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The state of research in teaching and learning in sport and exercise science: A scoping review☆

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A B S T R A C T

Evidence based pedagogy in Higher Education (HE) requires accessible collation of evidence. This study aims to collate and map the evidence that exists in teaching the unique discipline of sport and exercise science (SES). A systematic search of three electronic databases (SportDiscus; Web of Science; ERIC) for peer reviewed original articles evaluating pedagogical approaches in SES related disciplines in HE was performed. Abstracts and subsequent full-text articles were screened by dual reviewers and data extracted (article characteristics, topic and outcome measures). Literature quality was assessed using the Mixed Methods Appraisal Tool (MMAT). 44,447 articles were identified, 509 eligible for full text assessment and 156 for inclusion. Most were conducted in the USA, UK and Spain. Study designs were primarily quantitative although qualitative and mixed methods approaches were evident. Articles were published in a large range of journals, 88 in total, with a single publication in 62 journals. The most common topic category was student experience, followed by teaching methods. Articles on eLearning, student learning and achievement and attainment were also prevalent. MMAT quality checks revealed 61 % were deemed high quality and 25 % satisfactory. Aside the surge of literature on the impact of Covid-19 the research is diverse, without a saturation of any facet of pedagogic research in the SES field. Further research specific to SES students is required in all areas however, there are specific gaps in terms of research on 'diversity and inclusion' and 'access to higher education' which need to be filled.

1. Introduction

Degrees in Sport and Exercise Science, also referred to Kinesiology or Human Movement Science, are highly popular programmes of study. In the UK alone 117,830 students enrolled in courses categorised as Biological and Sport Science in the academic year 2022/23 (HESA, 2024). While in the USA 32,435 Kinesiology and Exercise Science degrees were awarded in 2022 (DATA USA, 2024). Graduates are needed to address growing demands for a workforce competent in servicing sport, exercise, and health industries in roles ranging from community healthcare to elite sport. Evidence-based practice is a key requirement for professional practice in these fields (British Association of Sport and Exercise Sciences, 2024; Coutts, 2017; Fullagar et al., 2019) and development of this starts with evidence-based pedagogy, a key component of teaching in Higher Education (Borrego and Henderson, 2014). However, conducting evidence-based pedagogy to support the delivery of sport and exercise science degrees or continued professional development of

☆ The protocol of this review was registered on the Open Science Framework https://osf.io/registries prior to commencement.

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professionals in the field is hindered by a lack of efforts to review the evidence base (Armour & Chambers, 2014).

Sport and exercise science degrees are unique in their breadth and applied nature. Students are required to graduate with knowledge of biology, physiology, mathematics, physics, biomechanics, psychology, nutrition, and the applied skills required to deliver this understanding to impact health and performance in a wide range of settings (British Association of Sport and Exercise Sciences, 2024). This is complementary to the goal of all university courses to deliver a wide range of transferable skills that support employability and graduates' ability to contribute to society in a wide range of domains outside of sport and exercise (Olesen et al., 2021). This range of needs means a wide range of pedagogical approaches are likely needed to support teaching that often takes place in traditional lecture theatre and classroom sessions, but also in laboratories and outside in sports settings (Morton, 2008). However, there is currently limited synthesisation of discipline specific and accessible resources to support teaching staff in best practice for these complex needs.

There is a range of existing evidence that has focused on topics such as assessment (Smith et al., 2022), rubric development (Bradley et al., 2020), authentic learning (Bradley et al., 2022a,b), employability (Burgess and Maughan, 2005), inclusion (Runswick et al., 2022), and student experience (Finlay et al., 2022). However, much of the existing evidence focuses on simple case reports and opinion pieces from teaching academics. There has been limited efforts to collate empirical evidence and understand how these can be leveraged to inform best teaching practices in this field. Such reviews of empirical literature exist for topics such as broad teaching expertise in higher education (van Dijk et al., 2020), delivering coach development (Trudel et al., 2020), knowledge translation for professionals already in the field (Bartlett & Drust, 2021), but not for the nuanced needs of sport and exercise science education.

