rizzo, 2010).

The basic questions to explore:

1. How many students with SEN are in the class?
2. What needs were identified?
3. What strategies were applied?
4. What implications for the PE class?

Fundamental knowledge to deepen:

1. Knowledge of the different types of SEN, understanding and identifying the heterogeneity and diversity of students' characteristics;
2. Knowledge of any contraindicated exercises (e.g., Down syndrome and atlantoaxial instability; visual impairment and glaucoma);
3. Knowledge about medication intake with implications for students' motor, cognitive and behavioural performance;
4. Knowledge of specific medical conditions (e.g., asthma, diabetes and epilepsy);
5. Knowledge about assistive technologies used by students (e.g., assistive devices for communication and mobility).

Suggestions:

- Meet with the multidisciplinary inclusive education support team to gather these and any other information that may be relevant;
- Staying in close contact with family members to gather useful and up-to-date information about the student;
- Develop an appropriate search, knowing WHERE and HOW to find technical-scientific information to plan the intervention.

- The teacher may be working with students with unique and rare pathologies/syndromes and there is limited information on the subject;
- The teacher should be aware that students with SEN often have negative attitudes towards PE lessons due to previous negative experiences that did not incorporate the principles of inclusive practices.

Knowing to better include

The PE teacher should be aware that pupils with SEN, generally have fewer opportunities to be physically active, both in the educational (e.g., school sports) and community (e.g. clubs; inclusive programmes) settings.

It is the teacher's responsibility to provide favourable circumstances for the students with SEN outside of the PE curriculum. To do this, the teacher must be very familiar with the skills, abilities, motivations and preferences of their students with SEN regarding sports practice to advise them on how to continue this practice outside of school.

Being able to identify talent and guide students to sporting, recreational or competitive contexts outside of school is an ability that all PE teachers must apply with ALL their students.

Therefore, for a truly inclusive practice, the teacher must:

1. Have a very good knowledge of organisational structure of sport in Portugal, identifying federations and associations that facilitate access to opportunities related to sport outside school;
2. Have a very good knowledge of the organisational structure of sport for persons with disabilities in Portugal, identifying the main national organisations (Federation of Sport for Persons with Disabilities) and associations by area of disability:
   - National Sports Association for Persons with Visual Impairment
   - Cerebral Palsy – National Sports Association
   - Portuguese Sports League for the Deaf.
3. Have a good knowledge of the sports activities offered in the community surrounding the school, identifying clubs (adapted sports or regular clubs) or community projects (local councils, universities) that can link the school and the local sports community.

Overall, equal opportunities in the context of PE for students with SEN are characterised by the celebration of difference and diversity among students, with a commitment to treat EVERYONE DIFFERENTLY, but FAIRLY, according to the individual needs (Bailey, 2005).

Providing equal opportunities does not mean treating all students the same. It requires teachers to have a deep understanding of the characteristics and needs of their students.

PICTURE-IDENTIFICATION

Why is it important?

- It allows to characterise the class in terms of their physical self-perceptions;
- It allows to understand the students' interpretation of their own bodies and the bodies of others;
- It allows students to explore the concept of 'Being Fit';
- It allows to analyse students' perceptions of the ideal body (male, female, other).

ACTIVITIES TO PROMOTE

Activity 1

STEP 1 – Invite students to bring clippings from magazines, newspapers, the internet and photographs that represent their perceptions of a fit body to class.

STEP 2 – Display the material collected by the students on a board so that it is visible in the class venue (suggested time: 5 minutes).

STEP 3 – Invite students to respond to a group of questions about what it means to be fit and about physical appearance:

1. What does being fit mean to you?
2. Regarding your physical fitness:
    a) Are you proud of your physical abilities?
    b) Do you consider yourself good at endurance exercises?
    c) Do you consider yourself good at strength exercises?
    d) In general, how skilled do you think you are at different sports?

3. Regarding your physical appearance:
    a) Are you happy with the way your body looks?
    b) Would you like to change something about yourself?
    c) What do you think others perceive about your body?

STEP 4 – Promote a debate using the board created with the images collected by the students and their questionnaire responses. The aim is to deconstruct the concept of being fit and having a good physical appearance (suggested time: 15 minutes).

Some students may feel reluctant or inhibited to take part in these activities due to complex feelings and emotions about their own bodies and abilities.

PARTICIPATION-IDENTIFICATION

Why is it important?

- It allows us to identify the students' perception of competence and how this affects their willingness to participate and their level of involvement in PE;
- It provides information about students' self-perception in PE and can be used as a basis for their instruction.

ACTIVITIES TO PROMOTE

STEP 1 – Invite students to read a set of definitions about levels of competence, levels of involvement and social interaction in PE lessons. Students should tick in each column the statement that best describes them (Figure 5).

SKILL LEVEL	LEVEL OF INVOLVEMENT	SOCIAL INTERACTION
I am highly skilled.	I am highly involved and engaged in PE and am often assertive in games/ activities.	I interact with both boys and girls in class.
I am average to highly skilled.	I am regularly involved and engaged in PE and am sometimes assertive in games/activities.	I mostly interact with the boys in the class.
I am average skilled.	I am sometimes involved and engaged in PE, other times I hang back from action.	I mostly interact with girls in the class.
I am low to average skilled.	I am rarely involved or engaged in PE. I try to keep away from the 'action' of the game/activity (i.e., I try to be invisible).	I am ignored by my classmates.
I am low skilled.	I do not engage or participate in PE. I do not change my clothes, am often absent, have a note to be excused, or go down to the nurse.	I do not like to interact with any of my classmates.

Figure 5 – Self-assessment of the level of competence, involvement and social interaction in PE lessons (adapted from Fisette, 2010)

STEP 2 – Based on the above statements, describe in detail your involvement in PE lessons.

STEP 3 – To promote a debate about the students' self-perceptions and, in some cases, have more individual conversations (suggested time: 15 minutes).

Some students may be apathetic about these activities because they find it difficult to assess themselves. Most students need help in assessing their level of involvement. These difficulties are particularly noticeable in students with fewer skills.

COMPLEMENTARY ACTIVITIES

Other activities can be developed on an ongoing basis throughout the school year or on an annual basis.

Why is it important?

- It allows students to develop self-knowledge.
- It motivates students to reflect on their practices and create long-term commitment to PE and sport.
- It creates synergies between PE and other subjects.
- It creates opportunities throughout the school year for teachers to get to know their pupils better, leaving space open for new knowledge, interactions and discoveries.

ACTIVITIES TO PROMOTE

The Sportsman's Diary

Challenge the students to write the "Diary of a Sportsman". Each student will have an A5 notebook (or will reuse the blank pages of an old notebook) to record the challenges that the PE teacher proposes throughout the year. This activity can be developed in collaboration with other subjects such as Portuguese and Visual Arts.

FINAL CONSIDERATIONS

Getting to know the students and understanding their personal and sport backgrounds, as well as exploring their thoughts, emotions and feelings about the lesson is a fundamental skill for the PE teacher to be able to implement inclusive practices effectively. To be competent, the teacher must also have a strong knowledge of Inclusive Education for children with SEN. The teacher needs to be knowledgeable about specific legislation, the characterisation of different types of SEN and the adaptations and modifications to be made during teaching.

Remember that students express complex feelings and attitudes about their bodies and their abilities, which can affect the quality of their experiences during class activities, as well as their relationships with the teacher and classmates. Consequently, this can affect the effectiveness of the teaching-learning process. Therefore, by developing student-centred instruction, the teacher can differentiate the teaching-learning process and propose truly inclusive lessons that respond to the individual needs.

In this sense, it is important to remember that the class does not function as a group on its own. Despite the pedagogical concerns underlying the constitution of classes, they are still the result of an administrative process. The class is a false unit that can easily become a collection of small groups. PE has an immense potential for building relationships. The teacher must therefore develop working methods that enable students to bond, because even if they already know each other, they will discover new information and curiosities about their classmates. The process of creating a "class group" in which all students feel included should continue throughout the school year, with group work being encouraged whenever possible, and with the composition of the working groups being varied in order to establish different strategies of cooperation and synergies.

One of the fundamental principles for developing inclusive practices in the PE classroom is the teacher's ability to gather information, diagnose and reflect on the diversity that surrounds them. Effective teachers can adapt their teaching to minimise the moments when students face public exposure in PE lessons. They invest in small-sided games, make student demonstrations voluntary, and value activities that promote personal and social responsibility, as well as offering games and situations that promote skills development.

In this context, respect for diversity and individuality helps students feel confident, secure, and to develop a positive self-concept and self-image. PE lessons challenge students to develop their skills, to value their participation and achievement, and to experience enjoyment and satisfaction in activities. The aim is that positive and lasting experiences related to PE lessons will make students more likely to acquire and adopt an active lifestyle throughout their lives.

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3

Assess to Learn

Assess for Learning

André Moura

The shift in focus from teachers to students and from teaching to learning has led to a reappraisal of the processes and purposes of assessment (Moura et al., 2022). This transition has sparked increased interest and research on **assessment as a support for learning** (AIESEP, 2020). It has also resulted in educational reforms and legislation (54/2018 and 55/2018), which address an increasingly urgent issue: an assessment system focused solely on grading with little consideration for student learning.

It is a misconception to think that the objective is to avoid or reject summative assessment. Summative assessment remains essential, is administratively required, and should be respected. The answer is not to dismiss it (although it can, and should, be adjusted to better serve students), but to consider the most effective strategy for ensuring student success. To achieve this, teachers must ask themselves three key questions: Where are we now? Where do we want to go? And what is the best way to reach our goals? To illustrate this, we can draw an analogy with a journey from school to home (representing the teaching-learning process). As we can see, there are two key reference points: school as the starting point (where are we?) and home as the destination (where do we want to go?). Having these reference points is crucial for optimising our journey (finding the best route to reach the destination rather than wandering), as there are multiple possible paths to travel from one point to another.

Guiding questions for planning:

At first glance, we might think that the journey from school to home will be the same for everyone (assuming they all live in the same residence). However, doing so would neglect the mode of transportation from one point to another (the fastest route by car is not necessarily the same as for someone who is walking). Thus, although it initially appears that the starting point (school) and the route (school-to-home journey) are the same, they are not (one travels by car, while the other walks).

The time at which they travel may also influence "a potentially better route", even for those using the same mode of transportation, such as a car, choosing paths with less traffic during peak hours. Therefore, I emphasise the necessity of continuous assessment. It is not sufficient to conduct it at the beginning of the process because the conditions are constantly changing.

According to Dylan Wiliam (2018), all formative assessments contain an element of diagnosis (often referred to as diagnostic assessment and associated with the first lesson of the unit or semester/term), because they allow for the identification of the current level at that specific moment. Once the current level is identified, teachers should use this information to determine the next steps and make informed decisions – possibly better ones than those made in the absence of such evaluative evidence (Black & Wiliam, 2009).

It is necessary to evaluate continuously. It is not sufficient to do so only at the beginning and end because the conditions are constantly changing.

Returning to our analogy, let us now imagine two students taking their journey at the same time and using the same mode of transportation, in this case, a bicycle. We might think that, in this scenario, the conditions are the same for both students; however, once again, we neglect the characteristics of the students themselves.

One has extensive experience riding a bicycle and feels comfortable cycling on the road with cars (in this case, the fastest route), while the other had an incident in the past and now has a fear of riding on the road. Therefore, the "best route" is not a viable solution for one student.

Now, we might ask: how does this relate to the teaching-learning process? The answer lies in adapting the process to the needs of students. To do this, we need to evaluate (identify the situations; otherwise, we will not be aware of this student's fear), collect information that indicates the specificities of the students, and determine how to adapt the process to respect those needs.

These different scenarios help illustrate the differences between what would initially be considered the "same journey", as well as the varying degrees of ease in reaching the destination. Just as there are no "shortcuts", students who walk will likely continue to walk and take longer than those who ride. In this sense, **for assessment of learning to become a pedagogical practice** (as it should be), rather than merely using strategies and tools for gathering information, **it must be integrated into the planning process** (see an example here). It is important to adjust the criteria to the students rather than the students to the criteria. Drawing on our analogy, to ensure that the student who walks, both students on bicycles and the student driving all reach their destination, it is suggested that the starting point, established by both the teacher and the students, involves sharing and understanding the following:

1. Learning objectives;
2. Success criteria.

PRINCIPLES 1 and 2
Sharing learning objectives and success criteria

As mentioned, this is not merely a matter of communicating information, rather, it is about ensuring its understanding. In some cases, sharing is limited to the content to be taught, while in others, students struggle to comprehend the content. To prevent this, several strategies are proposed:

- Ask students to explain the objective/criterion in their own words after the teacher's presentation;
- Use questions that assess students' understanding, such as, "How can you score points?" or "How will you demonstrate success in this activity?"
- Avoid closed questions - yes/no questions for which "we already know the answer", such as, "Are there any questions?" or "Does everyone know what the objective is?"

Learning objectives and success criteria can be communicated in various ways depending on the specific context and what is most comfortable and convenient for both the teacher and the students. It is essential that the objectives and criteria are understood by the students.

However, this information can be organised in various ways, such as:

- **Portfolio (digital or paper)**: This should illustrate what is expected throughout the process and outline the destination (where we want to go).
- **Task cards**: This format allows students to focus on "the current moment" while progressing at their own pace.
- **Ladder**: This demonstrates the progression to be made throughout the unit, showing the starting point, current point, and endpoint.
- **Spider web**: The goal is for students to address the criteria at the "periphery of the web" to move closer to its centre.

The sharing process throughout the lessons should be interactive to focus on the essentials. To achieve this, teachers can employ strategies that include students to facilitate their understanding:

- Explaining concepts to a student (who can vary in each lesson, perhaps a team captain or someone who has shown improvement/progress, or another indicator from the last class) who then shares these concepts with others;
- Using short videos (such as reels or TikTok's);
- Presenting the objectives and success criteria in written form and asking students to raise their hands, for instance, once they have finished reading and feel comfortable explaining to their peers;
- Directly demonstrating the activity and asking specific, targeted questions to help students reveal the objective.

Regardless of the resources used, it is important that:

- The sharing of objectives and criteria occurs as early as possible in the process (ideally, after the first lesson);
- Each lesson has objectives and criteria to be achieved (which may be the same across multiple lessons), and these should go beyond motor skills to include capacities, knowledge, and attitudes);
- Students understand and have sufficient opportunities to meet these objectives; the challenge must be adjusted to their level, and there should be both quantity and quality of participation opportunities;
- Adjustments are made throughout the process, for example, by removing certain criteria from summative assessment due to a lack of time to practice them;
- There is consistency between the objectives and criteria (short, medium, and long-term goals).

The objectives and criteria require that the teacher creates something as flexible and as specific as possible. It is essential that they serve as both guide and a framework for teachers and students, while also allowing students to express themselves and become integral parts of the process. Figures 1 and 2 present some examples of motor skills combined with tasks that require knowledge application (peer assessment) and social interactions with peers (communication and joint organisation).[1]

[1]Special thanks to the "critical friend", Professor José Carlos Monteiro

DAY	GOAL	CRITERIA (see full details below)	ACCOUNTABILITY
23/02	Identify and act in offensive situations through small-sided games, assuming an active role as a playmaker to enhance learning Provide feedback to support peers	Offensive Moment with Ball (2) and (3) Offensive Moment without Ball (2), (3), (4), and (5)	Oral Peer Assessment Competition Organised by the Teacher
02/03	Identify and act in offensive situations through small-sided games, taking on an active role as a builder to enhance learning Provide feedback to assist peers	Offensive Moment with Ball (3) e (4) Offensive Moment without Ball (3), (4) e (5)	Oral Peer Assessment Competition Organised by the Students
04/03	Improve decision-making in offensive situations through small-sided games, taking on an active role as a builder to enhance learning Provide feedback to support peers		
09/03	Improve decision-making in offensive situations through small-sided games, taking on an active role as a builder to enhance learning Provide feedback to support peers Identify difficulties and strengths in their gameplay		Oral Peer Assessment Competition Organised by the Students Written Self-Assessment - Analysis of Their Performance (Video)

Figure 1 – Example of unit organisation with objective, criteria, and “accountability”

GAME 70%

CRITERIA	DESCRIPTORS
Offensive Moment with Ball (Decision--Making)	(1) Reacts quickly to winning the ball, seeking to progress with the ball toward the opponent's goal (2) With open space, progress with the ball toward the opponent's goal (3) Passes the ball to an unmarked player (4) Makes a breaking pass to the player who is moving away toward the opponent's goal (5) Without a passing line, confronts the opponent directly to surpass them ("takes on the opponent") toward the opponent's goal - principle of Penetration
Offensive Moment Without Ball	(1) Reacts quickly to winning the ball, offering passing lines for support and/or breaking away (2) Seeks to provide width and depth to the game ("stretching the field") (3) Promotes support for the ball carrier by offering passing lines ("solutions") to continue the play - principle of width (4) Creates numerical superiority around the ball - principle of Offensive support (5) Creates breaking movements in the opponent's defensive organisation - principle of Mobility
Defensive Moment	(1) Reacts quickly to the loss of the ball by pressing the player with the ball to attempt to recover quickly or "falling back" to organise the defence (2) Positions themselves between the ball carrier and their own goal to stop or delay the opponent's attack ("Does not go in immediately") - principle of delay (3) Provides coverage for the defender marking the ball carrier ("Covering" the defender's back, positioned diagonally to be able to contest the play when the defender who was marking the ball carrier is bypassed) - principle of Defensive Cover and compactness

PROCESS - 30%

CRITERIA	DESCRIPTORS
Tasks Completion	- Analysis of performance (video) and posting of videos on Teams with corresponding self-assessment by the specified deadline
Progress / Improvement	- Demonstrates progress compared to the beginning/previous lessons
Knowledge / Critical Spirit	- Masters the 'language' of the subject matter - Conducts critical and constructive self-assessment and peer assessment - Actively contributes to the success of peers in achieving objectives (provides feedback that helps colleagues improve, takes initiative)

Figure 2 – Example of alignment of the objective with the criteria (motor skills)

As demonstrated in this example, there is freedom in decision making and an emphasis on valuing this capability, prioritising "behaviours" over "specific movements". This "freedom" is crucial if we want to address the diversity of students. The criteria and descriptors presented here are examples used in specific contexts and can and should be adapted to each reality.

Throughout the process, students should share information with their peers and teacher (the well-known "accountability") about what is expected of them and what they achieve through the incorporation of moments of self-assessment and peer assessment. If learners do not meet the objectives at each stage (lesson/s), there will not be a "direct consequence"; however, they will have objective information indicating that they are "falling behind" in relation to what is expected at each specific moment. The aim is for students to also take responsibility for the teaching-learning process (both their own and that of their peers) and to self-regulate.

To foster this sense of responsibility, students can be invited to participate in the process of constructing criteria. This allows verification of whether the criteria make sense and whether they are understood and relevant to the students. Involving students in the negotiation of the criteria is an alternative (Figure 3) – an example in Physical Fitness (PF) work, where the criteria were created by the students themselves and accepted by the teacher – as part of a project carried out throughout the academic year.

INDICATOR	PERFORMANCE DESCRIPTOR	YES	NO	POINTS
Identification	Identifies the group, subject, date, theme, teacher's name, and school logo			X
Plan (200 points)	Presents the proposal, identifying the respective objective, i.e., the motor skills to be developed (10 points)			
	Presents the proposal, identifying the method (including the number of sets and "execution time") (10 points)			
	Identifies the means (maximum of 2 per student) and the space necessary for the proposal to be developed (10 points)			
	Presents a proposal that includes exercises for various muscle groups/full body (10 points) Note: Work can be in the proportion of 50% - 50% Lower Limbs - Upper Limbs, 25% – 75% Lower Limbs -Upper Limbs / Upper Limbs- Lower Limbs			
	Presents a proposal that includes exercises for the three components: cardiorespiratory (C), muscular strength (FM), muscular endurance (FR) (10 points) Note: Work can be in the proportion of 33%-33%-33% C-FM-FR or 25%-25%-50% C-FM-FR / FM-FR-C / FR-C-FM			
	Briefly describes the exercises to be performed, indicating only the key points or fundamental success criteria for the exercises (10 points)			
	Presents illustrative diagrams and/or images (5 points)			
	Selects exercises that respond to the objective of the plan (35 points)			
	Presents a proposal with an appropriate number of exercises and sets, adjusted to their level (35 points)			
	Uses means that respond to the defined objective (30 points)			
	Maintains an appropriate order of exercises, avoiding consecutive exercises that primarily target the same muscle groups or the same type of work - cardiorespiratory component, muscular strength, muscular endurance (35 points)			
	Total	X	X	

Figure 3 – Assessment criteria created by students for PF

It is important to emphasise that acting as a facilitator does not absolve the teacher of responsibility; the teachers also need to prepare. and organise themselves for this role. In the example presented here, teachers developed their own criteria and subsequently used them to compare and analyse the criteria proposed by the students.

It is essential to conduct a critical analysis and reflect on what has been proposed, including justification for the exclusion and/or addition of criteria. Once the criteria are finalised, students can use them for self-assessment.

PRINCIPLE 3
Involve students in their own assessment and that of their peers

The involvement of students in the assessment process through self-assessment and peer assessment, along with its potential benefits, is not a new concept. However, there are challenges associated with these processes that teachers do not always adequately address. The first point to emphasise is that **it is the function, not the label assigned, that makes a given assessment process or strategy formative** (Tolgfors, 2018). This distinction is important for understanding that using self-assessment or peer assessment in the final lesson of a teaching unit to ask students, "How much do you deserve?" does not, by itself, enable students to improve. This practice is often employed because it is administratively required; however, we must differentiate and understand that in this case, we are engaged in a process of self-grading rather than self-assessment. This clarification helps prevent the misconception that self-assessment and peer assessment inherently benefit the teaching-learning process and/or are valued by students. This journey must be undertaken step by step based on **three fundamental aspects**:

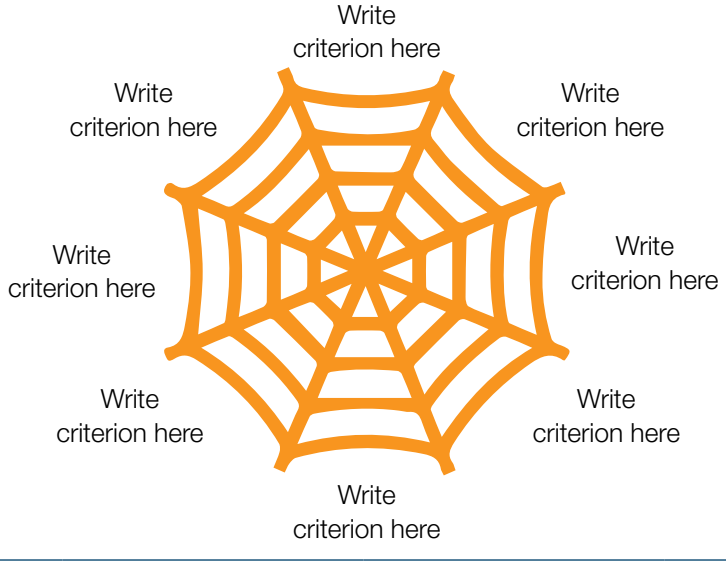
- **Students and teachers** must have a common understanding of the criteria;
- These processes **must make sense to students; they need to understand and see their value**. There is a necessity to explain and demonstrate this value; otherwise, it will become a mere task;
- **Assessment of the assessment: providing feedback on the students'** evaluations rather than simply accepting their comments, for instance, "I agree with the improvement in pace, but I disagree with the part about the transition, as I think it is not fluid; there are breaks in the connection between the steps".

Figures 4 and 5 illustrate two examples that can easily be filled with the criteria from the previously presented football teaching unit, as well as criteria from any other sport or teaching unit. Both can be used for self-assessment (individually or in groups) and peer assessment.

		Where do we want to go?
	objective/ criterion	(Write here)
	objective/ criterion	(Write here)
	objective/ criterion	(Write here)
	objective/ criterion	(Write here)
Where are we?	(Write here)	
Teacher's Comments		

What do I need to do next to achieve my goal?

Figure 4 – "Ladder" of self-assessment. Adapted from Scoilnet[2]



1 – I don't think I can do it	2- I can do it, but with difficulty	3- I can do it most of the time	4- I can always do it
Comments from the observed student While I was carrying out this activity, I felt: Rate your effort level: Low ☐ Moderate ☐ Vigorous ☐		Teacher's Comments:	

Figure 5 – "Spider Web". Adapted from Scoilnet[2]

[2]Assessment tools available: https://www.scoilnet.ie/pdst/physlit/assessment/

As mentioned, regarding the alignment between objectives and criteria, it is important to maintain this adjustment with the criteria used in self and peer assessment (Figure 6). **It is therefore essential that the success and assessment criteria are the same**; that is, the criteria used as part of the summative assessment should be the same criteria shared and used during self and peer assessment. Regulating these criteria "provides direction" to both students and teachers concerning the final objective, allowing them to understand at which stage the student is currently in the process. On the other hand, using different criteria during self/peer assessment and summative evaluation **may**:

1. Hinder the understanding of what is being valued;
2. Lead students question the usefulness of self/peer assessment.

The following set of Figures (6 to 9) exemplifies the mentioned orientation. This practical case was used in a class for training future Physical Education (PE) teachers. The class begins with a definition of its objectives and criteria (Figure 6). Subsequently, the specific criteria (success and assessment) for constructing the sequence are outlined (Figure 7), which will be aligned with those used in peer assessment (Figure 9), and summative assessment.

LEARNING GOALS	SUCCESS CRITERIA
1. Perform a series of static and dynamic balances	1. Perform at least two static and dynamic balances
2. Create a group sequence that includes various balances and linking movements	2. Create a group sequence that includes three group balances and two linking elements
3. Evaluate peers' performances in presenting the sequences	3. Use the peer assessment rubric to assess my peers' sequence, transitions, and techniques

Figure 6 – Learning objectives and success criteria

3 group balances (defined shape)	Everyone in the group must perform a balance
2 linking elements (elements/movements that connect the group balances)	Everyone must be included in the 3 group balances (in contact with at least one person)
Different points of contact with the ground (for example, one balance with 5 points, another with 6, etc.)	Balances must involve 3 different body parts (for example, there cannot be two group balances that only balance on the feet)

Figure 7 – Guiding Lines for Building the Sequence

ACTING	SEQUENCE	TRANSITION	TECHNIQUE
Group 1	Group 2	Group 3	Group 4
Group 2	Group 3	Group 4	Group 1
Group 3	Group 4	Group 1	Group 2
Group 4	Group 1	Group 2	Group 3

Figure 8 – Organisation of Peer Evaluation – Who Presents the Sequence and Who Evaluates Whom

SEQUENCE	CIRCLE THE CORRESPONDING ICON	GIVE PRACTICAL EXAMPLES
They can perform balances with different parts of the body (not just with the feet)		
All group balances have different points of contact (for example, one with 5 points, another with 6)		
All students participate in group balance		

LEARNING GOAL: WHERE ARE THEY?			
I need help	I am getting there	I can do it	I am ready for something new

Figure 9 – Example with the evaluation of the sequence. Transition and technique followed the same logic

Figure 8 illustrates the dynamics used to ensure that all groups **observe the different components of the sequence without the risk of evaluating too many criteria simultaneously – a common mistake that should be avoided**. Consequently, in each presentation, the group can receive feedback on each of the components, and the observing students focus on one component: sequence, transition, or technique. Like Figure 5, but with icons instead of numbers (Figure 9), **there is a space for qualitative comments**, which is a **determining factor**. Students can easily assign a number or circle an icon because it does not require much effort or attention. This is where the teacher **engages with assessment, not just accepting** that the group states that their peers can "perform balances with different parts of the body (not just with the feet)," but asking for practical examples and specificity. This task required students to identify which body parts were used by their classmates' sequences.

Recognising that the use of self and peer assessment is a learning process for both teachers and students, starting with the strategies presented thus far can be challenging and discouraging, but it does not have to be. **If you feel that you need something less complex, more straightforward, and quicker, there are other effective ways to gather evidence** if the three essential aspects mentioned at the beginning of Principle 3 are attended. To this end, students can be asked to identify, for example (adapted from Chappuis, 2017):

1. I am capable of...;
2. I need to improve...;
3. What I can/should do to improve (steps to take) ...;
4. I will know that I have improved/achieved my goal....

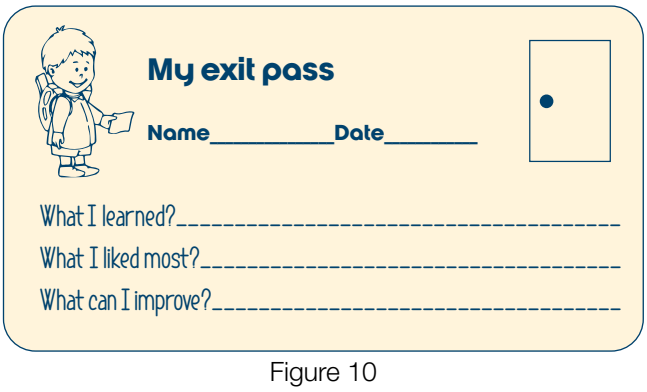


Figure 10

The “exit or entrance ticket” (Figure 10) is another means of assessing what the student knows at the end or beginning of a lesson. The former allows us to understand what has been retained from the covered material, through simple questions such as:

- What do you take from today’s lesson? (What did you learn?)
- How did you feel during the lesson, and why?
- Do you have any questions about what was discussed?

The latter, the “entrance ticket”, can be used to challenge students to bring, for example, a rule from the sport or unit of study that will begin in the lesson. It can serve as a starting point for such students to express their current beliefs and what they hope to achieve by the end. This can help some students manage their expectations regarding what they can (or cannot) do and, above all, focus on learning rather than solely being physically active.

PRINCIPLE 4
Provide feedback that helps students progress

"Quality practices that move students from the goal to a demonstration of learning" (Tannehill & Lund, 2010, p. 37).

As the authors stated, quality practices enable students to learn. Undoubtedly, one of the key aspects of quality practice is constructive feedback, which 'feeds' students and provides information that allows them to 'go beyond' their learning. As with the other principles, it is not just the act of giving feedback that matters, but rather the type of feedback that makes a difference. The examples of self and peer assessment presented earlier can and should function as moments of feedback because they allow for detecting:

- What the student knows: the teacher can observe performance;
- What students think they know/perceive: knowledge and understanding are evident.

If you will allow me, I would like to use another analogy (now regarding plants) to highlight critical aspects of the feedback process. Imagine we are in a space with several plants (regardless of the quantity) and that we pour the same amount of water into each plant; will they all grow in the same way? Probably not. Each plant will have its own specific characteristics (even if they are all the same type), with different sun exposure times and other factors, such as temperature and wind. **I want to emphasise the necessity of differentiation in feedback and its forms**. There is no right or wrong answer here, and it **depends greatly on the teacher's knowledge of the students** to understand the most suitable way for each student to receive and comprehend feedback:

Oral? Written? Provided by a peer? Through a worksheet? Gesturally? Video? Simultaneous use (or sequential) of various strategies that lead to understanding feedback by different students.

Furthermore, just as with plants, it is important to know the right amount of water (feedback, in this context) and the timing of watering (the famous 'timing' of feedback). Both a lack of water and an excess of it can be harmful. A lack causes drought, which hinders development (learning), while an excess leads to 'flooding' (difficulty in understanding what is relevant, what to remember, and in some cases, the feeling of having done everything wrong). Although it is challenging to determine the exact amount of feedback that students can comprehend and retain (as this varies due to differences among students), I believe the key lies in **aligning with assessment/success criteria**, because this:

- Provides direction: situates us in relation to the final criteria;
- Prevents excessive feedback: at any given moment, numerous pieces of feedback can be provided, but which ones are most appropriate regarding the proposed criteria?;
- Creates consistency: avoids the constant introduction of new information because it seeks alignment with established criteria (this does not mean repeating the same thing);
- Develops familiar vocabulary: who has not (let the first stone be thrown by those who have) given feedback that the student did not understand (likely because they have never seen or played that sport)? For example, "use the space," and the student responds, "which space?".

I do not mean that feedback should be used word for word, just as in the criteria (for example, those from the football or volleyball unit – QR Code). Here, the word 'watchword' is alignment. I would also add that **excessive technical concern hinders learning in the Physical Education context**. Is it crucial that a student:

- Holds their elbow at a 90-degree angle?
- Passes with the inside of the foot?
- Passes with their hand in a specific position?

While there are standard techniques that are helpful, there are also, as demonstrated by high-level athletes, different ways to execute the same technique. Are they not often praised for this very reason? For their ability to do things differently? Therefore, would it not be more inclusive to **allow for the diversity and strengths that each student can bring**? This involves valuing more global, tactical aspects and decision-making, such as:

- Adjusting body position to the teammate/area to whom they are passing;
- Passing the ball to an unmarked player;
- Progressing with the ball toward the opponent's goal when space is available.

This is not about denying the technique but rather associating it with tactics and focusing on understanding what is being done rather than merely on the "correct technique". In this way, it is possible to apply the same feedback to students with different skill levels and in various game situations. Thus, the same feedback can be relevant in a 2v2 or 3v3 scenario rather than having (multiple) distinct pieces of feedback for each isolated learning activity and game situation.

We also know that, returning to our analogy, whether with or without differentiation, a plant has its own way of growing, whether it leans to one side or another, or, for example, in the formation and quantity of stems and leaves. How does this reflect in the teaching-learning process? Well, it involves respecting interests and valuing everyone's uniqueness, negotiating and engaging in dialogue with the aim of "supporting that overly drooping branch" rather than "simply cutting it off". Just as we do not see the "roots," we also do not know how students receive and utilise the feedback given to them. In this sense, it is important that, **in addition to prescriptive feedback, there is space for dialog**, as this allows for:

- A focus on understanding rather than merely transmitting information;
- A more familiar language, "the student's voice" and that of the teacher;
- Reducing the "distance" between the understandings of student and teacher;
- Respecting individuality and valuing students' comprehension.

Like all these processes, **dialog feedback is something that both teachers and students should learn**. I would also add that the use of questions as part of feedback reinforces dialog and contributes to understanding how students perceive their learning and improvement process. The way students approach feedback is a determining factor since the same feedback can have completely different effects depending on whether a student values that information or not. In this regard, it is often necessary to deconstruct a more negative idea about feedback so that the student can appreciate, accept, and critically engage with what is being discussed, as well as what they themselves are doing. To "alleviate pressure" on students who do not meet their objectives, one may resort to open and transparent dialog. Moreover, why not take as a starting point two ideas put forth by Hattie (2007), an expert on feedback:

- My job is to seek evidence that I have not been successful, and only then can I improve;
- As teachers, we should ask our students: "How am I doing?" and create an environment in which students feel comfortable responding.

The strategy from the previous principle, which includes teacher comments in the self/peer assessment of students, also facilitates this "dialog" between the perspectives of the teacher and student.

FINAL CONSIDERATIONS

The combined use of these principles can help students increase their awareness of what they are capable of and what they can achieve. It is no coincidence that Black and Wiliam (2009), for example, consider assessment for learning to be a self-referential learning model, as it creates conditions (knowledge, awareness, and ability) for students to progress at their own pace. Assessment for learning and its principles, like any pedagogical practice or curricular model, does not guarantee learning by themselves. The alignment of these principles is essential to enhance the likelihood that students will achieve the objectives set for them as well as to understand that assessment for learning is much more than merely altering assessment techniques.

Although I have mentioned it somewhat casually throughout the chapter, I would like to emphasise that I consider the integration of **technology** to be a factor that **can optimise** the use of the principles of assessment for learning. When I refer to optimisation, I mean:

- Maximising **potential learning time** (reducing time lost on self/peer assessments forms);
- Improving the **quality** of the data **collected** and the **analyses** performed (a video or image "is worth more than a thousand words");
- Analysing **participation and levels of engagement**;
- Providing alternative methods to apply the principles that are **more appealing**.

In conclusion, I leave you with a set of questions that I also pose to myself when planning any teaching and learning process:

- **What is significant and relevant** for students?
- **What merits students' effort and time?**
- What **works best** with this **type of student**? **How can I help them**?
- How and when will my students know **what they need to learn**?
- **How do I know** if my students **have learned**? (during the process)
- **What information do I need to gather** regarding their learning?
- **How can I use the collected information**?
- **What should I do if some students have not learned?**
- What is the **best way to prepare** my students to **achieve the defined objectives and criteria**?

