

Review

# Pedagogical Models in Alternative Invasion Team Sports: A Systematic Review

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**Abstract:** Alternative sports are a popular sport practice that is being developed in the educational context, and its usefulness and validity is beginning to be disseminated through scientific publications. There are no documents that analyse these sports modalities. This research aimed to analyse the scientific production of alternative invasion team sports indexed in the Web of Science and Scopus databases. The guidelines established by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) were followed. We studied variables grouped by contextual, procedural, and specific of alternative invasion team sports information. Seventy-one research studies published before 1 March 2023 were reviewed. A growth in the scientific literature was identified in the period 2004 to 2022. The predominant research approach was quantitative, where the most common designs were experiments and quasi-experiments. The most implemented sports were Floorball, Ultimate, and Korfbal. They were oriented to a greater extent to the development of psychological factors, physical-motor factors, and values. The most-used pedagogical models were the Game-Centred Model and the Sports Education Model. Progress was generated by the practice itself and the use of these pedagogical models. The use of the hybridisation of the Self-Construction of Materials and Sports Education Model stood out, which favoured respect for the environment, education in sustainability, and prosocial behaviour. Sustainability becomes a fundamental objective in physical education classes. The scientific evidence of alternative invasion team sports is limited; therefore, the need to develop research on this topic is evident.

**Keywords:** alternative invasion team sports; systematic review; physical education; pedagogical models; educational innovation



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## 1. Introduction

The sport is defined as an institutionalised competitive motor situation, referring to traditional or conventional sports understood as those that are already established and accepted [1]. The concept of invasion sports games corresponds to sports games in which two teams play against each other on the same field of play to score points by moving a (movable) object to the goal or goal of the opposing team [2]. They are known as cooperation/opposition sports according to the classification made by Blázquez and Hernández [3].

The Games and Alternative Sports (GAS) are introduced in education as physical and sports activities coming from the “Sport for All” movement [4–6], being more and more frequent in physical education (PE), which greatly boost the increase in the offer of sports practices and favour the interest, participation, motivation, enjoyment, and adherence of students to physical activity [5,7,8].

The Games and Alternative Sports are defined as the compendium of physical and sporting activities which, in contrast to the already established and accepted conventional

ones, pursue a higher degree of participation and/or a development of social values, through the introduction of regulatory modifications and/or the use of innovative materials [9]. This concept is complemented by that promulgated by Méndez-Giménez [8], in which it refers to all the physical-sporting practices that are originating and that have a recreational, leisure, and participative character. At the same time, the scientific literature included within these modalities the recovery of traditional games and sports with new designs [6,8,9]. On the other hand, Barbero [10] stated that GAS are games and sports that contrast with conventional ones, due to the different use made of the material in relation to the original conception of physical-sports activities, it is used in a different way to that for which it was conceived.

The implementation of alternative Invasion team sports encourages the development of motor skills (jumping, running, turning, throwing, etc.), perceptual-motor skills (coordination, balance, perception, etc.), physical skills (strength, endurance, speed, and flexibility), socio-motor skills, and sensory-motor skills, technical skills specific to each sport modality, the interiorisation of fair play and tactical understanding [11,12].

This new sporting tendency is constituted as a philosophy of playful and recreational physical-sporting practices, which are characterised by their predisposition to be adapted to any space and context, in a way that favours access and continuous training. They are identified with activities that are easy to learn and understand, in relation to their rules and physical skills required for their practice. Therefore, they encompass a multitude of sporting activities in continuous transformation, with greater facilities for their implementation, which are based on ethical principles that are desirable in contemporary society, among which are equality, cooperation, fun, fair play, etc. [6,8,9,13], making interdisciplinary work possible with respect to transversal themes such as equality, respect, coeducation, cooperation, environmental education, etc. In this way, they enrich the teaching-learning process and the integral development of the participants [9,11].

Specialised scientific knowledge established a series of advantages about the use of GAS in the context of PE [10,12,14,15], which justify the growing tendency of educators and trainers to develop GAS to try to solve and complement the needs of the Education Law, which was the main cause behind the creation, modification and hybridisation of numerous games and sports, which favour the integration of students in sport [16]. They provide the advantage of being able to be used in different ways depending on the objectives pursued, whether oriented to the development of motor, cognitive, values, cooperation, coeducation, etc. [11,17].

They are also susceptible to adapting the regulations regarding space, time, materials, etc. In general, the materials are inexpensive and accessible, enabling their construction with materials from the environment and benefiting the adaptation of each sport to the context and characteristics of the schoolchildren, favouring education in sustainability and respect for the environment [10–12,15], essential characteristics in the current educational context. They are characterised by the composition of mixed teams; in this respect, the scientific literature states that these practices, through a gender approach, promote more equal competition between male and female pupils, as well as greater participation by female pupils in relation to conventional sports [15,18].

The learning of alternative invasion team sports can be carried out from different pedagogical models and teaching styles. As with traditional invasion sports, they must be learnt from pedagogical models centred in the students, so that they are consistent with the philosophy that underpins this sporting trend, which seeks the participation of all students, who are the protagonists of the teaching–learning process (E–L). It is considered necessary to use the pedagogical model that best suits the objectives set, the context, and the content [19,20], considering the possibility of hybridisation of models to optimise performance [21,22].

Pedagogical strategies that are focused on the understanding of the game for the teaching of invasion team sports are more effective, ensuring the acquisition of declarative and procedural learning and decision making, favouring the sporting competence and

autonomy of the players [20,23,24]. Specialised studies established a series of pedagogical models suitable for the teaching of alternative invasion team sport in their educational context based on the classification established by Metzler [24], including Teaching Games for Understanding (TGFU), Sport Education (SE), and Cooperative Learning (CL).

Likewise, the Self-Construction of Materials Model presented by Méndez-Giménez [25] is considered appropriate and enriching for the GAS, as it generates creativity, significance, personalisation, accessibility, and environmental sustainability to the teaching–learning process.

The analysis of the literature on a topic of study makes it possible to examine the reality of a discipline in a scientific way, its evolution, its methodological positioning, research trends, and pedagogical implications [26]. Through literature reviews, scientists carried out studies with the aim of knowing and updating the advances on the different research topics; this type of work provides a synthesis of the state of knowledge in a specific area, provides information to approach questions on a specific topic, and identifies problems or theories on the phenomena of scientific interest [27]. These reviews can be developed in different formats [28]: (i) narrative review, (ii) systematic review, and (iii) quantitative systematic review and meta-analysis.

Systematic reviews compiled the evidence needed to answer a specific research question [29] and which must meet previously established eligibility criteria. Therefore, it is required to delimit scientific works in an adequate way to precisely know the development of a specific topic [22,30,31] or of a specific sport discipline, e.g., basketball [32], volleyball [33], Floorball [34].

Systematic reviews focusing on the study of alternative sports and pedagogical models for learning alternative sports are scarce. Studies on alternative invasion team sports were identified that examine these sports disciplines in a generic way [34], as well as others that analyse certain factors such as gender equality perspectives in these sports [18,35], and the effects of interventions with these practices [36,37]. However, no studies were found that explored the scientific production about educational models for alternative invasion team sports.

To know the scientific evidence derived from the application of alternative invasion team sport in the educational context, it is necessary to comprehensively analyse the production of scientific knowledge about these practices, to characterise alternative inventions within the didactic field. The aim is to investigate the sports that have been used in the classroom, examine the methodologies that have been used, and whether there are differences with traditional sports, etc., with a view to promoting their implementation in the classroom, as well as the consolidation of these modalities as suitable content in the area of physical education, in accordance with the needs, demands, and interests of contemporary students, and to promote the work of teachers when implementing this type of activity and the learning of schoolchildren in relation to these practices.