If we consider Higher Education teaching as a field in which we wish to role model evidence-based practice to students, who will graduate into fields where this is required (Larsen et al., 2019), then we can consider adapting the Sicily Statement's five-step model as a guide: (I) asking a clinical (or pedagogical) question; (II) collecting the most relevant evidence; (III) critically appraising the evidence; (IV) integrating the evidence with one's clinical (or teaching) expertise, patient (student) preferences and values to make a practice decision; and (V) evaluating the change or outcome (Burns and Foley, 2005; Dawes et al., 2005; Larsen et al., 2019). At present there is limited easy to use collations of evidence, its types, or quality in the field of sport and exercise science teaching in higher education and therefore no way of teaching staff easily moving beyond stage two of this process and continue to develop the field.

Scoping reviews aim to collate, describe and map a body of literature relevant to a particular question in a particular field (Munn et al., 2018), this aligns with steps I and II above. Traditionally scoping reviews do not assess the quality of the evidence, however, by incorporating a critical appraisal tool within a scoping review step III can also be accomplished. Therefore, this study aims to collate, describe and map the literature that exists in teaching the unique discipline of sport and exercise in Higher Education (HE). In addition, this study aims to critically appraise the quality of this evidence to provide sport and exercise science educators a resource which can be used as a source to enable evidenced based pedagogy in sport and exercise science. Mapping the evidence will also enable the identification of commonly researched pedagogies within the discipline and highlight areas which are under researched.

2. Methods

2.1. Overview

The study adhered to the guidelines set out by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for scoping reviews (Tricco et al., 2018). The protocol described below followed the methodological guidance for scoping reviews by Arksey and O'Malley (2005) and the Joanna Briggs Institute (Peters et al., 2015), and the recommendations described by Levac, Colquhoun, and O'Brien (2010). The protocol was registered on the Open Science Framework (https://osf.io/registries) prior to commencement.

2.2. Inclusion and exclusion criteria

Articles were eligible for inclusion if they were peer-reviewed original research articles examining teaching and learning across SES or kinesiology related disciplines in HE. No restriction was placed on year or location of publication. Exclusion was deemed appropriate for articles not conducted fully or partially in HE or no level of education mentioned, and they were not SES or kinesiology related. Cognate disciplines where SES or kinesiology was not the main focus were excluded, such as: physical education, sport coaching, sports medicine, sports therapy, sports rehabilitation, and public health. Articles that were not associated with academic teaching and learning or administration and organisation were also excluded, for example sports coaching or skill acquisition. Review articles, opinion pieces, conference proceedings, and grey literature were excluded from the review alongside articles not available in the English language. These inclusion/exclusion criteria were aligned to the study's PCC as follows, **Population:** Studies that include any taught undergraduate or postgraduate students studying Sport Science/Sport and Exercise Science/Kinesiology **Concept:** Studies relating to teaching, learning and assessment. **Context:** studies conducted in the Higher Education setting.

2.3. Search strategy

To identify relevant literature to the research aim, a systematic search of three electronic databases (SportDiscus; Web of Science; ERIC) covering all available dates was conducted on August 09, 2022. These databases cover SES, health and education, and provide the greatest coverage of published articles pertinent to the review aim. The search strategy employed Boolean search operators 'AND' to combine primary search terms (education level (context); discipline (population); and pedagogic area (concept), and 'OR' for

secondary terms. Quotations marks were used to indicate keyword phrases and * to indicate variable endings of the root keyword. The keywords included in the search of each database were (higher education OR undergrad* OR postgrad* OR student* OR universit*) AND ("sport* science*" OR "sport and exercise science*" OR kinesiology) AND (teaching OR learning OR curriculum OR pedagog* OR scholar* OR SoTL OR assessment). Searches were performed in the title and abstract fields. A follow-up search was completed on July 05, 2024 to capture articles published since the original search was completed.