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4

Perspectives and guidelines for operacionalisation physical fitness

Perspectives and guidelines for operacionalisation physical fitness

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Pedagogical assumptions for physical fitness planning and operationalisation in physical education classes

In the context of the physical education curriculum, the area of physical fitness needs to be planned in combination with other curricular areas and be based on the assumptions set out in the Berlin Declaration (2013)[1] on Quality Physical Education (QPE), endorsed by 121 members representing UNESCO:

1. To enable all young people, regardless of their circumstances and abilities, to participate in and enjoy physical education and sport;
2. To promote the health, safety and well-being of young people.
3. To enable all young people to improve and achieve according to their age and potential.

CONCEPTUALISATION AROUND "PHYSICAL FITNESS" CONSTRUCT

Underlying assumptions

Expanding the objectives of PE, beyond the mere mitigation of disease risks is a means of actively promoting health (Quennerstedt, 2019) and engendering behaviour changes. In this sense, the objective must prioritise creating an environment that promotes an active lifestyle, both within and outside the boundaries of the school environment (Pate, O'Neill, & McIver, 2011).

It is therefore essential to adopt perspectives that don't focus on disease prevention (pathogenic perspective), but rather on promoting health (salutogenic perspective).

The idea of salutogenesis was introduced in 1979 by Aaron Antonovsky, who posed the question: "How can this person be moved toward greater health?" (quoted in Becker et al. 2010, p. 2). This concept is central to the way PF should be thought of and operationalised in the context of PE. Rather than attempting to solve students' health problems –a practically unattainable goal–, it is important to ask how we can help each student move towards "more" health.

The salutogenic model, developed by Aaron Antonovsky, emphasises the importance of understanding and promoting positive health factors over the causes and treatment of disease (pathogenesis). In this context, PE should not assume the fight against disease as its goal, but rather should actively promote health (salutogenesis).

Metaphorically, Mother Teresa of Calcutta's stance on war provides a valuable lens through which to perceive the stark contrast between these two positions. Mother Teresa stated that she would not participate in a march against war, but that she would participate if the march was for peace. Such a march would serve both to empower individuals and to facilitate their transition towards to a state of peace. For the missionary, the process of creating peace is different from the mere cessation of hostilities. It entails a distinction between actively opposing war and actively promoting peace. By stating that she would not participate in a march against war, but that she would participate if the march was for peace, Mother Teresa indicates a preference for highlighting the constructive action of defending peace rather than simply protesting war. This concept can be applied to the treatment of PF in PE. Rather than attempting to solve health issues such as obesity, the concern should be to actively promote the health of each individual pupil.

Given this understanding, a salutogenic perspective of PE aims to strengthen students' health development (Quennerstedt, 2019), projecting them to engage in an active lifestyle and to know the benefits of being physically active (Eastham, 2018; Harris et al., 2018).

This perspective permits the posing of salutogenic questions, such as: "Why do people stay healthy?" and "How can individuals improve their health?", as an alternative to traditional disease-centred questions (Quennerstedt, 2008).

Pathogenesis is a retrospective approach that determines how individuals can prevent, manage, and/or eliminate a disease. In contrast, Salutogenesis is a prospective approach that considers how physical, mental and social well-being can be created, enhanced and improved.

Figure 1 illustrates the characteristics of these two perspectives.

Pathogenesis	**vs.**	**Salutogenesis**
Pathogenesis focuses on identifying the causes of diseases as well as their precursors and risk factors.		Salutogenesis focuses on identifying the causes and factors that promote heath, or salutary factors.
The pathogenic approach may be regarded as optimistic, as it assumes that human beings would be healthy if they were to encounter unavoidable problems or difficulties.		The salutogenic approach posits that it is necessary to do more than prevent when you are healthy.
The assumption of pathogenesis prompts professionals to be reactive, responding to situations that may cause or threaten to cause disease.		The assumption of salutogenesis, which suggests it is necessary to act in a way that enables individuals to achieve an excellent state of health, makes professionals proactive, as their attention is on the creation of a new state.

Figure 1 – Pathogenic vs. pathogenic perspective (Antonovsky, 1979, 1996)

Pathogenesis examines disease in reverse to understand how individuals can prevent, manage, and eliminate health issues. Conversely, salutogenesis focuses on promoting and enhancing an individual's physical, mental, and social well-being.

In line with the salutogenic perspective, McConnell (2010) points out that a PE curriculum that builds healthy habits must provide students with the necessary tools and skills to choose to be active, not just now but throughout their lifespan. According to McConnell (2010), the essence of any educational endeavour is the promotion of a student-centred learning process, wherein students can assess their PF levels, interpret the results, and develop a personal programme tailored to their strengths and difficulties. In this regard, Harris (2005, p. 18) lists the principles that should govern PF programmes, focused on health when integrated into a salutogenic perspective:

- exercise can be a positive and enjoyable experience for everyone;
- everyone can benefit from exercise;
- everyone can be good at exercising;
- everyone can find the right type of exercise for themselves;
- exercise is for life;
- excellence in exercise for health is maintaining an active lifestyle.

Another important element within the salutogenic perspective of physical activity for health is the adoption of a self-referenced assessment instead of a hetero-referenced assessment.

Normative	Criterial
Hetero-referenced	Self-referenced

About Physical Fitness

Physical fitness (PF) is understood to be a comprehensive measure of the various bodily functions involved in daily physical activity. It can be defined as an individual's capacity for motor performance, which encompasses a broad range of physiological and psychological abilities (F.B. Ortega et al., 2008). The same authors posit that PF serves as a significant marker of health during childhood and adolescence. Therefore, assessing physical fitness through tests should be integrated into the framework of health monitoring systems.

Indeed, in the scientific literature, the PF multidimensional construct integrates a health-related dimension (aerobic capacity, muscular strength, strength endurance, flexibility and body composition) and performance-related dimensions (agility, balance, coordination, speed, dynamic strength and reaction time) (Caspersen, Powell, & Christensen, 1985).

In a confirmatory analysis, Britton et al. (2020) examined the underlying structure of the traditional physical fitness (PF) health-related theoretical construct. They found that flexibility has a negligible impact on overall health. The most accurate model identified by the researchers included cardiorespiratory endurance, muscular strength, and muscular endurance (strength endurance). This may explain why Nuzzo (2020) and Pate, Oria, and Pillsbury (2012) suggest that flexibility could be removed from the PF

construct. Consequently, flexibility training is not regarded as a fundamental element of fitness programmes for most population groups. The reasons behind this suggestion include: (1) the limited predictive or concurrent validity of flexibility in relation to sports performance and health in generally healthy individuals; and (2) if flexibility improvement is needed, it can often be achieved through strength training, which is more relevant for most populations. Additional arguments from these authors include the benefits of reducing the number of tests used in PF assessments and saving training time that can be allocated to other fitness capacities.

Muscular fitness

Muscular fitness refers to the ability to produce work against resistance, either maximally, explosively, or repeatedly (Ortega et al., 2008; Smith et al., 2014). There are two domains of strength expression: (1) muscular strength, the neuromuscular system's ability to exert force against resistance with maximal effort; and (2) strength endurance, the neuromuscular system's ability to exert force over an extended period (Smith et al., 2014).

Research conducted on adults shows a strong link between strength and health (Ortega et al., 2008). It is also clear that muscular fitness is inversely and independently associated with the mortality causes and cancer in the male population (Ortega et al., 2012).

The idea of promoting adequate levels of muscular fitness in children and adolescents is founded upon a growing body of evidence indicating its association with a wide range of health benefits. Muscular fitness is positively associated with reduced adiposity (Ruiz et al., 2009), insulin sensitivity (Benson, Torode, & Singh, 2006), bone health (Vicente-Rodríguez et al., 2008), mental health and academic performance (Padilla-Moledo et al., 2012). In addition, levels of muscular fitness acquired during childhood tend to be maintained into adulthood (F. B. Ortega et al., 2008) and are associated with the prevention of potential risks for the onset of cardiovascular disease (Grøntved et al., 2013).

In terms of motor performance, the development of muscular fitness should be a priority at all stages of boys' and girls' development (Lloyd & Oliver, 2012). In fact, it is central to the successful development of basic motor skills (Pichardo et al., 2018) and enhances athletic performance while mitigating the risk of injury (Faigenbaum et al., 2019). In this respect, the development of this ability facilitates the execution of sports techniques, dynamic balance, and the rapid expression of muscular strength, while allowing for better aerobic levels, change of direction, speed, and joint mobility (Faigenbaum & Geisler, 2021; Faigenbaum et al., 2019).

Faigenbaum and Geisler (2021) suggest the following guidelines for the structuring of muscular fitness development programmes in young people:

1. start with 1-2 sets of 8-12 repetitions using a light load;
2. start with basic exercises for upper limbs, core area and lower limbs;
3. gradually increase the load used as the technical capacity to execute the proposed exercises;
4. gradually increase the number of sets and training load, while reducing repetitions;
5. incorporate complex multi-joint exercises into the programme;
6. change the programme regularly to keep the stimulus effective.

The key variables for developing a strength training programme are as follows: (1) exercise selection; (2) the order of execution; (3) intended intensity; (4) number of sets; and (5) duration of recovery periods (Sheppard & Triplett, 2016).

Cardiorespiratory fitness

Cardiorespiratory fitness (CRF), also known as cardiovascular fitness or maximal aerobic power, represents the combined capacity of the cardiovascular and respiratory systems to sustain prolonged and strenuous exercise (F. B. Ortega et al., 2008), delivering oxygen to the mitochondria of skeletal muscle to produce energy during physical activity (Raghuveer et al., 2020).

In young people, CRF acts as a predictor of several health indicators: cardiometabolic health (Lang et al., 2017), premature cardiovascular disease (Högström, Nordström, & Nordström, 2014), academic achievement (Santana et al., 2016) and mental health (Lubans et al., 2016).

In summary, it is noteworthy that in young people: (1) there is an inverse linear relationship between CRF and mortality causes, such as cardiovascular disease, throughout life; (2) there is evidence of an inverse protective association between CRF and multiple conditions that encompass cardiovascular risk, including metabolic syndrome, type 2 diabetes, non-alcoholic fatty liver disease and mental health disorders; and (3) CRF is also positively associated with cognitive functions, self-esteem and life satisfaction (Raghuveer et al., 2020) (Figure 2).

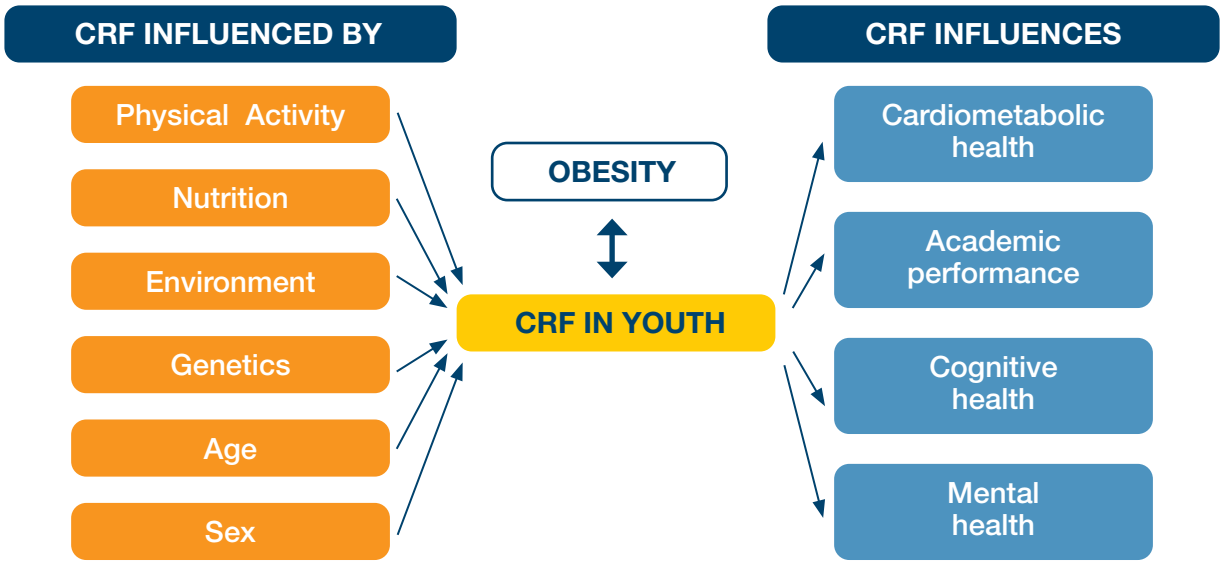


Figure 2 - Cardiorespiratory fitness in young people: Key influencers and effects.
Source: Raghuveer et al. (2020)

According to international recommendations for prescribing exercise to children and young people, the influence of weekly time dedicated to PE is very limited in improving ACR. Nevertheless, several studies indicate that PE classes may contribute to improves in CRF (Minatto et al., 2016; Barbosa et al., 2016; Peralta et al., 2020; Pozuelo-Carrascosa et al., 2018). However, it has also been reported that only the least able students benefit from these classes (Mayorga-Vega & Viciana, 2015) or that they have no effect at all unless they are designed to improve PF (Minatto et al., 2016).

In the context of PE, several aspects have been identified as potential promoters of CRF: intensity, age and body weight: (1) the intensity of the classes is the key element in the progress made; (2) older students are more vulnerable to a decrease in physical activity; and (3) overweight and obese students should be a priority concern for teachers (Peralta et al., 2020).

Assuming that CRF is related to the ability to perform exercises that require a high percentage of muscle mass, dynamically and with moderate to vigorous intensity, for prolonged periods. Furthermore, it is likely that CRF depends on the integrated functioning and functional status of the respiratory, cardiovascular and muscular-skeletal systems. Thus, it seems plausible that there is a contribution of muscular fitness to motor performance is plausible, which in turn reinforces the idea that strength training is a viable strategy for promoting CRF in young populations (Minatto et al., 2016; Peralta et al., 2020). Therefore, CRF can be enhanced direct-

ly through activities that necessitate a high percentage of muscle mass (running, swimming, skating), and indirectly through exercise linked to team sports games, incorporating strength and general body mobility exercises, varying the pace of the class (with at least 50% of the PE lesson total time being of moderate to vigorous intensity, as recommended in the literature), and introducing "dynamic breaks" (when the content taught is not of high intensity due to its specificity) (Vieira et al., 2023).

Minatto et al. (2016) also state that for PE classes to effect CRF, there must be careful control of the intensity and/or activity carried out, involving classes lasting more than 60 minutes each, held three times a week, and maintained for 13-24 weeks.

Flexibility

Flexibility can be defined as the range of movement of a joint (Behm, 2018). While there is no consensus on its impact on health-related physical fitness, it is important for students with significant limitations in their range of motion. Limited flexibility can hinder the execution of various movements and may also contribute to postural problems. It has been described that the optimal age for enhancing joint range is between five and 11 years old. Pre-puberty is an opportunity to improve levels, while adolescence and adulthood are times to maintain acquired levels, minimising the effects of the typical decline associated with the ageing process. Regarding training, it has also been recognised that flexibility exerts a beneficial influence on postural stability and balance.

In fact, several studies indicate that children with adequate extensibility of the hamstring muscles have a lower risk of pelvic/vertebral postural disorders, lower back pain and cervical strain in the future (Vega et al., 2017). Additionally, in children with lower back pain, improving the extensibility of their hamstring muscles appears to be associated with a reduction in pain levels (Ahlqwist et al., 2008).

Some studies suggest that flexibility can be improved in the context of PE classes (Kamandulis, Emeljanovas, & Albertas, 2013; Merino-Marban et al., 2015). To achieve this, flexibility training should be personalised and target major muscle groups, including the shoulder girdle, chest, neck, trunk, lower back, hips, as well as the anterior and posterior parts of the lower limbs and ankles (Behm, 2018; Liguori et al., 2021). Various methods for enhancing flexibility include static stretching, ballistic stretching, dynamic stretching, and proprioceptive neuromuscular facilitation (PNF). It is important to note that the selected exercises are most effective when the muscles are warmed up (Behm, 2018; Liguori et al., 2021).

It is recommended that flexibility exercises be incorporated into each class, ideally performed 2-3 times a week or more for greater effectiveness. The intensity should be sufficient to induce a sense of stiffness or slight discomfort in the muscles, with the stretches held for 10-30 seconds. For older students, it may be more beneficial to hold the position for 30-60 seconds. When PNF stretching, it is advisable to engage in a light to moderate contraction for 3-6 seconds, at a level of 20-75% of the maximum voluntary contraction, followed by 10-30 seconds of assisted stretching. It is a realistic goal to perform 60 seconds of total stretching time in each flexibility exercise, repeating it 2-4 times (Behm, 2018; Liguori et al., 2021).

Before moving on to concrete proposals, it is important to explain some central constructs for organising intervention programmes, namely the principles of training, guidelines for combining Frequency - Intensity - Time - Type, i.e. the FITT formula, as well as the conceptualisation of aerobic fitness and muscular fitness.

Basic training principles

Compliance with the basic principles of training creates the conditions for an adaptive individual body response to exercise. It is not feasible to anticipate that all students will set the same personal goals, have similar levels of interest in PA and identical degrees of fitness. Each pupil responds differently to the activities proposed in the PE class, which is why it is of paramount importance consider the basic training principles. They provide a sustainable basis for a more personalised approach that addresses the specific needs of each student, particularly regarding workload and the diversity present in the class.

- **Overload** – This principle holds that any body system should be stimulated beyond its usual limits for the desired adaptations to training to occur. It is important to acknowledge that, given the limited duration of physical education (PE) sessions, the selected exercises must be as effective as possible, meaning they should have the potential to produce the best effects for the students based on their individual characteristics. The application of this principle is closely related to the specificity of adaptation. This implies that the physical exercise, which triggers a response, primarily affects specific parts of the body or systems while having a minimal impact on others (Brooks, Fahey, & White, 1996). Therefore, the training programme must be aligned with the desired outcomes or adaptations.
- **Progression** – The training load must increase gradually over time to remain effective and safe. Teachers should emphasise that becoming more active and improving PF is a gradual and continuous process.

As the class time dedicated to PE is fixed, an increase in the training load can be achieved by increasing the volume of training. Therefore, the progression should be made at the expense of the intensity obtained by increasing the execution speed -and/or choosing more challenging exercises. The progression of the training load must also be linked to the continuity (regularity) of its application, in accordance with the adage "you either use it or lose it". Any gains in PE will be lost if the individual does not continue to be active. This fundamental principle reinforces the importance of lifelong PA. Improvements in physical performance acquired during childhood or adolescence are transient and will fade after years of inactivity in adulthood.

- **Individualisation** – students participate in a PF development programme with varying biological potentials for change, goals and objectives, personal goals and interests, current activity patterns, fitness levels, psychosocial characteristics and environmental determinants. The application of this principle must go against the idea of "one fits all". PE teachers must consider the diverse levels of PF that students have, as gender, degree of biological maturation and level of physical condition represent very important variables.

Guidelines for planning the development of Physical Fitness

(Frequency - Intensity - Time - Type)

The FITT formula outlines the guidelines for frequency, intensity, time, and type, which are crucial factors in applying the fundamental principles of training when designing a programme to develop PF. In this sense, the teacher needs to make responsible decisions with reference to the FITT guidelines. The implementation of these decisions depends on several elements, including the goals and expected results of the program, the practice environment or context and the developmental stage of the participants. We will now provide a brief explanation of each component:

- **Frequency** – describes the number of times a person performs the desired exercise on a weekly basis.
- **Intensity** – describes the degree of difficulty of the exercise and represents one of the most critical decisions in programme design. Selecting the intensity of the exercise depends on a few aspects, including the participant's stage of development, personal goals, degree of current physical activity and fitness level. For example, participants aiming to improve sports performance need to exercise at a higher intensity, compared to

those seeking general health benefits. In addition, a student who is already regularly active will be better prepared to tolerate higher intensities than someone who is sedentary.

When working with students with low initial fitness levels (expression of their abilities at a given moment), teachers should propose lower intensity activities to provide a more enjoyable experience and minimise any potential discomfort or pain.

- **Time** – indicates the duration of the activity/exercise to be performed. The time varies depending on the component of the PF to be exercised and is inversely related to intensity.
- **Type** (of exercise to be performed) – the mode or form of activity chosen to train each component of PF related to health. For example, a person can improve aerobic fitness by walking, cycling, in-line skating, climbing stairs or participating in any other physical activity that raises the heart rate over a long period. Muscular fitness can be developed by muscle contraction against external resistance (variable resistance machines, elastic tubes, body weight, medicine balls, or a partner). Flexibility can be increased by repeatedly stretching a muscle beyond its normal resting length, using various training modes, including static and dynamic methods.

Table 1 shows the recommendations put forth by Liguori et al. (2021) for the organisation of PF intervention programmes within the PE context.

Table 1 – Fitt Recommendations for children and adolescents

(ACSM, 2022)

FITT RECOMMENDATIONS FOR CHILDREN AND ADOLESCENTS			
	Aerobic	**Resistence**	**Bone Strengthening**
Frequency	Daily; include vigorous intensity at least 3 d - wk^{-1}	≥ 3 d - wk^{-1}	≥ 3 d - wk^{-1}
Intensity	Moderate (noticeable increase in HR and breathing) to vigorous intensity (substantial increases in HR and breathing)	Use of body weight as resistance or 8-15 submaximal repetitions of an exercise to the point of moderate fatigue with good mechanical form	Variable with emphasis on activities that produce moderate to high bone loading through impact or muscle force production
Time	As part of ≥60 min - d^{-1} of exercise	As part of ≥60 min - d^{-1} of exercise	As part of ≥60 min - d^{-1} of exercise
Type	Enjoyable and developmentally appropriate activities, incluing tag/ running games, hiking/ brisk walking, hopping, skipping, jumping rope, swimming, dancing, bicycling, and sports such as soccer, basketball, or tennis.	Muscle strengthening physical activities can be unstructured (*e.g.*, playing on playground equipment, climbing trees, tug-of-war), or structured and appropriately supervised *(e.g.*, performing body weight exercises such as push-ups and sit-ups, lifting weights, working with resistance bands).	Examples of bone strengthening activities include running, jump rope, basketball, tennis, resistance training, and hopscotch.

Note: HR - heart rate

Curriculum Guidelines

1.Key learnings

Key learning establishes, among other things, general objectives and competences common to all areas: (1) "*to know and apply various processes for raising and maintaining physical fitness in an autonomous way in their daily lives, with a view to health, quality of life and well-being*"; and (2) "*to raise the functional level of general conditional and coordinative abilities, particularly long- and medium-duration general endurance, strength endurance, power, flexibility, simple and complex reaction speed, execution speed, displacement and endurance speed, and general and specific dexterity*". In the organising domain of PF, "*the student should be able to: develop motor skills, showing muscular fitness and aerobic fitness, within the healthy physical fitness zone of the FITescola® test battery, for their age and gender*".

In addition, in the cognitive domain, a range of knowledge is presented for each year of schooling (Table 2) that the student must acquire to improve their PF.

Table 2 - Systematisation of key learning in cognitive domain by year of schooling

COGNITIVE DOMAIN	KNOWLEDGE, SKILLS AND ATTITUDES The student should be able to:
5th grade	Identify physical abilities: endurance, strength, speed, flexibility, agility and (general) coordination, according to the characteristics of the effort made.
6th grade	Identify physical abilities: endurance, strength, speed, flexibility, agility and (general) coordination, according to the characteristics of the effort made.
7th grade	Relate PF and health and identify the benefits of exercise for health. Interpret the socio-cultural dimension of sports today and throughout history, particularly the Olympic and Paralympic Games.
8th grade	Relate PF and health and identify the factors associated with a healthy lifestyle, namely the development of motor skills. Identify and interpret Olympic and Paralympic values, understanding their importance in building a modern and inclusive society.
9th grade	Relate PF and health and identify factors associated with a healthy lifestyle, namely the development motor abilities, body composition, diet, rest, hygiene, affectivity, and environmental quality. Interpret the sociocultural dimension of sports and PA, today and over time, identifying phenomena associated with the limitations and possibilities of practicing sports and physical activities, such as sedentary lifestyles and technological evolution, pollution, urbanism and industrialization, relating them to the evolution of societies.
10th grade	Relate PF and health and identify factors associated with a healthy lifestyle, namely the development motor abilities, body composition, diet, rest, hygiene, affectivity and the quality of the environment. Interpret the sociocultural dimension of sports and physical activity, today and over time, identifying phenomena associated with the limitations and possibilities of practicing sports and physical activities, such as sedentary lifestyles and technological evolution, pollution, urbanism and industrialization, relating them to the evolution of societies. Aiding a cardiorespiratory victim, whether in PA or other contexts, it as an essential action highlighting individual and collective responsibility: · Comply with and explain the importance of the chain of survival (call 112, resuscitate, defibrillate, stabilise). · Ensure safety conditions for the rescuer, the victim and third parties. · Perform a primary examination of the victim through a brief succession of actions, assessing reactivity, airway patency and ventilation. · Contact the emergency services (112), providing necessary information (victim, location, circumstances) clearly and efficiently.

	· Perform the Basic Life Support and Automatic External defibrillation manoeuvres according to the current algorithm issued by the European Resuscitation Council (ERC). · Recognise severe and mild airway obstruction, applying the appropriate rescue measures (encouraging coughing, removing any visible obstruction, interscapular clapping, Heimlich manoeuvre).
11th grade	Know the most suitable training methods and means for developing or maintaining the various motor abilities. Know and interpret the health and risk factors associated with the physical activities, using this knowledge to ensure safe practice, namely: · Doping and risks to life and/or health. · Illnesses and injuries. · Material conditions, equipment and training guidance.
12th grade	Know and use the most appropriate training methods and means for the development or maintenance of the various motor abilities, according to current aptitude and lifestyle, taking care of the intensity and duration of effort, respecting the basic principles of training in all situations. Critically analyse general aspects of ethics in participation in sports activities, relating social, economic, political and other interests to some of their "perversions", namely: · Early specialisation and early exclusion or drop-out. · Violence (from spectators and athletes) vs. sportsmanship. · Corruption vs. sporting truth.

The descriptors of the pupils' profiles for all years of schooling indicate "taking care of yourself and others", so the processes of group work (even if the objectives differ), hetero-evaluation and mutual help should be promoted in the operationalisation of the PF.

A proposal for operationalisation

Based on the concepts and assumptions explained in the previous sections, we will now present an operationalisation proposal based on a model of PF for health, specifically McConnell's (2010) model of PF for health (Welness Education Model). This model envisages a gradual and progressive evolution of students, with the aim of achieving the desired idea of "physical activity for life".

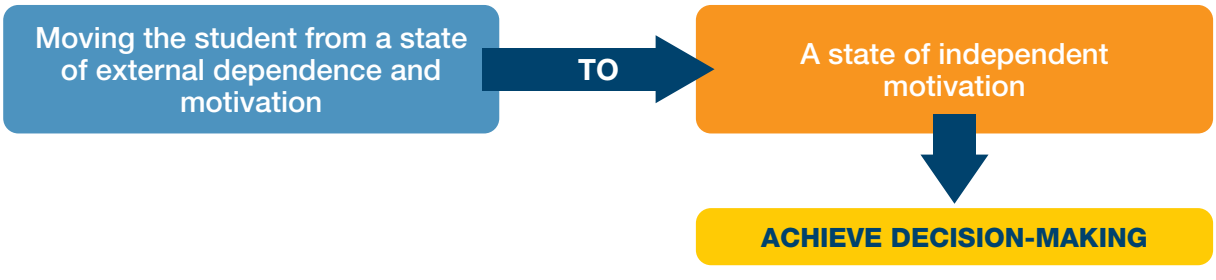
The model adopts a comprehensive approach to health-related PF, based on three elements:

- engaging in appropriate physical activity;
- learning why it is important;
- knowing and being prepared to carry out and plan PF programmes.

McConnell's Health Physical Fitness Model

Physical Fitness

MODEL PHILOSOPHY



Model assumptions:

1º Maximise health benefits;

2º Learn to develop and maintain adequate fitness levels;

3º Acquire knowledge and skills to plan and execute personal activity programmes throughout life.

The model is structured in six stages to encourage students to exercise, improve their PF, self-assess and plan to acquire lifelong physical activity habits (Figure 3).

Physical Fitness

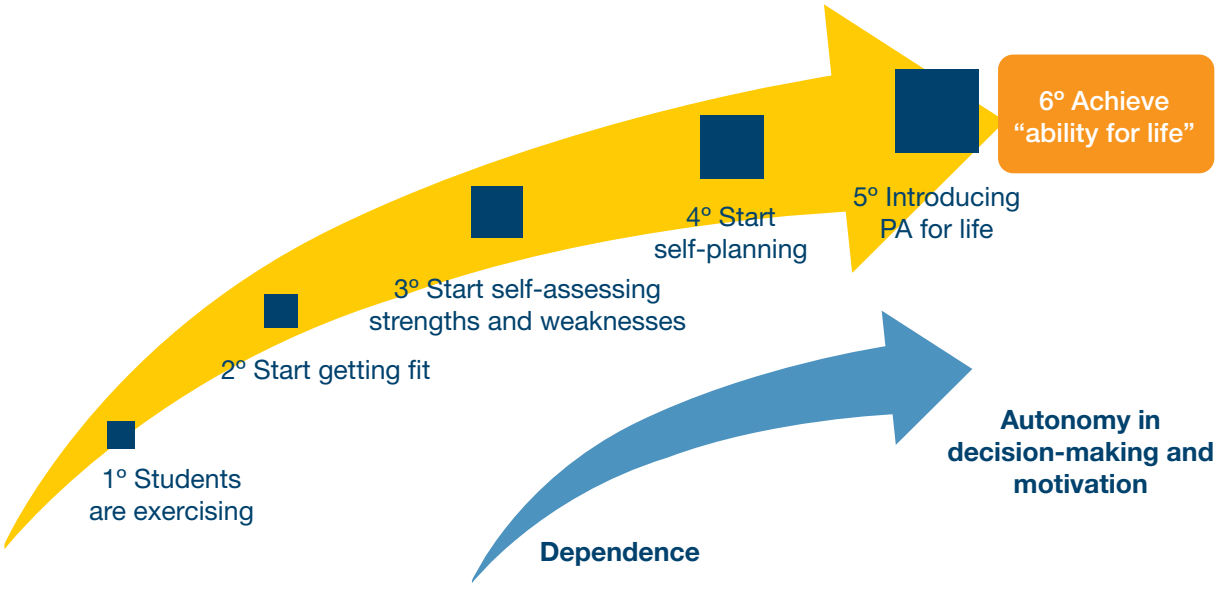


Figure 3 - Health education model (Wellness Education Model by McConnell, 2010)

As you can see, the core of the model is the process, not the product, and it is essential that students become more autonomous in their decisions about physical activity and their lifestyle habits.

From the perspective of content and main benefits, McConnell's health PF model has a cognitive axis (which is in line with the cognitive-pedagogical dimension of a quality PE), makes physical exercise worthwhile (it is important for students to exercise and to do so in an appropriate way) and teaches them to understand why (attribution of meaning - in line with the pedagogical dimension of a quality PE).

Focus and benefits:

- Cognitive focus;
- Makes physical activity more worthwhile;
- Teaching to understand why.

To do this, students must LEARN to:

- Evaluate their skills;
- Interpret the results;
- Propose exercises suited to the skills to work on;

- Select exercises tailored to their goals;
- Develop a personal programme focused on results and personal goals.

The assessment is not about the level of performance, but about the understanding of the product and the ability to set their own goals and work towards them.

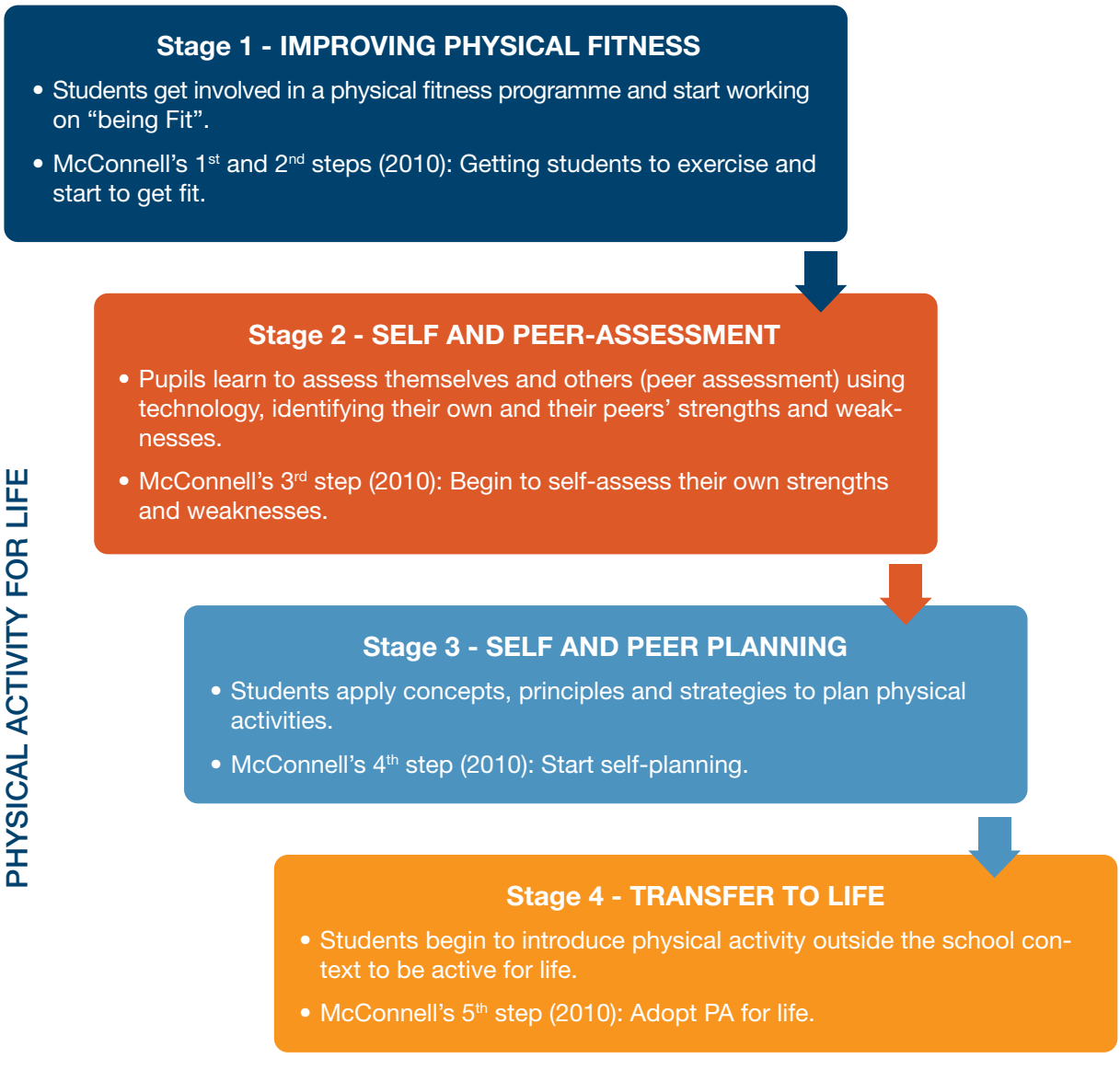
Practical intervention strategies*

PF activities should be planned on an annual basis and integrated with other curricular components, such as sports and knowledge. This means that PF activities should be part of the general planning process, integrated into the general planning. To reach this purpose, teachers should design teaching situations (learning tasks) according to the objectives they want to achieve with the students, for example, focusing on the coordination dimension, or the muscular dimension, or the energy production dimension. Despite the demand prevalence, they always focus on their personality. To achieve this integration, teachers should design learning tasks according to the objectives they want to accomplish with their students. These objectives may focus on areas such as coordination, muscular strength, or energy production. Although there may be specific emphases in each area, it is essential to consider the holistic development of the student's personality. For instance, if the aim is to enhance a student's coordination through new movements, it is important to remember that coordination is also involved in developing muscular fitness. Similarly, strength can be mobilised when students do gymnastics or engage in team sports. Additionally, predominant aerobic energy production can be achieved during the warm-up phase of a lesson, provided the proposed exercises are of appropriate duration and characteristics. This can also occur during gameplay, especially in sports such as football, handball, and basketball. This integrated view of the exercise must be considered when planning tasks, so that the desired effects are produced in an interconnected way, combining the different preferred objectives of the various types of situations proposed by the teachers.