A conceptual and practical clarification of research analyzing Alternative Invasion Team Sport in the educative context is needed to enable professionals and investigators to locate the most relevant work in this area. Given the scarcity of research that analyses the educational reality of alternative invasion team sport, it is imperative to carry out works that study these sports disciplines. Therefore, the main objective was to analyse the scientific production focused on alternative invasion team sport. It was also intended to examine the most important aspects for their practice, such as the pedagogical models and teaching styles used, the effects and benefits on students in relation to motor, physical, cognitive, tactical, emotional, and value acquisition factors, as well as the effects and benefits for the students in relation to the physical, cognitive, tactical, emotional, and value acquisition factors.

## 2. Materials and Methods

### 2.1. Research Design

This study corresponded to a systematic review [28] of peer-reviewed scientific articles focused on the study of alternative invasion sports. It was carried out through a methodological development to obtain the data (compilation of studies, categorisation of variables, analysis, etc.). A systematic review was conducted following the instructions of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [29].

### 2.2. Search Strategies

The searches were carried out in the electronic databases Web of Science (Web of Science Core Collection, Current Contents Connect, Derwent Innovations Index, KCI-Korean Journal Database, MEDLINE, SciELO Citation Index) and Scopus, chosen for their scientific relevance, to guarantee the quality criteria of the studies included. They were carried out during the period from 1 July 2022 to 1 March 2023, selecting articles published before 1 March 2023.

The terms used in the different databases were “Games” AND “Alternative Sport”, “Alternative Sport”, “Deportes Alternativos”. In addition, a specific search was carried out for selected alternative invasion team sports. Specifically, these selected sports were: “Colpbol”, “Tchoukball”, “Ultimate frisbee”, “Ultimate disc”, “Korfbal”, “Balonkorf”, “Rosquilla”, “Tripela”, “Baloncodo”, “Bijbol”, “Ringol”, “Kronum”, “Matrexball”, “Jugger”, “Intercrosse”, “Floorball”, and “Unihockey”.

One researcher conducted the electronic searches, examined the reference list of articles found to select appropriate studies, identified relevant articles, and extracted data in a systematic and standardised way. Disagreements were resolved by consensus of two investigators, with the help of a third investigator’s arbitration.

### 2.3. Inclusion and Exclusion Criteria

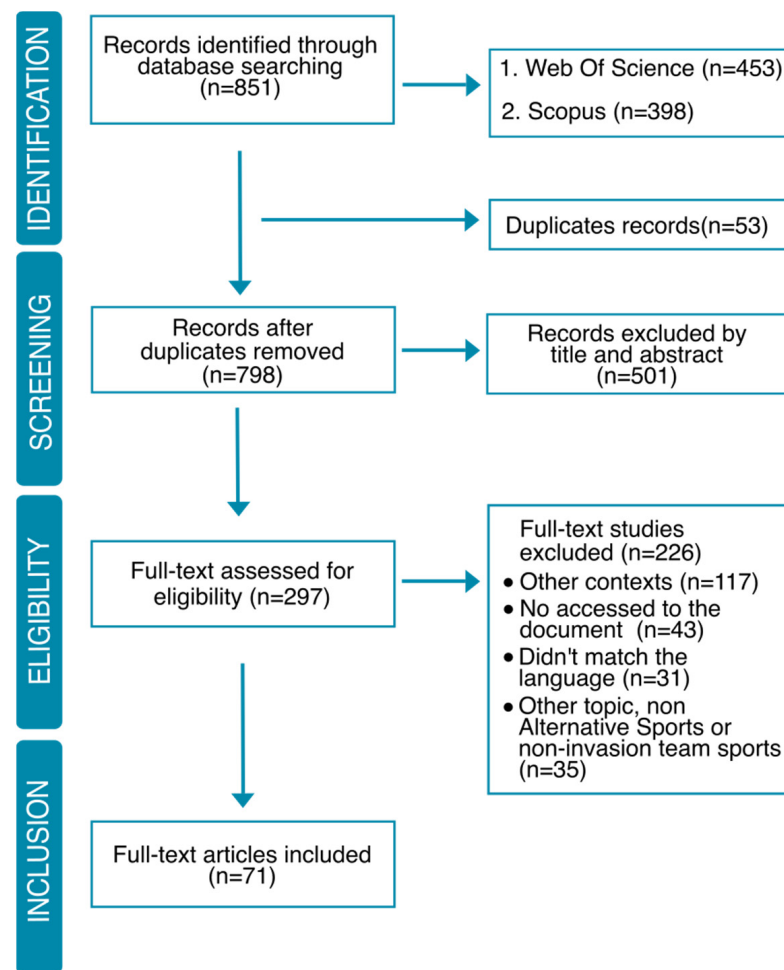
In the present work, the eligibility criteria for including and excluding the different scientific papers were agreed by the researchers.

Inclusion criteria corresponded to: (i) studies written in English, Spanish, or Portuguese; (ii) involving an alternative invasion team sport, these practices were defined according to the perspective given in the introduction [6,8–10], in consonance with Almond’s [2] proposal for invasion sports, also given in the introduction.

The exclusion criteria were: (i) that the type of document were not articles or books such as doctoral thesis, congress communication, patents, and/or systematic literature review; (ii) that they were works that did not include the concept of alternative sports, on the contrary, they referred to traditional invasion team sports, these being understood as established by Parlebas [1] for traditional or conventional sports, defined in the introduction, in consonance with Almond’s [2] definition for invasion team sports; (iii) that the studies were not from an educational, sporting, or recreational context; (iv) that their content did not study to sports training, focusing on the sports injuries; and (v) that there was no access to the document.

### 2.4. Data Extraction

The guidelines proposed by PRISMA [29] were followed (Figure 1), whereby the search process was divided into four distinct phases: (I) identification; (II) screening; (III) eligibility; and (IV) inclusion. During phase I, 851 articles were initially identified from the Web of Science ( $n = 453$ ) and Scopus ( $n = 398$ ) databases and exported to an Excel file. After recording the various searches, duplicate papers were removed ( $n = 53$ ).



**Figure 1.** Flow diagram based on the PRISMA guidelines in this systematic review.

In phase II, the titles and abstracts of the studies found were examined. Those papers that did not meet the inclusion and exclusion criteria were eliminated after reading the title and abstract ( $n = 501$ ). Subsequently, the texts of the remaining articles ( $n = 297$ ) were analysed in depth to exclude, in phase III, those that did not meet the inclusion and exclusion criteria ( $n = 226$ ). The main reasons for screening were that they dealt with traditional or individual sports ( $n = 35$ ), that they focused on other fields or sports injuries ( $n = 117$ ), they did not fit the selected language ( $n = 31$ ), there was no access to the document ( $n = 43$ ).

At the end of the procedure, during phase IV, the sample was reduced to 71 articles for the systematic review focusing on alternative invasion team sports. The studies were analysed according to seventeen previously defined variables.

Seventeen variables were defined and grouped into three categories: (i) contextual; (ii) methodological; (iii) alternative sport (AS) specific (Figure 2).

Four contextual variables were established for each selected study: (a) author's name; (b) document title; (c) year of publication; (d) publication name (scientific journal–editorial).

Four methodological variables were coded: (e) research approaches proposed by Ibáñez et al. [38]; (f) research design, taking as a reference those stipulated by Montero and León [39]; (g) data collection method, extracted from that used by Antúnez et al. [26], for this variable, the possibility of multiple response was admitted; (h) type of sampling, the classification indicated by Cubo [40] was used.