2.4. Study selection process

All identified search articles were retrieved and extracted to the web-based systematic review platform Rayyan (rayyan.ai) where duplicate articles were automatically excluded. All titles and abstracts were screened for eligibility against the inclusion and exclusion criteria by two reviewers within the research team. Areas of ambiguity were discussed and where necessary a third reviewer was consulted. Where abstracts were not available for extraction by the review platform manual searches were completed.

All articles which satisfied the inclusion criteria were extracted by one member of the team (KB) to a bespoke Microsoft Excel spreadsheet and full text articles were retrieved through the databases. Where full texts could not be retrieved, a request was sent to the corresponding author and where no reply was received, the article was subsequently excluded from the review. Article inclusion and exclusion was recorded at each stage of the screening process and shown within the PRISMA flowchart (see Fig. 1). The reference list of all included articles was screened to identify additional articles for inclusion.

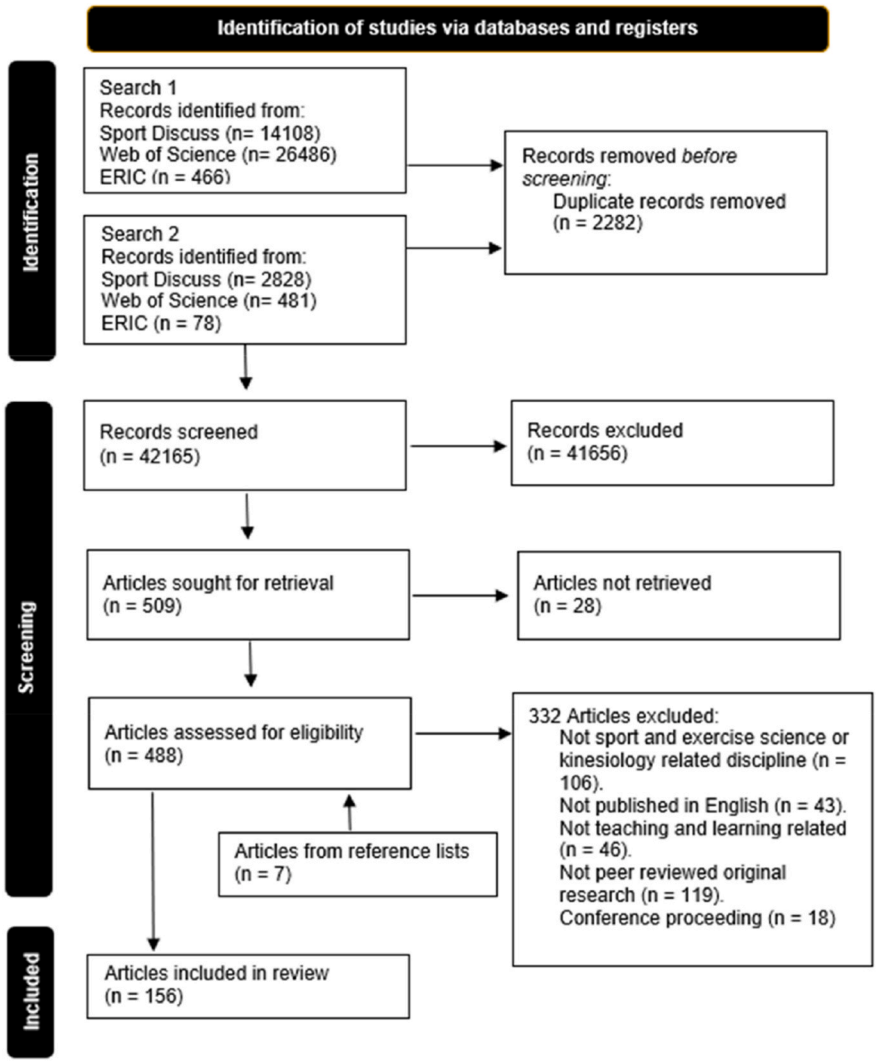

Fig. 1. Modified PRISMA flow diagram illustrating the scoping review selection process.