As an introductory note, we clarify that the proposals presented in this work are primarily aimed at secondary education (grades 10, 11 and 12). However, the steps and general guidelines for each of them, especially regarding the design of training plans, should be considered for the other levels of education. It should also be noted that the proposed contents, in terms of knowledge in the examples we are going to present, refer to grade 12.

* The organisation of McConnell's model stages and the corresponding sheets were drawn up as part of the of the doctoral work of one of the co-authors - Ana Mafalda Silva - in collaboration with pre-service teachers Daniel Vieira, Sérgio Miranda and Rui Brandão.

To make the model possible in the context of PE, the first decision is to associate the stages of the model, reducing them to four, the last of which is a transversal objective for the whole school year, regardless of the stage in which one is working.



STEP 1 - IMPROVING PHYSICAL FITNESS

- Pupils became involved in a physical fitness programme and start to work on "getting fit";
- McConnell's steps 1 and 2 (2010): Getting students to exercise and start to get fit;
- This is a process that starts at this stage and should continue until the end of the year, in a progressive and increasingly self-referential way.

Given the assumptions and principles explained in the previous sections, our work proposals point to the priority development of **muscular fitness** and **cardiorespiratory fitness** in a school context, while also paying attention to flexibility, but in a different way (described later).

Framed within the perspective of health-related PF and considering the curricular guidelines, the initial level can be assessed by means of five tests: the shuttle run (20 metres), abdominal crunches, push-ups, vertical jump and horizontal jump.

To train the priority components, i.e. muscular fitness and cardiorespiratory fitness, we suggest the following strategies:

1. Strength training (using your own body weight or small external resistance):

1.1. Modify the prescribed load (e.g. perform 6 or 10 reps.);

1.2. Redefine the task (e.g. give the alternative of performing (a) the usual push-ups; (b) with the feet raised above the floor; (c) with the upper body resting on a plan above the floor);

1.3. Draw up an individualised training plan, (a) with the same types of exercises for all students, (b) emphasising work on the students' weak points, depending on the results observed after using the test battery;

1.4. Draw up training plans for pairs with similar or slightly different levels of PF;

1.5. When performing exercises, "play" with the use of different muscle contraction regimes: (i) emphasising the eccentric phase of the movements, (ii) creating moments of isometric tension, or (iii) speeding up the concentric phase.

2. Combining strength training with aerobic/anaerobic work:

2.1. Alternate the performance of strength exercises with periods of running (or mobilisation of a high percentage of muscle mass) at medium/high speed;

2.2. In this situation, a set of all the strength exercises planned can be followed by a run (the duration can be variable) at medium/high speed;

2.3. As a variation, this alternation can be done after performing 1 or 2 strength exercises with a running situation;

2.4. Perform the strength training in a circuit, with or without a break between exercises, to stimulate cardiorespiratory fitness.

3. When setting up working groups:

3.1. Form groups of 2, 3 or 4 members, no more;

3.2. Choose a “team captain” and teach him or her how to lead;

3.3. Form heterogeneous groups, so that they “pull each other along” or according to affective harmony;

3.4. Form homogeneous groups to create situations of competition and challenge between members of a similar level;

3.5. When forming pairs, there may be reasons (like those mentioned above) for opting for homogeneity or heterogeneity.

TRAINING PROPOSALS

At the beginning of the school year, there could be standardisation, i.e. all the pupils do the same tasks with a slight modification, with two objectives: on the one hand, class management and control and, on the other hand, adaptation to the work of developing PF (Tables 3 and 4).

PROPOSALS: 1A (group with better PF) and **1B** (group with lower PF)

Contextualisation: after observing the results obtained in the application of the test battery and defining individual objectives for each member of the group, the work can be carried out in two groups defined according to the initial PF level.

Table 3 - Training proposal 1A - students with the best PF scores

PROPOSAL 1A		
MUSCULAR FITNESS		
Upper body (UB)		**Reps**
	**Inclined push-ups:** - Keep the body aligned and contracted throughout the exercise. - Hands shoulder-width apart. - Flex upper body to form a 90º angle. - Fully extend the elbows at the at the top of the flexion.	2x15
	**Triceps** - UB fully extended in the concentric phase. - Lower body (LB) extended. - Lower to 2 cm from the floor.	2x20
Core		
	**Abdominal Crunches:** - Hands together between the LB. - Look straight ahead. - Raise your hands to your knee	2x20
	**Bicycle abs:** - Shoulders never touch floor. - Touch left elbow to right knee (and vice versa). - Feet 2 cm off the ground.	2x20
Lower body (LB)		
	**Fixed lunge:** - Maintain foot position throughout the exercise. - Left knee drops to 2 cm from the floor. - Right leg at 90º angle. - After 20 reps, switch legs.	2x20
	**Jump Squat:** - Look straight ahead. - Knees in line with toes.	2x15
Aerobic Fitness*		
	**Running:** - 2 slow runs/1 fast run.	15

Individualisation:
* L and AI - Perform aerobic fitness (30 laps).
* T and N - Perform another set of IM + 15 running routes (the fast run is done at maximum speed)

Between the two sets, ALL students will do aerobic fitness.

Table 4 - Training proposal 1B - students with lower PF scores

PROPOSAL 1B	
MUSCULAR FITNESS	
Upper body	**Reps**
 **Push-ups** - Keep the body aligned and contracted throughout the exercise. - Hold hands shoulder-width apart. - Bend torso to form 90º angle. - Extend elbows fully at top of flexion. (Do as well as you can, then place your chest on the floor and stand up).	2x10
 **Handstand:** - Keep your body aligned and contracted throughout the exercise. - Hands shoulder width apart. - Take 3 steps forward and 3 steps back.	2x30”
Core	
 **Abdominal crunches:** - Grasp hands between legs. - Look straight ahead. - Bring your hands up to your knees.	2x15
 **Bicycle abs:** - Shoulders never touch floor. - Touch left elbow to right knee (and vice versa). - Feet 2 cm off the ground. (With difficulty? The leg in extension doesn’t have to go all the way down to the floor, go as far down as you can).	2x20
Lower body	
 **Jump squat:** - Look straight ahead. - MS between the IM touch the ground. - Hips go straight down. - Explosive jump as you rise.	2x20
Aerobic fitness*	
 **Running:** - 2 slow runs/1 fast run.	15

Individualisation:
* B - Perform aerobic fitness
* MJ and M - Perform 10 push-ups + aerobic fitness
* J - Perform another core set

Between the two sets, ALL students will do aerobic fitness.

Alongside this work, it is important to introduce some content from the cognitive domain that will enable students to understand what they are doing and prepare them with relevant knowledge to use in class, out of class, and in the future.

The proposal should be based on the content set out in the Key Learning, cognitive domain, which relates to the area of PF, namely the preparation that students demonstrate and the needs that are detected. We propose the format of weekly tips so that, over the course of the weeks, concepts relevant to students' self-assessment are introduced and put into practice.

An example (in a grade 12 class)

Tip of the week:

- What is heart rate (HR)?
- How is HR measured?
- What is an HR monitor?

Note: the power point (PPT) can be accessed at:
https://lacm.fade.up.pt/files/PST-PRIPE/PDF/ENG/Intensity.pdf

Related tasks:

- Short form to characterise the students' levels of ADL;
- Interpretation and discussion of PF test results;
- Use of the HR monitors and analysis of the data collected to make students aware of where they are and start to establish their own goals.

Strategy for grouping students:

- Exercise in groups, depending on test results and data already available.

Examples of record/self-assessment sheets

Sheet 1 - Recording and analysis of the results of the PF tests
Physical Fitness Tests

Observations / Tests	Anthropometric data			Horizontal jump	Vertical jump	Abs	Push--Ups	20 m shuttle run
	Body Mass Index	Waist circumfer-ence	Hip circumfer-ence					
1st								
2nd								
3rd								
4th								
5th								

1st MOMENT OF TESTING

1. Mark with an (X) how you rate yourself in the different areas

	Insufficient	Sufficient	Good	Very good
Upper body strength				
Lower body strength				
Abdominal strength				
Cardiorespiratory fitness				
Commitment to fitness work				

2. What abilities(s) do you think you need to work on more?

_____

_____

_____

3. Considering your performance, define two goals that you intend to achieve by the 2nd test date.

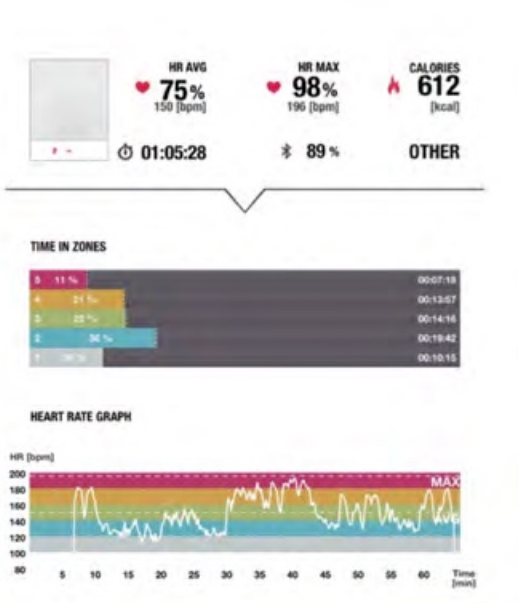
Teacher's comment:

_____

_____

_____

Sheet 2 - Recording and analysing heart rate monitor data.



Answer the following questions about the records of your heart rate monitor use:

1. What is your maximum heart rate? ____
2. What is your average heart rate? ____
3. Can you identify the average time spent in the vigorous physical activity zone? ____
4. Can you identify the average time spent in the moderate physical activity zone? ____
5. Considering the various activities carried out during the lesson, interpret the last graph.

_____

_____

6. Identify the moment in the session when you reached the highest level of intensity.

_____

_____

7. In the last part of the lesson, dedicated to physical fitness work, at what level of intensity were you?

_____

_____

8. What can you do to increase the fitness benefits of the class?

_____

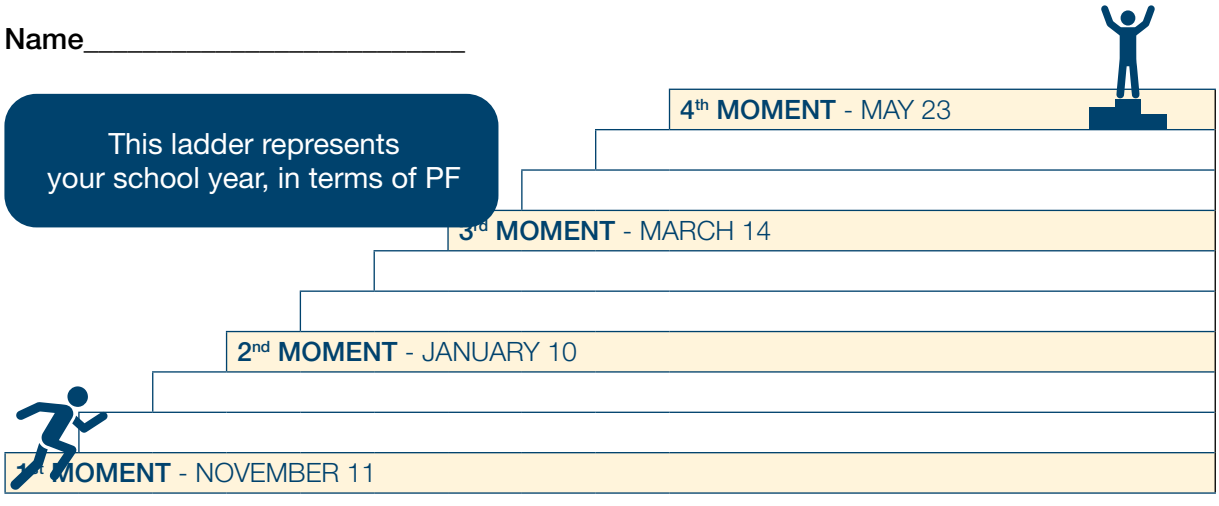
_____

Teacher's comments:

_____

_____

Sheet 3 - Definition of individual objectives based on the results of the PF tests



Note: The ladder should have as many moments as the teacher deems appropriate to assess the level of PF the pupils are at. Please note that it is not necessary to use all the tests all the time.

STEP 2 - SELF AND PEER ASSESSMENT

- Students learn to assess themselves and others (peer assessment) using technology (e.g.), to identify their strengths and weaknesses and those of their peers.
- McConnell's Step 3 (2010): Begin to self-assess strengths and weaknesses.

Tips of the week:

- What is 'being fit'?
- Basic knowledge of each exercise in the fitness plans, with criteria and objectives for each one.

Related tasks:

- Video recordings (e.g. with a mobile phone) of the execution of the various exercises of the fitness plan + Group meetings to analyse the quality of the performance and to identify mistakes with the idea of improvement.
- Short worksheet to explore each person's strengths and weaknesses.

Strategy for grouping the students:

- Exercise in small groups, preferably with students of different PF levels.

Examples of activities and record sheets

Activity - What does it mean “be fit’?

Invite students to write a sentence, a drawing, a text or a poem about what it means to ‘be fit’. Based on their contributions, draw up a poster to display in a place accessible to all students and discuss what it means to ‘be fit’ - the aim is to deconstruct the notion of fit being associated with slim, perfect, muscular bodies, and to contribute to a notion of fit that is tailored to each student.

Note: For more information on this activity, please consult the study carried out in a 7th grade class in the 2022/232 school year[1].

Sheet 4 - Analysis sheet of the recorded exercises

1. Compliance with the programme – Did all the students in the group comply with the planned fitness programme (repetitions, sets, rest...)? Tick the appropriate box.

	All the students complied
	1 Student did not comply
	2/3 Students did not comply
	None complied

2. Commitment to the programme – Were all the students in the group actively involved in the tasks proposed? Tick the appropriate box.

	All the students complied
	1 Student did not comply
	2/3 Students did not comply
	None complied

3. Quality of involvement – Fill in the following table, indicating the exercises carried out, their quality (on a scale of 1 to 5, with 5 being perfect) and the points to be improved.

EXERCISES		QUALITY	POINTS TO IMPROVE
1			
2			
3			

4. Technology – What do you think about watching the video? Orient your answer towards positive, negative and improvement aspects.

5. Importance of Physical Fitness – How important do you think physical fitness is? How relevant is it to your daily life and your future?

[1]Maia, C., Silva, A., Fonseca, M., Maria, M., Batista, P. (2023). (Re) construir a ideia de ser Fit e estar em forma nas aulas de Educação Física. *Journal of Sport Pedagogy and Research, 9*(3), 28-36. https://doi.org/10.47863/YWVP1104

The training plan should be drawn up following proposals 1a and 1b, as shown in proposal 2 (Table 5)

PROPOSAL 2

Contextualisation: plans defined after identifying problems/challenges, leading, for example, to the restructuring of the group for motivational reasons. If there is no indication of who is doing what, the student makes decisions and can choose, for example, to vary the number of repetitions, indicate or alternate levels of performance, work the upper body at level 2 and the lower body at level 1.

Table 5 - Proposed training plan 2

PROPOSAL 2 - LEVEL 1

STRENGTH		
Upper body		**Reps**
	**Knee push-up:** - Hold arms shoulder wide apart with one hand in front and one hand behind. - Flex the upper body until they form a 90º angle. - Alternate hand positions with each repetition.	2x10
Core		
	**Leg raises:** - Keep elbows on floor. - Extend legs as close to floor as possible. - Flex until close to chest.	2x10
	**Heel touches:** - LB form 90º angle. - Look straight ahead. - Hands touch heels alternately.	2x10
Lower body		
	**Walking lunges:** - Switch sides. - Drop left knee 2 cm from floor. - Bend right leg 90º angle.	2x10
	**Squat with sidestep:** - Look straight ahead. - When LBs form a 90º angle, step to the side.	2x10
Aerobic fitness		
	- Sprint - Recovery run.	15

STEP 3 - SELF- AND HETERO-PLANNING

- Students apply concepts, principles and strategies to plan physical activities.

- McConnell's (2010) Step 4: Start self-planning.

Tips for the week:

- FITT Formula
- How many repetitions?
- How much rest?
- How many exercises?

Note: the PPT can be found at: https://lacm.fade.up.pt/files/PST-PRIPE/PDF/ENG/FI-IT-Formula.pdf

Related tasks:

- Create their own training plan, based on their strengths and weaknesses;
- Use "JEFIT" to identify exercises (e.g. a digital tool/application that can be used among many other tools free tools available).

Strategy for grouping pupils:

- Exercise carried out individually (but in a group).

The aim of this stage is for the students to use the knowledge they have acquired so far to draw up their own fitness plan, with the teacher acting as a facilitator. In this specific example, being a 12th grade class, the aim is for them to be able to draw up a comprehensive fitness plan. However, in earlier grades, the self-planning task should be adapted according to the syllabus and individual abilities - for example, planning one strength exercise for the lower body and another for the upper body.

Examples of activities and guidance documents for drawing up training plans

Guiding task for drawing up the training plan

- Download the JEFIT app with ALL the possible exercises

  1. Open the App Store/Google Play
  2. Download the JEFIT app
  3. Open the app and log in (via email or Facebook)
  4. Select the “Exercises” option and explore

- Deadlines:

29/30 March - Work proposal
31 March /April 1 - Delivery of first version (without evaluation)
5/6 April - Revision of work
7/8 April - Delivery of 2nd version (and last for evaluation)
19/20 April - Start of the new plan

Principle of specificity – Training must be tailored to you to be effective, so don’t forget to analyse your strengths and weaknesses when planning.

Support document for drawing up the training plan

Let’s have a look at the following example of student X

Observations / Tests	Anthropometric data			Horizontal jump	Vertical jump	Abs	Push--Ups	20 m shuttle run
	Body Mass Index	Waist circumfer-ence	Hip circumfer-ence					
1st								
2nd								
3rd								
4th								
5th								

Looking at the results of the physical tests, student X

X	Progressed
	Maintained
	Did not progress

In general terms, student X's level is

	High
X	Intermediate
	Low

General observation of student X/methodological notes:

The student performs well in terms of abdominal strength. As such, priority should be given to training the UB and LB. Despite good progress, these are the areas of the body that need the most training.

But how to do this?

- Consider the time available to do them, in our classes of 15 to 20 minutes.
- We should choose 5 or 6 different exercises and perform 2 sets of each.

And how do I choose the exercises?

- Following the example shown, 2 exercises for the UB, 2 for the LB and 1 for the abdominal area.

What about the number of repetitions? How many should I do?

- Follow the overload principle, one of the basic principles of training: Always work beyond what your body is used to.
- It is recommended that the number of repetitions vary between 10 and 15 - this means that if can easily do 15 repetitions, you are not following the principle.

- Remember that in class it is not possible to work with external loads (weights) and you should adapt the exercises you choose to your level of fitness.

How can I make an exercise harder?

olog

e able to make it more :

- The cadence (e.g. 3" concentric phase + 3" eccentric phase).
- Isometric moments during the exercise (e.g. stopping 2" in the middle of the push-up).

Below is an example of a weekly schedule (because physical activity should be regular, both in and out of school) and a training plan.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WEEKEND
Workout (full body at home)	Rest	PE class (100 min with fitness)	Rest	PE class (100 min with fitness)	Walk (30 min with family)

Based on this information, each student is expected to draw up their own fitness plan according to their needs and objectives, as shown in the example below (Chart 6).

Contextualisation: Plan proposed by the student using the knowledge gained from the theoretical content provided by the teacher.

Chart 6 - Fitness plan drawn up by a student

STRENGTH

Upper body		Reps
	**Push-ups:** - Keep body aligned. - Arms at 90º to shoulders.	2x15
	**Mountain climbers:** - Extend the cup to floor and raise arms and legs. - Do not land with your feet on the floor.	2x10
Core		
	**Abdominal Crunches:** - Keep your feet on the floor. - Touch your hands to your knees.	2x10
	**High Plank:** - Body aligned. - Concentrate on one point.	2x30”
Lower body		
	**Jump squat:** - Keep torso and legs at 90º from seated position. - Legs shoulder-width apart.	2x30”
	**Fixed lunge:** - Extend and lower one leg. - Knees must not touch the floor. - Keep torso straight.	2x15
Aerobic fitness		
	- Sprint - Recovery run.	2x30

Justification:

I, BB, chose the exercises shown in the table for the following reasons:

- The upper body exercises have more repetitions, because I found them more challenging based on my tests. By increasing the number of repetitions, I am respecting the principle of overload.
- The core exercises, despite having several repetitions, are the easiest for me, so they’re manageable.
- For the lower body exercises, I selected those previously done in class that I felt were most effective in enhancing my strength in the respective areas.
- In aerobic fitness, I decided it would be better to do more repetitions than sprinting. I find it harder to keep up the pace, which also explains the results of the tests.

Weekly exercise planning for a student X

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Rest	PE class (90 min with fitness)	Rest	PE class (90 min with fitness)	Full body class at home/ gym (30 min)	Rest	Walk (30 min with family)

STAGE 4 - TRANSFER TO LIFE

- Students begin to introduce physical activity outside of the school context to be active throughout their lives.
- McConnell's 5th and 6th steps (2010): Incorporating PA throughout life.

Although this stage is the culmination of the process, it needs to be implemented from the very first lesson, progressively and with the introduction of various stimuli, including competitions and the involvement of other players, such as the family.

Tips of the week:

- Information on how to improve students' daily number of steps and their daily physical activity

Related tasks:

- Competitions in small groups and of an individual nature, where each task had a score assigned to the team;
- Use of the Classroom application to share videos and photos (evidence).

Strategy for grouping students:

- Exercise carried out individually (but in groups).

It is suggested to design a small project to encourage the students to increase their daily activities, both in and out of school.

Example:

Proposal 1 – take part in the Galp-km-for-meals challenge - suggest that it takes place during the Christmas break or in the weeks leading up to the break.

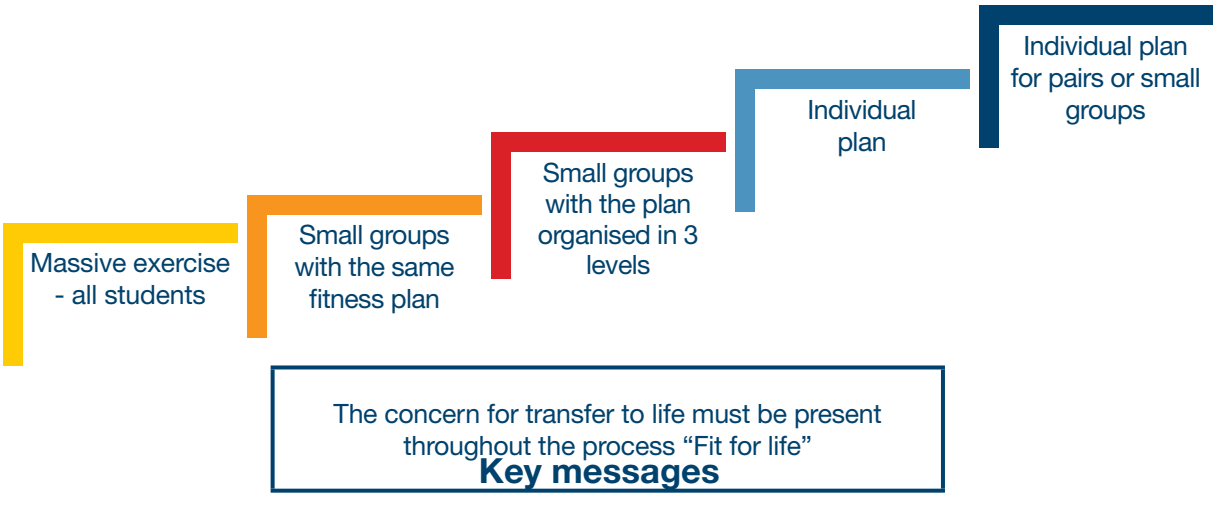
Proposal 2 – weekly challenges, leading up to competitive activities in the class-room where teams can earn points, such as the challenge below:

Phase 4 of the Project - Physical activity outside school

- Weekly challenge (from Monday 16/05 to Sunday 22/05).
- Small groups (3 and 4 elements), which can be the PF groups already formed.
- Whenever they train, in or out of school, all they have to do is send a proof of what they've done to the Classroom (ideally one group for each team). They will receive a score for each task they complete. The more tasks you complete, the more points you'll earn and the closer you get to being the winner of the challenge.
- There will be a prize for the best team and the best student.

Score	Tasks
15 Points	Physical education class Individual walk (0-30")
30 Points	Individual walk (30"-60") Individual workout (0-30") Walking with someone (0-30")
45 Points	Individual walk (60" or more) Individual workout (30"-60") Walking with someone (30"-60") Workout with someone (0-30")
50 Points	Walking with someone (60" or more) Individual workout (60" or more) Workout with someone (30"-60")
100 Points	Walk/Workout/Activity with ALL team members Video of ALL team members working out

In general terms, we can highlight the organisational strategies and global principles to be considered in the operationalisation processes.



It is therefore important for teachers to be able to consider these interrelated elements and to adopt the salutogenic perspective, in which efforts are directed towards positive health promotion rather than disease control.

The two questions the teacher should ask are:

- How dangerous is the "river" on which each student is sailing?
- How does he/she manage to navigate this "river"?

Let's conclude by reinforcing the implications of adopting a salutogenic approach to health in the context of PE, which includes focusing on aspects such as students' participation, influence and involvement in exercise activities, promoting well-being during exercise, encouraging critical inquiry and democratic participation, and emphasising the development of abilities, skills and knowledge that can contribute to students' overall health and well-being. This perspective aims to enrich students' lives, empower them as healthy citizens and support sustainable health development, as shown in Figure 4.

Figure 4 - Key behaviours for a healthy life

The lesson can't just be seen in terms of developing PF, it has other objectives that

need to be integrated so that lessons can meet the recommendations on intensity.

In addition to this specific work on PF, we believe that while we don't advocate intensity in lessons, they must meet the minimum requirements. Thus, in lessons with content that tends to be of a lower intensity, we recommend the introduction of "dynamic intervals". Figure 5 shows an example of the type of exercises that can be proposed in dynamic intervals. In this case, a 100-minute class, dynamic intervals of five minutes each, with five different exercises, one per minute. For more information, see the study by Vieira et al. (2023). https://doi.org/10.47197/retos.v50.97659

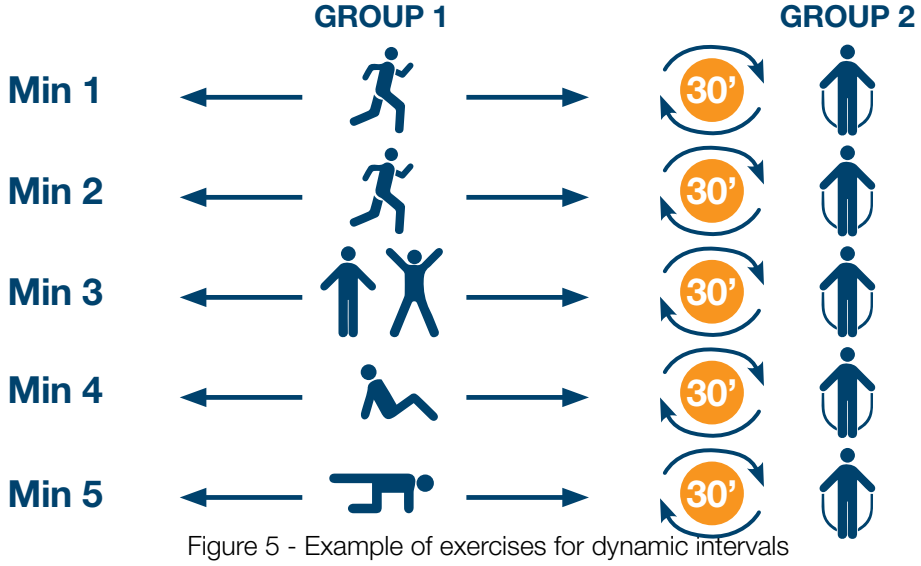


Figure 5 - Example of exercises for dynamic intervals

Action-Research studies

As complementary material, we provide information on pedagogical experiences in PF, which were carried out by pre-service teachers during their year school placement year as part of the PST-PRIPE project. It should be noted that some of these teaching experiences have been published and the rest are presented in the form of the study included in the practicum report, but they are all part of the respective school placement reports:

- Pre-service teacher: Nuno Miguel Oliveira da Silva

Title: Criar adesão à atividade física através de desafios na aula e extracurriculares: um estudo com alunos do ensino secundário [Creating adherence to physical activity through in-class and extracurricular challenges: a study with secondary school students]

Objective(s): To promote a taste for physical activity and increase the level of physical activity among students in a 10th grade class who are not very motivated to exercise and whose level of physical activity tends to be low. In addition, the aims were: (i) to provide the students with tools that would allow them to plan and adapt a training plan tailored to them; (ii) to contribute to improving their level of PF; (iii) to promote teamwork in working groups; and (iv) to understand the role of the competitive factor in increasing weekly PA.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Nuno_Silva_AP.pdf

- Pre-service teacher: Rafael Gomes Sousa

Title: Envolver os alunos num programa de aptidão física focado na qualidade da execução e na aquisição de conhecimentos. [Involving students in a physical fitness programme focusing on the quality of practice and knowledge acquisition]

Objective(s): To provide the students with skills and knowledge in PF that would allow them to exercise independently in the future.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Rafael_Sousa_AP.pdf

- Pre-service teacher: André Filipe Ferreira Martins e Bruno Miguel Costa Pinto

Title: Atender à diversidade dos alunos num programa de aptidão física para a saúde em ensino recíproco: um estudo em contexto de estágio profissional. [Taking into account the diversity of students in a PF programme for reciprocal teaching: a study in the school placement context]

Objective(s): To analyse the students' adherence to PF work in reciprocal compared to direct instruction.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Andr%C3%A9_Martins_AP.pdf

■ Pre-service teacher: Daniel Castro Vieira

Title: Can Dynamic Breaks improve the intensity of Physical Education classes? A teaching experience of a pre-service teacher as a practitioner researcher

Objective(s): To analyse the effect and effectiveness of introducing dynamic breaks (DB) in less intense content PE classes, on time spent in moderata a vigorous physical activity.

https://doi.org/10.47197/retos.v50.97659

■ Pre-service teacher: Cristiana Torres Maia

Title: (Re)construir a ideia de ser Fit e estar em forma nas aulas de Educação Física. [(Re-)constructing the idea of being fit and being in shape in PE classes]

Objective(s): To contribute to the reconstruction of the understanding of what it means to be fit and to be in shape, using strategies that help students to adjust and improve expectations in their perception of themselves and of being fit, in conjunction with improving physical fitness.

http://www.ipg.pt/scpd/files/JSPR_SE_9_3_2023.pdf

■ Pre-service teacher: Ricardo Jorge Rodrigues Silva

Title: Empowering students in PF through assessment for learning in PE

Objective(s): To explore students' perspectives on the incorporation of assessment for learning strategies within PE fitness education.

https://doi.org/10.7752/jpes.2024.05135

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5

Perspectives and guidelines for teaching invasion games

5.1

Transforming invasion games into a matter of inclusion and social justice

Amândio Graça | Paula Batista | Luísa Estriga

INTRODUCTION

The traditional teaching of invasion games (e.g., handball, basketball, and football), in terms of lesson and learning unit planning, instruction and feedback, and diagnostic and summative assessment is very focused on teaching decontextualized techniques. There is a belief that is very difficult to overcome in many teachers throughout their training and practice – the belief that without mastery of technique, students will not be able to play. Consequently, it is posited that technique should always be learned before and during exercise outside the practice of the game. This traditional approach to teaching games, predominantly structured within multi-activities curricula and heavily reliant on teacher direction, has been criticized for its unproductivity in facilitating game learning. This is due to the lack of meaning and interest for the students and the harmful consequences of exclusion, irreconcilable relationships, and diminished trust that emerges when the application of isolated techniques is requested during class time dedicated to team play (Ennis et al., 1997; Kirk, 2010; Rovegno, 1995).

Likewise, the educational value of sports games has been called into question because of the inclusion problems arising from the inequality of access and participation of the students in games.

Usually, the most privileged students who benefit the most from the teaching of games are the most capable and skilled. They tend to be more competitive, often more egocentric, more aggressive, and more dominating and, therefore, assume themselves as owners of the game. On the other hand, girls, students with a low level of ability, disadvantaged social status, or with some types of disabilities accumulate reasons for complaint, discredit, fear, and discouragement regarding the possibilities and consequences of sports games in Physical Education (PE) classes.

In this scenario, the subsequent points will discuss the possibilities and challenges of treating invasion games as an inclusive subject. The aim is to provide access, participation and achievement for all students.

Strategic-tactical models for teaching sports games

Since the 1980s, significant investment has been made in different countries and regions of the world to address the challenges in teaching sports games. This investment aims to move away from the traditional and ineffective approach of teaching decontextualized techniques, and instead focuses on teaching models that incorporate forms of play adapted to the students' level.

The emphasis is on developing strategic-tactical skills to effectively solve game-related problems. At the root of this investment in changing the teaching of sports games, the Teaching Games for Understanding (TGfU) model emerged in England and spread internationally (Bunker & Thorpe, 1982; Bunker & Thorpe, 1986; Griffin & Butler, 2005; Kirk & MacPhail, 2002; Thorpe, Bunker & Almond, 1984). The founders of TGfU, Thorpe, Bunker and Almond (1984), demarcated four fundamental principles, interconnected with each other, which guide the didactic treatment and the direction of pedagogy in the application of the TGfU model in school: the sampling of games; modification by representation; modification by exaggeration; and tactical complexity.

1. **The sampling principle** focuses on the careful selection of the diversity of games, considering the interest and the possibilities of inclusion in the curriculum, adjusted to the particularities of all students in each class. It also considers the exemplarity, representativeness, or the interconnection of the various types and forms of play. The choice and succession of games should be based on the evaluation of the options for adapting their level of complexity to the diversity of the students' abilities and potentialities.
2. **Modifications by representation** (successive basic forms related to a reference game, e.g. basketball).
3. **Modifications by exaggeration** (partial game forms and tasks with simplified opposition based on the game) configure the pedagogical adaptation of tactical complexity to facilitate perception and decision-making; more time and more space to read the game, communicate with teammates, and adjust movements according to the objectives of the game and the ways to achieve them.
4. **The principle of tactical complexity** contemplates the degree of difficulty, the demands and the possibilities of positive transfer of learning between various forms of the same game, between games of the same type, or between games of different types, exploring similar strategic and tactical problems.

The combination of these modifications seeks to contribute to a greater frequency of concrete opposition situations in which students can be actively involved, to try to understand and find productive tactical solutions, and thus solve the problems posed by the game situations in which they are involved.

The ideas of TGfU were adapted to the context of the United States through the Tactical Games Approach (TGA) (Griffin, Mitchell & Oslin, 1997; Mitchell, Oslin & Griffin, 2003, 2006; Mitchell, Oslin & Griffin, 2020); to the context of Singapore with the Games Concept Approach (Rossi et al., 2007; Tan et al., 2002); to the context of Australia by Game Sense (Light, 2013; Light & Curry, 2021). In complementarity with Game Sense, in Australia, Play-Practice (Launder, 2001) has also gained prominence, a pragmatic model that aims to optimize the connection between exercise and game practice, manipulating the complexity of practice contexts, as a function of improving performance capacity or ability (Launder & Piltz, 2013; Piltz, 2015).

It should be emphasised that skill is not reduced to the competence of technical execution; it fundamentally encompasses the contextualization of the strategic-tactical dimension and requires its interconnection and alignment with other critical components of a physical, psychological, moral and social nature.

With the creation of the Tactical-Decision Learning Model (TDLM), Gréhaigne and Godbout (1995) sought to bring closer to the TGfU the ideas of renewing the teaching of games fostered in France and Quebec, emphasising the learning of the regulation of tactical decisions from a cognitivist and constructivist perspective. TDLM remains active and seeks to develop student learning (Gréhaigne, 2014; Gréhaigne & Godbout, 1998; Gréhaigne, Wallian & Godbout, 2005; Gréhaigne et al., 2021).