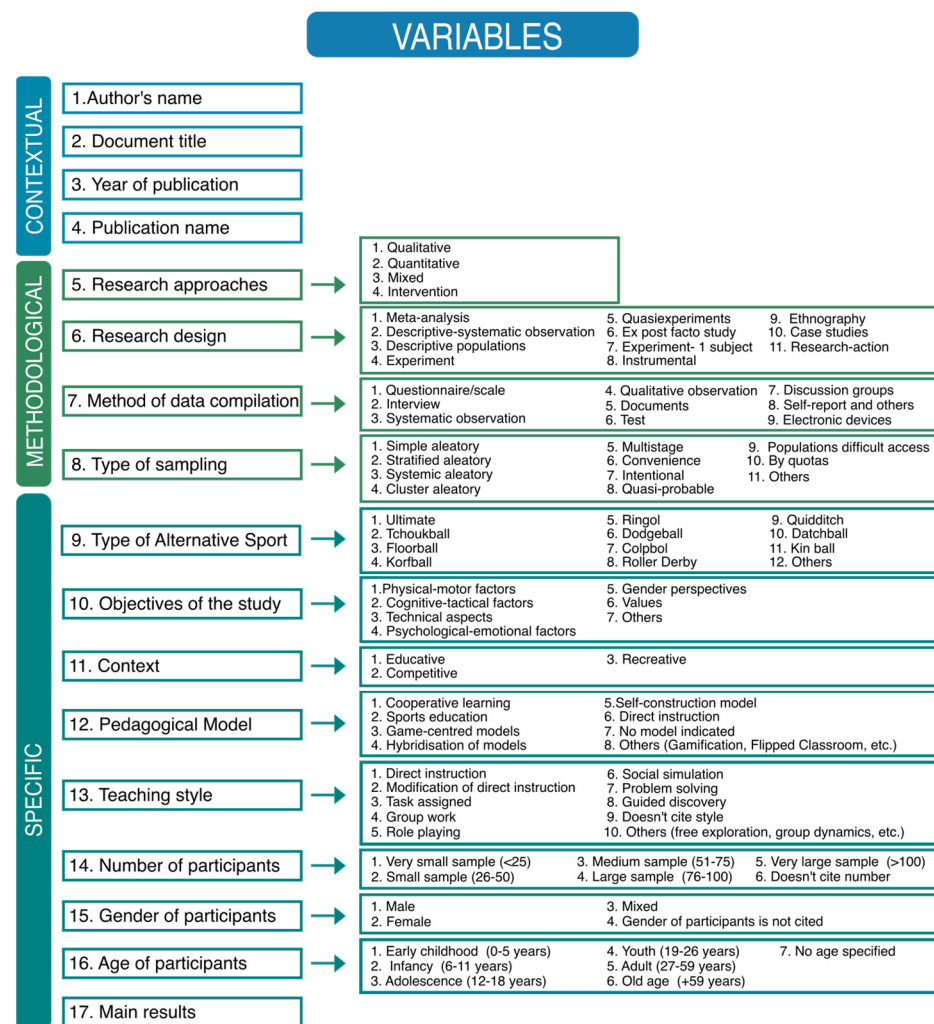


Figure 2. Diagram variables in the systematic revision.

Nine variables specific to alternative sports were configured: (i) type of alternative sport (multiple choice), (i) Ultimate; (ii) Tchoukball; (iii) Floorball; (iv) Korfbal; (v) Ringol; (vi) Dodgeball; (vii) Colpbol; (viii) Roller Derby; (ix) Quidditch; (x) Datchball; (xi) Kin ball; (xii) others (Pinfuvote, Ultimabola, Big ball, etc.). (j) Objectives of the study (multiple choice), (i) physical-motor factors; (ii) cognitive factors and/or tactical aspects; (iii) technical aspects; (iv) psychological and/or emotional factors; (v) gender perspectives; (vi) values; (vii) other (general aspects around AS). (k) Research context, (i) educational; (ii) competitive; (iii) recreational. (l) Pedagogical model [20,24,41], those oriented to the teaching of invasion team sports were selected, distinguishing: (i) cooperative learning; (ii) sports education; (iii) game-centred models; (iv) hybrid models; (v) self-construction model; (vi) direct instruction; (vii) the pedagogical model is not mentioned; (viii) others (gamification, flipped classroom, etc.). (m) Teaching styles (multiple choice), taking as a reference and adapting the categorisation made by Sicilia and Delgado [42], (i) direct instruction; (ii) modification of direct instruction; (iii) task assigned; (iv) group work; (v) role playing; (vi) social simulation; (vii) problem solving; (viii) guided discovery; (ix) teaching style not defined; (x) other (free exploration, group dynamics, etc.). (n) Number of study participants, (i) very small sample (<25 participants); (ii) small sample (26–50 participants); (iii) medium sample (51–75 participants); (iv) large sample (76–100 participants); (v) very large sample (>100 participants); (vi) the number of participants is not indicated. (o) Gender of participants, (i) male; (ii) female; (iii) mixed; (iv) gender of participants is not mentioned. (p) Age of participants (multiple answer possible), taking as a reference the classification made by

the World Health Organization with the Spanish Ministry of Health and Social Protection, (i) early childhood (0–5 years); (ii) infancy (6–11 years); (iii) adolescence (12–18 years); (iv) youth (19–26 years); (v) adult (27–59 years); (vi) old age ( $\geq 60$  years); (vii) no age specified. (q) main results.

All variables were coded for each selected study and recorded in a database.

### 2.5. Quality of the Studies

The quality of the studies was examined using an assessment scale for quantitative studies developed by Law et al. [43]. This rating scale consisted of 16 items. Each of the articles were examined according to their objective (item 1), quality of the scientific literature reviewed (item 2), adequate study design (item 3), sample used (items 4 and 5), informed consent procedure of the participants (item 6), variables of the studies (items 7 and 8), description of the method used (item 9), relevance of the main results (item 10), adequate statistical analysis (item 11), practical importance (item 12), representation of drop-outs from the study (item 13), conclusions drawn (item 14), practical applications and implications of the work (item 15), and limitations (item 16). The various quality criteria presented were scored on a binary scale (0/1), including the possibility of “Not applicable” (N/A) for two of the items (6: Was Informed Consent obtained? and 13: Were dropouts mentioned?); this option was included because in some cases and depending on the nature of the study, researchers may dispense with obtaining informed consent (item 6) or specify dropouts (item 13). This modification of “Not applicable” allowed for a more appropriate categorisation according to the design of each study, eliminating the negative effect of the value “0” on the binary scale in cases where the item was not applicable. A procedure was performed by calculating the sum of the various items and dividing this by the total number of scorable items in each study. The low scores were identified as (1) low methodological quality (<50%), (2) good methodological quality (51–75%), and (3) excellent methodological quality (>75%).

Cohen’s Kappa statistic was previously calculated with a 95% confidence interval to assess inter-coder reliability, which was interpreted as <0.20: poor; 0.21–0.40: low; 0.41–0.60: moderate; 0.61–0.80: good; and >0.80: very good [44]. The 10% of selected articles were assessed by 2 university professors with a PhD degree in Sport Sciences, who had extensive experience in the field of research related to invasion team sports.

### 2.6. Data Analysis

A descriptive analysis was carried out for all variables coded in the paper, calculating the corresponding frequencies and percentages. Likewise, an analysis of frequencies and percentages was developed for the variables defined and recorded with multiple responses, that is, for the variables: the method of data compilation, type of alternative invasion team sport, objectives of the study, context of the study, pedagogical model, teaching style, and age of the participants.

Finally, contingency tables were drawn up to establish the relationships between the various variables in the study. It should be clarified that some variables may have exceeded 100% of the data in the contingency tables, and that there were variables with multiple responses.

## 3. Results

### 3.1. Quality of the Studies

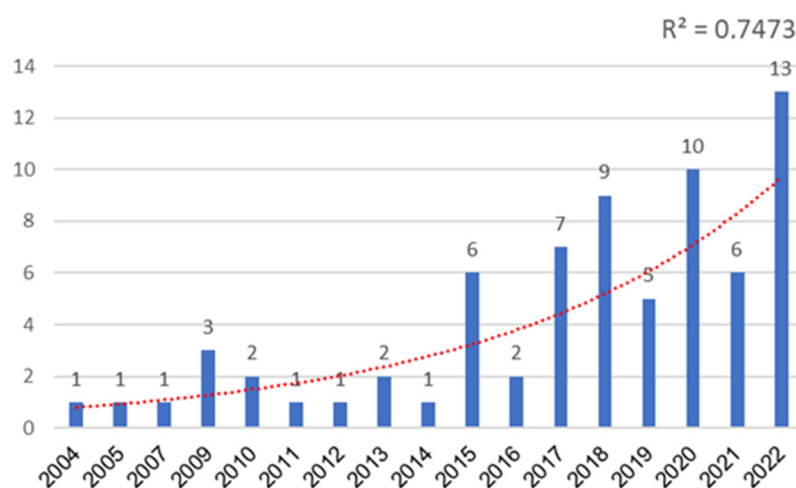
The mean quality of the selected papers was 85%, indicating excellent methodological quality (>75%). No article obtained the maximum score (100%). Only three articles reached the minimum score of 64%. In addition, three articles were assessed with 75%, while 62 of the papers scored higher than 75%.