2.5. Data extraction and charting

Data was extracted to a bespoke Microsoft Excel spreadsheet during the review of each full text and included the following article characteristics: author(s), publication year, journal, country of origin, population description and number, SES discipline, article topic categories, research method category, and specific research outcome categories. Article quality was assessed using the Mixed Methods Appraisal Tool (MMAT) v2018 (Hong et al., 2018). This tool enabled assessment of quantitative, qualitative, and mixed-methods study design and was deemed the most relevant critical appraisal tool due to the range of study designs observed in the literature. The MMAT includes two screening questions, and a further five questions directly related to the specific study design, providing an overall quality score out of seven (Hong et al., 2018). High research quality was defined as a total score of 6 or 7, with 4 or 5 indicating satisfactory quality and 3 or less being poor quality, literature quality was not used as an inclusion/exclusion criterion in this review. A pilot extraction of data was conducted initially, with all members of the team extracting data from five articles. The team then met to discuss the data extracted and the selection of characteristics, with any disagreements or additions resolved. Once all data had been extracted, two reviewers assessed the data to ensure completeness.

2.6. Data synthesis and reporting

To understand and explore the areas of research interest, frequency analysis was conducted to collate the occurrences of articles within each of the journal characteristics and outcomes measures. Where articles displayed similar characteristics, they were clustered into specific terms to reduce the proliferation of alternative terminology within the disciplines. Frequency distribution was mapped and displayed in graphical formats. Data was examined to identify if trends occurred over publication year or country of origin. Two reviewers examined the extracted data and coded the articles into grouped categories for topic and outcome measure. An initial list of topic categories was proposed and iteratively modified to create a final list encompassing all aspects of included literature. The agreed topic categories were then used to organise the available evidence in learning and teaching pedagogy within SES HE, each article could be assigned to multiple categories.

3. Results

3.1. Literature search

The initial database search returned 41,060 records: Sport Discuss (n = 14,108), Web of Science (n = 26,486), ERIC (n = 466). The follow up search returned 3387 records: Sport Discuss (n = 2828), Web of Science (n = 481), ERIC (n = 78). Duplicate records were removed (n = 2282), which led to 42,165 records to be screened by title and abstract. Based on relevance 41,656 articles were excluded and 509 were deemed eligible for full-text assessment and sort for retrieval. In accordance with the inclusion and exclusion criteria 332 articles were excluded and 28 were unable to be retrieved, an additional 7 articles were obtained through reference list review. In reviewer agreement 156 articles were deemed fit for inclusion in the scoping review.