The German proposals for renovation of the teaching of games have, as their main reference, the Ballschule (Ball School) (Kröger & Roth, 1999; Kröger & Roth, 2002), a model focused on playing/kidding with the ball from an early age. This approach emphasises implicit learning of a playful nature and combined with development in the coordination, tactical and technical domains. At the same time, it incorporates the challenge to intelligence and creativity in tactical decision-making and the acquisition of basic motor skills and sports techniques (Roth et al., 2002).

Assuming an ecological perspective linked to the theory of dynamic systems, Nonlinear Pedagogy (Chow et al., 2021; Chow et al., 2015; Chow et al., 2007; Davids, Chow & Shuttleworth, 2005) is defined as an approach focused on the manipulation of constraints related to the student, the task and the involvement (Constraints-Led-Approach), intending to promote the emergence of innovative and adapted behaviours to improve performance in the game. The key is to encourage students to solve problems inherent to situationally challenging tasks to take advantage of them and improve their efficiency, effectiveness and adaptation to the challenges of the game.

> "The challenge for the teacher is not just to understand how to manipulate constraints, but to identify the key individual constraints that can be presented to students to encourage learning. From a pedagogical perspective, the nonlinear pedagogical approach empowers the learners to become active learners and the manipulation of constraints within Physical Education lessons encourages learners to engage in self-discovery that could lead to greater enjoyment and motivation (Davids, Chow & Shuttleworth, 2005, pp. 28-29)".

The strategic-tactical models of teaching games, to contribute to inclusive PE, should not focus their learning objectives solely on the technical-tactical dominance of the best players. They should primarily address diversity, understanding, communication and cooperation, and social relationships among students in the game and in other class tasks. To this end, it will be necessary to dismantle the hegemonic path of the figure of the pyramid as the organiser of a unitary edifice of sports practice that tends to be selective and meritocratic, favouring the best, the strongest, the most capable. To the figure of the hegemonic pyramid, we must counteract the figure of the round ball, guided by a "globally spinning" axis of diversity and full participation in the team game of admittedly inclusive practice. Overcoming challenges, performance, and competition are not alienated from the meaning of this [inclusive] practice but are tailored to each one's possibilities, subjective evaluations, and personal meanings (Graça, 2004, p. 98).

Models focused on the personal and social domains aligned with the teaching of sports games

Teaching teamwork is the primary objective to ensure the inclusiveness of sports games. Therefore, our attention should not be restricted to the individual learning of each student; we should focus on group dynamics, communication processes, interaction and social relationships, and collective organisation.

In this sense, it is necessary to consider and nurture the social context and environments that foster mutual respect, assistance, and reciprocity among the diversity of students. This includes integrating each student into achievable game actions and promoting co-responsibility and co-regulation in learning the game as a joint creation.

Teaching how to play as a team has been largely neglected. Students are not sufficiently taught to work in groups, let alone play in teams. Teachers often lack preparation or concern for fostering and organising group work and taking strategic care of the social context of the class, the size and composition of groups, adjusting learning tasks, and supporting interaction among students (Blatchford et al., 2003). The orientation for the interaction of the diversity of students remains poorly sustained. In PE classes in England, there is a predominance of class sep-

aration by gender. Even in schools that adopt mixed classes, subjects and activities, especially sports games, are mostly differentiated and treated separately by gender (Wilkinson & Penney, 2023).

The teaching of games lacks pedagogical and didactic treatment, as well as modification of the ingredients and interaction of the curriculum, pedagogy and evaluation. This implies an investment not only in physical and motor requirements or strategic and tactical cognitive requirements but also in affective, social and collective organisation requirements. It necessitates understanding, respecting, and including the diversity of students.

There has been a growing emphasis on prioritising social and emotional objectives in PE and to preparing teachers to believe in, assume, and strive for the achievement of these objectives (Baek et al., 2024; Dyson, Howley & Wright, 2020). There are models that privilege social and emotional objectives in the teaching of sports games in PE, such as the Cooperative Learning Model (Dyson & Casey, 2012), the Teaching Personal and Social Responsibility Model (TPSR) (Hellison, 1996; Hellison, 2010; Hellison & Martinek, 2006) and, less restrictedly, the Sports Education Model (SE) (Siedentop, 1987, 1994, 1996; Siedentop, Hastie & Mars, 2004).

The TPSR model (Hellison & Walsh, 2002) advocates placing the development of personal and social responsibility in the teaching-learning process in the foreground and, consequently, transferring the life skills and values arising from this experience to all areas of life. This model originated in the 1970s, having been implemented in a school in a low socioeconomic and cultural area in the United States. The model invested particularly on socially disadvantaged children and young people with social relationship problems, at risk of adopting deviant habits and behaviours, and juvenile delinquency. TPSR advocates personal and social transformation not through a reproductive transmission pathway but through personal and social experience and self-reflection:

Teaching life skills addresses the emotional and social dimensions of being a whole person. For this reason and many others, teaching kids life skills, despite the difficulties, makes sense. And helping students take personal and social responsibility means sharing power with students and gradually shifting decision making to them. TPSR does not mean getting inside kids' heads but getting them inside their own heads" (Hellison, 2010, p. 13).

The basic idea of the model is to help children and young people take more responsibility for their development and well-being and to contribute to the well-being of others. The model is guided by levels of increasing complexity of personal and social responsibility, stipulated as teaching and learning objectives. Although they can be

defined as separate levels, it is more convenient to view them as interdependent, serving as priority focuses of attention, reflection, and self-regulation. This depends on the level of development of responsibility and the problems emerging from the complex challenges of the practice contexts.

> "To help students focus on what to take responsibility to for five goals or levels are suggested, along with the caveat to adjust these as necessary:(1) Self-control and respect for others' rights and feelings; (2) participation, effort self-motivation (3) self-direction (4) helping others and leadership: and (5) transfer outside the gym.
>
> Five themes characterise daily practice: Develop a respectful kids first relationship with students, integrate responsibility with physical activity, gradually empower students, promote group and self-reflection and teach for transfer outside the gym" (Hellison & Martinek, 2006, p. 616)".

The Cooperative Learning Model, as its name implies, focuses on group work, teamwork, which is governed by a set of principles that must be appropriated by each student (Johnson & Johnson, 1999). Each team member must establish a relationship of positive interdependence; no one should achieve the team's goals alone, no one is exempt from giving their contribution to colleagues and the team. The idea of individualism is not favoured because each person's performance is in everyone's interest. There is individual accountability, with each one responsible for their actions and for respecting, supporting and encouraging colleagues. The team is more than just the sum of its parts; this enhancement results from a fruitful face-to-face interaction based on reciprocity among peers and small groups, mutual help, sharing and encouragement. It is necessary to learn to use and foster social skills, communicate sincerely and properly, build trust, empathy and sympathy, manage conflicts, and exercise and accept democratic leadership. For this to be viable and increasingly sustainable, it is essential to learn to take care of the group's processes by reflecting on and evaluating the team's functioning problems, detecting disturbing factors, and finding solutions to ensure the functioning of the group based on mutual trust and team spirit.

It is important to ensure that children learn to work as a team, support each other, coordinate divergent points of view, establish and maintain an intersubjective basis of reciprocity, share and build something in common, overcome differences, and resolve conflicts. It is not advisable to believe that all this can emerge spontaneously or that it results from the unilateral command of teachers or of students specifically "commanded" by teachers. It is necessary to seek, cultivate, appreciate, and grow with mutual work, sensitivity, altruism and conviction.

In sports games, many burdens attributed to competitive relationships stem more from gaps in teamwork. These gaps, more susceptible in competitive games, can also occur in typical cooperation activities without a competitive relationship. They are equally likely to generate relations of domination, marginalization, isolation, alienation and abandonment (Brock, Rovegno & Oliver, 2009; Cohen et al., 1999; Duek, 2000). As Cohen et al. (1999) elucidate: "Paradoxically, in cooperative learning designed to promote equity, unless the teacher intervenes to equalize rates of participation, 'the rich get richer,' and the gap in academic achievement widens" (p. 84).

SE (Siedentop, 1994, 1996; Siedentop, Hastie & Mars, 2004) emerges as an alternative to the lethargy and superficiality of the multi-activity curriculum, decontextualized sports techniques, and the game governed by egocentrism and hegemonic discrimination. This alternative aims to create an authentic sports context, assumed and experienced by students in a crescendo of autonomy and the development of a culture of sport for all. SE invests in cultivating sports culture (literate sports-; enthusiastic sports- and competent sports citizens), using a combination of cognitive, socio-affective and motor domains. The creation of an authentic sports environment in the context of the PE class involves reconstructing didactic units and classes to form an institutionalized sports environment. This setting is regulated by organisational forms, functions, and roles based on the following key features: establishing sports seasons, forming clubs and affiliation, designing competitive calendars, recording results and classifications, and addressing legally or ethically penalized or rewardable events, and promoting festivity and culminating events. Complementing the player's practices, the well-assumed exercise of the functions of support and coordination of games and training (coaches, referees, managers, assistants, observers, evaluators, commentators, among other roles that enrich the sports experience) can contribute significantly and enthusiastically to the deepening and linking to a well-founded sports culture. SE attaches central importance to fair play and the sporting ethics of students in all functions of sports practice, including respect for rules, people, sportsmanship, and teamwork involvement. Fair play can be used as an element of evaluation, influencing the outcome of the competition alongside points or goals scored.

SE emphasises personal and social objectives, supports diversity in building lasting groups, and encourages all pupils to learn, engage, and feel good within the group. The sports season begins with activities of learning, exercise and practice of the sport, directed by the teacher. It progressively moves to autonomous group work of a cooperative nature or is directed by student coaches with additional support from teachers. Teachers provide support for the training of the sport within the group (club or team) and coordinate the competition between groups.

SE assumes an educational logic related to the valorisation of sports practice of formalised and celebrated competition. The more attention and interest given to the result, the more it guides and affects the positioning and attitude of each player and team regarding the priorities of the game (between scoring and preventing points or goals) and the interaction between players, depending on the will and the possibility of evolving the result during the game.

In this scenario, sports results gain a prominence that tends to condition the self-confidence of each one and the confidence in teammates. When there for results, teamwork is constrained by the diversity of gender, skill levels, and other factors that generate distrust and disconnection among peers. As Brock, Rovegno and Oliver (2009, p. 356) point out: "it is important to understand the role status plays during group work, how to recognize the negative impacts of status, and how to prevent these problems when students are working in groups". The more the result is praised, the greater the tension in the dispute, the more hegemony the players of higher status assume, and the lower participation players of lower status have (Hollett et al., 2022). To maintain the primacy of competition and ensure the participation of pupils of different levels and statuses, there are those in SE who uphold the integrative perspective of inclusion by choosing separate competition boards based on players' levels or statuses. This approach minimizes diversity within each team to reduce disruption to access and participation of all players (Hastie et al., 2023; Hastie, Ward & Brock, 2017). Additional rules can also be introduced that adjust the achievement of results, combining point or goal scoring with the shared achievement of the team game.

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An alternative to the formal and institutionalsed competition of SE is to bet on a more informal, recreational, and freer nature of competition in the teams' constitution from game to game. This ensures internal heterogeneity within each team and the balance between teams in terms of attack, of defence and the potential for relationships within the team. The concept of playfulness, in its strictly agonistic sense, involves the pleasure of challenge and the pursuit of problem-solving during the game. If we want everyone to have access to play, we must privilege inclusion in team play. Everyone collectively and individually should feel and contribute to the pleasure of overcoming the challenges of competition and inclusion in the game. It should be noted that the relationship between competition and results can go from eight to eighty or from eighty to eight. There can be a game without emphasising the result, as seen in team training or adopting a game "atelier" at school. Here, the game is considered a learning workshop where the result is not counted, and the focus shifts to the circumstances of each moment, free from the pressure of outcomes. There may also be recreational games where the outcome matters, but it is far from the most important, or the only thing that matters.

Combining models and approaches in favour of situated and inclusive learning of sports games

In addition to efforts to develop and refine the propositions of strategic-tactical models, social and emotional models and SE, research has been testing hybrid models, exploring the potential of various models, and considering the cultural and social specificities of different countries. Advocating a dialogical perspective of inclusion, Ennis et al. (Azzarito & Ennis, 2003; Ennis, 1999; Ennis et al., 1999) developed a curricular project, "sport for peace", designed for urban areas that are socially problematic. This project aims to extend SE reference framework by emphasizing conflict resolution within the group through negotiation, conciliation, mediation, arbitration and analysis of facts. Summarising the evidence found in an empirical study, Ennis et al. (1999) note that sport for peace effectively promotes the sharing of responsibility for learning, trust, respect, and creates a sense of family. Both girls and boys, regardless of skill level, feel successful and respond positively, fostering a classroom community oriented towards participation and engagement.

Hastie and Buchanan (2000) combined SE with TPSR model. The purpose of this combination was to reinforce the element of competence as a player, with more careful attention to the components of social responsibility and personal empowerment.

The trend to test hybrid models includes the possibility of combining SE with the TGfU. It is undeniable that the SE has arrogated, since its inception, central concerns of TGfU, namely: the enhancement of the game context and intrinsic motivation; the preference for modified forms of play adapted to the students' ability to play; and the subordination of the teaching of technical skills to the tactical needs of the game. But the models differ, of course, in many important aspects. Guided discovery is a critical ingredient of TGfU but does not gain preponderance in relation to the teaching styles adopted in SE. In turn, TGfU does not address other sporting roles besides that of player and does not highlight the ingredients of formalization and institutionalization of the competition and the practice environment. It focuses more on the cognitive, perceptual, decision-making and motor aspects of game actions.

Dyson, Griffin and Hastie (2004) provide arguments in favour of the intersection of SE, TGfU and cooperative learning, under the sign of the perspective of situated learning:

> "First, the assumptions and organizational structures of SE, TG [TGfU], and CL [cooperative learning] provide a student-centered learning curriculum as opposed to a teacher-centered teaching curriculum. A student-center learning curriculum puts students in the role of active learner in which students work together and help each other in the process of learning. Second, the teacher shifts from director (i.e., transmitter) to the facilitator of learning activities. Third, learning activities promote social, physical, and cognitive learning outcomes thus have the potential to provide students with a holistic education. Finally, SE, TG, and CL emphasize active learning that is socially situated, which involves decision making, social interactions, and cognitive understanding of various physical activities" (p. 238).

Hastie and Curtner-Smith (2006) studied a teaching experience that combined the organisational structure of SE (sports seasons, formal competition and student roles) with the teaching of skills and tactics based on the problem-solving and guided discovery teaching styles advocated by TGfU. The results pointed to the feasibility of combining the models, but this requires the teacher to have a high pedagogical knowledge of the content and significant experience in organising and managing the class to effectively coordinate and support the students' learning activities.

The Invasion Games Competency Model

The invasion games competency model (IGCM) (Graça et al., 2019; Graça et al., 2006; Mertens & Musch, 1990; Musch & Mertens, 1991; Musch et al., 2002) results from a hybrid construction of Sports Education and TGfU models. Like TGfU, the IGCM emphasises the choice of modified forms of play, in accordance with the students' ability to play. It involves the confrontation with real game problems in game environments, and the introduction of the teaching of game skills dictated by its relevance to the form of play adopted. This is subordinated to the understanding of its tactical use in the game and to decision making. In common with SE, the IGCM stresses the cultural link of basic forms of play to large, institutionalised games, preserving the authenticity of games and the essential concept of the reference game. It values the creation of an authentic sporting context, training, competition, fair play, festivity, equity, and inclusion. It includes the promotion of skills in the performance of support and coordination roles in training and competition, namely the roles of referee and coach.

Regarding the development of content, the IGCM aligns with Iran-Nejad's (1994) key ideas on whole theme perspective, which argues that people tend to perceive objects or events in a holistic way in authentic contexts. "Therefore, whenever introducing a domain, teachers should begin with a domain launching theme. Such a theme helps students understand the wholeness of the knowledge and the context for the integration of concepts and facts into the theme" (Chen, Rovegno & Iran-Nejad, 2002, p. 405).

In the case of IGCM, the **basic game forms** (e.g., 3x3 in basketball) function as holistic themes, are taken as main ateliers, starting points, and successively resumed. They serve to delimit the space of the problems, contextualize the learning objectives, condition the efforts of exploration and search for solutions to the problems posed by the attack and defence. They allow individual action to be integrated into the development of the complex dynamics of cooperation-opposition.

In this context, the teacher plays a key role in diagnosing students' difficulties, concentrating students on learning objectives, and actively supporting their learning efforts. The maxim "one learns to play by playing" is supported here with the following caveats:

1. learning to play in the context of a simpler game form of play than formal game;
2. learning by playing, but benefiting from the active support of the teacher, rather than solely through free exploitation of the game;

3. learning to play is not enough just because the game does not dispense with exercise, so one also learns to play by exercising the partial structures and skills of the game understandably associated with the game by the students themselves.

The partial structures of the game (finalisation/preventing finalisation; creating finalisation opportunities/preventing the creation of finalisation opportunities; organising the attack/countering the organisation of the attack) (see Chart 1) constitute thematic organisers that guide differentiation within the global thematic domain that is the game. Partial forms of play, such as complementary ateliers, can be, each in its own time, emphasised in less complex situations than the game itself, while still retaining the game's objective and elements of cooperation and opposition. A partial game form for the finalisation/preventing finalisation structure will be designed to provide and make perceived and take advantage of many attempts to finalisation and oppose the finalisation. This will facilitate the creation of opportunities and the organisation of the attack (e.g., a form played with numerical superiority of the attack).

Table 1 – Structure of the invasion games

Global structure		
Partial Structures	**Partial Structures**	**Defence actions**
F/NF	Finalisation	Prevent Finalisation
O/NO	Create Finalisation Opportunities	Prevent Finalisation Opportunities
OA/NOA	Organise the attack	Prevent organisation of the attack

In addition to basic and partial forms of play, simpler exercise forms, such as **game-based tasks**, are introduced to reinforce skill execution requirements. However, these tasks must be implemented in direct subordination to objective needs evidenced by students in more complex activities, using their application the game as a reference. The decisional aspects (what to do, when to do it) can be greatly facilitated or even predetermined (e.g., in basketball, a task to practice shooting in stride after dribbling). Kirk and MacPhail (2002) talk about modularising skills by creating units (clusters) for signal perception, tactical decision-making, and technical execution, which are activated together in each game situation. It can be deduced, therefore, that an exercise is even more valid

the better it contributes to the construction of these modules of intelligent and creative action and the more it expands and consolidates the capabilities of perception, decision-making and execution.

The IGCM reflects the pedagogical and didactic criteria for the development of instruction set out by Balan and Davis (1993), proponents of an approach based on the ecological analysis of tasks: (1) provide more opportunities for all participants; (2) maintain a dynamic balance between person, task, and involvement; (3) challenge all participants to succeed. These criteria apply to the development of competence as a player, but also extend to support and coordination functions.

The development of competence as a player calls for the interaction of the socio-affective, cognitive and motor domains, aiming at the development of the following capabilities: (1) the ability to work as a team; (2) the ability to identify relevant information or signals in the game and make the most appropriate decisions about what to do and how to do it; (3) the ability to execute the chosen solution in an effective and efficient way.

The interaction of these three capabilities can be appreciated in concrete game situations. For example, passing the ball to a teammate of lower skill level who is in a more favourable position to attack the target requires (1) that the player in possession of the ball has the availability and ability to detect the passing opportunity to the teammate; (2) who recognises the advantage of the colleague's position and is willing to give up another initiative and trust him or give him an opportunity; (3) who has the physical and motor requirements to execute the pass; (4) that the selection and execution of the pass optimises the reception and development of the play, taking into account the characteristics of the receiver, his movement and the positioning and performance of the defenders. And here we see that a catchable pass is always much more than a technical gesture or a tactical-technical action of the if-then-do type.

From the perspective of situated learning (Kirk, Brooker & Braiuka, 2000; Rovegno, Nevett & Babiarz, 2001), the interpretation that students make of the situations proposed to them, their commitment to the learning tasks, performance in the game and the learning development are conditioned by the interaction of factors that operate in three dimensions: (a) cognitive-motor-tactical-technical (perceptual-physical), which includes the cognitive, motor and physical components of performance; (b) social interaction, which includes relationship skills and dispositions within the class, namely with teammates and opponents; and (c) institutional-cultural, which includes the meanings attributed by students to school work and forms of institutionalized sport. IGCM intends to consider, in a balanced way, these

three dimensions and their respective components, seeking to provide greater authenticity and meaning to learning experiences and offer a more favourable context for the development of gaming competence.

Competence as a player extends to the ability to handle competitive situation, pressure from opponents and colleagues, by the sanctioning of the rules and by the unfolding of game events. This tests psychological mechanisms of self-control and feelings of self-efficacy; the moral attitude of autonomy, altruism and responsibility; as well as the aesthetic attitude of seeking pleasure in playing, taking risks, taking the initiative, and seeking to do things well, i.e., with competence and elegance in movements and game actions (Gibbons & Bressan, 1991).

The development of competence in support and guidance functions aims to increase students' ability to organise their practice responsibly and autonomously, improve their learning self-regulation skills, encourage a deeper and more multifaceted understanding of the game, promote an affective implication with the authentic and well-played game.

Given the high complexity and public exposure, improving competence in the roles of referee or coach must be considered according to the students' possibilities, their ability to understand the game and their social skills. Tasks should be sequenced in such a way that students perceive them as meaningful and challenging, but not threatening, while ensuring the conditions for them to be socially viable, observing the requirement of peer acceptance.

Whether in the roles of player or support and coordination, the heterogeneous formation of groups requires an investment in self-confidence and reciprocity to ensure the evolution of positive interaction skills among students. None of this is spontaneous; everything requires attention, reflexivity and dialogue on the part of the teacher and students.

> It is necessary to overcome prejudices and discriminatory attitudes. It is necessary to learn to respect and trust, to be tolerant and help others. It is necessary to learn to communicate, listen and meet others' needs, and share. It is necessary to learn to respect the rhythms, adjust actions to each person's

possibilities. We must learn to plan and organise group work; we must learn to work autonomously in a productive and responsible way. The role of the teacher in encouraging group work is decisive. Teachers must believe in the potential of group work for learning. He must believe that students can learn from each other and can learn to regulate their activity more autonomously. They must work with students on social skills for group work to function well. The teacher's guidance and support are essential, but the teacher must be able to pass on power and decision-making space to the students, carefully managing the level of challenge and risk he proposes to them (Graça, 2013, p. 97).

Create, invent the inclusive game in physical education

From the situated perspective of learning sports games, we must view games as a joint construction—a creative, poetic and playful work—arising from the heterogeneity of participants in the particularities of the relationship between the perceptual-physical-motor, social-interactive and institutional-culture elements with the requirements and challenges posed by the material and regulatory ingredients adopted to adapt the proposed sports games.

In her book Playing Fair, Joy Butler (2016) proposes that students adopt the invention of sports games, including invasion games, as a fundamental pedagogical strategy associated with democracy in action linked to social justice. In the introduction to the book, the author explains:

> "Key to understanding this worldview is the belief that learning is both individual and collective (or relational). The inventing games process encourages teachers and learners to focus more on the why than the how, and to think and feel, as well as do. The classroom becomes more participatory and democratic as learners become more autonomous and responsible" (p. XVIII).

The teaching of democracy in action is a curricular investment in moral action and citizenship, implying attention to diversity, dealing with inclusion, and jointly recognizing the individual and relational aspects of the learning process. The invention of games, combined with democracy in action, grows in collaboration, inclusivity, and challenges in the cognitive, affective, and motor domains. As Butler (2016, p. 13) states:

> "When students work together to invent their own games, they learn ways to cooperate in order to resolve conflict, make good decisions, and develop group processes that are fair and effective. They learn to adapt creatively to changing situations in order to stretch their understanding and ability".

This curricular orientation of inventing games from an ecological complexity perspective can be explored by questioning the four critical elements of "Activist Approach: (i) student-centred pedagogy; (ii) attentiveness to issues of embodiment; (iii) and (iv) listening and responding over time" (Oliver et al., 2020; Oliver & Kirk, 2016).

Student-centred pedagogy works to pay attention to how students look, feel, think, perceive, decide, act and interact. It is important to activate students' voices and listen to them and each other to find, define and modify games that may interest them and activate their commitment to improving the game as its construction and the open, creative and adapted way of play with each other.

Paying attention to issues of embodiment calls for detecting how the diversity of students thinks and feels their body in the challenges posed by the curriculum, the teaching-learning process, assessment, so that, with regard to the game, the performance and relationships with colleagues in the game, it is possible to find appropriate paths and create, together, an environment favourable to the amusement and interest in learning.

Education based on action-centred investigation, thinking about the action of inventing and actively playing the game, encourages the teacher to recurrently investigate his educational action. The goal is to help students understand what facilitates or hinders their participation in the game and discover ways to challenge and overcome barriers to meaningful, active, and collaborative participation in the game.

Listening and responding over time is fundamental in establishing reciprocity, trust, frank and open dialogue between teacher and students, as well as among students. This involves analysing what happened in the game and what can be improved. The game is renewed, creating space for those who want to play better and contributing to an improved atmosphere of the game.

In short, we want an educational game, an inclusive game, a lively, polymorphic game, challenging and challenged by everyone. It should embrace its playful roots in search of delight and overcoming to play better, in search of well-being, trust and fraternization.

The game is educational when players consistently want to play more and play better, when the game is an open space, a challenge without a predefined path or anticipated outcome, when playing means finding solutions to the game's problems rather than applying recipes, when the game serves as a workshop where people collaborate to build and refine their own team-playing approach (Graça, Batista & Estriga, 2021, p. 165).

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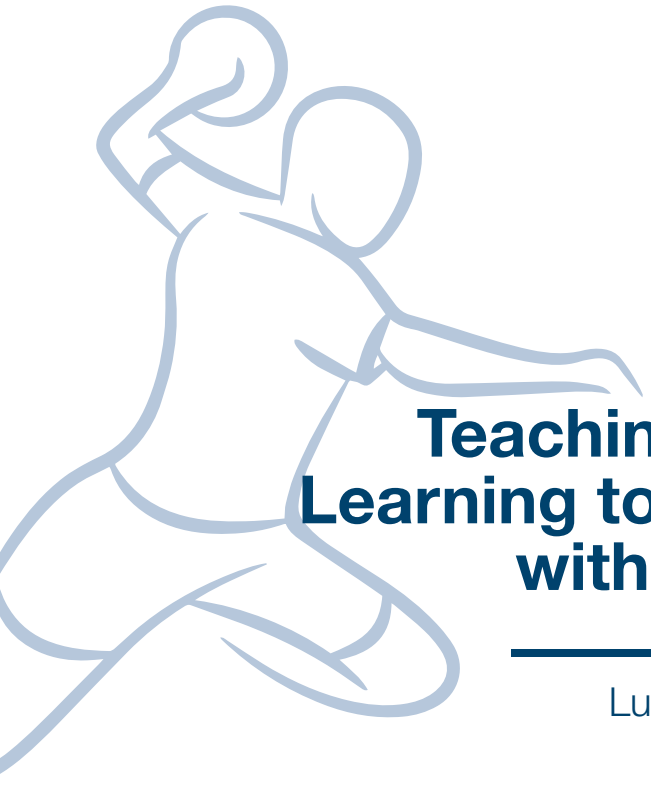
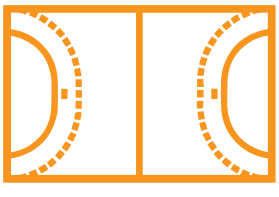


5.2

Teaching Handball: Learning to play as a team with fair play

Luísa Estriga



The performance-based sporting and competitive culture that dominates Physical Education (PE) curricula presents an additional obstacle to the inclusion of students who initially have fewer skills and lack the physical profile required to perform well in handball under the standard rules. As school years progress, differences between students become more pronounced. To address this diversity, pedagogical differentiation is often used, dividing students into performance levels. However, it is necessary to consider whether this strategy, instead of promoting inclusion, reinforces segregation and widens the gap between those who 'know' how to play and those who 'do not'.

To make handball—a sport that has historically been exclusionary and selective of the fittest and strongest—challenging and inclusive for all students, a transformation is needed in various aspects, particularly in teachers' conceptions and practices. The proposal presented here is based on a dynamic and flexible pedagogical process, where the configuration of the game, in its various dimensions, should rely on the positive interdependence of actions of the team members to build an inclusive and quality game. Considering the specific knowledge, skills, motivation, and cultural aspects that students bring to learning handball, learning objectives should be defined on the basis of the following questions: *What kind of game do we want? What makes a good game? What do students need to learn to play better as a team and enhance the quality of the game?*

Towards the conceptualisation of a good handball game at school

When introducing a game to student-players, it is essential to begin by discussing what a 'good game' is (Hastie, 2022). While enjoyment and fun are fundamental to capturing students' interest and emotional involvement, the most important aspect is that the game works effectively. For this the objectives must be achievable, preferably with everyone's participation and involvement—an essential and distinctive feature of team games. In most situations, for students to remain engaged and motivated to cooperate with each other, the teacher's intervention and instruction alone are not sufficient; the game itself must be dynamic and challenging. The rules should not only be clear and fair but also flexible, allowing for easy adjustments to better achieve the objectives of the game and the team.

A good game ensures that everyone involved is constantly engaged and challenged, promoting a more intense, enjoyable, and meaningful experience.

Table 1 presents a series of characteristics that define a 'good' game (for more, see Hastie, 2010).

Table 1 - Components of a good game

CHALLENGING	Exposes participants to an appropriate degree of difficulty and complexity in both tactical and strategic options, as well as motor skills (including technical and tactical).
BALANCED	Assumes a balance of power between attack and defence, with a tendency to favour the attack.
DYNAMIC	Game actions occur continuously without systematic changes of possession or frequent interruptions due to errors, physical contact, or fouls.
FAIR	The setup and rules of the game ensure that all participants and teams have equal opportunities to play and achieve the objective.
SAFE	Ensures that students/players feel physically and emotionally safe and comfortable.

PRACTICAL EXAMPLES – Task

OBSERVE

"Game flow"
- Player involvement and responses

Is this a good game?
Are all the students involved?

Fundamentals for creating a good game

For the game context to be stimulating and enriching for everyone, it needs to be developed and adapted with the students' involvement. In other words, the rules should be conceived, discussed, and adopted by the students—breaking away from the norm.

One of the central elements of a good game is that players and teams are continually challenged, maintaining their interest and effort levels. To achieve this, it is important to avoid situations that create an undue advantage for either the defence or the attack. For example, if the defence is overly favoured, making it virtually impossible to score, the experience can become frustrating and demotivating. Conversely, if there are too many scoring opportunities, rendering the defence almost ineffective, the game loses its appeal.

The balance established between defence and attack (see Figure 1) is therefore considered a crucial aspect when designing or modifying the game and its basic structures. An exception to this is in partial game forms or game-based tasks, where attacking may be heavily favoured to focus on developing a particular skill or aspect, such as in a 3*vs*.1+GK situation aimed at improving finishing.

Figure 1 - Game balance state

If one team is significantly stronger, dominating the game in both defence and attack, the playing environment tends to become less engaging, and interest is lost. From an individual perspective, for a student/player to remain fully engaged and motivated, the challenges and problems of the game must match with their skills and abilities. They should be presented with game challenges that are slightly beyond their current competencies, but not excessively so, in line with Vygotsky's concept of the zone of proximal development (1978). Similarly, the concept of the 'flow channel' is introduced (see Figure 2), representing the zone where the player is expected to be fully immersed in the game, both physically and mentally. As the students' skills and competencies in the game develop through excitement and learning, the problems and situations should also become more complex—either because the opponents' skills have also improved or due to the manipulation of the game's constraints.

Therefore, the message conveyed is that the game should be fair for both teams and all players. Furthermore, the idea of giving teams and players some autonomy in overcoming challenges or making the game fairer is explored, as this can enhance their sense of control and engagement.

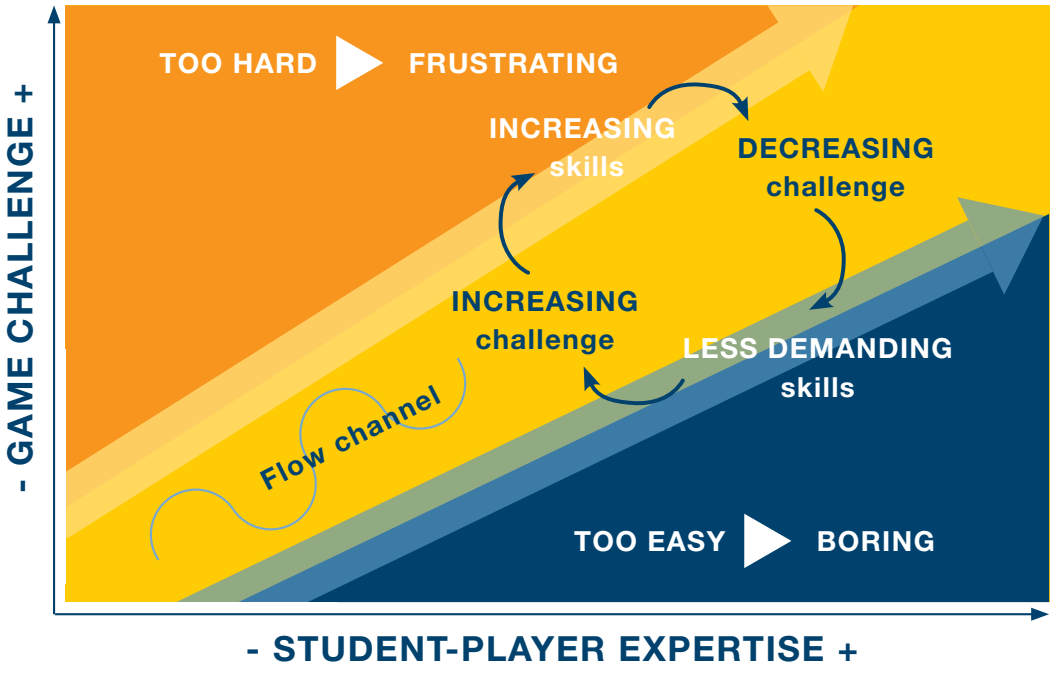


Figure 2 - This figure illustrates the idea of game flow (adapted from Nakamura & Csikszentmihalyi, 2002)

Another important element is the dynamics and fluidity of the game. In a quality game, actions and interactions should take place with continuity and positive interdependence between players, without frequent interruptions in game play or changes in possession, especially before a credible attempt to score. Additionally, it is essential that the dynamics of the game expose participants to a variety of situations or tactical problems that progressively and continuously challenge them. In other words, it should encourage the players to try new solutions and strategies, both offensive and defensive. However, whenever necessary, **the teacher can change or disrupt the state of the game to rebalance or unbalance the 'forces' or even introduce new game challenges, temporarily stepping out of the "flow zone**".

The playground should therefore be seen as an open and dynamic space, allowing for a challenging and inclusive learning environment with new obstacles to overcome. It must also be safe, ensuring that no situations arise in which students feel embarrassed or humiliated. Finally, it is important to emphasise that the rules and conditions of practice should ensure the physical protection of participants (e.g., by preventing excessive aggression or violence in physical contact and avoiding the use of balls that may be too harsh for players and/or goalkeepers).

1. CONCEPTS AND GUIDELINES

The paradigm shifting in teaching of team sports, from the decontextualised learning of basic game skills (understood as content) to understanding and solving tactical problems as a team, requires a re-evaluation of the curriculum, namely essential learning, content, teaching processes, and assessment itself. Consequently, the game is no longer seen as a space for applying 'technical gestures' or even group tactical means (how to execute?) but as a scenario for solving tactical problems that stimulate the ability to understand the various situational contexts and act with intentionality. Thus, the design of the game (in its various forms) is central to the whole process. Teaching content should be defined on the basis of real game problems that students encounter and cannot solve, as well as the learning needed to improve game play (game concepts and elements). The content should emerge from the observed level of play and be defined coherently and flexibly according to contextual conditions and the evolution of learning, rather than a priori as an unchanging list of content that tends to be approached in a sequential, decontextualised way and lacks tactical intentionality (when and why?).