Inter-coder reliability had a mean value of 0.90, which represents very good inter-observer agreement (95% confidence interval). Five variables were observed with 100% agreement (method of data compilation, type of alternative invasion team sports, teaching

style, number of participants, and gender of participants). The agreement values for the remaining variables ranged from 0.63 (research design) to 0.95 (pedagogical model).

### 3.2. Contextual Variables

Seventy-one articles were identified for this systematic review focusing on invasion alternative invasion team sports. The research tendency for the study topic is shown in Figure 3. The first article that met the inclusion criteria was in 2004. The periods of highest scientific production were recorded in 2018 with 12.7% (nine articles), 2020 with 14% (ten studies) and 2022 with 18.3% (thirteen articles). There was an increasing trend in the evolution of the number of studies over the period 2004 to 2022 ( $R^2 = 0.747$ ).



**Figure 3.** Evolution of scientific publications in the period 2004–2022.

The 71 articles selected in this study were published in 49 different scientific journals. The scientific journal with the highest number of publications selected in our study was “Retos: Nuevas tendencias en Educación Física, Deportes y Recreación”, which accounted for 7% of the studies. In second place, “The International Journal Environmental of Research and Public Health” and “International Review for Sociology of Sport” were recognised with a percentage of 5.6%. In addition, the “International Journal of Medicine and Science of Physical Activity and Sport” and the “Scandinavian Journal of Medicine and Science in Sports” were also mentioned with 4.2%.

### 3.3. Methodological Variables

In relation to the variable referring to the methodological approach, a quantitative perspective predominated, as most of the articles included corresponded to quantitative studies (63.3%), followed by a qualitative approach (21.1%) and a mixed approach (15.5%).

Within the types of research design implemented in the selected research, the most used methods were quasi experimental (29.6%) and experimental (22.5%). Ethnographic and ex post facto study methods were also significantly used (11.3%). The descriptive method using systematic observation (7%), descriptive of populations and case studies (5.6%), instrumental (5.6%), and meta-analysis (1.4%) were used in a minority of cases.

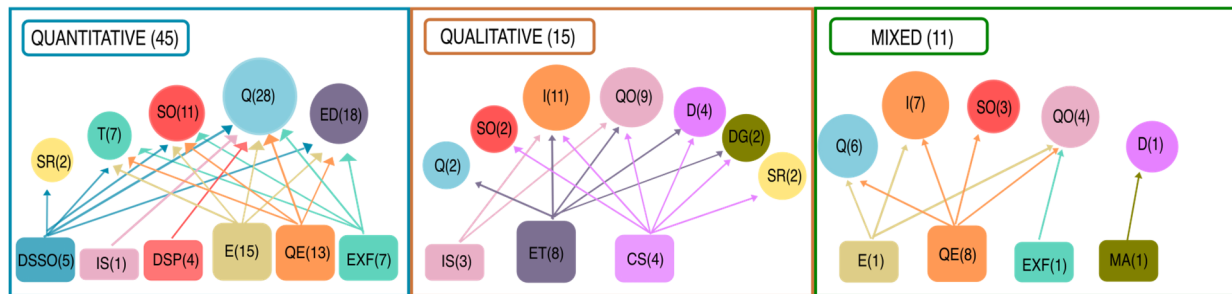
The data collection method involved multiple responses, so that a total of 123 responses were measured for the 71 studies contained in the review. The most prevalent procedures were the questionnaire/scale (29%) and electronic devices (16.1%). This was followed using interviews (14.5%), systematic observations (12.9%), and qualitative observations (10.5%). The remaining methods were used in a minority, including the use of tests (8%), documents (4%), self-report (3.2%), and discussion group (1.6%).

Two missing values were given for the sampling type variable, 69 responses were recorded for the 71 studies included in this study. Purposive (42.02%), convenience (31.8%) and cluster aleatory (18.8%) sampling were used for most of the studies. In the selected



papers, quota sampling was used in only two articles (2.9%) and one article (1.4%) was found for simple aleatory, stratified, and systemic aleatory sampling. Non-probability sampling was dominant.

Figure 4 shows the relationships that existed between the methodological variables, namely between research approaches, research design, and data collection method.



MA: Meta-analysis, DSSO: Descriptive study-systematic observation, DSP: Descriptive study-populations, E: Experimental, QE: Quasi-experimental, EXF: Ex post facto study, IS: Instrumental study, ET: Ethnography, CS: Case studies, Q: Questionnaire/scale, I: Interview, SO: Systematic observation, QO: Qualitative observation, D: Documents, T: Test, DG: Discussion groups, SR: Self-report, ED: Electronic devices.

**Figure 4.** Relationship between methodological variables: research approach, research design, and method of data compilation.

### 3.4. Specific Variables

In relation to the variable types of invasion-alternative team sports, 78 responses were obtained for 71 included articles. Twelve different types of alternative sport (AS) were distinguished. The most-used sports were Floorball (37.2%), Ultimate (28.2%), and Korfball (10.2%), compared to the least used sports such as Roller derby (3.8%), Kin ball (3.8%), Tchoukball (2.6%), Colpbol (2.6%), Ringol (2.6%), Datchball (2.6%). One article was recorded for Dodgeball and Quidditch (1.2%). Others (3.8%) included Pinfuvote, Ultimate Ball, and Big Ball.

Regarding the variable of study objectives, 127 responses were given. Psychological-emotional factors were the most-studied aspects in the different research studies (25.1%) together with physical-motor factors (18.1%). Value development (14.1%) and “other” objectives (14.1%) were also significantly included among the aims of the articles. To a lesser extent, cognitive-tactical factors (11.8%) and technical aspects (10.2%) were examined. The gender perspective was recorded as the least-included objective in the papers analysed.

The context of the study recorded 82 responses for this variable. Most of the research focused on the educative domain (47.6%) and the competitive domain (39%), and 13.4% of the papers were conducted in a recreative field.

A total of 65.7% of the reviewed works did not specify the pedagogical model used for the teaching or practice of alternative invasion team sports. Among the studies indicating the pedagogical model, the most used were the Game-Centred Model (12.3%), the Sports Education Model (10.9%), and “other models” (5.5%). Within the modality of “other models”, gamification, Flipped Classroom, and specific programmes designed for study were contemplated. Hybridisation of models (2.7%) and direct instruction (2.7%) were implemented in a minority of cases.