In this context, the starting point (of constant return) is the game, materialised in its modified forms that preserve its logic and authenticity. It is the teacher's responsibility to plan, design, and implement forms of play that suit each class and context. It should be emphasised that the diversity among students adds a layer of complexity to the instructional process.

Therefore, the possibilities for action and interaction with the ball need to be carefully considered to engage all team members, regardless of skill level. Rules that promote positive interdependence in maintaining possession, progression, and finishing ensure that everyone contributes effectively to the game's objectives.

To summarise, the forms of play should focus on simplifying and adapting the complexity and demands of the game (across its various dimensions) to create cooperative learning contexts grounded in the culture of handball (see Figure 3). This approach allows students to experiment and solve concrete tactical problems in a controlled yet realistic and authentic environment of cooperation and opposition.

Figure 3 - Basic pedagogical principles for designing and modifying basic game forms

- Modification by **representation**: reduced forms of play representative of the complete (advanced) game.

- Modification by **exaggeration**: manipulation of the rules of the game, of space-time, to focus the players' attention on certain tactical problems and catalyse the possibilities of resolution (concepts and elements).

- Adjusting **tactical complexity**: the students' motor repertoire and state of readiness must allow them to face tactical problems in an appropriate way, challenging their ability to understand and act in the game.

Creating, (re)designing inclusive and challenging forms of play

Despite the wide range of possibilities for modifying the game of handball, its modelling for inclusion must consider the didactic principles of:

Accessibility: ensuring that all players have meaningful opportunities to participate and learn.

Inclusion: creating game scenarios that allow all players to actively participate, preventing only the most skilled from dominating the actions of the game and becoming the 'masters' of the game.

Dynamics and variability: introducing variety in and through the forms of play to keep the learning environment dynamic, rich, challenging and interesting, and to promote players' adaptability to different game situations.

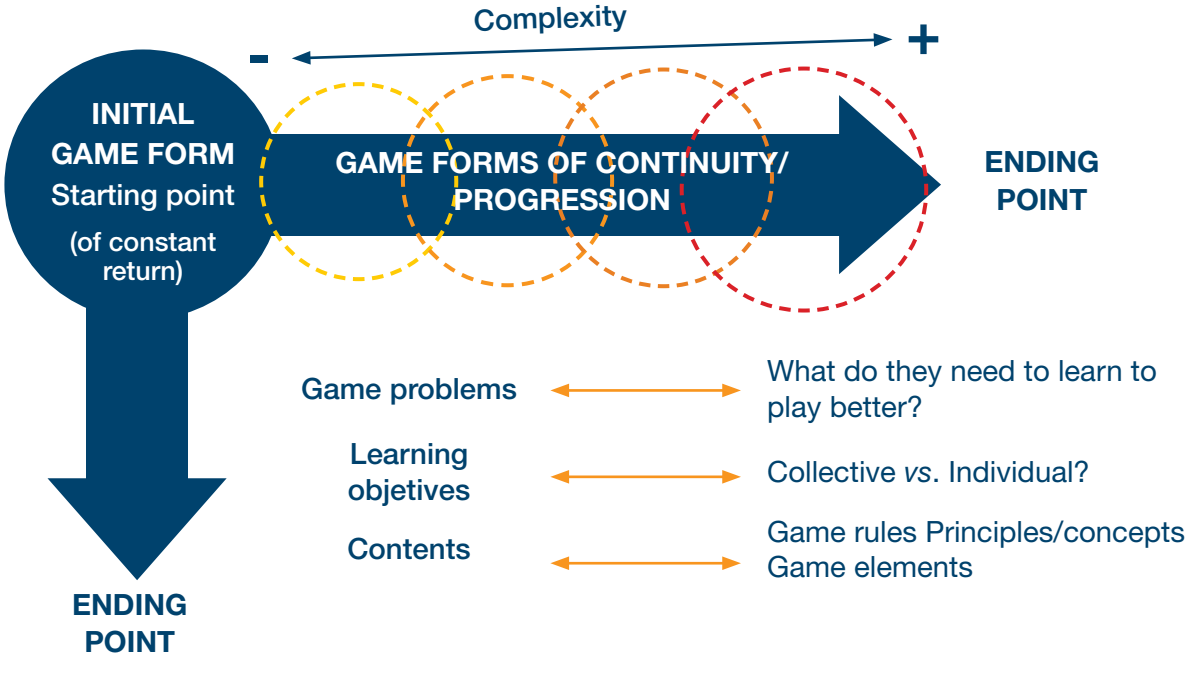


Figure 4 - Graphic representation of the idea of progression and interdependence between the game forms

The progression and sequencing of game forms throughout the teaching unit, or even across school years and cycles, should be based on increasing complexity (the progressive introduction of principles/concepts, perception and decision--making, actions, and relationships required in the game), continuity (previous forms support subsequent ones, facilitating their transfer and application in solving new game problems), and graduality (each concept/action introduced builds successively on a broader and more differentiated repertoire of game skills and knowledge).

Guidelines for changing the paradigm

To change the paradigm in handball teaching (Figure 5), it is necessary to know the students' level of readiness to start a certain form of play, considering not only their needs but also the contextual teaching conditions (number of students, spaces and materials available).

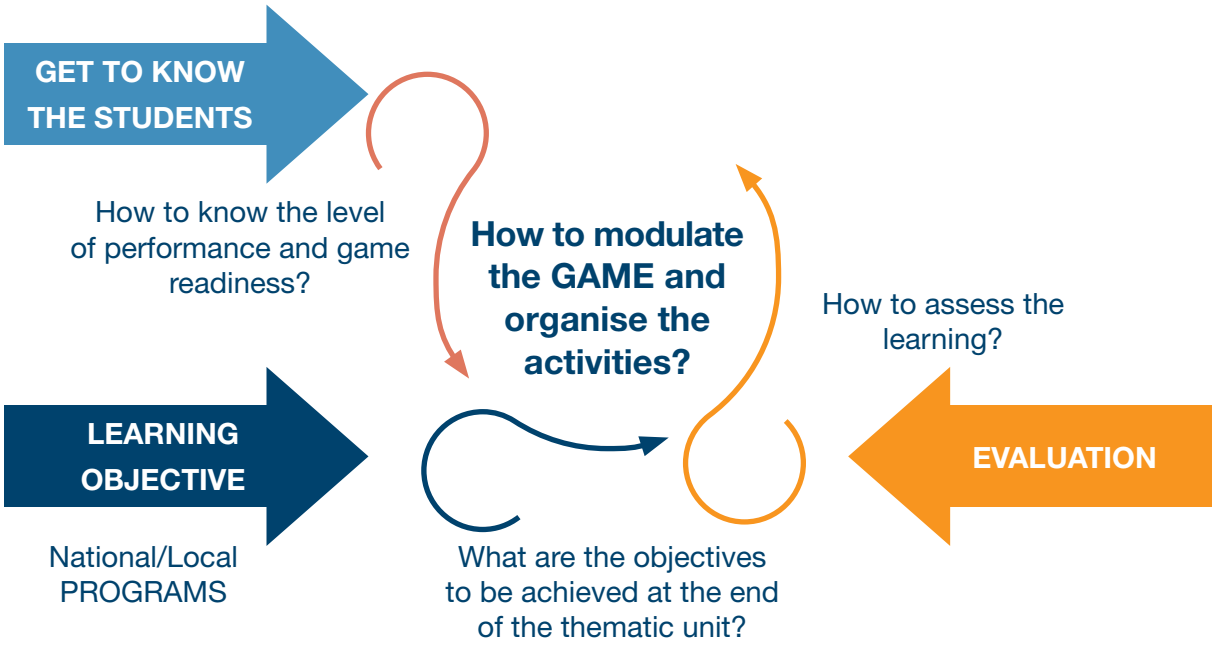


Figure 5 – Designing and regulating the teaching process by considering the context, aligning objectives and assessment

Within the environment of the initially adopted game form, the teacher must observe the overall quality of the game, focusing primarily on the students' ability to respond to the problems posed (Is it too difficult? Too easy?). If the game does not seem to be working, the teacher should analyse the situation, preferably involving the students in the discussion, to understand what is happening and, if justified, explore new variants or modifications. This process should be repeated until an effective game form (the starting point) is identified. The forms being practised should not be seen as fixed but rather as a dynamic space open to change and co-creation by the teacher and the students.

Regarding the teachers' role, this approach requires them to understand the game being played and to model its challenges by adapting constraints and options for action to meet the learning needs and achieve the training objectives. They must then identify and prioritise the main problems to be addressed to improve the quality of the game. The learning tasks should stem from the most interesting problem situations observed in the game, allowing all players solve these challenges repeatedly (understanding what to do and when) and to practise the necessary skills (how to do it), preferably in a contextualised way (i.e., with action constraints that closely resemble real game conditions).

Cyclically, the game is replayed to give students the opportunity to integrate the content they have been working on (concepts and/or game elements) into a more complete game context. Once the objectives of the basic form of the game under study have been satisfactorily achieved, variations or a new form of the game can be introduced (see Figure 6).

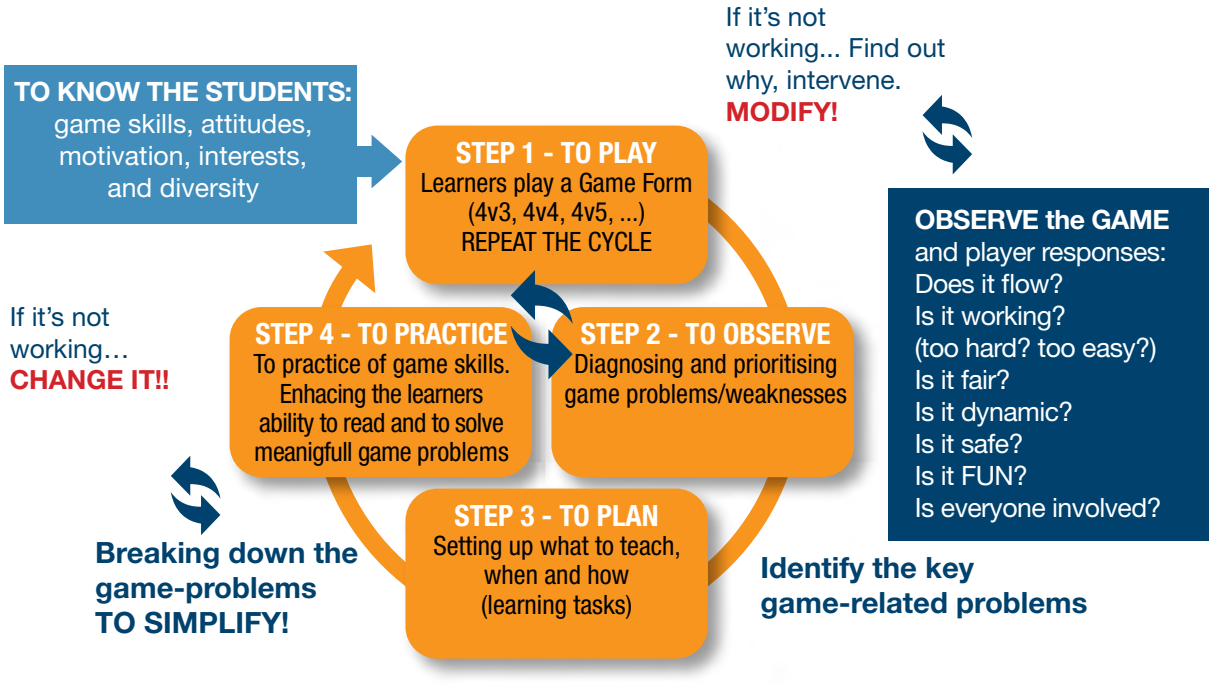


Figure 6 – Cyclical process developed around the game; a starting point (of constant return)

Guidelines for adapting and modifying the game of handball

The rules of the game, expressed in the collective tactical structure and the degrees of freedom they impose on individual actions, are fundamental to emphasising both individual and cooperative actions, as well as the principles of the game that you want to teach (upholding the maxim 'the game is the teacher', meaning learning in and through the game). **Although the game and its constraints can (and should) be manipulated to help students discover how to solve problems, teacher intervention and active student participation are essential.**

The proposed modifications aim to make the game accessible and inclusive, removing barriers and promoting an active and dynamic environment. These changes should create conditions that encourage everyone's participation and allow for a meaningful and authentic experience, where learning takes place through guided, systematic practice and constructive reflection on how to play better as a team.

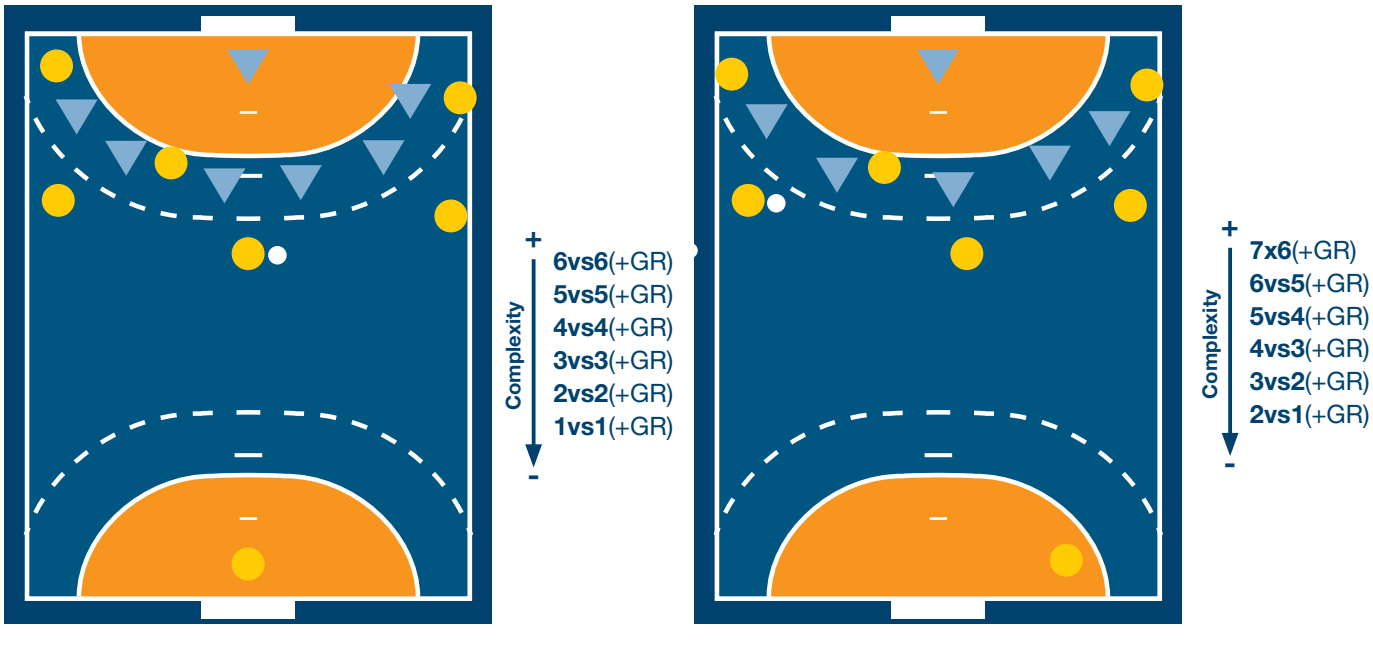
PRIMARY MODIFICATIONS:

- Reduce the number of players/functions
- Change the ratio between attackers and defenders (symmetry vs. asymmetry)
- Reduce and adapt the dimensions of the court and goal
- Modify ball characteristics
- Restrict or facilitate opportunities to play the ball
- Conditioning defensive behaviour
- Change the scoring system

The game, expressed in its various forms and situations, serves as the central pedagogical tool for generating a space of positive interdependence, promoting the values of team play and maximising learning and participation.

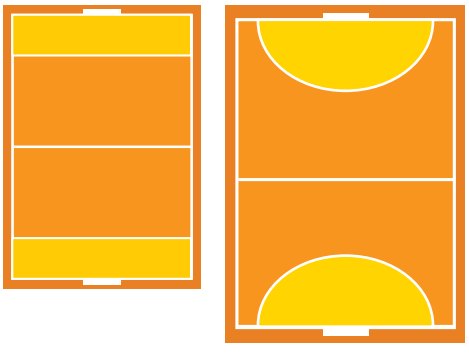
The number of players and the ratio of attackers to defenders

Reducing the number of players involved in the game creates more opportunities for each team member to participate and reduces the complexity of the game. In addition, the offensive numerical advantage not only simplifies the game, but also allows for greater participation by everyone.

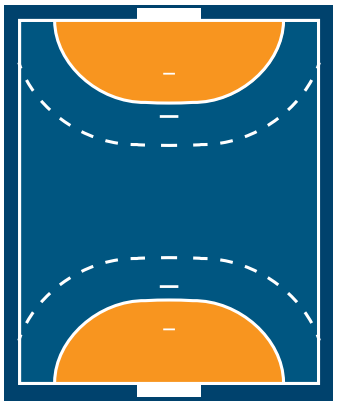


The size of the court

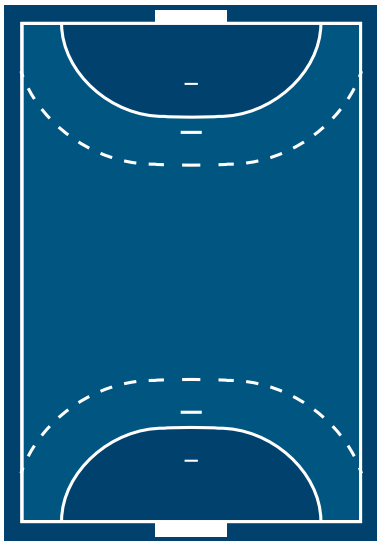
Reducing the size of the court usually leads to better control of the game, makes it easier to organise and build attacks on goal, and reduces intensity and physical effort.



SMALL-SIZED COURTS



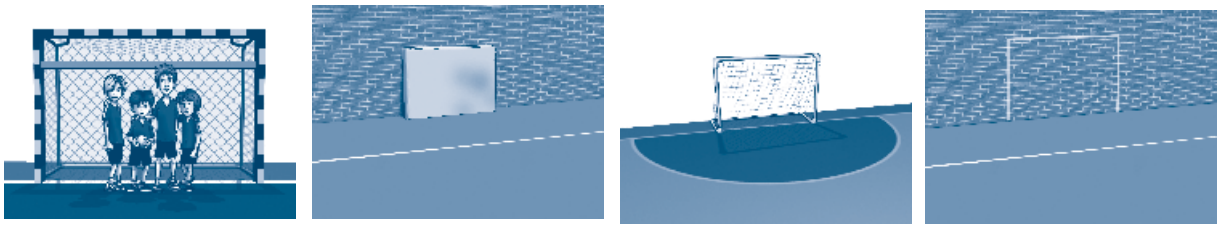
MEDIUM-SIZED COURTS



LARGE-SIZED COURTS OR OFFICIAL COURTS

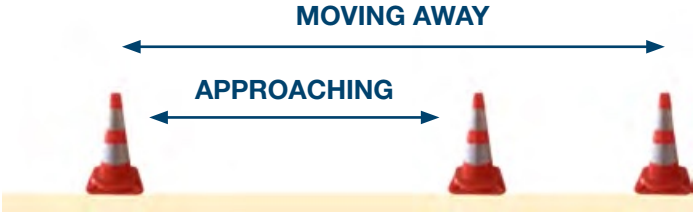
The goal

Adjusting the dimensions (height and/or width) of the goals should aim to balance, match, or make the duel between the shooter and the goalkeeper fair.



There are many possibilities to easily create or invent goals without requiring too many resources.

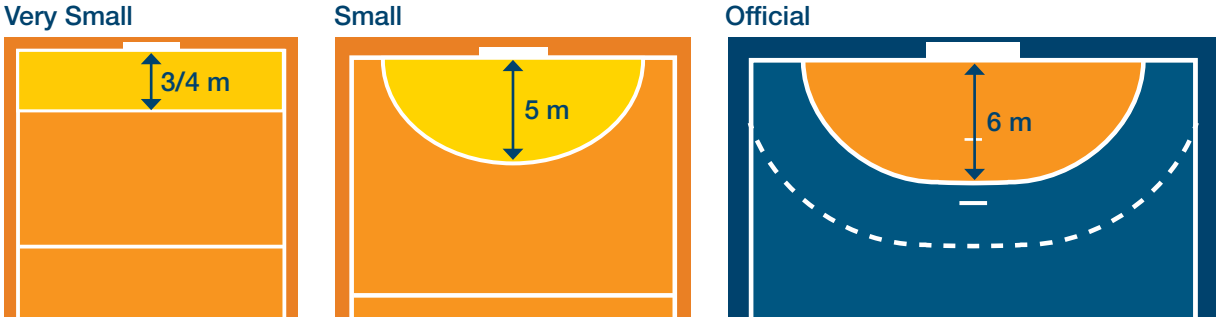
Simple cones can be used as goals; in this case, it is necessary to restrict the type of shot, allowing only those that bounce on the ground before crossing the goal line (i.e., bouncing shots).



Simply changing the distance between the goalposts or cones can make the finish easier or harder.

The goal area

In this area, teachers have many options to address different teaching conditions. Firstly, reducing the dimensions of the goal area (usually between 4 and 5 metres) to a semicircle or a rectangle (with a straight line) can lead to an increased in goal attempts resulting from shots taken closer to the goal line.



Safety:
In small areas it is advisable to favour the use of soft balls or to condition the shot by only allowing

The ball

In general, smaller, lighter balls are easier to handle and throw, while larger, softer balls (such as soft or sponge balls) are easier to catch and for goalkeepers to stop. When using standard balls, rules of action can be introduced to facilitate ball reception (e.g., allowing only 'bouncing' passes) and to protect goalkeepers (e.g., allowing only 'bouncing' shots).

Size 2 Size 0 Size 00

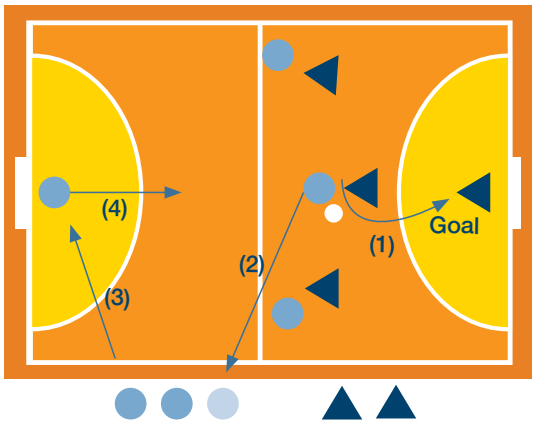
The use of *soft* balls (without bounce) is particularly useful, as they discourage dribbling and therefore encourage passing. All these sizes can be used, but size 2 is recommended for teenagers or pupils who have difficulty receiving the ball.

The use of the *soft* ball (size 2) significantly benefits students with reduced playing skills (difficulties in receiving), encouraging more passing actions rather than individual play (e.g. duels followed by progression dribbling). Restricting/preventing the use of dribbling adds a challenge for quicker, more agile players while encouraging more interaction with team-mates to advance towards the opponent's goal by passing.

Scoring system

Modifying the scoring system is essential to avoid excessive dominance by the fittest and to encourage participation by all. Possibilities include:

- Each player's first goal is worth three points.
- The same player cannot score twice in a row.
- After scoring a goal, there must be a compulsory exchange with the goalkeeper or an offside player (there can be more than one substitute), who then takes over the goalkeeper's position.
- Valuing finishes that are preceded by everyone's participation, for example, by awarding three points.



Legend:
Rotation of players
(1) Shot (with or without goal, as appropriate)
(2) The shooter runs to the bench
(3) The player who has been out the longest goes in as goalkeeper
(4) The goalkeeper goes into the field player's role

Rules of conduct and defensive action

Given that physiognomy can be an advantage in handball, it is essential to introduce rules that promote a fairer and safer game by protecting players and discouraging any deliberate and violent physical contact, whether provoked by attackers or defenders. Regulating and adjusting the degree of pressure (with or without contact) that the ball carrier is subjected to is fundamental for making the game accessible to all, while at the same time improving its quality and fluidity through passing and receiving.

It is particularly important that the player in possession of the ball has the time and space to 'arm', read, and pass the ball without fear. This can be achieved by using the protected ball rule or by requiring the defender to maintain a minimum safe distance (usually an arm's length away) when approaching the attacker with the ball, thus avoiding physical contact.

Differentiated rules

It is also possible to introduce differentiated rules to meet the specific needs of certain students, especially if they are far below or above the rest of the class. It is essential to include students in the creation of these special rules and to ensure that they are perceived as fair and useful.

If one or more student-players have playing skills that allow them to dominate the actions of the game (as is often the case of registered handball players) and make the game frustrating for others, differentiated rules can be introduced. Examples of these rules:

(a) Restricting passing and/or shooting actions to the non-dominant hand: This adjustment can have a positive effect on improving the coordination, motor-technical repertoire and versatility of more skilled student-players by encouraging them to acquire or refine more advanced on-ball skills;

(b) Not allowing dribbling: y restricting the use of bouncing, students are encouraged to collaborate more with their peers and play in a more anticipatory manner, thereby improving their reading of the game and teamwork;

(c) Limiting the number of steps with the ball (1 or 2): This rule forces players to think and act more quickly. The quick release of the ball is likely to promote greater ball circulation, continuity of play, and greater involvement of teammates.

These adaptations aim to create a more inclusive playing environment where all students feel encouraged to participate and improve while providing additional challenges for the more proficient students. By adopting these rules, more advanced students are encouraged to develop and use more complex and advanced resources, reinforcing their ability to adapt and make decisions.

Equally important, skilled students are encouraged to take on leadership and cooperation roles within the team, helping less experienced peers to understand and improve their game skills. This reinforces team spirit, positive interdependence among all members, and their role as a "playmaker"—the one who makes the game work and ensures everyone participates.

It may also be necessary to introduce rules to protect and include students with low skill levels, motor deficits, or special educational needs. In these cases, it is essential to create a playing environment that allows all students to participate safely and effectively, feeling involved and motivated to improve. Students with these characteristics often struggle with positioning, ball reception and passing while in motion. Therefore, constraining defensive actions against them is vital for fostering a secure and encouraging environment. For instance:

- Prohibit interception of passes directed to or made by these students, and do not allow close pressure or tackling against them. This helps students with difficulties to feel safer when receiving and passing the ball, reducing their fear and anxiety while promoting greater confidence in their skills.
- Condition the type of pass to make it easier to receive, as in the case of the 'bounce pass', which should be used with balls that bounce.
- Be lenient with the travel rule (when a player takes more than three steps) and the 3-second rule. It is important to give these students more time to "stop", "set up" (square to the goal and form the arm-throwing position), observe the game, identify whom they should pass the ball to, and throw without any physical interference from opponents.

This type of rule adjustment provides reassurance for students who struggle to receive and pass the ball, reducing anxiety and building confidence. It also helps develop their decision-making abilities and tactical understanding without the pressure of aggressive defending.

Inclusionary adaptations create a controlled and safe environment that allows students with special educational needs or skill deficits to focus on understanding the game and acting more intentionally (without compromising the team ball possession, for example). These rules ensure that these students feel included and supported, enabling them to develop basic skills at their own pace while promoting an inclusive atmosphere that fosters individual growth, active participation, and a sense of belonging and collaboration within the team.

Approaches and perspectives for shaping tactical game problems

Historically, according to the Portuguese National Physical Education Programme, handball is taught in two formats: 5vs.5 (commonly known as mini handball) and 7vs.7. Individual marking is explicitly recommended from grade 9, starting from the defensive half-court (just beyond the midfield line). This approach suggests that the game is initially introduced through transitional play, which is traditionally a less structured and more open method of play.

The modification of the tactical-strategic dimension of the game, through representation, tends to follow either positional play or transitional play (Figure 7). It is important to remember that the cyclical change of ball possession defines the transition between the attack and defence phases, which in turn are made up of sub-phases that may or may not be sequential: defence-to-attack transition, positional attack, attack-to-defence transition, and positional defence.

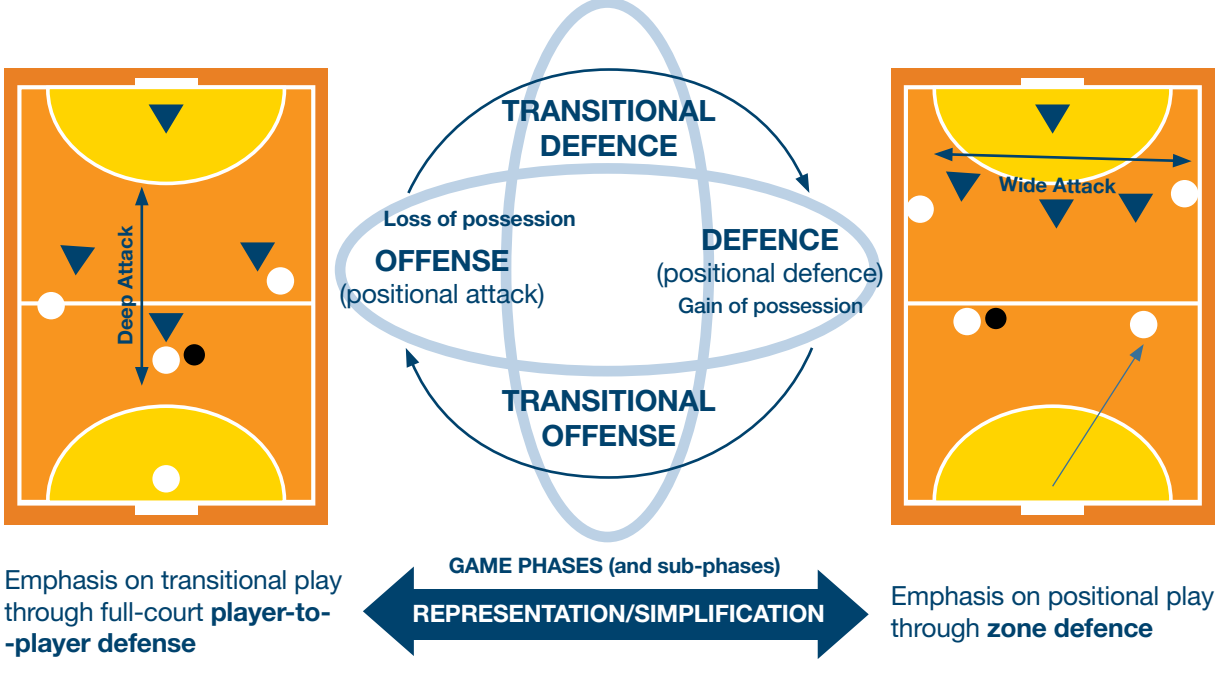


Figure 7 – Modification of handball according to the phases of the game, illustrating the dominance of width or depth by modifying it according to pedagogical criteria

The balance of forces or power generated between defence and attack, structured around numerical symmetry or asymmetry and the space available for exploration or defence, creates distinct situational opportunities to develop game skills and tactical-strategic understanding. Consequently, if the defenders, after losing possession of the ball, apply pressure (i.e. each marks an opponent) with the intention of regaining possession and preventing the opponent's progression up the court, this favours depth play. If, on the other hand, the defenders retreat quickly near the goal area to prevent a goal, the possibilities for depth play become more limited, emphasising the importance of width play. There are advantages and disadvantages to both approaches.

The advantage of individual marking is that it is simple for students to understand and requires less organisation than zonal defence. It makes it easier to identify who is to be marked (especially with nominal marking) and helps to balance the opposing pairs (attacker vs. defender) in terms of game skills. It is also argued that this type of defence makes the game more dynamic, leading to more shots and defensive interventions (such as steals and dissuasions). However, if there are no restrictions on dribbling, more skilled players can easily dominate the game, turning the activity into a chaotic "mad scramble" without any organisation. Furthermore, in cases where there are obvious technical difficulties in passing, receiving, and co-positioning (to create space or passing lanes), this type of defence can cause greater congestion around the ball, often resulting in frequent changes of possession between teams without any attempts to shoot.

The advantage of zonal defence is that it promotes better organisation of the attack and more easily involves all players in ball circulation. By prioritising quick retreat and organisation around the goal area to prevent scoring, the concept of wide attacking positioning becomes easier to understand. A more withdrawn and less pressured defence allows attackers to have more space and time to read situations and make decisions with greater confidence. However, zonal defence can create a relatively compact block in the central area of the goal—the zone with the highest scoring success rate—which can be difficult to overcome, particularly if attackers lack the resources to exploit the space between defenders (1-on-1) to create advantages or shoot while facing opposition. When this happens, it is advisable to switch to a power play.

With a wide variety of game play methods and possibilities for shaping the playing experience, it is important for teachers to pay attention to how defence manifests itself and influences the quality of the game (Figure 8). It is, therefore, crucial for the teacher to observe and guide these aspects carefully.

In situations where the defence is chaotic—as is often the case with beginners who focus mainly on the ball—this can lead to the creation of random advantages that attackers are not yet able to exploit. Concentrating instruction on individual defence can exacerbate the clustering of attackers around the ball.

In summary, the defensive approach can be free (spontaneous), individual, or zonal, as illustrated in Figure 8. Individual defence involves a player's direct responsibility over a specific opponent and can be implemented across the entire field or with various spatial constraints. Zonal defence can be executed with different levels of depth and may include several lines of action, focusing on protecting specific areas of the court with differentiated rules of action.

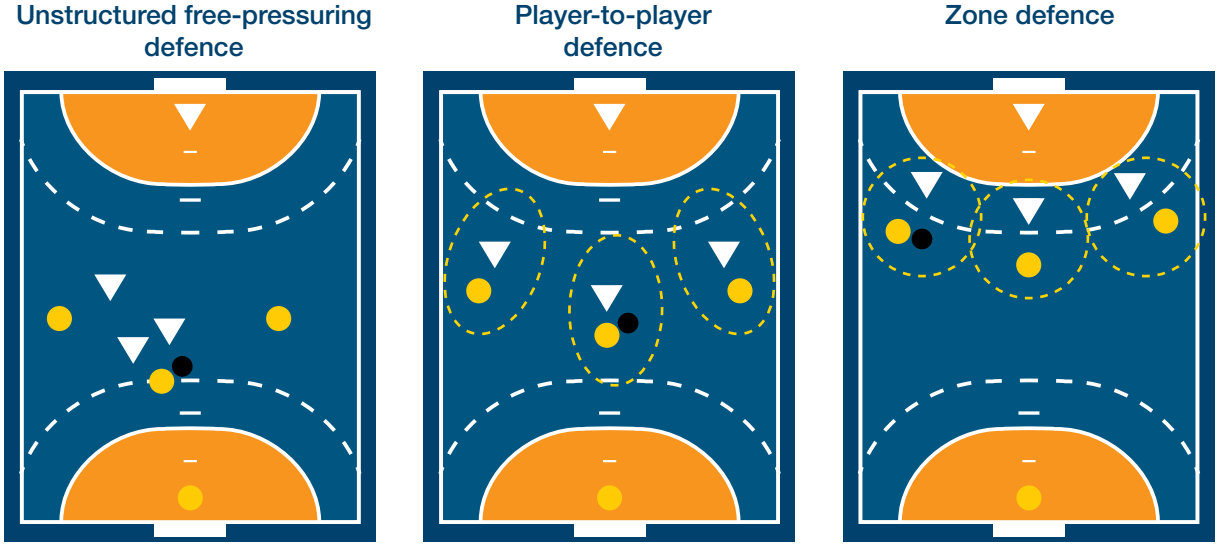


Figure 8 – Illustration of different defensive approaches that impose various constraints on the actions and interactions between players

Perspectives and guidelines for the operationalisation of the instructional process

Returning to the idea that the teacher has a wide range of possibilities to adapt and adjust the level of tactical complexity and motor demands to the development level of the participants, the question arises: **where to start and how to progress?**

From a didactic point of view, there is a consensus on the need for teaching that promotes a progressive increase in the tactical complexity and motor demands of the game. However, approaches that highlight specific phases of the game, such as transitional play (with individual marking) or positional play (with zonal defence), along with the associated concepts and game elements, generate debate and divergences among academics and practitioners. This issue has already been addressed.

Considering the need to design game contexts (referred to here as game forms) that promote positive interactions, cooperative behaviours, commitment, discipline, and fair play, it is crucial that teachers remain attentive and willing to intervene and adjust the process. This attention is essential to deal with the different dynamics and problems that arise both between elements of the same team and between opposing teams.

In this context, the teacher's role is fundamental in optimising the participation, involvement and learning of all students by adapting the game forms to the needs previously identified and those that emerge, thus ensuring a stimulating and inclusive game environment.

With this perspective, the aim is to create a culture in which students are team-oriented and strive to play well, respecting the principles of fair play. Therefore, continuous intervention and adaptation by the teacher are essential to maximise the benefits of the game, promoting a balanced and positive development of the motor and social skills necessary for good team performance.

Let's now focus on the advantages of choosing between games based on numerical equality or superiority and combining them with different defensive approaches (see Figure 9).

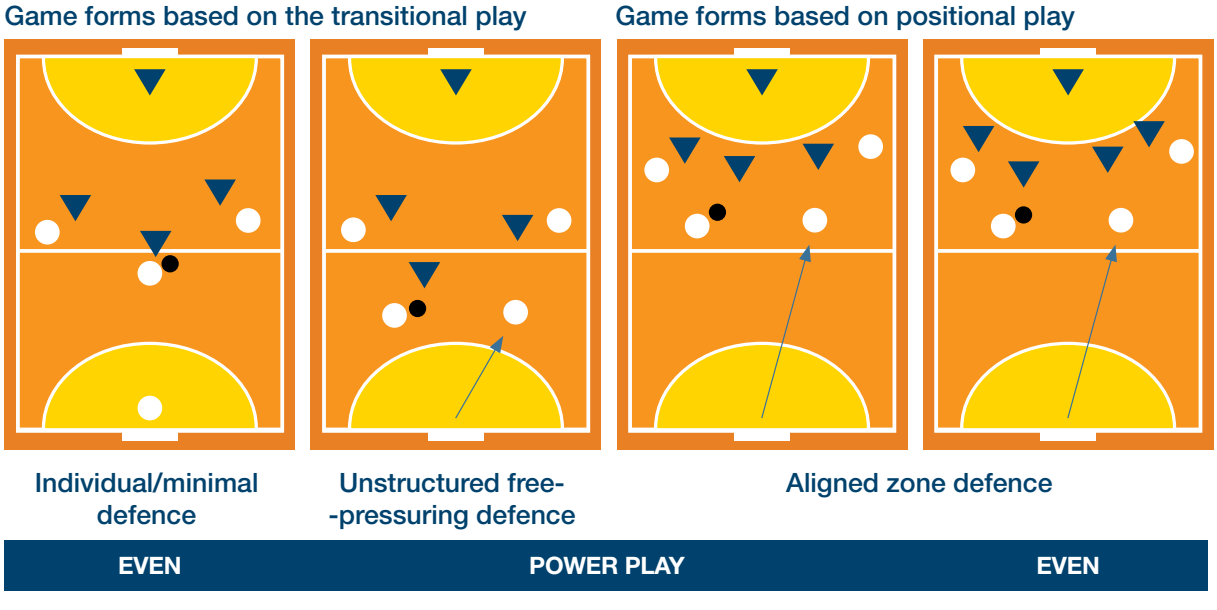


Figure 9 – Illustration of different forms of play, through the modification of the ratio between attackers and defenders and the defensive behaviour after losing ball possession

It is necessary for the teacher to adjust the elements of the game and the complexity of the interrelationship to the game skill level of the students to initiate the process. If unsure where to start, and taking the physical education curriculum as a reference, begin the lesson with a simplified game form, such as GR+3vs.3+GR or GR+4vs.4+GR, on a reduced/adapted field, with high pressure or individual defensive responsibility (or player-to-player marking).

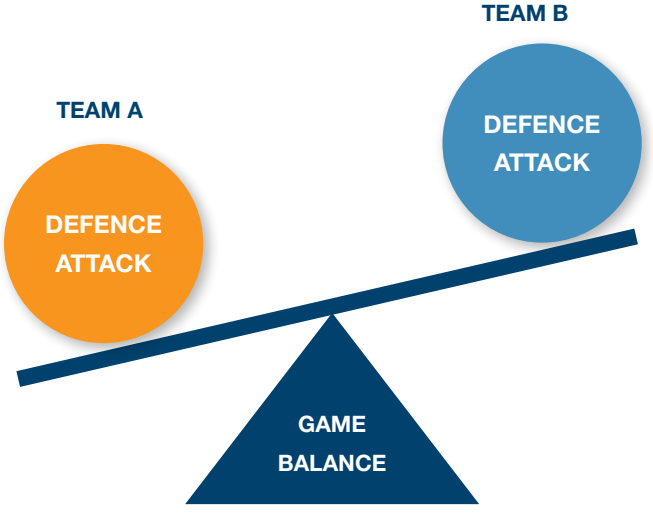
While the students are playing, the teacher should focus on observing the game from a global perspective to assess its effectiveness, trying to understand whether the students can satisfactorily respond to the demands of the game and achieve the objective, or whether it is necessary to modify the tactical configuration and the implemented constraints.

To make it easier, start by answering the following questions:

Does the game seem to be working?
Is it challenging for both teams? Is it unbalanced?
Is it too difficult?
Is it too easy?

- If the answer is "**unbalanced**" (where one team dominates the game), consider reorganising the teams and letting them play again. Then observe whether the change has rebalanced the game (you should repeat the process until a fairer and more balanced game play is achieved).

Call a time-out and discuss/reflect with both teams about what is happening, what worked, and what can be improved to make the game fairer so that everyone can participate and learn.



In an unbalanced game, one team clearly dominates, usually in both attack and defence.

- If the game seems "**too difficul**t" or "**too easy**", you should modify the game by adjusting the balance of power between defence and attack. Then, let the game continue and observe the outcome of the change. If the result is still not satisfactory, introduce more changes and observe again.

If you find that the game is too difficult for the attacking team (attackers rarely or never score), there are several possible adjustments, such as playing with an extra attacker against a pressing or more withdrawn zone defence, as shown in Figure 11.

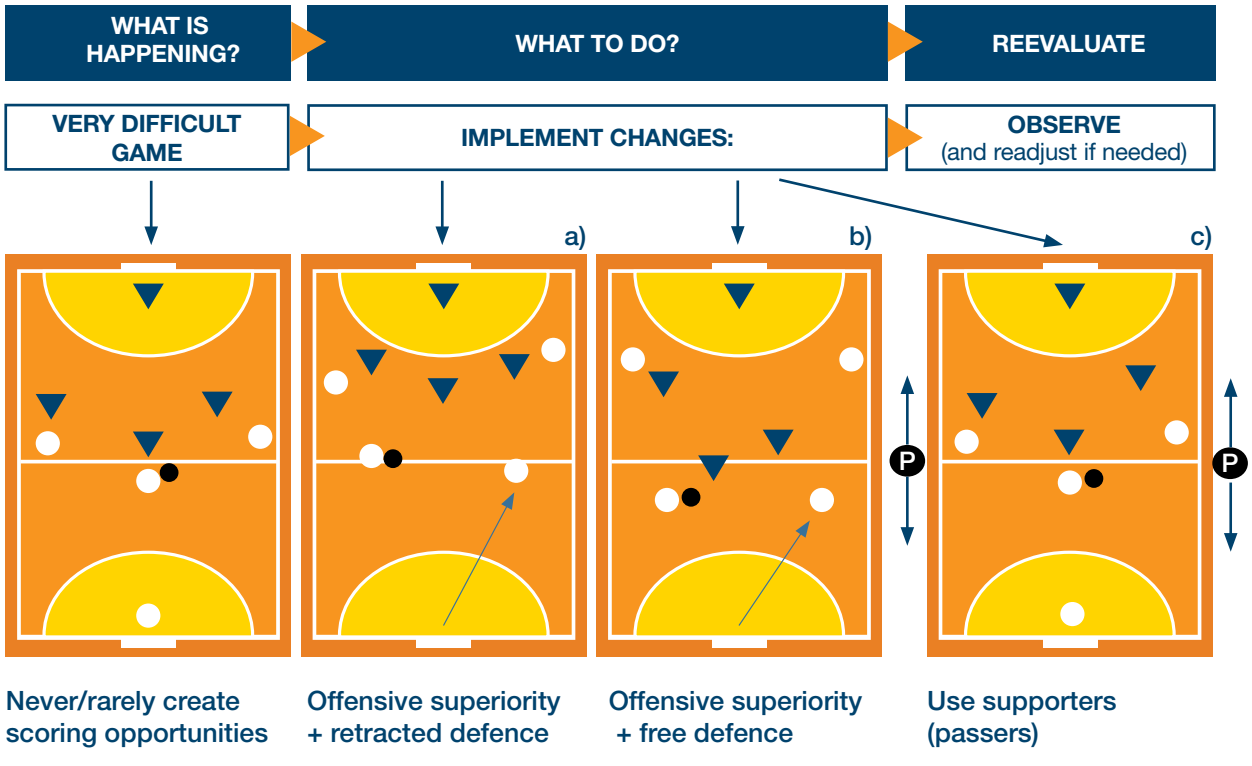


Figure 11 – Alternatives for modifying a game with individual marking/full-court or half-court pressuring defence, considering the students' difficulties in overcoming the challenges posed by the defence

Table 2 presents a summary scheme to guide the teacher's decisions on the modifications to be made, based on the classification of 'very difficult' or 'very easy', referring to the game with individual marking, which is the one most used in our school community.

Table 2 – Guidelines for modifying an unbalanced game when using individual marking

What is happening?	What to do (options)?
UNBALANCED GAME In an unbalanced game, one team clearly dominates. This dominance manifests in several ways: **Challenges for the disadvantaged team:** the team rarely manage to make forward progress and create high-scoring opportunities. Against a pressuring defence that reacts immediately to the goalkeeper's throw it is common for this team to struggle to even pass the halfway line. **Ease of the dominant team:** conversely, the ease with which the dominant team's players steal the ball allows them to create many high-scoring opportunities with little effort.	**Rebalance the teams** by switching slayers **Favour the disadvantaged team:** • Allow the disadvantaged team to use extra players who act solely as passers (support), moving only along the sidelines of the field. • Increase the number of players on the disadvantaged team (e.g., if they are behind by more than 5 goals) – play with a numerical advantage (both in attack and defence) until the game is balanced again (e.g., tied). **Increase the difficulty for the dominant team:** • Introduce additional rules to increase the challenge for the dominant team only (e.g., requiring a minimum number of passes or collective actions before scoring). • Introduce zones to restrict the defensive actions of dominant players/teams, or to condition their pressure/ball-stealing efforts. • Restrict/condition certain types of shots.
VERY DIFFICULT GAME In a game that is too complex, both teams have little success in attack, which manifests itself in different ways: • They never or rarely create finishing situations, resulting in few or no goals. • There are repeated losses of ball possession, whether provoked by the opponent or not. • The attackers fail to meet the technical and tactical demands. • There is a lack of interest and motivation.	**Favour the construction of attacking play.** • Prioritise the rational occupation of space, the relationship between the passer and the receiver, and create conditions for attacking the goal. • Play with a numerical advantage (preferably using the concept of an advanced goalkeeper) and reduce defensive pressure. • Maintain numerical equality and use support players (who act as passers/support players) who move along the sidelines of the field. • Restrict defensive action to the defensive midfield or the area around the goal area, with or without a requirement to touch the goal line before any defensive intervention.

VERY EASY GAME

In a game that is too easy, both teams have little success in defence, which manifests in various ways:

- Defenders fail to maintain a deep and pressing defence, allowing the opponent to create many transition situations and quick shots in high-scoring areas.
- Defenders often lose one-on-one duels.
- Defenders do not respond to the physical and technical demands.
- There is a lack of interest and motivation.

Favour Defensive Action

- Prioritise reducing attacking space, enhancing conditions for opposing the direct opponent, and providing defensive support (coverage and help).
- Reduce the depth of individual defence or adopt zonal marking and/or condition the possibilities for immediate individual progression, limiting or preventing the use of the dribble.
- Reduce playing space or increase the number of players to enhance the chances of defensive success.
- Impose a specific number/type of actions to prepare for the attack or require that the ball to pass through all attackers before any attempt to finish, giving the defence more time to organise.

Create, invent, and try adaptations to help maintain fair competition and ensure that all participants have a positive and educational experience.

PRACTICAL EXAMPLES – Task

SHORT GAME
WATCH HOW THEY PLAY

Is the game functioning?
Is the game safe?
Is everyone having fun?
Is everyone engaged in the game?
Does everyone understand the game?
Is the objective of the game being achieved?
Is everyone being included?
Is participation being maximised?
Is the game suitable for the skill level of each player?
Is everyone being challenged?

CHANGES USED:
- Numerical advantage (4*vs*.3 + GK)
- *Soft* ball
- Low defensive pressure

RESULT:
The student was involved in the game but lacks the initiative to attack the goal. What to do?

Operationalisation of diagnostic assessment

Diagnostic assessment in invasion sports is inherently complex and presents a challenge to any teacher, especially when trying to gain a clear and real-time understanding of each student's level of game competence and readiness. This task becomes even more demanding in the upper school years, where students tend to have very different sporting experiences and performances.

In addition to identifying each student's readiness to play the game form, the teacher must maintain class control and, if necessary, intervene and discuss relevant aspects of the game. It is also essential for the teacher to focus on experimenting and selecting the game form with which to begin the teaching unit, to respond to the overall level of the class and its diversity. To facilitate the process, it is necessary to plan, starting with a basic and simple form of the game, designed with modifiable and flexible rules, allowing for adaptations and complexity to be shaped based on the students' responses. To guide the process, we recommend a series of steps, which are presented below.

Step 1. Pre-assessment: Understanding what students know about handball and their previous experiences helps to establish a starting point for the diagnostic assessment. Begin by checking if they are familiar with the sport (focusing on the main rules), if it has been taught in previous years, what experiences they have had, and what interest or motivation handball practice arouses in them, and why. If the context allows, immediately explore what characterises a good team game and how this can be realised in handball lessons.

Step 2. Define a basic form to star, the diagnostic assessment, considering students' prior knowledge and/or their school year.

For younger students or those who have never played handball, it is suggested to start with a situation of numerical superiority without the use of dribbling (preferably with soft balls), typically 3-on-2 (+GK) or 4-on-3 (+GK), using the concept of an advanced goalkeeper.

For secondary school students, it is advisable to play a game form based on numerical equality, adjusting the level of defensive pressure according to the difficulties observed, as described in the previous section.

Step 3. Organisation and observation of teams

- Organise heterogeneous teams: Start by forming teams with students with different characteristics and involve them in the process if possible.
- Explain and discuss the basic rules: Make sure that everyone understands the basic rules before starting. Review the rules with the students (compare them with other sports) and answer any questions they may have.
- Let them play and observe: Allow students to play freely and self-regulate in terms of respecting and following the rules. Focus on observing the dynamics of the game and how they deal with problems and challenges in defence.

  Avoid intervening in the game unless you intend to modify the rules or correct behaviours that could jeopardise the safety of the students or the integrity of the game, such as: systematic and blatant violation of the goal area; breaking the step rule by running with the ball; violent physical contact, whether intentional or unintentional.

Step 4. Understanding the characteristics of the game and intervening

Start by observing whether the game appears to be challenging, balanced, dynamic, fair, and safe, and adjust if necessary, reassessing its effectiveness (as earlier addressed). To aid this analysis, use the following sheets, starting by answering the questions listed on sheet 1. If the answer to some of the questions is "no", it is up to the teacher to understand why and to intervene by making the adjustments they deem most appropriate (see previous recommendations). Remember that if one team is dominating the game, you should switch players between the teams until the match becomes relatively balanced.

Sheet 1 – Observing game characteristics and student engagement (adapted from J.I. Butler, 2016, Playing fair (Champaign, IL: Human Kinetics): Inventing Games Performance Assessment Instrument (IGPAI)

GAME FEATURES	Yes	No	Why?
Does the game flow?			
Is it structured? (attack/defence)			
Is it safe for everyone?			
Is it fair?			
Is everyone involved?			
Is everyone challenged?			
Is it fun?			

Having defined the initial basic game form (starting point), focus on understanding the level of play, the problems, and the difficulties, and prioritising the concepts and elements to be addressed first.

To recap: Transition-based game forms typically emphasise challenges in retaining possession and advancing toward the goal, especially under the pressure of an active, pressing defence. In contrast, positional play focuses on the challenges of ball circulation, creating advantages, and finishing against a more structured and compact defence around the goal area, which is generally less likely to disrupt offensive actions such as connecting passes.

As a general approach across different game forms, begin by observing whether and how students achieve the game's objective. Pay attention to whether they demonstrate significant difficulties in retaining possession, distributing the ball, and moving forward due to a lack of playing skills. Most importantly, observe whether students appear challenged, engaged, and motivated.

In summary, we provide a set of guidelines to support the observation and analysis of challenges as the game unfolds, along with interventions if necessary, recognising that the range of possibilities is extensive and difficult to list exhaustively.

Begin by observing if and how students achieve the game's objective:

- **Focus**: Observe how easily and frequently students create scoring opportunities.
- **Action**:

  - If there are few or no shot attempts, introduce adjustments to improve attacking success and re-observe. Note which attacking skills should be prioritised in upcoming lessons.

  - If there are many shot attempts but low success rates, focus on finishing tasks in future lessons.

  - If the scoring rate is between 40-70% of possessions, let the game continue and record individual cases of higher or lower success within the class (see next sheet).

  - If the scoring rate is above 70%, consider increasing the defensive opposition, including that of the goalkeeper, and re-observe. Note the defensive skills to emphasise in future sessions.

Observe students' ability to maintain and distribute possession and progress towards the goal:

- **Focus**: Observe whether the transition from defence to attack and the attacking play near the goal shows fluidity and continuity.
- **Action**:

  - If frequent turnovers or disorganised play with limited goal-oriented structure are observed, modify the game to improve offensive organisation and reduce defensive pressure, then reassess. Note the attacking skills to emphasise in upcoming lessons.

  - If around 40-70% of possessions result in scoring opportunities, allow play to continue and record individual cases of more or less successful outcomes (see next table).

  - If maintaining possession and progression are too easy, increase defensive pressure and consider which skills to prioritise in future lessons.

Observe students' level of challenge, involvement, and motivation:

- **Focus**: Determine if students are appropriately challenged, actively involved, and motivated.
- **Action**: If low motivation, lack of interest, or exclusion is observed, identify the underlying cause—whether due to excessive game complexity or insufficient engagement—and intervene as needed. Start by discussing with students how the game could be adapted to increase enjoyment, inclusivity, or engagement.

Depending on the game form used, the teacher can design various observation sheets. However, certain essential elements should always be included, in line with the objectives and principles of the game. Sheet 2 provides a sample template to record how players meet the challenges of the game, both in transition play and in positional play. Some behaviours may be observed; in such cases, leave the section blank or mark it as "not observed".

Sheet 2 – Global framework for observing how students (and the team) solve game problems

This framework is intended to be adapted to the specific characteristics of the game form, objectives, and priorities, and provides a flexible tool for evaluating how students and teams address game challenges.

FEATURES	LEVEL OF DIFFICULTY				NOTES
	Easy	Medium	Difficult	NO	
Finishing (goals)					
Creation of scoring opportunities					
Solving advantage situations (near/far from the goal)					
Creating numerical advantage (near/far from the goal)					
Maintaining and distributing ball possession (near/far from the goal)					
Progression towards the goal (in open space)					
Player-to-player marking (in open space)					
Defensive organisation and action (near/far from the goal)					

Legend: NO – not observed

Step 5. Observing heterogeneity and diversity: beyond identifying the class's overall game level and understanding their internal dynamics, it's important to observe the heterogeneity and diversity of the students.

While the students are playing, first note whether there are students who positively stand out in the team's game dynamics or, conversely, are excluded (or self-exclude and "hide") and/or show complete detachment or lack of motivation. To support the observation process, we provide a template sheet, where we recommend marking only those cases where the answer to the question is "no" (x). This will help to quickly identify those students who may need more attention or intervention.

Sheet 3 – Monitoring tool for of individual participation (adapted from J.I. Butler, 2016, Playing fair (Champaign, IL: Human Kinetics): Inventing Games Performance Assessment Instrument (IGPAI)

Instructions for using the form: mark with an "x" the cases where the answer to the question is "no"

INDIVIDUAL OBSERVATIONS	Student 1	Student 2	Student 3	Student 4	…
Is the player helping the game flow?					
Is the player playing safely and respecting others?					
Is the player playing fairly and listening to the referee?					
Is the player involved in the game?					
Is the player challenged by the game?					
Does the player seem to be having fun?					

Then, if there is enough time, try to identify differences in readiness, tactical understanding, and game skills (with and without the ball). Depending on the format of the game and the objectives, the teacher can design different observation sheets. However, very long and complex observation sheets should be avoided. Strategically designed sheets for observing detailed behaviours should, in these cases, be complemented by video recordings of the lessons for further observation and analysis.

Below, we present two sample sheets focused on games with numerical superiority and equality, respectively, which can be adjusted according to the context and objectives. To facilitate the real-time observation and recording, we recommend marking only extreme cases: above the class average (+) and below (-).

Sheet 4 – Determination of readiness level for problem-solving in games with numerical superiority and pressing or zonal defence.

Mark only cases where the assessment is 1 (never/rarely) or 3 (regularly/almost always) to streamline the process

INDIVIDUAL OBSERVATIONS	Student 1	Student 2	Student 3	Student 4	…
(With the ball) The player participates in the safe distribution of ball possession.					
(Without the ball) Moves to support the ball carrier.					
(With the ball) The player resolves situations of numerical/positional advantage.					
Positions to defend the goal.					
Other comments:					

Sheet 5 – Determination of readiness level for problem-solving in games with numerical equality, with individual or zonal defence.

Mark only cases where the assessment is 1 (never/rarely) or 3 (regularly/almost always) to streamline the process

INDIVIDUAL OBSERVATIONS	Student 1	Student 2	Student 3	Student 4	…
(With the ball) The player participates in the safe distribution of ball possession.					
(Without the ball) Moves to create space/positions to support the ball carrier.					
(With the ball) The player resolves situations of equality in open space/near the goal.					
Identifies and marks the direct opponent.					
Other comments:					

Thematic and operational conceptualisation of the teaching unit

Based on the diagnostic assessment, the teacher should understand each student's relative positioning within the group, considering their readiness to address the problems posed by the game context under study, defined by the basic or initial game format.

The spectrum of skills and observed differences among students should be considered when deciding on the type of class organisation, choosing between homogeneous, heterogeneous, or self-selected groups. Additional specific work may be required for a student or group that does not adequately master basic game skills, such as receiving and passing the ball, preferably while in motion. It is important to note that pedagogical differentiation, to meet specific learning needs can (and should) take place within a teamwork context, as will be discussed later.

The development of a Teaching Unit based on game problems should be flexible, gradual, and progressive, utilising planning cycles (2-3 sessions) or even lesson by lesson, on an ad hoc basis. This approach arises from the challenge of understanding the actual readiness levels, capacities, and learning paces of all students, which will naturally affect the evolution of the process and the subsequent correction/adaptation of procedures.

To define clear and achievable objectives, start by identifying the contents (concepts and elements of the game) and problem situations (breaking down the basic game format under study into simpler structures) to be selected.

Step 1: Begin with the initial game format and the diagnostic assessment to project the game level (or game format) to be achieved by the end of the process ("the big picture"). The idea is to start with a final game idea in mind and work progressively towards that goal, considering the teaching conditions and students' responses throughout the process (formative assessment). For example, start with numerical superiority and end with numerical equality, as illustrated in the table below.

Step 2: On the timeline, define the competition moments (intra-class tournaments) and assessment moments, taking into account the length of the unit (number of lessons and their effective duration), the available spaces, and the materials.

Step 3: Consider the game problems and learning needs identified in the diagnostic assessment and define the learning objectives for the first cycle of classes (up to the first tournament). Tournaments serve as moments of formative assessment, allowing to examine the students' (and teams') readiness and to determine if it is possible to move on to a more complex game format or if, on the contrary, more time is needed to solve the problems posed by the game format under study.

It should be emphasised that partial structures, subordinated to their tactical logic (such as finishing/preventing finishes, creating/preventing scoring opportunities, progressing/preventing progression, organising/countering the attack's organisation), serve as thematic organisers that guide the process of differentiation problems within the overarching thematic domain of the game or its formats.

Consider the calendar and decide on the main themes/principles or partial structures to be worked on by breaking down the game problems (see the following table). It is important that the progressions respect both vertical articulation (tasks directed at distinct tactical problems: maintenance, progression, finishing, etc.) and horizontal articulation (tasks oriented toward similar problem situations: 3vs.2, 2vs.1, 4vs.2+2). The relationship between the two will provide a varied and progressive dynamic to the teaching process.

Example of constructing a Teaching Unit dedicated to Handball

		Lessons								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Duration		90 min.	50 min.	50 min.	50 min.	90 min.	50 min.	50 min.	50 min.	90 min.
Space		LS	LS	LS	LS	LS	LS	LS	LS	LS
Intra-class tournament		X				X				X
Themes/problems	**Game forms**	**IGF**	**Uneven format 4*vs*.3+Gr**			**TGF**	**Even format with pressuring defence Gk+3*vs*3+Gk**			**FGF**
	Finishing	Diagnostic assessment	GBT: 2x1+Gk; 1xGk			Formative assessment	GBT: 2x1+Gk			Final assessment
	Creating/ exploring SO		PGF: 3x2+Gk		PGF: 4x2+2+Gk		PGF: 3x2+Gk			
	Maintaining/ distributing possession		GBT: 3x2; 2x1				3x3	GBT: 2x2+apoios		
	Organising attack/defence		4x3+Gk; 4x2+2+Gk							
	Making forward progression							2x2+2x2	2x2+2x2	
	Regaining possession				1st cycle		3x3/2x2			

1st cycle → 2nd cycle

Big Picture – Game form target by the end of the unit

Legend: SO - Scoring opportunity; SS - Small space; LS - Large space; IGF - Initial game form; TGF - Transitional game form; FGF - Final game form; PGF - Partial game form; GBT - Game-based tasks.

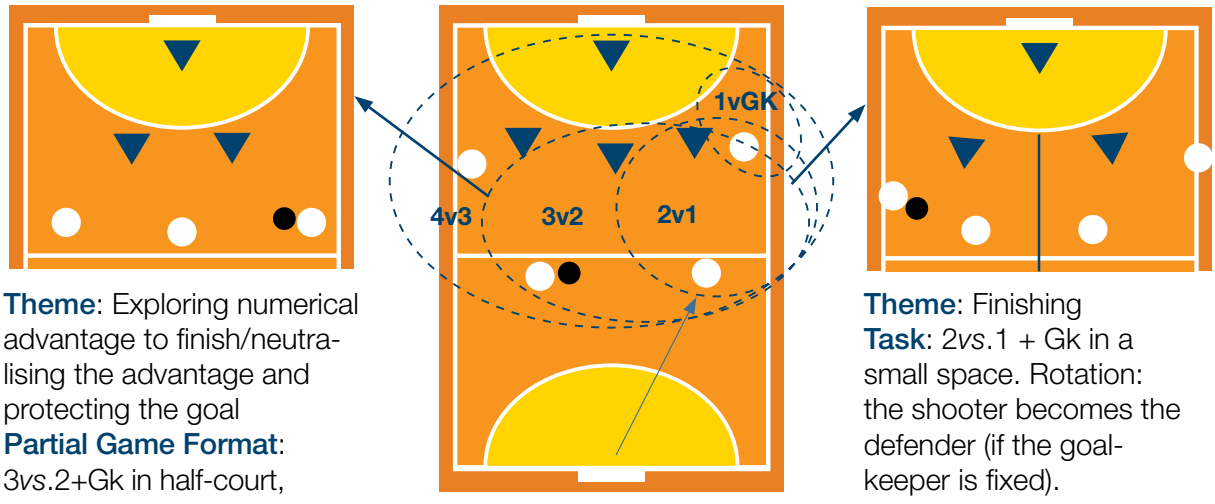
Designing (and modifying) learning tasks

On the didactic assumption that the transferability of learning is maximised by the representativeness of the tasks in relation to the demands and constraints of the basic form of the game, it is essential to recreate game problems that reflect the real challenges of the game. But simpler.

Therefore, it is important to understand the basic form of the game and break it down into simpler functional units by creating exercise or practice contexts that reproduce the situations that students have difficulty solving. The aim is, on the one hand, to facilitate and guide the process of reading and understanding tactics, channelling and guiding the discovery and experimentation of the most appropriate solutions or actions to achieve the tactical purposes (e.g. finishing, keeping possession, progressing, creating an advantage, feinting, etc.). On the other hand, the aim is to create contexts of repetition and practice for everyone, allowing them to recognise the situational constraints or challenges faced in the game and to practise the concepts, skills and actions needed to overcome them.

In summary, the basis for preparing learning tasks should be subordinated to the students' learning needs, in accordance with the action rules, tactical principles or themes arising from the game problems, by simplifying, focusing and fragmenting them. Examples include:

- Finishing/preventing finishing (e.g., tasks based on the game: 2-on-1, 1-on-Gk starting near the goal);
- Exploiting the numerical advantage to finalise/annul the advantage and protect the goal (e.g. partial game forms: 3*vs*.2, 4*vs*.2 in half-court).
- Building up the attack/protecting the goal (e.g. partial game forms: 4*vs*.3 in half-court).
- Maintaining and distributing possession/recovering possession (e.g. game-based tasks: 3*vs*.2, 2*vs*.1 passing games, etc.).

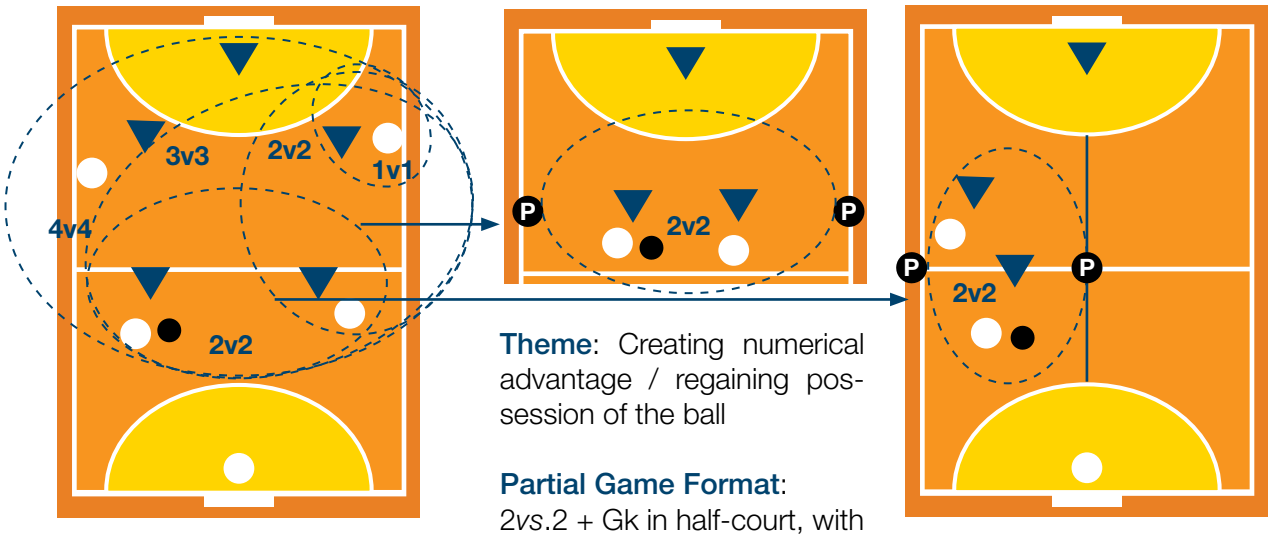


Theme: Exploring numerical advantage to finish/neutralising the advantage and protecting the goal
Partial Game Format: 3*vs*.2+Gk in half-court, transitioning to a 3*vs*.3 game with the objective of placing the ball over the midfield line, where defending team becomes the attacking team.

Basic Game Format: 4*vs*.3+Gk, with zone defence

Theme: Finishing
Task: 2*vs*.1 + Gk in a small space. Rotation: the shooter becomes the defender (if the goal-keeper is fixed).

Using the Gk + 4*vs*.4 + Gk format of play as an example, functional units based on numerical equality emerge with player-to-player defence in a wide space (or full--court pressing defence), as highlighted in the image above. However, this does not mean that learning situations based on numerical superiority cannot (and should not) be employed, depending on the specific game challenges and learning needs.



Basic Game Format: Gk+*4vs*.4+Gk, with individual

Theme: Creating numerical advantage / regaining possession of the ball

Partial Game Format: 2*vs*.2 + Gk in half-court, with 2 support-players, transitioning to a 2vs.2 game with the goal of placing the ball over the midfield line.

Partial Game Format: 2*vs*.2+Gk in half-court, with 2 support-players.

Ensuring that all students benefit from learning situations is a fundamental criterion in the design and organisation of the teaching process. Various instructional strategies can be adopted to achieve this:

- Forming heterogeneous working groups to promote cooperative learning;
- Using different rules to adapt the level of challenge to the students' abilities.
- When working with equal numbers, whether in individual or zonal marking, it is important to pair up (attacker vs. defender) and assign roles (support--passer and player) according to each student's abilities. Additionally, the rules of rotation between roles should not be overlooked. If this is not possible, different rules of action can be implemented to ensure balance in the opposition, such as duels with different spaces for action/intervention and other constraints that limit or favour the actions of the defender or attacker.
- Involving students in modifying the learning tasks gives them the freedom and responsibility to ensure that everyone has significant and appropriate opportunities to learn.

Balanced pairs (1-on-1) by game skill level.

Example learning situation: 3-on-3 in midfield with defined intervention zones (1-on-1), where the space (larger/smaller) can be adjusted according to the skills of the attackers vs. defenders to balance the level of opposition/challenge.

Action-Research studies

Additionally, the studies conducted by pre-service PE teachers can be consulted:

- Pre-service teacher: Sara Neves

Title: Melhorar o envolvimento e a aprendizagem no ensino do andebol: Uma experiência pedagógica com alunos do Ensino Secundário [Improving engagement and learning in handball teaching: A pedagogical experience with secondary school students]

Objective: The purpose of this study was to analyse the formative value of observational tasks and peer assessment in the participation and involvement of students in a handball teaching unit, taught according to the Invasion Games Competence Model, in small classroom spaces. Specifically, it aimed to:

1. Analyse the value that students attach to the strategies used in lessons for their learning.
2. Analyse student's involvement in observational and peer assessment tasks.
3. Analyse the formative value of observational tasks and peer assessment processes among students.

https://revista-ebalonmano.unex.es/index.php/ebalonmano/article/view/2366/2175

- Pre-service teacher: Carlos Carreiras

Title:Desafios e Estratégias para uma Educação Física Inclusiva numa Unidade Didática de Andebol [Challenges and Strategies for Inclusive Physical Education in a Handball Didactic Unit]

Objective: Considering that reflective practice is transformative and enhances the teacher's intervention capacity, the purpose of this study is to understand whether the results of this reflective practice (action research) and the changes resulting from game formats, additional constraints or court dimensions positively influence the participation of students with lower motor and game skills in a handball unit. In addition to investigating the impact of the teacher's reflective practice on student participation and performance quality, the study aims to monitor, lesson by lesson, the improvements made through the cycles of planning, action, observation, and reflection. The methodology adopted thus aims to promote pre-service pedagogical learning and to improve student participation and quality, especially for those with more limited tactical and technical skills.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Carlos%20Carreiras_Andebol.pdf

■ Pre-service teacher: Tânia Fernandes

Title: Dimensão Investigativa – Competição em Educação Física: Estudo exploratório das perceções dos alunos acerca dos torneios de andebol e futebol [Investigative Dimension – Competition in Physical Education: An Exploratory Study of Students' Perceptions Regarding Handball and Football Tournaments]

General Objective: To analyse students' (girls and boys) perceptions concerning the organisation of handball and football tournaments.