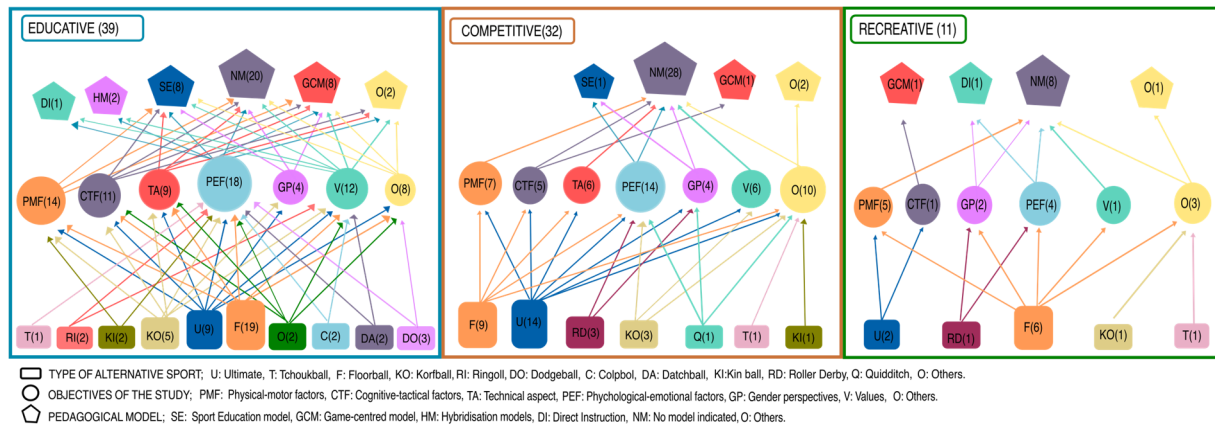
Most of the research did not cite teaching style (69.7%). Of the papers coded, 4.6% were examined for direct instruction, modification of direct instruction, group work, role-playing. An amount of 3.5% were established for guided discovery and problem solving. Social simulation was given only 2.3%. Task assignment and “other teaching styles” were used in 1.1%.

For the variable number of participants, the highest percentage was recorded for very large samples (32.3%), the second most-used in the coded papers were small samples (21.12%). On the other hand, the use of very small samples (18.3%) was relevant. The least-used were medium samples (8.4%) and large samples (8.4%). Some papers did not identify the number of participants with which the research was conducted.

Regarding gender, a predominance of mixed research was recognised (54.9%), a significant percentage did not specify the gender of the participants (26.7%). On the other hand, a minority of research focused on the exclusive study of men (9.8%) and women (8.4%).

Most articles focused on adolescence (30.9%), youth (20.6%), infancy (18.5%), and adult (13.4%). The age period corresponding to old age was studied in 6.2%.

Figure 5 represents the relationships between the specific variables selected: context of the study, type of AS, study objectives, and pedagogical models.



**Figure 5.** Relationship between the specific variables: context of the study, type of AS, objectives of the study, and pedagogical models.

### 3.5. Qualitative Analysis

The studies that were oriented towards the educative context were selected for qualitative analysis (Table A1, Appendix A). Twelve sports used in this field were identified (Tchoukball, Ultimate, Floorball, Korfball, Ringol, Kin ball, Datchball, Colpbol, Dodgeball, Pinfuvote, “Ultimabola”, and “Big Ball”). The research focused on a single alternative sport versus others that explored two or more sports, including traditional sports. The sports were analysed with different objectives, with a wide variety of objectives. In addition, not all studies used one pedagogical model in their interventions, some implemented a single model, while others were confronted with the use of several models to determine the effects on the students.

Among the most notable findings, it was found that a Kin ball intervention with people with disabilities improved the physical and motor skills of the participants (Doc.14). High-intensity training (Floorball, Basketball, Football) contributed to cardiovascular improvements (Doc.6,7). In addition, the level of fitness in Ultimate practice had significant effects on game performance (Doc.21). Therefore, it was recommended to design recreational games with a high level of participation to improve the physical condition of students.

Interventions with alternative sports were recognised as producing progress in sport performance and technical aspects using the Game-Centred Model and Flipped Classroom Model (Doc.15,19,34). Likewise, there was significant learning using the Game-Centred Model and Gamification Model (Doc.15,28). Cognitive learning was generated through the Game-Centred Model (Doc.13). Tactical knowledge was transferred to sports with a similar internal logic such as Basketball–Korfball or Floorball–Hockey (Doc.35,37).

In relation to the teaching of invasion alternative sports using the Sport Education Model, it was determined that there was a greater impact with fixed versus rotating roles for the advancement of social responsibility and cross-cultural variables (Doc.31). Stran and Curtner-Smith’s findings (Doc.17) established that to use the Sport Education Model effectively requires an adequate understanding of the model, general pedagogical knowledge, and information of the students on the part of the teachers.

Positive impacts on basic psychological needs were identified with different contributions depending on the sport and the pedagogical model used, Game-Centred Model, and Sports Education Model (Doc.3), encouraging friendship goals and achievement objectives (Doc.30). Improvements in motivation, satisfaction, and enjoyment were observed (Doc.4,14,19,33,39), which allowed for higher levels of physical activity, participation, and adherence to the practice (Doc.19,23,33). There was evidence of the promotion of behavioural and emotional involvement (Doc.4,28), with improvements in prosocial behaviours (Doc.12,15,36), which led to the promotion of education in values such as empathy, cooperation, leadership, social relations (Doc.8,30,36), and favouring fair play among students (Doc.20,30). The Sports Education Model favoured prosocial behaviour among students (Doc.12). The use of the Sport Education Model in combination with strategies that encourage prosocial behaviour was beneficial, as it generated an education in values for the students (Doc.36).

Some research showed that alternative sports such as Korfball favour mixed, egalitarian, and inclusive work, and it was also proven that they promote the inclusion and integration of students of different sexes and changes in stereotypes and gender roles (Doc.5,34). Alternative sports are an instrument with the capacity to increase levels of physical activity in girls (Doc.29). The practice of an alternative sport together with the Sports Education Model favoured the perception of inequality and the diminution of gender differences of the participants, generating an inclusive educational environment (Doc.4).

The Sustainable Development Objectives pose new educational challenges, and it is imperative to orientate PE practices to create a sustainable awareness, which encourages an adequate use of resources and promotes care for the planet. The implementation of the Self-Building Materials Model together with the Sports Education Model promoted the development of social goals, avoiding conflicts. These practices helped students to value resources and respect for the environment (Doc.30). There was a personalisation of the materials, establishing student identification with the materials they had produced, increasing their care, and raising the awareness of all participants about their use. These practices were seen as adequate to respond to current educational demands, as they have the capacity to contribute to educating in sustainability.

#### 4. Discussion

The aim of this research was to analyse the scientific production focused on the study of alternative invasion team sports in terms of their evolution, methodological positioning, and specific aspects of their implementation in different contexts: educative, competitive, and recreative.

Alternative invasion team sports are relatively recent disciplines that are acquiring a greater presence every day. Initially, 851 papers were identified, and 71 articles were selected to meet the inclusion criteria from 2004 to March 2023. A greater number of studies were compiled than in the published reviews [34–36], thereby contributing to increasing knowledge about the subject of study and its level of depth, providing a broader view of the scientific production on the subject.

Although none of the articles included in the review reached a methodological quality of 100%, the average quality of the included papers was 85%, an excellent methodological quality was established with only three articles below 75%. These results differed from those found in other reviews for a specific alternative sport such as Quidditch [45], where low quality predominated, the literature review for a single sport was more limited, and the quality decreased. The databases used determined the quality of the manuscripts. The publications included in this review conformed to the quality criteria promulgated by the literature and were conducted with appropriate scientific rigour.

The evolution of publications showed an increasing trend in this area of study. However, it did not reach a significant volume of scientific production, lacking traditional invasion team sports. Despite the rapid consolidation in various fields of sport due to social changes and mutations in the cultural landscape of movement [11,13,46], there is

a paucity of studies proving its effects and benefits [18,34–36]. The limited literature is largely because the subject is relatively new and in continuous transformation; its rise occurred significantly in the last decade, but the focus of interest has been on classroom implementation by teachers. There is an urgent need for research to investigate these practices, to witness and test their impact, and to provide data for the construction of a broad theoretical framework.

Many journals where the selected studies were compiled can be seen, as they were published in 49 different journals. The searches carried out in the WOS and Scopus databases guaranteed the adequate quality of the journals, with different levels of quality being identified.