Specific Objective: To understand students' (girls and boys) preferences regarding group-team types and learning task organisation.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/T%C3%A2nia_Fernandes_Andebol.pdf

■ Pre-service teacher: Miguel Simões

Title: Estratégias Para a Inclusão de Alunos com NEE em EF: O Ensino do Jogo de Andebol Ancorado na Cooperação [Strategies for Including Students with Special Educational Needs (SEN) in Physical Education: Teaching Handball Based on Cooperation]

Objective: This study aimed to examine the participation and (inter)action of participants in the game through the use of heterogeneous teams and rule modifications for inclusion and social justice, with a particular focus on the involvement of students with special educational needs.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Miguel_Sim%C3%B5es_Andebol.pdf

■ Pre-service teacher: Daniela Gonçalves

Title: The Importance of Inclusion in Team Sports, Through Handball

Objective: The goal of this action research study was to promote the inclusion of students through team sports, specifically through the sport of handball.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Daniela_Gon%C3%A7alves_Andebol.pdf

FINAL CONSIDERATIONS

This handball teaching approach goes beyond the development of motor skills, technical ability, and understanding of game tactics. Handball is positioned as a pedagogical tool to instil values like cooperation, positive interdependence, and effort, actively encouraging the involvement and participation of every student. The objective is to create a game culture where individual contributions strengthen the collective, promoting well-played games through inclusive participation. This approach emphasises inclusion, collaboration, fair play, and mutual respect among all students.

We believe that a successful school game should be challenging, functional, balanced, and fair, ensuring that all students feel valued, respected, and included in the dynamics of the game. The approach is rooted in the idea that students should cultivate teamwork skills, learning to include others and to work towards being actively included in the game's actions.

To support this, the game needs to be modified and adapted to the students' abilities and learning needs. This may involve amplifying, limiting, channelling, or simplifying game problems and challenges. This flexibility in game design allows for the gradual introduction of tactical concepts and strategies, alongside differentiated skill practice and game elements. Such an approach transforms handball into a manageable and enriching teaching tool that provides meaningful experiences for all students.

From this perspective, teachers are encouraged to move beyond traditional student groupings based solely on skill level or performance. Instead, they are challenged to modify the game to embrace the diversity and varying abilities of participants, fostering a cooperative and inclusive environment where every student can contribute and learn.

Additionally, involving students in evaluating the game and changing or adapting its rules ensures that they are perceived as fair and encourage active participation by all. Students can also assume roles as observers and evaluators (through self and peer assessment), which enhances their understanding of the game and deepens their engagement in setting personal and collective learning goals and strategies.

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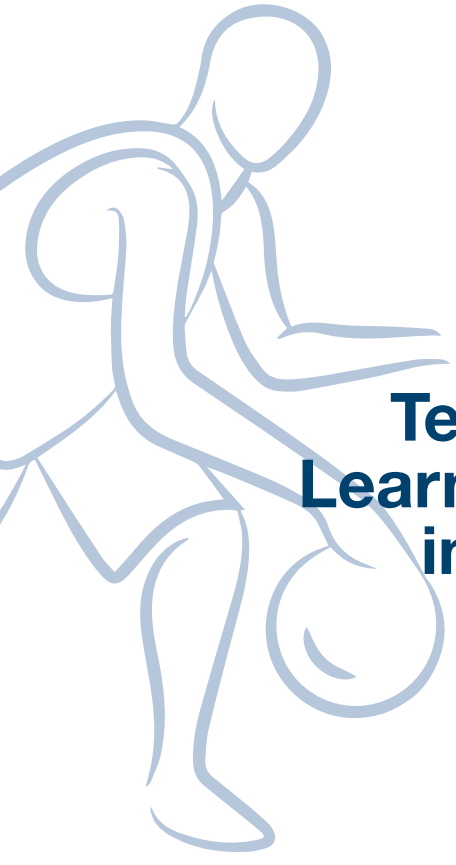
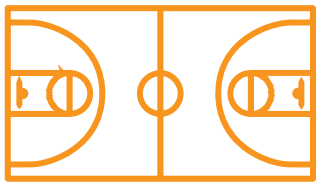


5.3

Teaching Basketball: Learning to play as a team in an inclusive way

Amândio Graça



INTRODUTION

The game of basketball was invented in 1891 at the International Training School in Springfield, Massachusetts, United States—a school associated with the training of Physical Education teachers. Its first rules were published in 1892 (Naismith, 1996). Due to weather issues during winter, the inventor of basketball, Professor James Naismith, was demanded to find an alternative to outdoor games, especially American football. He decided to retain the character of the invasion game, a type of game in which the attackers try to invade the defenders' space so that they can finish and score; and the defenders try to prevent the invasion and prevent their opponents from finishing, using the opportunity to recover the ball and pass it to the teammates.

In American football, attackers run with the ball in their hands and pass it to teammates to maintain possession and reach the end line to score. Defenders grab, pull, push, stop players and try to avoid the ball from advancing and attempt to intercept and gain possession.

To achieve similar goals of scoring and preventing scores, the original rules of basketball[1] were defined in contrast to those of American football, particularly regarding running with the ball and physical contact. In basketball, the ball is played with the hands, but you cannot run with the ball in your hand; you cannot grab, push, pull, or hit opponents (Portuguese Basketball Coaches Association, 1977).

[1]The rules can be found at the following link:
https://lacm.fade.up.pt/files/PST-PRIPE/PDF/ENG/The%20first%20basketball%20rules.pdf

The initial rules of basketball did not include dribbling, which involves advancing with the ball without holding it in hand. Due to its similarity to running with the ball in hand, this individual initiative invented by the players, was subject to various prohibitive measures, including the prohibition of shooting after dribble. However, the interest and influence of competitive players, coaches, and other stakeholders have managed to overcome the restriction of dribbling by contributing to fostering more creative players and enriching the quality of the game. The beginning, continuity and end of dribbling [2] (see explanation in LINK) are always dictated by verifying the chain of actions according to the regular restrictions on the execution of dribbling (Portuguese Basketball Federation, 2024).

In contrast to the development of dribbling, similar games related to the origin of basketball were created a few years after its invention, namely Netball (it appeared in a girls' college in England in 1895)[3] and Korfball (a mixed team game developed in a Protestant school in the Netherlands in 1902). These games retained the round ball as a game object, the basket (without backboard) as the object of completion; not running with the ball in hand; and the prohibition of physical contact. However, they gave up the use of dribbling, restricting invasion strategies and the creation of shooting situations to the exploitation of passing and get open, respect for team play and the diversity of gender and skill amongst their students.

The use of dribbling in the game expands the players' agency and their power to act individually. The fundamental idea in teaching the game from an inclusive perspective is that the initiative and individual power of the players does not weaken the team game, devalue or prevent the participation of other players, or reduce communication, cooperation, interaction and social relationship between players. This approach aims to construct a team game suitable for the active involvement, pleasure, confidence, interest, challenge, and the overcoming of the possibilities of action of all players.

Those who want to teach basketball do not have to give up the use of dribbling but should envisage its use in a dynamic that, in first place, does not harm players and the team game. It should avoid egocentricity, abuse and excessive use of dribbling, while encouraging students to combine individual initiative with team play. Dribbling is not only to take advantage and create shooting situations for oneself, but also to take advantage and create shooting situations for teammates, helping them to get open or staying open. It also contributes to facilitating support passing lanes, maintaining possession protected, organising and reorganising the attack, and ensuring a safe and advantageous transition to the attack.

Dribbling, like all actions of active confrontation between attack and defence, is

[2]For more information see: https://lacm.fade.up.pt/files/PST-PRIPE/PDF/ENG/Dribling.pdf
[3]For more information see: https://lacm.fade.up.pt/files/PST-PRIPE/PDF/ENG/Netball.pdf

not reduced to individual technical and tactical competence; it involves, influences, and is conditioned by the positions, movements, decisions and tactical actions of both defenders and attackers. Defenders should try to act on the attacker's dribble to prevent space invasion or facilitate it, help the defender marking the dribbler without abandoning their defensive responsibilities to prevent the attacker from gaining shooting, and attempt to regain possession of the ball without conceding a basket. The attackers should focus on positioning themselves and moving to assist the dribbler penetrate; to open complementary finishing positions and prepare for an offensive rebound if there is a throw. They will also help maintain possession by offering support passing lanes and avoid team imbalance in case of losing the ball to the opponent. It is important, therefore, to learn not only to bounce but also to pass, to receive, to position, to move, and to orient oneself in synergy with teammates and in confrontation with opponents. All this in the context of solving team game problems that require the attention and action of the players. The attackers should focus on positioning themselves and moving to support the dribbler in breaking through the defence, creating complementary shooting positions, and preparing for an offensive rebound if a shot is taken. They will also work to maintain possession by providing supportive passing options and avoiding team imbalance in case of a turnover. It is essential, therefore, to learn not only to dribble but also to pass, receive, position, move, and orient oneself in coordination with teammates and in response to opponents. All of this should be done while addressing relevant game challenges that engage the players' attention and actions.

The teaching of the game of basketball in physical education

There are several ways and models to teach basketball. The most traditional form focuses on the teacher's direction, emphasising decontextualized technical skills as the main subject of planning the didactic unit, planning and instruction of classes, and diagnostic and summative evaluation. This trend is still far from being overcome, even in the pedagogical stage of courses with didactic training devoted to the game as a construction of the players rather than decontextualized technical skills.

Centring teaching on the game, as a construction of the players, requires that they understand and actively engage in it to solve problems and play as a team. Understanding the game involves understanding each other, communicating effectively, and disputing with the opposing elements the objectives of the game. Selecting the most appropriate modified form of play, which is challenging for everyone, is the fundamental starting point of teaching the game. It is necessary to propose and agree with the students on the size of the field, of the ball, the

height of the basket, the number of players, the composition of the teams, and the formulation of the rules to facilitate the construction of a game of quality and interest for all players.

The Invasion Games Competency Model (Graça et al., 2019; Graça et al., 2006; Graça et al., 2013)[4] proposes a line of evolution of four basic forms of basketball play before adopting the full court 5vs5. The basic forms of play 1 and 2 (BGF1 and BGF2) are 3vs3 games, in a single backboard, and focus the game on actions near the basket related to positional attack and individual defence. The basic forms of play 3 and 4 (BGF3 and BGF4) are entire field-court 3vs3 games, but shorter than the official field size. Normally, the cross-sectional fields of the sports hall, being not oversized, allow to deal with the development of the defence-attack transition and explore situations of numerical superiority.

The BGF1 is distinguished from the BGF2 by the priority it gives to the invasion game based on passing and get open, as well as in the confinement of the use of dribbling to situations of free path to the basket and to transition situations with opposition removed. The defending team, when it recovers the ball, can only attack the basket after getting the ball to the starting area of the attack, about two meters beyond the free throw line. After the transition (without opposition) is over, the beginning of the attack is emphasised with the turning to the basket. Whoever receives the ball turns to the basket. To facilitate this action, it is forbidden to take the ball from the hand of the player holding it (protected ball possession rule) to prevent him/her to turn his/her back on the game and losing sight of the attack.

In the BGF1, if the attacker faces a defender, he/she is encouraged to communicate with teammates rather than dribble past the defender (an action that is then allowed or encouraged, but without overuse, in BGF2). Meanwhile, teammates try to establish communication with the ball carrier to ensure that they maintain possession (open a passing lane and attack the basket (get open themselves to receive the ball near the basket, or to receive and pass to a teammate who is open near the basket).

To ensure the good construction of the game as a team, communication, passing and getting open are crucial alongside tactical competence. All players must actively participate with a balanced in the following roles: 1) the ball possessor, who may try to score or try to discover a teammate getting open to whom he/she could pass; 2) a player who sees the possessor of the ball trying to communicate with him/her

[4]For more information, please see:
https://lacm.fade.up.pt/files/PST-PRIPE/PDF/gra%C3%A7a,%20et%20al%202013%20ensinar%20a%20jogar-c%C3%B3pia%202.pdf

and tries to open a passing lane for support or for shooting; 3) a player not currently engaged with the ball should avoid obstructing the movement of the teammates, positioning him/herself or moving to provide a shooting alternative or to support the development of their action.

Since the game is the main atelier, it should be understood as a starting point to contextualize the problems inherent in finding solutions to the objectives of attack and defence, and to the explanation of the objectives of perception, action, communication and relationship defined for the theme of the class. This is our priority and what we aim to address in attack and defence. The game should consistently serve as a reference point to evaluate what we want to see in the game, how it is being played and what needs to be corrected or improved. Therefore, the game tells stories to the students (what happens, what could happen, what should not happen); students should observe and reflect on these and try to propose and help the game to retell new stories.

Partial forms of play and game-based tasks are game-supporting workshops that should be introduced in a well-founded relationship with the objectives sought to be solved in the game, which students recognise and want to overcome. Connecting the parts to the whole should be the focus of attention, both in the passage from the game to the partial forms of play and game-based tasks, and in returning to the game to recontextualize the specific objectives of the class within the overall dynamics of the game, considering the interaction of the partial structures within their total structure (Figure 1).

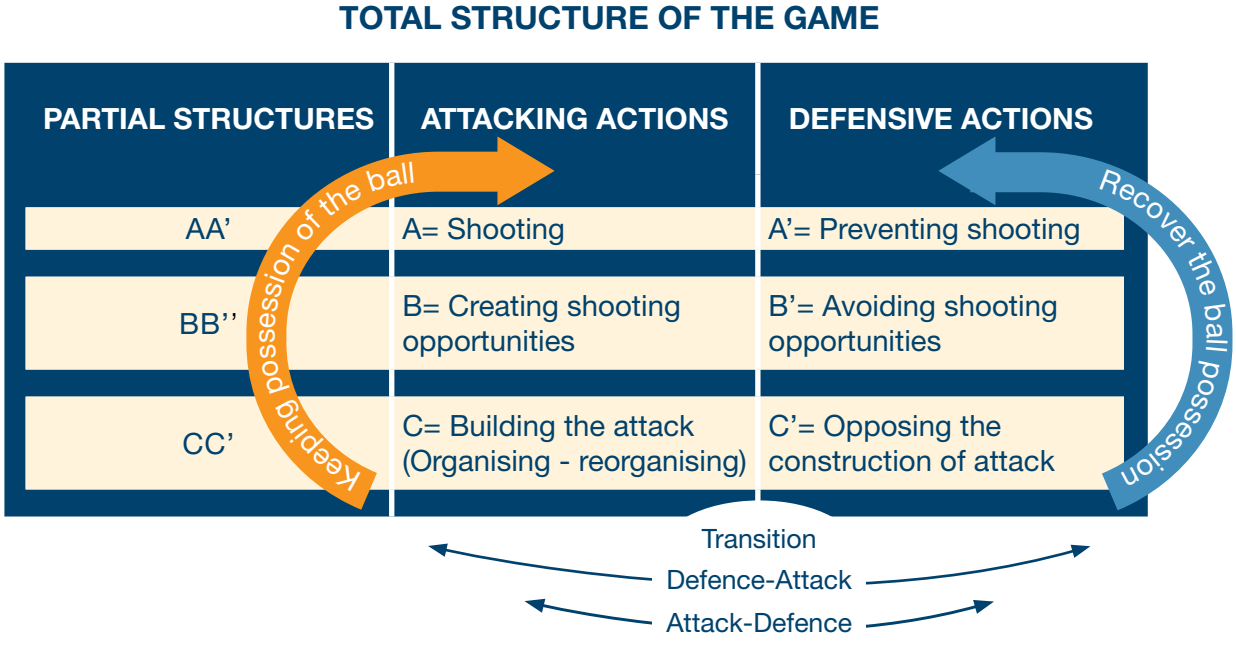


Figure 1 – Strategic structuring of invasion games

Identify and leverage shooting situations

The teams confront each other, pursuing the antagonistic objectives of the game with varying incentives: to get the ball into the opponent's basket/not to let the ball enter their basket. To accomplish these objectives, players on teams in possession must be able to identify and take advantage of shooting situations: the player in possession facing the basket assesses (1) if he/she is in a favourable position to shoot immediately (near the basket, with time and space to shoot); (2) if he/she has an open way to penetrate in dribbling and shooting closer to the basket; (3) if there is a colleague open in a favourable situation for shooting to whom he/she can assist. To identify and effectively take advantage of these three finishing possibilities, the player in possession of the ball, in an area relatively close to the basket, must learn to start and then successively improve in assuming a "triple threat" position of finishing: shooting, penetrating (dribbling as a threat), assisting (passing as a threat).

'Identifying and taking advantage of shooting situations' should emerge as the first explicit theme for the teacher's conversation with the students at the beginning of the game. This will encourage them to focus on perceiving shooting opportunities when confronting defenders, considering the available time and space. In the game, the main workshop, the theme 'identifying and taking advantage of shooting situations' is linked to adjacent implicit intentions, which will be explicitly addressed in later teaching themes, such as 'creating shooting situations' (what to do about it) and 'organising and reorganising the attack' (what precautions to take). All attacking themes have an underlying concern not to lose the ball until shooting with a throw and trying to regain possession of the ball if the attempt to finish does not generate a successful shot.

To take 'identify and take advantage of shooting situations' as the first theme, the modified form of play to adopt must provide a convenient number of shooting situations capable of inducing the players' attention, intentionality and confidence to direct their action toward the primary objective of the game. The specific goal of shooting should be accompanied by an implicit overall goal—getting the ball close to the basket—and an underlying goal of sustaining team ball possession.

The partial game forms linked to the identification and taking advantage of shooting situations can be worked on in 3vs1; 2vs1; and 3vs2 situations. It is preferable to avoid the organisation in rows and columns, instead transforming them more directly into forms of partial conversion of attack-defence and defence-attack transition, with the ball going up to the starting zone of the attack. The ball is disputed by everyone until a successful shot, a defender recovers the ball, the ball goes out, or there is a flagrant violation of the adapted rules. The action rule for the defender is: be active, prevent anyone from shooting, and stop anyone from taking the ball to the basket.

The action rule for attack: everyone works to attack the basket and ensures not to lose the ball or recover it on a rebound until it is scored. Whoever has the ball turns to the basket and assesses if they can shoot, penetrate or assist. Those without the ball should communicate with the ball carrier, support him or offer him an alternative to finish, and participate in the rebound when there is a throw-in.

Game-based tasks (without opposition or with conditioned opposition to easily emerge the most favourable decision linked to the identification of shooting situations) should be concerned with turning to the basket, when one gets possession of the ball and deciding whether to shoot, penetrate, or assist a teammate who is free to shoot or move close to the basket. The throw, even in unopposed drills, must be linked to the rebound (up to three times if the ball remains alive). The signs of the decision can be very clear or predetermined, but they must be, at least, contextualized with what is intended to be transmitted to the game, in positions and movements.

Create shooting situations

The theme 'creating shooting situations' aims to explain the objectives of overcoming defenders to invade the favourable space for shooting near the basket. This is particularly relevant when playing at a level where long-distance shooting is not recommended, and the use of the three-point line is discarded.

In the didactic unit dedicated to BGF1, dribbling during the positional attack phase is restricted to the space open to the basket. When the ball holder has a defender in front of him/her, it is recommended that he/she try to communicate with a teammate and stimulate him/her to receive running close to the basket (backdoor cut), or for him/her to receive running out and then connect him/her to the pass and cut (priority vehicle to create finishing). Something that can eventually be anticipated if the receiver, when he turns to the basket, detects a more immediate opportunity for an open shot that he/she can readily take advantage of (a clear path to the basket, a teammate already well open near the basket).

The backdoor cut and pass-and-cut are fundamental tools to be used in the work 'creating shooting opportunities' for BGF1. These are actions in which the initial position of the ball carrier is outside and, turning to the basket, notices that he/she has no space to penetrate or assist a colleague. The player must then establish visual communication with a colleague who responds by moving and changing direction and speed, without getting too close to the ball carrier, to open himself and be able to receive the ball inside or outside. A good passer should try to make his teammate move with his gaze and gestures and pass the ball away from the defender in a direction and with a strength that the teammate can receive. In the

role of a passer, the player must try to be a playmaker, establishing communication and encouragement to see all colleagues.

A good receiver can move to provide the passer with a wide-open passing lane and to anticipate the defender's interception in the variety of passes directed to them, even when some are less appropriately.

In the workshop game, individual defence is the fundamental challenge to force the creation of finishing situations based on direct communication between two players, on get open, on passing and cutting, and on backdoor cutting.

The partial game form of 3vs2 can be taken up in some classes as a main atelier if the teams have difficulty creating shooting situations and are not yet agile to identify and take advantage of available shooting situations. In the 3vs2, the defence must be very active, always obstructing individually the player with the ball, preventing anyone from carrying the ball to the basket or attempting a shot. While one is marking the player with ball, the other defender tries to anticipate the player's actions, aiming to intercept passes near the basket or directly mark the player receiving a pass. Since the defence is active in these proceedings, it challenges the attackers to create finishing situations through passing and cutting and getting open near the basket.

Game-based tasks to actively work on player without ball getting open [either by receiving inside (backdoor cut) or receive outside (V-cut) in a 1+(1vs1) set up],and the movement of the ball possessor to be open after passing [using passing and cutting in a (1vs1)+1 formation] can become 2vs1, after reception by the player who actively works to get open (if he/her doesn't receive the ball in the cut to the basket, he/she tries to get out and vice versa). After being limited to passing to the colleague who works to get open from the defender, the player that makes the pass to the teammate who get open starts to attack without restraint. The defender, who was only defending one player, for not letting him/her to receive the ball, after the pass, starts to defend both to prevent either shooting, carrying the ball to the basket, or winning the rebound.

Tasks based on the game without defenders, related to finishing procedures and creating finishing situations (run to the basket, receive and throw; run out, receive, turn to the basket and penetrate or turn to the basket and pass to the player who passed it), can be designed. This includes actions to take before passing and after shooting. The player will make the first pass from his starting position, then turns towards the basket. The receiving player who will change direction to receive the ball while moving towards the basket and attempt a throw. Alternatively, he/she can change direction to receive the ball outside, turn to the

basket and either penetrates by dribbling or passes to the teammate who passed to him/her. In all situations, both players remain in the attack and do not give up of moving to assure ball possession and carrying the ball to the basket until they lose the ball with at least three possibilities to shoot. It is important to instil in students that everything they do must be supported by the team. Whoever gains the rebound can throw and can pass it to a teammate to throw. The reason should not be fear or lack of confidence, but rather to encourage colleagues to work on their shot and gain confidence and competence to position themselves in front of the basket and their teammates, to shoot and to participate in the eventual rebound.

Organise and reorganise the attack

The theme 'organise and reorganise the attack', like all other topics, should not be prescribed as copies and sayings. There are principles and ideas that are transmitted and encouraged, but they should not be rigidly outlined. It is important for students to perceive and value them, always adapting them to the open course of a team game while considering the possibilities of each one.

From the beginning of the teaching of the game, during key moments of practice in the 3vs3 game atelier, individual defence focuses on preventing invasion, blocking shoots, and recovering the ball. These objectives challenge the attack's goals of invading, creating advantage for shooting situations and maintaining possession until achieving a successful shot. Depending on the confrontation of these antagonistic objectives, the students seek to position themselves and move on the field based on their perception of their role, whether they are carriers or non-carriers of the ball in attack or defending the ball carrier or other players in the defence phase.

In the BGF1, the theme of the organisation and reorganisation of the attack will point as reference structure the position of the players at the beginning of the attack and the adjusted communication and movement among the three attackers. This is to prepare, develop, readjust the invasion, shooting and maintain the ball possession.

At the beginning of the attack, usually after the transition, the ball holder turns to the basket in position 1 (see Figure 2). Teammates position themselves to the left or right to communicate with the ball carrier and try to receive while running towards the adjacent position (2 or 3) or towards the basket (position 6).

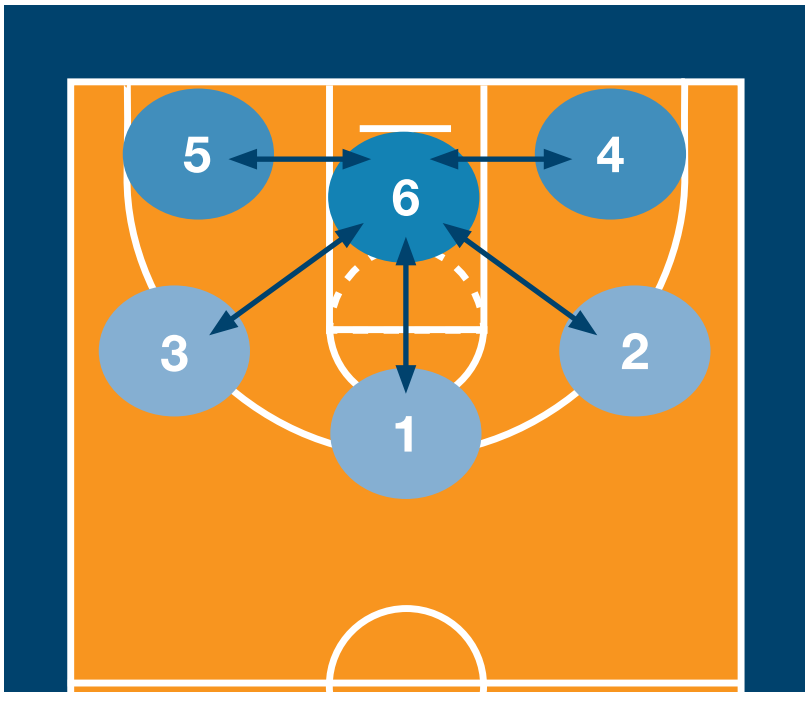


Figure 2 – Structure of the attacking positions to reference the positioning and movement of the players according to the ball position in the attacking phase

It is easier to develop the attack with the ball carrier located in high positions (1, 2 or 3). In this way, the ball carrier can have a teammate on one side or the other with whom he/she can communicate directly and try to make him receive inside or outside. When the ball is in positions 4 or 5, there is only an adjacent passing lane in the top position on the side of the ball and in the cut to position 6 (near the basket). If the off the ball attacker are unable to open a passing lane, it may be recommended to dribble upwards to reorganise the attack.

To support the theme 'organisation and reorganisation of the attack' in BGF1, we use the partial form of 2vs2 (+1) play. Player (+1) is a playmaker who must be active within the game and recognised as capable of interacting to facilitate others' play—positioning themselves on the field, to move to unmark themselves in or out, to communicate with him and with each other. The playmaker can be the same for both teams or there can be one for each team, entering when the team recovers the ball and leaving when the team loses the ball.

The playmaker has no defender, cannot shoot at the basket, nor can he dribble to the basket. He can and should do everything else necessary for the attack, preferably opening an outside passing lane to the left or right of the teammate with the ball; pass and cut, being able to receive inside and assist, rebound and assist or reorganise the attack, dribbling upwards if teammates do not open passing lanes to be assisted. The other two attackers are defended individually and try to fit into organising and reorganising the attack in the creation and in the identification and use of shooting situations.

A game-based task linked to the organisation of the attack, dealing with the movement to open a passing lane to the left or right of the ball owner, is the square exercise, using four cones as vertices of positioning. The ball holder must have one passing lane on the left and one on the right. The diagonal is free for the passer to cut through when he passes. The player who does not receive the ball opens a complementary passing lane to the player who cut it (avoiding the space of the passer's diagonal cut). The exercise can start with three attackers and a defender. For the defender, it is enough to touch the ball to switch roles with the player who had passed it. When the exercise maintains sufficient continuity, there may be two defenders, always requiring one to mark the ball possessor.

A more complex version involves using the edges, not the vertices, of the square formed by the four cones. In this setup, like inside and outside passing lanes in a 3vs3 play, each player with the ball can pass to a teammate moving from the side edge to the front edge. After passing, the player cuts to the free edge.

Regarding communication to keep possession of the ball without dribbling, the pre-sports game of 10 passes can be worked with several rules to enrich blocking, open passing lanes, vary passes, foster communication between players, and ensure inclusion. The pitch size should be adjusted to make marking and intercepting passes easier or harder. The number of players contributes to increasing or decreasing, or even nullifying the possibilities of players passing, receiving, moving and feeling included in the game. Individual defence is a good challenge for movement. A good adjustment must be sought between defenders and, in some cases, implementing rules to allow students difficulties to access the game. The 3vs3 format in the 10-pass games is an interesting basic setup to promote direct communication between players (eye to eye) and indirect (observing teammates' movements and position themselves in line with the occupation of the alternative space). Criteria and constraints can be introduced and encouraged. We want to avoid pumped passes to stationary players and prevent players from getting too close to their teammate with the ball. We don't want the two players without the ball to put themselves or move to the same place. We can encourage rules of organisation and communication: one on each side of the ball handler, open a passing lane to receive, pass to whoever is running, pass away from the defender.

If the game of 10 passes in numerical equality is difficult, we can choose a game with numerical superiority, setting aside individual marking to focus on interception vs. avoiding interception. There may also be a joker who is not defended and who receives the ball without counting as a pass but counts when he passes the ball to players of the team in possession marked individually. If the joker is a player with

significant difficulty, there may be rules for him and his colleagues to ensure he has access to the game. If the joker is a high-level player, he will act as a promoter of open passing lanes and a facilitator of the reception of teammates.

Assessment for learning

In addition to solving in-game problems and reflecting on this experience, it is appropriate to expand formative assessment possibilities focused on evolution of learning objectives and the feedback needed to overcome difficulties. Both teacher and students should be able to take on the functions of observation, recording and providing feedback on players' performance concerning the game's objectives. In this context, while two teams play, one team observes the game and the actions of both teams' players. This scenario can be multiplied by the number of courses available to play, compatible with the number of students in the class. To this end, some instruments that can be used in the observational and feedback process are presented below (Sheets 1, 2 and 3).

Sheet 1 – Global Observation Guide

Global Observation Guide
• Is the attacking player with the ball oriented towards the basket to start or continue the attack? • When the player receives the ball, does he stop and observe the possibilities of immediate finishing (triple threat: throwing, penetrating, or assisting)? • Does the player with the marked ball communicate with a teammate and pass him when he clears the mark? • Does the striker without the ball establish communication with the ball carrier and try to clear himself to the basket or out without getting too close to the ball? • After passing, does the attacker cut towards the basket to try to receive? • Does the defending player actively participate in preventing the passing and the attacking player's throw? • Is the defending player positioned between the ball carrier and the basket? • Are all players involved in the game? • Is the game dynamic? • Do all players cooperate with each other for the team's success (goal achievement)?

Sheet 2 - Participation and performance in inclusive games

Game Features	Yes	No	How do you know?
Does the game flow?			
Is it structured? (attack/defence)			
Is it safe for everyone?			
Is it fair?			
Is everyone involved?			
Is everyone challenged?			
Is it fun?			
Individual observations	**Yes**	**No**	**How do you know?**
Is the player helping the game flow?			
Is the player playing safely and respecting others?			
Is the player playing fairly and listening to the referee?			
Is the player involved in the game?			
Is the player challenged by the game?			
Does the player seem to be having fun?			
Other comments?			

Adapted from J.I. Butler, 2016, Playing fair (Champaign, IL: Human Kinetics): Inventing Games Performance Assessment Instrument (IGPAI)

Sheet 3 - Team passing and receiving form (Network Analysis)

Receiver / Passer	1	2	3
1			
2			
3			

Action-Research studies

Additionally, the studies conducted by pre-service PE teachers can be consulted:

- Pre-service teacher: Cristiana Moreira da Costa

Title: Envolvimento e participação dos alunos na modalidade de basquetebol com foco em alunos com níveis de desempenho inferiores ou dificuldades de integração. [Involvement and participation of students in basketball with a focus on students with lower performance levels or integration difficulties.]

Objective(s):(i) To analyse the effectiveness of inclusive strategies in promoting participation, involvement, and cooperation among team members in 3vs3 half-court basketball games, particularly for students with lower performance levels. (ii) To understand the impact of peer feedback on improving tactical actions and reducing individualistic behaviour during the game. (iii) To explore the formative value of self- and peer-evaluation and experiential learning in basketball.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Cristiana%20Costa_.pdf

- Pre-service teacher: Beatriz Cruz Gama

Title: Um Desafio designado de aprender a ser professora de Educação Física Inclusiva. [A Designated Challenge of Learning to Be an Inclusive Physical Education Teacher]

Objective(s): To analyse the effectiveness of inclusive strategies in fostering participation, involvement, and cooperation among team members in 3vs3 half-court basketball games. Additionally, the impact of peer feedback on improving tactical actions is to be investigated, with the aim of reducing individualistic behaviour during the game.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Beatriz%20Gama_Basquetebol.pdf

- Pre-service teacher: Rui Tremoceiro

Title: Estudo de caso: basquetebol inclusivo [Case Study: Inclusive Basketball]

Objective(s) To investigate the effectiveness of inclusive strategies in promoting involvement, participation, and collaboration among team members in 3vs3 half-court basketball games.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Rui%20Tremoceiro_Basquetebol.pdf

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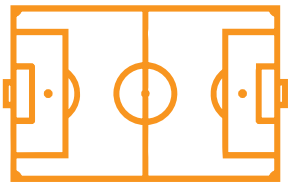
5.4

Embracing diversity: Inclusive practices for teaching football

João Ribeiro | Daniel Barreira



Characterising the game of Football

The game of Football can be understood as a system of systems, forming an integrated entity, whose essential properties arise from interactions among its constituents, namely the players (Barreira, 2022). As noted by Guilherme (2021), Football is characterised as a game that presents challenges related to spatial progression, which require high coordination levels regarding timely decision-making alongside motor tasks.

The singularity and diversity inherent to the game emanate from the players' interactions with performance constraints, which shape the constant flow of unforeseen events (Castelo, 1996; Júlio & Araújo, 2005). Enhancing game understanding is vital for making high-quality decisions during practice. Developing perceptual-cognitive skills, such as perception, anticipation, and decision-making, is critical for achieving effective performance in changing performance scenarios (Williams et al., 1999).

The complex nature of Football

Football can be deemed a macrosystem composed of subsystems acting at lower levels of team organisation (Ribeiro et al., 2019). Its chaotic, random, and unpredictable nature originates from an array of interrelated factors (e.g., teammates and opponents, game rules, strategies, and tactics) that continuously shape game dynamics. Teams display global-to-local and local-to-global self-organising tendencies to optimise team functionality based on a set of principles of play (Ribeiro et al., 2019) that regulate both individual and collective interactions toward intended performance objectives (Guilherme, 2004).

Players are constantly both influencing and being influenced by their teammates and opponents. A high-quality game requires individual talent immersed within collective talent (Barreira, 2022). This development requires ongoing interactions, cooperation, opposition, and contextual awareness, all of which contribute to the construction and development of talented teams (Barreira, 2022). Such teams exhibit advanced decision-making capabilities at individual and collective levels. Understanding team behaviour and performance requires looking at the coordinated interactions among players; these interactions collectively define the team's overall behaviour of the team rather than focusing on individual players in isolation.

Unlike other sports (e.g., Basketball, Handball, Volleyball), Football is played with the feet, which is contranatural, as most daily routine tasks require the use of hands. Additionally, mastering Football-specific motor skills demands a deep understanding of time and space, as well as the development of eye-foot coordination.

Phases and moments of the game

According to Garganta (1997), the game consists of two main phases:

1. Defensive Phase: Players continually seek to neutralize the attackers' actions to recover the ball.
2. Attacking Phase: Players intend to create disorder in the opponent's defence to break their balance and score a goal.

For didactical and methodological purposes, game dynamics can be divided into four moments (Figure 1), namely: 1. Offensive organisation; 2. Attack-defence transition; 3. Defensive organisation; and 4. Defence-attack transition.

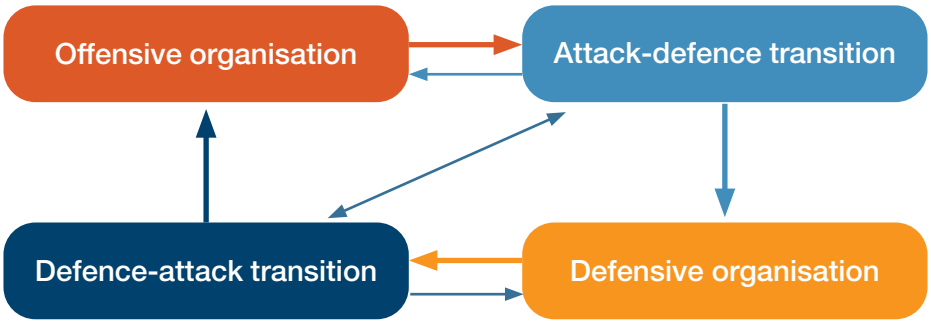


Figure 1. The interconnectedness of different moments of the game dynamics

Recent literature adds a fifth moment—set pieces—but argues that its unique nature must be considered individually (Golan et al., 2018; Hewitt et al., 2016). In our perspective, in school settings, the four dynamic moments may be attended to with more relevance.