Alternative sports were examined from three different research approaches, quantitative, qualitative, and mixed [38], with the quantitative prism being predominant in this review. The difference between the type of research approach was greater than in other studies, with 45 quantitative, 15 qualitative, and 11 mixed articles compared to those obtained by Caldevilla-Calderón and Zapatero-Ayuso [36], which established 10 quantitative and 5 qualitative. The dominance of quantitative methods was due to several aspects, it was estimated that research using quantitative approaches had a higher scientific quality [26,47], in addition to the fact that sport experts dominate quantitative research to a greater extent [26,48]. Although qualitative and mixed studies provide a more complex understanding of interventions [26], they were not the most-used trends. The most-used research designs were experiments and quasi-experiments. However, no systematic reviews were found that tested these data among their results, as most reviews focused on a qualitative analysis of the manuscripts [18,35,46]. Again, the need for research that investigates alternative sports in depth is evident. In line with Caldevilla-Calderón and Zapatero-Ayuso [36], the use of a variety of data collection methods can be seen, with questionnaires and electronic devices being the most used. Different methodologies and research designs were used for the object of study, although due to the nature of these sports modalities, the quantitative prism predominated through experiments and quasi experiments.

Compared to the large number of alternative sports that exist, the scarce number of alternative sports that have been investigated is remarkable; only twelve types of alternative sports were included in the totality of scientific literature and presented evidence of their application in different contexts. Alternative sports were considered by the literature as an emerging tendency [8,10,13,16], and unfortunately, the scientific knowledge about these sports does not advance at the same pace as the evolution of their application and their theoretical and practical expansion. In this sense, it is not enough to justify these sports through the interest and experience of physical education teachers, it is necessary to develop more research on interventions in the classroom that examine and prove the contributions that these sports provide in the learning and integral development of students, thus banishing the belief that considers the alternative as beneficial for the mere fact of being different from what is formally established, limiting itself to the context of diversion and ludic [49].

With respect to the development of physical-motor factors, it was recognised that Kin ball (Doc.14), Floorball (Doc.6,7), and Korfball (Doc.29) produced progress in this variable, being considered as an adequate means to increase the levels of physical activity in girls (Doc.29). In contrast to the results of Caldevilla-Calderón and Zapatero-Ayuso [36], which compiled that Kin ball and Korfball are the practices that produce the greatest increases in physical activity levels, Floorball can be added to these modalities. Therefore, progress in physical-motor factors was compiled because of the practice of alternative invasion team sports.

The physical condition of the participants significantly influenced game performance, the level of physical activity, and technical-tactical involvement, so that a positive transfer of motor learning was evident (Doc.21). These conclusions contradict the opinions of certain authors who recommend the novel nature of these sports, as it implies an equal

starting point for students when experimenting [6,10,12,15]. These issues again highlight the need to look more closely at the factors that may influence the practice of these sports. The novelty declared by the literature is detrimental to the transfer of motor learning but favours equal opportunities for all participants.

The progress generated in sport performance, technical aspects, and cognitive learning was produced by the combination of the practice of these alternative sports with the pedagogical models used, i.e., Game-Centred Model, Gamification, and Flipped Classroom (Doc.15,19,28,34). The review carried out by Barba-Martín et al. [50] focused on the Teaching Games for Understanding (TGFU) model and affirmed that the use of this methodology led to the improvement of some specific aspect of the performance and understanding of the game. Some authors confirmed improvements in cognitive development through the implementation of this model [51,52]. Interventions with cognitive components produce significant progress in cognitive functions and tactical skills [37]. It is key to combine alternative sport practice with an appropriate pedagogical model to achieve benefits in technical–tactical aspects and sport performance. In contrast to the scientific evidence on the need to integrate sport practice with an adequate pedagogical model to effectively achieve the didactic objectives, more than half of the included manuscripts did not implement a pedagogical model.

Psychological-motivational factors were the most analysed by the scientific papers included. There were positive impacts on basic psychological needs (Doc.3), friendship goals and achievement goals (Doc.30), motivation, satisfaction, and enjoyment (Doc.4,14,19,33, 39). As proclaimed by Amoroso et al. [53], ultimate sport offers a combination of physical activity and enjoyment. These results were confirmed by the characteristic of novelty that converged in these practices, being unknown to the students, they became playful and accessible activities for students, which generated motivation and fun [5,7,8,10]. Once again, the positive effects on basic psychological needs are produced by the fusion of the characteristics of these sports disciplines together with the use of appropriate pedagogical models for the objectives proposed. These sports disciplines are an ideal resource for the improvement of pupils' participation, motivation, involvement, and enjoyment.

The conceptualisation and internal logic of alternative sports [4–6,9] are built under the philosophy of “sport for all”, in a way that ensures the participation, collaboration, inclusion, and team spirit of all students. According to Amoroso et al. [53,54], the practice of ultimate sport produces more positive social relations, favouring teamwork, communication, friendship, empathy, game spirit, and fair play; these advantages appeared in the results obtained in relation to improvements in prosocial behaviours (Doc.12,21,36), in education in values such as empathy, cooperation, leadership, social relations (Doc.8,30,36), and fair play (Doc.20,30). The acquisition by students of prosocial behaviours and fair play are implicit objectives in the practice of these alternative sports.

It was proven that Korfball favours mixed, egalitarian, and inclusive work that involves the integration of students of different sexes, and changes in stereotypes and gender roles in sports practice (Doc.5,34). Along these lines, Robles-Rodríguez and Robles-Rodríguez (Doc.23) compared Tchoukball and Handball, stating that this alternative sport gives girls the same prominence as boys. The work carried out by Martos-García et al. [18] understood these alternative sports as the starting point towards coeducation. In this respect, according to Laudaes-Silva and Schwartz [35], there is a need to produce knowledge on this subject to minimise this gender gap. Furthermore, it is convenient to clarify that configuring a more egalitarian and coeducational practice is not given by being a mixed sport, it must be implemented through a gender reading, employing methodological strategies to guarantee this coeducational context in the activities [15,18]. Gender equality is included among the Sustainable Development Objectives, and these disciplines have the capacity to be oriented towards the achievement of this objective, educating in coeducation and equality between boys and girls through a coherent methodological approach oriented towards this end.

The use of the Self-Construction of Materials Model together with the Sports Education Model favoured prosocial behaviours. It was key for students to generate an awareness of materials and resources, a personalisation of them, configuring a student identification with those they had produced, increased care and appreciation of them, directing all students towards respect for the environment and environmental sustainability (Doc.30). The use of these practices is put in value, with the ability to comply with the Sustainable Development Objectives that encourage the care of the planet, promote the use of the most appropriate resources, and favour an education in sustainability.

## 5. Practical Applications

The implementation of alternative sports through a pedagogical model promotes the development of physical, psychological, social, tactical, technical, emotional, cognitive, and coeducational aspects. These practices can be oriented to achieve one or several didactic objectives; therefore, the use of a programming according to the objectives proposed is recommended, with the adaptation of a pedagogical model being necessary. The Self-Construction of Materials Model is appropriate for promoting care for the environment and educating in the sustainability of the planet.

Alternative sports have great variability in terms of their possibilities. Their practice is susceptible to be oriented to different levels of competence and ages, as well as to different sports environments (educative, competitive, and recreative), because of their capacity for flexibility and adaptation. These sports modalities are a good tool for social inclusion, coeducation, and gender equality, which promotes varied motor skills, participation, motivation, enjoyment, inclusion, adherence, and sustainability.

## 6. Limitations of the Study

The results of the systematic review contributed to configure an overview of the scientific knowledge on alternative invasive team sports from different perspectives, mainly from the research methodology and specific aspects of these sports in different areas, such as educative, competitive, and recreative. However, some limitations were recognized in this work: only research from the Web of Science and Scopus databases was included, written in three languages, Spanish, English, and Portuguese. Therefore, we did not examine papers collected in other databases or published in other languages. In future research, it would be interesting to carry out a systematic review on this topic by expanding the searches to other databases. Despite having included many articles, insufficient evidence was found on pedagogical models and teaching styles in the implementation of these sports; therefore, it would be relevant to carry out a review on this topic for collective and individual sports, to provide a broader view.

## 7. Future Lines of Research

As a result of the weaknesses found among the results of this study, the limited number of alternative sports investigated by the scientific literature is evident, as well as the need for further research in different contexts.

In future research, it would be interesting to produce a systematic review on this topic by extending the search to other databases that provide more significant evidence of pedagogical models and teaching styles in the implementation of alternative invasion team sports.

It is advisable to address these limitations by conducting studies in the field of alternative sports practice, which analyse the effects on students according to pedagogical models in cognitive, emotional, psychological, physical, and motor factors.

Likewise, the realisation of works that examine the opinions and knowledge of physical education teachers according to their own classroom experiences on the different alternative sports, as well as the pedagogical models they use for their learning, would greatly contribute to increase the framework of knowledge on this subject of study from a pragmatic prism that qualitatively analyses the educational reality.

## 8. Conclusions

There is a growing interest in investigating this object of study, using different methodologies and research designs. Due to the nature of these sports modalities, the quantitative approach through experiments and quasi-experiments predominates.

Scientific evidence was only found for twelve alternative invasion sports: Tchoukball, Ultimate, Floorball, Korfbal, Ringol, Kin ball, Datchball, Colpbol, Dodgeball, Roller Derby, Quidditch, and Others (“Pinfuvote”, “Ultimabola”, “Big ball”), although it is considered an emerging tendency with the existence of many different types of sports. The scientific knowledge on this subject is limited, advancing at a much slower pace than its theoretical and practical expansion, limiting the evidence on its application in different contexts: educative, competitive, and recreative. This highlights the urgent need to develop more studies on this research topic, which determine the effects they produce on students in different sporting contexts.

Scientific evidence affirmed the need to implement a pedagogical model in sport interventions. However, more than half of the manuscripts did not include a pedagogical model. The practice of alternative sports through a pedagogical model favours the development of different aspects: physical, psychological, social, tactical, technical, emotional, cognitive, and coeducational. For this reason, it is necessary to design a programme in accordance with the pedagogical method and appropriate didactic elements, which can be directed to the work of one or several objectives. Moreover, the implementation of these sports lends itself to be used in a variety of areas, such as educative, competitive, and recreational. They can also be adapted to different ages (children, adolescence, youth, adult, and old age) and/or levels of competence. The wide variety of possibilities offered by these sports disciplines makes careful planning essential. They are an ideal resource for improving the participation, motivation, involvement, and enjoyment of pupils. The characteristics of these sports imply the acquisition of prosocial behaviour and fair play by the pupils.

Alternative sports are a good instrument for social inclusion, coeducation, and gender equality, which promotes varied motor skills, participation, motivation, enjoyment, inclusion, adherence, and sustainability.

The use of the Self-Construction of Materials Model, which is very relevant and appropriate for the practice of these sports modalities, generates an awareness among students about materials and resources, favouring their care and appreciation. It encourages care for the planet, promotes the use of the most appropriate resources and respect for the environment, leading to an education in sustainability with the ability to respond to the Sustainable Development Objectives and current educational demands.

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## Appendix A

This table provides a summary of the main qualitative results of the studies included in the review carried out in the context of educative research.

**Table A1.** Qualitative data from studies in the field of education.

Doc.	Reference	Objectives	Context	Sport/Pedagogical Model	Main Results
Doc.1	[55]	Identify the relationship between participation and personality, empathy skills.	408 participants. Age: infancy and adolescence.	Floorball, Basketball, Dance, Yoga, Soccer y Ping Pong. No model indicated.	The development of a positive personality and emotional empathy is encouraged.
Doc.2	[56]	To investigate whether acute post-practice exercises improve long-term motor memory retention.	67 participants. Age: infancy.	Floorball and run. No model indicated.	Intermittent intense acute exercise after motor skill acquisition facilitates long-term motor memory.
Doc.3	[57]	To analyse the influence of sport practice on Basic Psychological Needs.	206 participants. Age: adolescence.	Floorball and individual sport. No model indicated.	Positive impact of basic psychological needs through Floorball and with different inputs depending on the sport.
Doc.4	[58]	To analyse the impact on psychosocial variables and gender differences through the Sport Education Model.	85 participants. Age: adolescence.	Ultimate. Sport Education model.	Significantly higher values were found for satisfaction, behavioural and emotional involvement. Differences were found between boys and girls in the perception of inequality and gender differences. This pedagogical model is useful for promoting an inclusive educational environment.
Doc.5	[59]	Discover how Korfball players understand the genre.	12 participants and a coach. Age: adolescence.	Korfball No model indicated.	Activities that promote inclusive practice, equality and teamwork can lead to inclusion, change in gender stereotypes, and gender roles.
Doc.6	[60]	To examine cardiovascular adaptations after one year of intense physical training.	232 participants. Age: Infancy.	Floorball, Basketball, Soccer, and interval running. No model indicated.	High-intensity physical training has led to cardiovascular improvements in healthy children. Good health improvement strategy.
Doc.7	[61]	To study cardiovascular adaptations after 10 months of collective sports and strength training.	291 participants. Age: Infancy.	Floorball, Basketball, Soccer, and strength training. No model indicated.	Intense physical exercise has positive cardiovascular effects and health benefits.
Doc.8	[62]	To analyse the influence of Datchball and Colpbol on students' interpersonal intelligence.	107 students. Age: adolescence.	Datchball y Colpbol. Hybridisation between Play-Centred Model and Cooperative Learning.	Improvement in the variable's empathy and unconditioned cooperation. Proves the progress of interpersonal intelligence in students of both sexes.
Doc.9	[63]	Develop a standardised diagnostic tool to assess Floorball skills.	212 participants. Age: Infancy.	Floorball. No model indicated.	A tool (Rasch model) was designed with 9 items to assess ball handling, ball control and passing techniques.



Table A1. Cont.

Doc.	Reference	Objectives	Context	Sport/Pedagogical Model	Main Results
Doc.10	[64]	To examine how female collegiate athletes negotiate gender for Ultimate sport.	27 participants. Age: Youth.	Ultimate. No model indicated.	Women perform gender identities throughout Ultimate culture, which remodel gender relations, hegemonic identities are negotiated and transformed.
Doc.11	[65]	To study the effects of a training programme on anaerobic power and isometric strength in korfbal and basketball players.	29 participants. Age: Youth.	Korfbal y Basketball. No model indicated.	Increases in maximum power, relative power, vertical jump, and leg. The programme contributes to improving basketball performance, whereas for korfbal more effective programmes should be sought.
Doc.12	[66]	To examine the effect of the Sport Education Model (SE) on prosocial behaviour.	45 participants. Age: Infancy.	Ringol. Sport Education Model.	Improvements were shown in prosocial behaviour, reduction in disruptive behaviour, improvements in conflict resolution, integration of discriminated pupils and girls. The SE improved prosocial behaviour.
Doc.13	[67]	To investigate the effects on learning using the Game-Centred Model.	38 participants. Age: adolescence.	Korfbal. Game-Centred Model (GCM).	Positive learning effects: cognitive, affective, skills, game performance, shooting ability. The GCM improves learning and perceived learning for high and low ability students.
Doc.14	[68]	To examine the effects of a Kin ball programme for people with intellectual disabilities on reducing sedentary lifestyles and improving basic physical skills.	47 participants. Age: Adolescence, youth y adult.	Kin ball. No model indicated.	Progress: endurance, strength, speed, balance, and coordination. Physical capacity and motor skills are improved, high levels of satisfaction and motivation were obtained.
Doc.15	[69]	To explore whether game performance, knowledge and psychosocial variables are improved with the Game-Centred Model.	40 participants. Age: Infancy.	Floorball. Game-Centred Model (GCM).	Improvements were made. The pedagogical features of the pedagogical model are key to fostering meaningful learning.
Doc.16	[70]	To study the short-term heart rate (HR) and fitness response to various types of activities.	93 participants. Age: Infancy.	Floorball, Basketball, Indoor football, walking, circuit training, Nintendo Wi Tennis, Nintendo Wi Boxing. No model indicated.	The HR was higher in the team sport. Team sport (including Floorball) provoked a high load, improved fitness level and Body Mass Index (BMI), higher participation of all students
Doc.17	[71]	To discover the importance of different types of knowledge in teaching the Sport Education Model.	2 participants. Age: youth.	Ultimate, Tennis, Football and Basketball. Sport Education model.	A good understanding of the model, general pedagogical and learner knowledge is necessary. Giving teachers early training and using it allows a solid understanding to be gained.