Teaching Football in Physical Education: a constraints-led approach

The Constraints-Led Approach (CLA) is a practical framework that contends that behaviour emerges from the intertwined interaction of individual, task, and environmental constraints (Renshaw & Chow, 2018; Renshaw et al., 2019). The CLA is based on Newell's (1986) constraints model, which categorises individual, environmental, and task constraints. According to Renshaw and colleagues (2010), individual constraints refer to learners' unique structural and functional characteristics, including physical, technical, tactical, and mental skills. Environmental constraints comprise physical factors, such as weather conditions (e.g., temperature, humidity), altitude, and gravity. These constraints may also encompass the game result, phase of the competition, and game venue, among other factors. Ultimately, task constraints are paramount for physical educators due to their value for learning. These constraints refer to the specifics of the task, such as game rules, field dimensions, or numerical relations. During physical education classes, teachers can manipulate key task constraints, such as game rules, field dimensions, and numerical relations, designing suitable environments coherent with specific learning outcomes (Figure 2). Of utmost importance is that the manipulation of constraints in physical education should promote inclusive practices for every student.

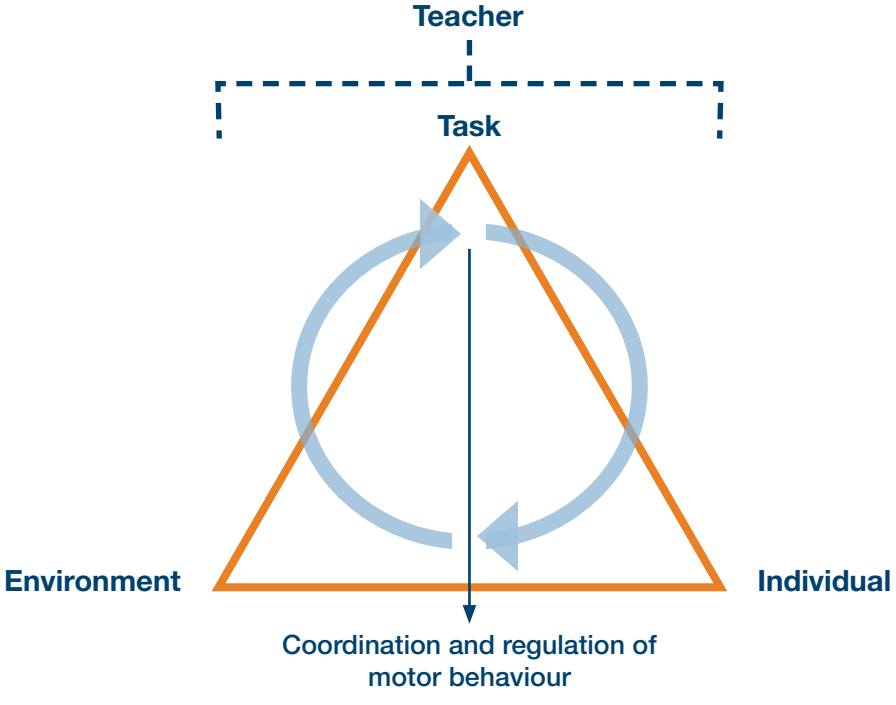


Figure 2. Manipulation of task constraints to promote inclusion within physical education (adapted from-Newell, 1986)

Importantly, any changes to game rules should be grounded in task representativity (Brunswick, 1956) to help learners become attuned to critical informational sources or opportunities for action (affordances) that determine the appropriate information-movement couplings (Davids et al., 2008; 2013).

Regardless, physical educators must understand how to apply a variety of constraints to help learners effectively search for successful solutions during practice (Renshaw et al., 2010). The authors (2010) suggest that this search process should encourage flexibility and adaptability, enabling learners to develop movement solutions tailored to their individual, task, and environmental constraints. This approach is paramount for practitioners because it helps them self-regulate their behaviour by exploring various individual solutions to complete specific task goals. Practical CLA application requires a comprehensive understanding of its fundamental concepts to design appropriate practice environments (Renshaw & Chow, 2018). Chow et al. (2007) emphasise that CLA enables the adaptation of strategies to meet practitioner requirements, thereby encouraging participation and skill development. Renshaw et al. (2010) emphasise that manipulating constraints can enhance skill acquisition by stimulating adaptive behaviors and problem-solving skills among learners.

Teachers need to create more inclusive physical education experiences by comprehending the dynamic interaction of performance constraints. This non-linear pedagogical approach is student-centered, helping students to become engaged learners through a more hands-off approach.

FOSTERING INCLUSIVE PHYSICAL EDUCATION

Identification of students' Performance Levels

Assessing students' performance levels in physical education is essential before planning Football-related content. The primary purpose is to understand learners' current performance to tailor learning programs and objectives to their needs. Garganta et al. (2015) present four indicators for assessing performance levels:

1. Relationship with the ball
2. Identification with the objective of the game
3. Positional organisation in different phases and moments of the Game
4. Collective dynamics

Table 1 shows an evaluation form that teachers can use to evaluate students' performance levels. Each student is rated on a scale from 1 (Low) to 4 (Very High) based on the assessment of the indicators above that allow characterising tactical and technical skills in both the attacking and defensive phases. This assessment also considers their collective performance, i.e., how they help their teammates perform well.

Table 1 – Evaluation form to assess students' performance level

		Students											
	Themes	1	2	3	4	5	6	7	8	9	10	11	12
Specific motor skills	Ball reception / control												
	Running with the ball												
	Pass												
	Dribble / Feint												
	Shot												
	Defensive positioning												
	Tackle												
	Interception												
Attacking principles	Penetration												
	Offensive coverage												
	Mobility												
	Space												
Defensive principles	Delay												
	Defensive coverage												
	Balance												
	Concentration												
	Mean												
	Classification: 1 - Low 2 - Satisfactory 3 - High 4 – Very High												

These above indicators are important to effectively plan and organise teaching and training processes and assist physical educators in identifying specific contexts and strategies to improve practitioners' performance. The performance levels are categorised into (i) Basic, (ii) Elementary, (iii) Intermediate, and (iv) Specialised. Each level is described below.

Basic level – The obsession with the ball

Players at this stage often make technical mistakes and have a limited understanding of the game, which hampers effective individual and team play. Key characteristics include:

- Frequent technical errors and limited game understanding;
- Players treat the ball as the main object and objective;
- Disorganised and chaotic play, with players gathering around the ball's location;
- Reduced focus on scoring goals;
- Lack of functional and positional awareness, resulting in poor engagement and participation.

Elementary level – Introduction to the game

Players are still making unforced technical mistakes that disrupt the game flow[1]. Nevertheless, their understanding of positions and functions is improving, particularly in simplified game formats such as GK+4v4+GK and GK+3v3+GK. Key characteristics include:

- Persistent unforced technical errors that interrupt individual and collective play;
- Increased recognition of the game objective;
- Development of a positional and functional organisation, albeit simple, static, and individual;
- Collective actions are only carried out when it is recognised that individual actions are insufficient;
- Incorporation of possession and non-possession concepts, with positions tied to the role/function (defender/attacker and attack/defense).

Intermediate level – Development of positional organisation

This level exhibits a high level of proficiency in technical skills, promoting the continuity of individual and collective actions and the emergence of a collective organisation. However, there are still several errors in players' understanding of the game. Key characteristics include:

- Superior technical skills that ensure game fluidity without unforced errors;
- Emerging awareness of positional organisation of the different game phases and moments;
- Increased awareness of different positional and functional roles;
- The game's evolution depends on the collective framework that individual actions begin to denote;
- Recognition of the game as a collaborative endeavour in which individual efforts contribute to team success.

1 Flow – is a state of altered consciousness that, in theory, occurs when individuals are fully immersed in a challenging activity that matches their capabilities (Kotler et al., 2022). This state is often associated with athletes, artists, or scientists wholly absorbed in their tasks to achieve peak performance. One critical dimension that facilitates the exploration of this state of Flow is the balance between the individual's capabilities and the challenge presented (van der Linden et al., 2021). A task that is too easy leads to boredom, while one that is too tricky results in frustration and loss of interest—states incompatible with Flow (van der Linden et al., 2021).

Specialised level – Refinement of collective dynamics

At this level, technical mastery ensures ongoing fluidity in the game, in which the principles of play manifest interactively and consistently. Key characteristics include:

- Technical skills are contextually applied, responding effectively to the dynamic demands of the game;
- Recognition of different game contexts;
- Players exhibit two essential characteristics: high mobility and permanent positional balance;
- The game transforms into a genuinely collective endeavour, establishing the necessary prerequisites for advancing to games with greater structural and functional complexity and difficulty.

An important point to note is that sublevels may indicate varying student competencies and game understanding within performance levels. Figure 3 shows an example of three students identified as basic level, yet they display different competencies (expressed through sublevels B1, B2, and B3). Student B3 may demonstrate skills at the elementary level, while student B1 is still developing basic skills, like running with the ball. It is up to the teacher to recognize and identify this plasticity between performance levels to create suitable learning environments to support each student's current stage of development.

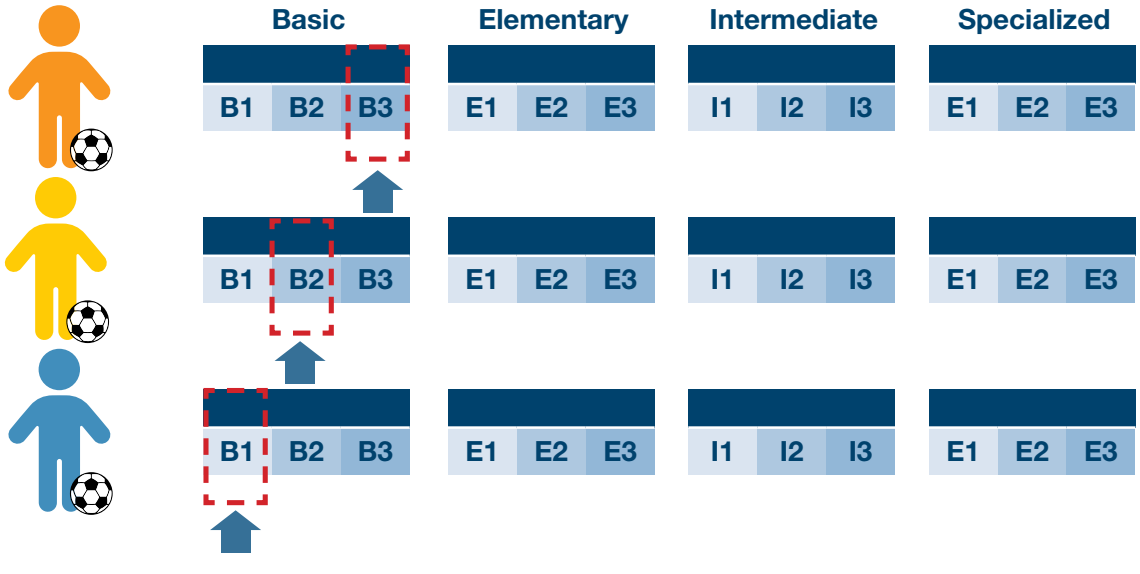


Figure 3. Identification of sublevels within performance levels: Three students are identified at the basic performance level but are located at different sublevels: B1, B2, and B3. Student B3 is at a higher developmental stage, demonstrating higher competencies, such as running with the ball, than students B2 and B1. Student B1 is still at an early stage of development and may exhibit significant issues with ball manipulation skills

It is important to recognise and accommodate the diverse needs of individuals in order to make appropriate adjustments in practice when necessary.

Table 2 shows the tactical principles of play and corresponding technical actions for each performance level.

Table 2 – Performance levels and corresponding tactical principles and technical actions

Basic	Elementary	Intermediate	Specialised
Offensive			
Tactical - Penetration - Offensive coverage	**Tactical** - Offensive coverage - Mobility	**Tactical** - Mobility - Space	**Tactical** - Mobility - Space
Technical - Ball reception - Running with the ball - Pass (simple) - Shot (simple, as a pass to a goal – preferentially not formal)	**Technical** - Pass (short) - Ball reception (responding to short passes) - Shot (simple, as a pass to a goal – preferentially not formal)	**Technical** - Pass (medium / long) - Ball reception (responding to medium/long passes) - Shot - Dribble / Feint	**Technical** - Pass (medium / long) - Ball reception (responding to medium/long passes) - Shot - Dribble / Feint
Defensive			
Tactical - Delay	**Tactical** - Defensive coverage	**Tactical** - Balance	**Tactical** - Balance - Concentration
Technical - Basic defensive positioning - Interception (simple) - Tackle	**Technical** - IInterception (responding to short passes) - Tackle	**Technical** - Interception (responding to medium/long passes) - Tackle (Responding to feint)	**Technical** - Interception (responding to medium/long passes) - Tackle

Physical education classes should prioritise teaching tactical principles of play in addition to technical skills. It is essential to highlight that attacking principles receive more emphasis, with two attacking principles taught at each level, compared to two defensive principles taught only at the specialisation level. This approach aims to enhance attacking success in the game. Tactical principles, crucial for guiding practitioners' actions during different game phases, can be divided into fundamental and specific (Bayer, 1994).

Fundamental Principles

The fundamental principles focus on numerical relationships between a team's players and opponents in the area where the ball is located, which is the centre of the game (Teoldo et al., 2022). The principles can be summarised as:

- Create numerical superiority;
- Avoid numerical equality;
- Refuse numerical inferiority.

Specific / Cultural Principles[2]

Specific or cultural principles comprise the basic game rules guiding players' and teams' actions during different game phases (Guilherme, 2004). These principles are categorised into attacking and defensive, each with corresponding objectives:

- Attacking Principles: Penetration, Offensive Coverage, Mobility, Space
- Defensive Principles: Delay, Defensive Coverage, Balance, Concentration

Table 3 shows the tactical actions underlying each tactical principle for the different performance levels.

2 Cultural principles are fundamental in the game of Football. All teams, regardless of their characteristics, must adhere to these principles to maintain organisation and quality of play (Guilherme, 2004). Therefore, they are integral to any playing style coaches intend to implement. Cultural principles are essential in the game of football. All teams, regardless of their style, must adhere to these principles to maintain organisation and quality of play (Guilherme, 2004).

Table 3 – Specific/cultural principles and underlying tactical actions for each performance level (adapted from Garganta et al., 2015)

Performance Level	Specific / Cultural principles	Tactical actions
Basic	**Penetration**	· Directly attack the defender or the opponent's goal · Destabilise the opponent's defensive structure · Creating advantageous attacking situations in spatial and numerical terms
	Offensive coverage	· Support the ball holder by providing play sequence options · Decrease opponents' pressure on the player in possession · Create numerical superiority in the center of the game · Unbalance the opponent's defensive organisation · Ensure conservation of ball possession · Provide the first balance when team loose possession
	Delay	· Support the ball holder by providing play sequence options · Decrease opponents' pressure on the player in possession · Create numerical superiority in the center of the game · Unbalance the opponent's defensive organisation · Ensure conservation of ball possession · Provide the first balance when team loose possession
Elementary	**Offensive coverage**	· Same as Basic level
	Mobility	· Perform off-the-ball movements to disrupt the opponent's defence · Position in suitable spaces to score · Create in-depth passing options
	Defensive coverage	· Act as a new obstacle if the player dribbles past the player performing Delay · Support and build confidence in the player performing Delay to block offensive actions

Intermediate	**Mobility**	· Same as Elementary level
	Space	· Use and enlarge the effective playing space of the team · Expand the distances between the opponents' positions · Make marking difficult for the opponents · Facilitate the offensive actions of the team · Win time to make adequate decision for a better subsequent action
	Balance	· Ensure the defensive stability around the challenge for the ball · Support teammates performing Delay and Defensive Coverage · Block potential passing options · Mark potential players who could receive the ball
Specialised	Mobility	· Same as Elementary and Intermediate level
	Space	
	Balance	
	Concentration	· Increase protection of the goal · Drive opponent's offensive play towards safer areas · Increase pressure within the game epicentre

Structure and organisation of a Football teaching class

As stated before, a critical first step is to assess students' performance levels through a diagnostic assessment in the first class. Football teaching lessons in physical education typically consist of three parts: initial, fundamental, and final, which follow a logical sequence of content.

- Initial part: Focuses on developing technical skills linked to tactical principles;
- Fundamental part: Occupies approximately 60% of the class, with teachers implementing Small-Sided and Conditioned Games (SSCGs) to teach through an integrated approach tactical, technical, physical, and mental skills;
- Final part: Involves unrestricted play using the game format (GK+4)v(4+GK), allowing observation of performance improvements and areas for development without extensive feedback.

Our approach to teaching the game starts by introducing the game in a simple and appropriate way that matches the students' current performance levels. We focus on practicing in areas close to the ball (i.e., reduced spaces) where students can respond effectively. Initially, we exploit the student's natural tendency to move toward the ball to gradually expand their radius of action. Over time, as students handle these initial challenges and develop specific game competencies (e.g., passing and ball-reception skills, running with the ball), we progressively increase the game's complexity by expanding the playing space and increasing the numerical relation (i.e., the number of attackers and defenders). Playing without the ball and at a distance from it demands greater game understanding (e.g., perceptive-cognitive skills, anticipation, among others) and technical proficiency, as these scenarios involve more complex skills (e.g., mastering medium-long passes and ball receptions responding to medium-long passes).

Strategies for promoting inclusion in Physical Education

This section discusses potential strategies teachers can apply to increase participation in physical education. To create positive learning experiences in physical education teachers should understand the relationship between task complexity and degrees of difficulty. It is important to note that task complexity can arise from an increased number of players and the types and quality of relational dynamics emerging from the game. Regardless, it is essential to acknowledge that complexity and difficulty are not equal terms. As Garganta et al. (2015) argued, a less complex game (small number of players involved) may be more challenging to play (higher levels of task difficulty) because it depends more on the proficiency of technical actions.

For instance, to introduce the principle of Penetration to practitioners at the basic level, it is recommended to start with the 3v1 condition rather than 2v1. Although a 2v1 game format might seem less complex, considering the number of players involved in each game format, it demands higher expertise in actions such as dribbling, passing, and ball control. In a 3v1 game format, the attacking players form triangles, crucial for players to succeed due to increased passing options and ball-possession control. Further, in the 3v1 condition, the two "free" players support the ball holder and make the play more unpredictable for the defender. The 2v1 is more predictable than the 3v1 and is mainly dependent on the individual abilities of the two attackers. The ball holder needs to dominate close ball control, decision-making, and passing skills. In contrast, the support player must continually readjust positioning to create a passing option to receive under the defender's pressure.

According to Garganta et al. (2015), the 1-4-3-3 system is best suited for teaching Football to players with limited technical skills and rudimentary game understanding (Figure 4a). This structure allows a rational and balanced space occupation, with players positioned in diagonals, which allows for forming triangles that prompt the creation of different passing angles. This setup ensures that the ball holder has at least two passing options, leading to game fluidity in offensive organisation. The defensive structure also benefits from the use of diagonals and triangles, improving coverage and maintaining balance.

The authors (2015) state that the 5v5 (GK+4v4+GK) format, with players arranged in a diamond shape, is adequate to start teaching Football to learners who display technical deficiencies and have a limited understanding of the game (Figure 4b). According to the authors (2015), this structure offers various advantages for teaching tactical principles of play:

- It allows players to be distributed in the game space in a rational and balanced way.;
- Players are distributed across three sectors - defence (D), midfield (M), and attack (A) - like the formal game, facilitating positional and functional learning;
- Provides three corridors, one central corridor (CC), and two laterals (left corridor (LC) and right corridor (RC)), as in the formal game (11v11), crucial for understanding the dynamics generated in various corridors of the field;
- Players are positioned in a diamond shape, creating diagonals between them, which promotes organisation and fluidity in the game's offensive and defensive phases;
- Allows the application of all the specific principles of the game, both at an elementary level and at more advanced stages.

A crucial step is to break down the 11v11 game (GK+10v10+GK) into simpler functional structures. This helps in managing complexity levels and degrees of difficulty effectively (Figure 4c).

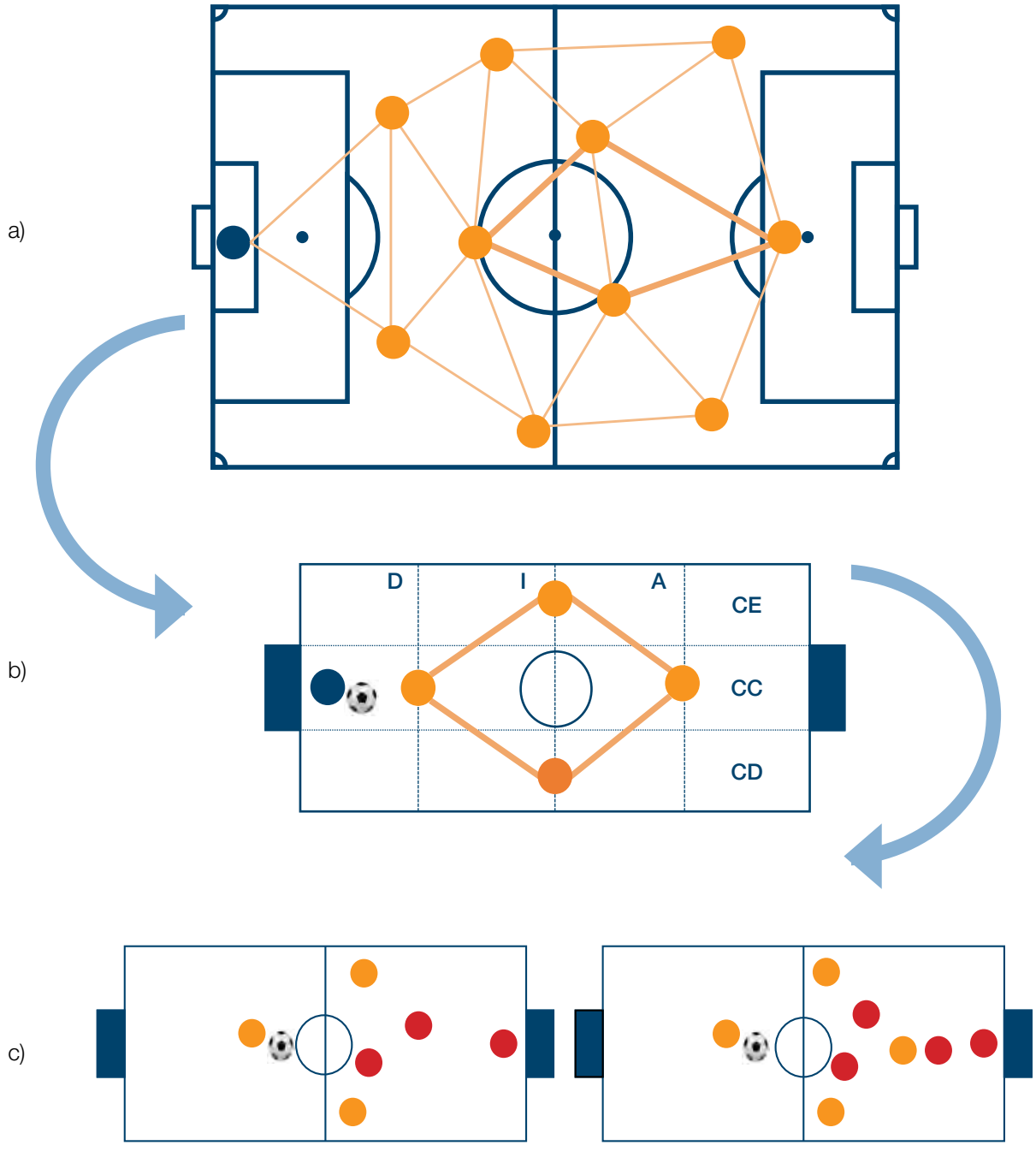


Figure 4 – Graphic representation of: a) a team organised in a 1-4-3-3 system; b) GK+4v4+GK game format with players distributed across three sectors (D, M, and A), through three corridors (LC, CC, and RC); c) 3v(2+GK) progressing to 4v(3+GK) with proper management of levels of complexity and degree of difficulty

A strategy that might be useful for physical educators to foster inclusion is manipulating constraints. Below are three examples of game rule manipulations conducted within a 10th-grade physical education class:

1. The ball must pass through all team members before scoring; each goal scored is worth 3 points (Figure 5). A goal is worth 1 point if the ball does not pass through all the students;

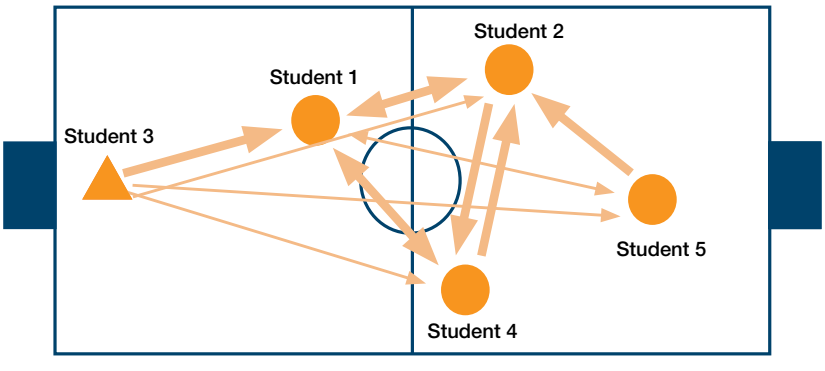


Figure 5 – Representation of interpersonal interactions (passing networks) in condition 1. The goalkeeper is represented by an orange triangle, and the attacking players (students) are represented by orange circles in a GK-1-2-1 game format. Orange arrows indicate pass direction. The arrow's origin indicates the student who passed the ball, and the arrowhead indicates the student who received the ball. The width of each arrow represents the number of passes completed between students during the 5v5 game (thicker arrows represent a greater quantity of passes between students)

2. When a lower-level student makes a pass or recovers the ball, it is worth 1 point; if the student makes an assist to a goal, it is worth 2 points; if they score a goal, it is worth 3 points (Figure 6);

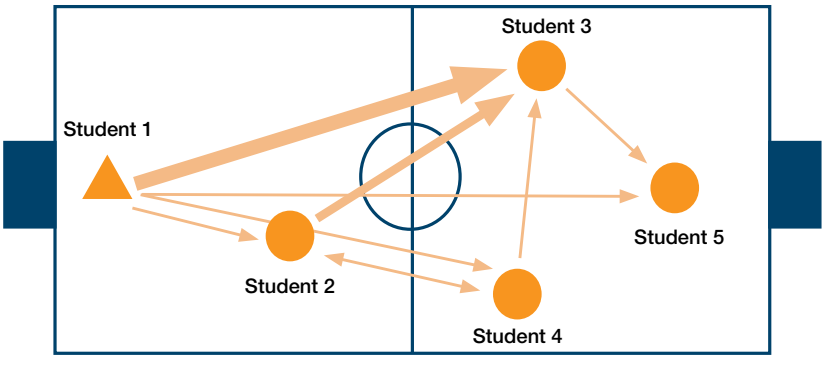


Figure 6. Representation of interpersonal interactions (passing networks) in condition 2

3. The team has three goals (the formal 5v5 goal located in the center of the field with a goalkeeper and two side goals with the same width as the formal goal but without a goalkeeper). Only the two lower-level students can score in all three goals: three points are awarded if they score in the central goal, and two points if they score in the side goals. For a goal to be valid in the side goals, the two students must either pass the ball through the goal line or make a short pass (no more than one meter) to the goals (Figure 7).

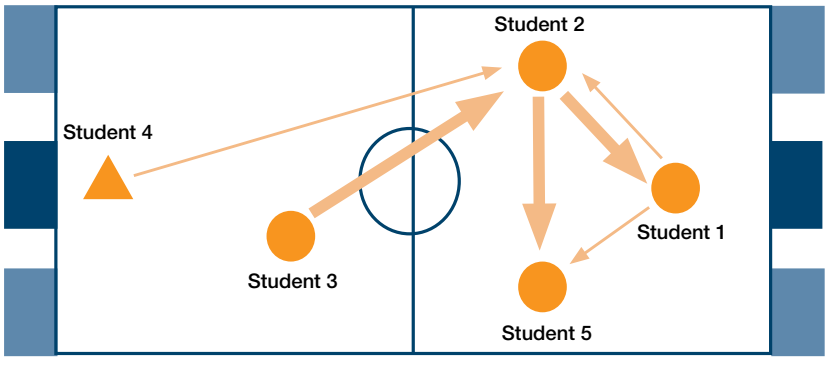
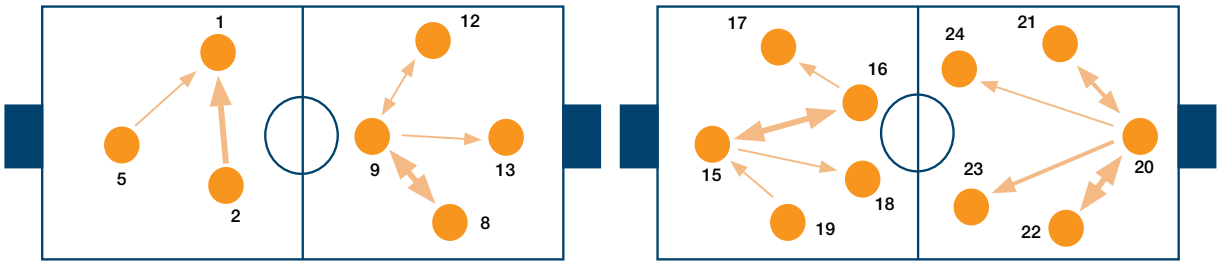


Figure 7. Representation of interpersonal interactions (passing networks) in condition 3

Finally, peer mentoring is a valuable strategy that can be applied in physical education to improve learning and foster inclusion. This form of mentorship seeks to help a less skilled student through active engagement with a skilled one, motivating and guiding learning toward pre-established objectives. Acting as a facilitator, the teacher monitors this process to ensure its success.

Interesting findings emerged from an experimental study conducted in a 9th-grade physical education class with 24 students. The low-level students in the experimental group, who were exposed to the peer mentoring strategy (Figure 8b) attained higher levels of game participation compared to their low-level counterparts in the control group (Figure 8a).



a) b)

Figure 8. Representation of interpersonal interactions (passing networks) in a GK+4v4+GK game format: a) passing networks observed for the control group (Team 1 is composed of students number 1-7: students 1 and 2 – superior performance level, students 3-7 – low-performance level; Team 2 is composed of students number 8-14: students 8 and 9 – superior performance level, students 10-14 – low-performance level); b) passing networks observed for the experimental (peer mentoring) group (Team 1 is composed of students 15-19: students 15 and 16 – superior performance level, students 17-19 – low-performance level; Team 2 is composed of students number 20-24: students 20 and 21 – superior performance level, students 22-24 – low-performance level)

Embracing diversity within physical education is paramount. The strategies mentioned above have had positive effects, leading to higher students' participation levels and promoting inclusive practice experiences.

Instruments used to assess increases in participation levels

Qualitative research using focus groups provides a deep insight into practitioners' perceptions, feelings, and learning experiences. Two school-based research studies in this project utilized focus groups. Costa et al.[3] conducted a study where 4-5 students from each group (control vs. experimental) participated in focus groups at the end of a didactic unit. Students were randomly selected to ensure representation across performance levels, with at least two students from each performance level (low vs. high). The focus group guide consisted of four questions:

1. What did you think of the Football class experience, especially the game part? What did you like most and what did you like least?
2. How do you think your and your classmates' participation was in Football classes? (Was it fair and balanced?)
3. Were you helped and did you help others during the Football games?
4. When they helped you, do you think it allowed you to participate more in the game?

[3] For more information please see: https://periodicos.uem.br/ojs/index.php/RevEducFis/article/view/72339

An example of the interview guide is shown in Table 4.

Table 4 – Questionnaire applied in a focus group

General Dimension	Specific Dimension	Specific themes (number of times mentioned)	Students' excerpts (performance level of the student who referred to it)
Experimental Group	Game experience at the end of DU	They liked everything	
	Participation in classes	Fair	
		Unfair	
	Commitment in classes	Different levels of commitment	
	Help during the game	It helped	
		I was helped	
		Yes	
Control Group	The aid resulted in greater participation	More or less	
	Game experience at the end of DU	Liked in general	
	Participation in classes	Unfair	
		More or less	
	Help during the game	I was helped	
		It helped	

In addition, Carvalho et al. (2024) conducted a study to explore students' emotions and perspectives on their practices involving the manipulation of constraints (game rules). Students were questioned to reflect on the following questions:

1. How do you describe your Football experience?
2. What did you like best and least?
3. What lessons did you learn from the Football lessons?
4. How was your experience working as a team?
5. How did you feel about your participation in the games?
6. Was team participation balanced and fair?
7. What is your opinion about the effectiveness of the constraints in promoting participation and learning[4] Using focus groups as a qualitative research method

[4]For more information please see: https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Leandra_Carvalho_Futebol.pdf

provides a deep comprehensive understanding of students' perceptions and feelings, considering their learning experiences and delivering critical feedback on the inclusiveness of physical education practices. It can also serve as a vital instrument for assisting teachers' decision-making.

Action-Research studies

Additionally, the studies conducted by pre-service PE teachers can be consulted:

- Pre-service teacher: Emanuel Botelho

Title: Participação e envolvimento de alunos de níveis de desempenho distintos nos comportamentos ofensivos no jogo de futebol: estudo com alunos do ensino secundário [Participation and involvement of students of different performance levels in attacking behaviours in the game of football: a study with secondary school students]

Objective(s): To analyse the participation and involvement in the game (5x5) of 10 students, 5 of higher level and 5 of lower level, from an 11th grade class in a football lesson. Specifically, the aim was to analyse the areas of the pitch occupied by students of different ability levels (mobility on the pitch), as well as the offensive behaviour at the start of the offensive phase, the development of possession and the offensive behaviour at the end of the offensive phase.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Emanuel_Botelho_Futebol.pdf

- Pre-service teacher: João Abreu

Title: A importância das características da bola e da superfície na participação e qualidade do jogo de futebol nas aulas de Educação Física [The importance of the characteristics of the ball and the surface in the participation and quality of the football game in Physical Education classes]

Objective(s): To analyse whether the type of ball influences the density of occurrence and effectiveness of various ball actions in a 5x5 football game, such as passing, receiving, shooting, carrying and dribbling, in a school context, and whether this possible influence varies according to the type of surface on which the game takes place.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Jo%C3%A3o_Abreu_Futebol.pdf

■ Pre-service teacher: João Carlos Rosa

Title: Análise da inclusão dos alunos com menor habilidade motora desportiva na modalidade de futebol [Analysing the inclusion of students with lower motor skills in football]

Objective(s): To understand whether inclusion is present in PE, more specifically in football, through practice in heterogeneous and homogeneous groups, according to technical and tactical level.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Jo%C3%A3o_Carlos_Futebol.pdf

■ Pre-service teacher: Sérgio Carvalho

Title: Inclusão de alunos com nível inferior nas aulas de Educação Física na modalidade de futebol [Inclusion of lower-level pupils in football PE classes]

Objective(s): To understand whether playing football in homogeneous groups is more beneficial to the teaching-learning process than in heterogeneous groups.

To understand whether groups of students with similar abilities are more inclusive than groups of students with different levels of abilities and competences.

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/S%C3%A9rgio_Carvalho_Futebol.pdf

■ Pre-service teacher: Rui Pedro Teixeira

Title: Análise descritiva da evolução dos alunos ao longo de uma unidade didática de futebol: a mobilidade no campo e as variáveis dos momentos em posse de bola [Descriptive analysis of the students' progress during a football teaching unit: mobility on the pitch and the variables of moments in ball possession]

Objective(s): To analyse and understand whether, over the course of the unit, the students evolved in their mobility and possession behaviours (start of the attacking phase, development of possession and end of the attacking phase).

https://lacm.fade.up.pt/files/PST-PRIPE/PDF/Rui_Teixeira_et_al_Futebol.pdf

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