Table A1. Cont.

Doc.	Reference	Objectives	Context	Sport/Pedagogical Model	Main Results
Doc.18	[72]	(a) To explore the effect of the MED (basketball and floorball) on students' game performance and knowledge. (b) To find out the differences depending on the sport.	33 participants. Age: Infancy.	Basketball y Floorball. Sport Education model.	The biggest improvements were obtained in the basketball group, because of previous experience, with the aggravation of learning how to handle the stick for Floorball. Invasive sports with implement, Floorball, require more concrete instruction and longer didactic units.
Doc.19	[73]	To study whether students improved performance and adherence with the Game-Centred Model.	41 participants. Age: Infancy.	Floorball. Game-Centred Model (GCM).	There was progress in performance and adherence (decision-making, technical execution, game performance, participation, enjoyment, perceived competence, and intention to be physically active).
Doc.20	[74]	To investigate the influence of a training programme on a teacher's ability to promote moral and sporting behaviour in SE.	76 participants. Age: Infancy.	Ultimate. Sport Education model (SE).	Students were able to challenge negative, unfair, and unsportsmanlike sport participation norms, as well as adopt positive sport behaviours.
Doc.21	[75]	To analyse the effect of physical condition on physical performance and technical-tactical learning.	43 participants. Age: adolescence.	Ultimate. No model indicated.	The high level of physical fitness had a positive effect on game performance. Designing tasks that encourage participation in competitive situations helps students to improve physical fitness.
Doc.22	[76]	To analyse the effects of the use of alternative games and sports in the link to the PE class.	80 participants. Age: adolescence.	Ultimate, big ball, Floorball. No model indicated.	Alternative games and sports helped to increase young people's engagement and participation in the EF subject.
Doc.23	[77]	To study the perception of participation in a traditional sport (Handball) compared to an alternative sport (Tchoukball).	184 participants. Age: adolescence.	Tchoukball y Handball. Game-Centred Model (GCM).	Tchoukball increases pupil participation compared to handball.
Doc.24	[78]	To examine teachers' opinions on the popularity of teaching sports games.	507 participants. Age: Adult.	Floorball, Gymnastics, Football, Volleyball. No model indicated.	Collective sports are preferred. Male teachers prefer football while female teachers prefer to teach volleyball. Floorball was ranked as the 2nd most popular.
Doc.25	[79]	Describe the amount and intensity of physical activity in sports.	471 participants. Age: adolescence.	Basketball, Floorball, Gymnastics, Athletics. No model indicated.	Moderate to vigorous physical activity was achieved by 85% of those practising organised sports. Sports practice achieves the recommended amount of PA for health.

Table A1. Cont.

Doc.	Reference	Objectives	Context	Sport/Pedagogical Model	Main Results
Doc.26	[80]	To discover children's preferences for physical activity (PA).	1026 participants. Age Infancy.	Ultimate, Dodgeball, Floorball, Football, Skiing, Basketball. No model indicated.	The boys preferred Football, Floorball, Basketball and strength training. Girls opted for Dance, Gymnastics, exercise to music and jumping rope. For the less physically fit students, Ultimate and/or Dodgeball are recommended to minimise skill differences and would increase enjoyment.
Doc.27	[37]	To explore the effects of cognitively engaging Physical Activity (PA) interventions (Basketball and Floorball).	No participants.	Basketball and Floorball. No model indicated.	Cognitive functions improved through cognitively engaging Physical Activity (PA). Cognitively engaging interventions is a method to improve physiological and cognitive.
Doc.28	[81]	To provide a resource to help improve motivation and involvement in alternative sports.	111 participants. Age: adolescence.	"Set of Paddles" and "Ultima ball". Gamification.	Good learning outcomes are produced, as well as high student involvement in both individual and collective performances.
Doc.29	[82]	(a) Investigate the potential of modified games to promote gender equity. (b) Compare moderate to vigorous intensity levels (MVPA) between mixed and single-sex classes.	221 participants. Age: adolescence.	Korfball. Game-Centred Model (GCM).	The use of modified games with simplified rules produces moderate to vigorous levels of activity in both sexes. They are a means of stimulating girls' physical activity levels.
Doc.30	[83]	To compare the effects of the Direct instruction, Sport Education and Hybrid Sport Education model with self-construction of materials on motivation and sportsmanship.	295 participants. Age: adolescence, youth, and adult.	Ultimate. Direct instruction, Sports Education model (SE), Hybridisation of SE and self-construction of materials.	In Sports Education groups they improve performance, friendship goals, basic psychological needs, and sportsmanship. The SE is more effective than the Direct instruction for social goals, Basic Psychological Needs, and fair play. The construction of materials enhances the effects of the DE Model on social goals, avoiding conflicts. It promotes environmental values, respect for resources and materials.
Doc.31	[84]	To examine the effects of roles (fixed and rotational) on levels of responsibility and intercultural competence under the Sport Education Model.	96 participants. Age: adolescence.	Basketball and Floorball. Sports Education model.	Greater impact of fixed roles on social responsibility and intercultural variables (sensitivity and behaviour), with special incidence on males.

Table A1. Cont.

Doc.	Reference	Objectives	Context	Sport/Pedagogical Model	Main Results
Doc.32	[85]	Compare the behaviour and well-being of the best Ultimate players.	Approx. 59 participants. No age indicated.	Ultimate. No model indicated.	Interactions and behaviours are influenced by rules, practices, and the spirit of the game. Players create, negotiate, and manipulate rules and practices to maximise the interaction and quality of the game.
Doc.33	[86]	To develop an intervention based on the novelty factor to increase motivation in Physical Education classes.	58 participants. Age: Infancy.	Colpbol. Game-Centred Model (GCM).	Novelty, a determining factor in motivation. Novel stimuli are directly related to motivation; novelty favours the motivational climate. The teacher must look for alternatives to maintain the level of motivation, enjoyment, and levels of physical activity.
Doc.34	[87]	To study the results of a Korfball intervention using Flipped Classroom.	50 participants. Age: Infancy and adolescence.	Korfball. Flipped Classroom (FC).	Higher Korfball performance (rules and implementation of game strategy) with Flipped Classroom. Korfball seems to minimize differences between boys and girls.
Doc.35	[88]	To explore the possibilities of transfer in tactical learning for collective sports.	58 participants. Age: adolescence.	Basketball and Floorball. Game-Centred Model (GCM).	The tactical knowledge acquired in Basketball can be transferred to the sport with a similar internal logic, Floorball, although the transfer is greater in declarative knowledge than in procedural knowledge.
Doc.36	[89]	Evaluate the implementation of the Sport Education Model (SE) with pedagogical strategies that promote prosocial behaviours.	51 participants. Age: Infancy.	Floorball. Sports Education model.	Reduction in antisocial behaviour through methodology aimed at promoting prosocial behaviour. The SE should be complemented with methodological strategies that encourage prosocial behaviour to promote values education.
Doc.37	[90]	To examine the transfer of the generic teaching of invasion games from Floorball to Hockey.	36 participants. Age: Infancy.	Floorball-Hockey. Game-Centred Model (GCM).	Transfer was observed in procedural knowledge and dribbling decisions.
Doc.38	[91]	Compile the essential characteristics of the Ringol.	No participants.	Ringol. No model indicated.	It is defined as an alternative, cooperative, inclusive, and egalitarian sport. It establishes the characteristics of this sport.
Doc.39	[92]	To compare motivation after practice of alternative sports (AS) and traditional sports (TS).	341 students Age: adolescence.	Kinball, Pinfuvote, Datchball. No model indicated.	The use of AS increases intrinsic motivation. Teachers rated the experience positively as active, dynamic, inclusive, and motivating.

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