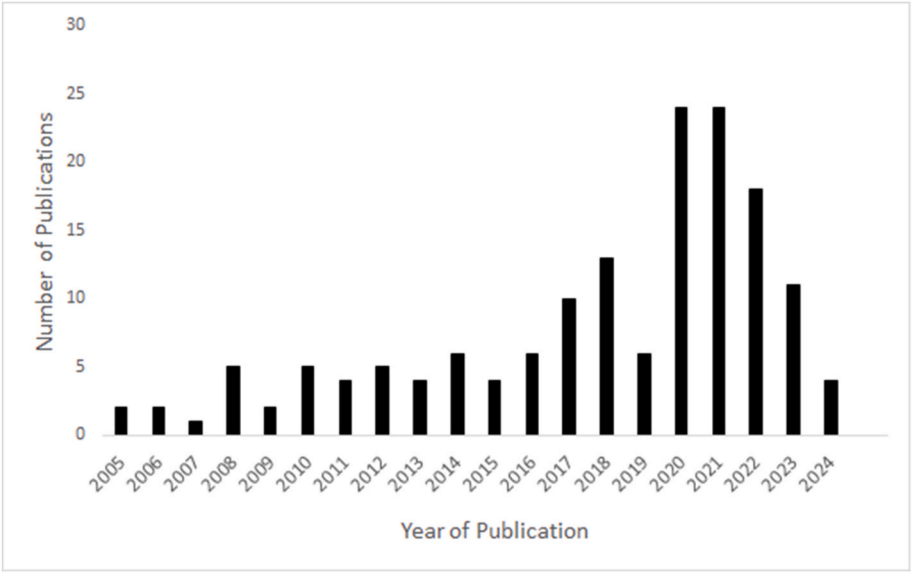

Fig. 2. The number of SES HE publications per annum.

3.2. Article characteristics

A database of the 156 included articles can be accessed via the supplementary file.

Articles spanned the years 2005–2024 and peaked in 2020 with 25 publications (See Fig. 2).

Almost a third of articles (31 %) were conducted in the USA (n = 49), followed by 15 % in the UK (n = 23) and 14 % in Spain (n = 22), with all other countries accounting for less than 10 % of the sample (see Fig. 3). The study designs were primarily quantitative (61 %, n = 96), followed by 26 % mixed methods (n = 40) and 13 % qualitative (n = 20). The participants were primarily identified as SES (39 %, n = 63), with 17 % Kinesiology (n = 27), 13 % Biomechanics (n = 20), and the remaining 31 % spread across 14 related disciplines. The articles extracted were published in a large range of journals, 88 in total housed the selected articles with 62 journals publishing a single article. The Journal of Hospitality, Leisure, Tourism and Sport Education housed the largest number of selected articles (11 %, n = 18), with Sports Biomechanics accounting for 7 % (n = 11) and Advances in Physiology Education 4 % (n = 7) (see Fig. 4).

3.3. Topics

When characterised by topic the most common category investigated was student experience (31 %, n = 49) closely followed by teaching methods (27 %, n = 43), with eLearning, student learning and achievement and attainment contributing a further 19 %, 19 % and 16 % respectively. Table 2 outlines all the topic categories which applied to over 5 % of the sample of articles. A further 44 topic categories were identified accounting for less than 5 % of the sample (comprising 1–7 articles in each category). These topics included; Blended learning, equality, diversity and inclusion, work based learning, experiential learning, learning styles, service learning, distance learning, entrepreneurship, personal and professional development, student attitudes, academic skills, rubrics, self-efficacy, social media, student satisfaction, gamification, problem based learning, reflective practice, research in teaching, attendance, group work, mentoring, staff perceptions, student intentions, student knowledge, authentic learning, authentic assessment, belonging, critical appraisal skills, learning characteristics, lifelong learning, motivation, peer teaching, readiness, retention, self-assessment, self-regulation, simulation, student behaviours, student expectations, student motivation, student transitions, student wellbeing, teaching experiences.

3.4. Outcome measures

When characterised by outcome measure the most common category investigated was student experience (32 %, n = 50) closely followed by student attainment (31 %, n = 48), with student perceptions and student learning contributing a further 19 % and 14 % respectively. Table 3 outlines the outcome categories which applied to over 5 % of the sample of articles.

A further 42 topic categories were identified accounting for less than 5 % of the sample (comprising 1–6 articles in each category). These topics included; Teaching methods, perceived competence, employability, factors effecting learning, experiential learning, learning, perception of learning tool, student behaviour, student characteristics, student intentions, student self-efficacy, anxiety, attitudes of academics, demographics, feedback, geographic location, graduate attributes, graduate prospects, ICT, innovativeness of academics, intentions, learning effort, learning styles, personal development, professionalism, quality of provision, readiness, recommended course content, research design, rubric development, self-regulation, staff perceptions, student assessment preferences,

Fig. 3. Geographical heat map representing the density of publications by country.

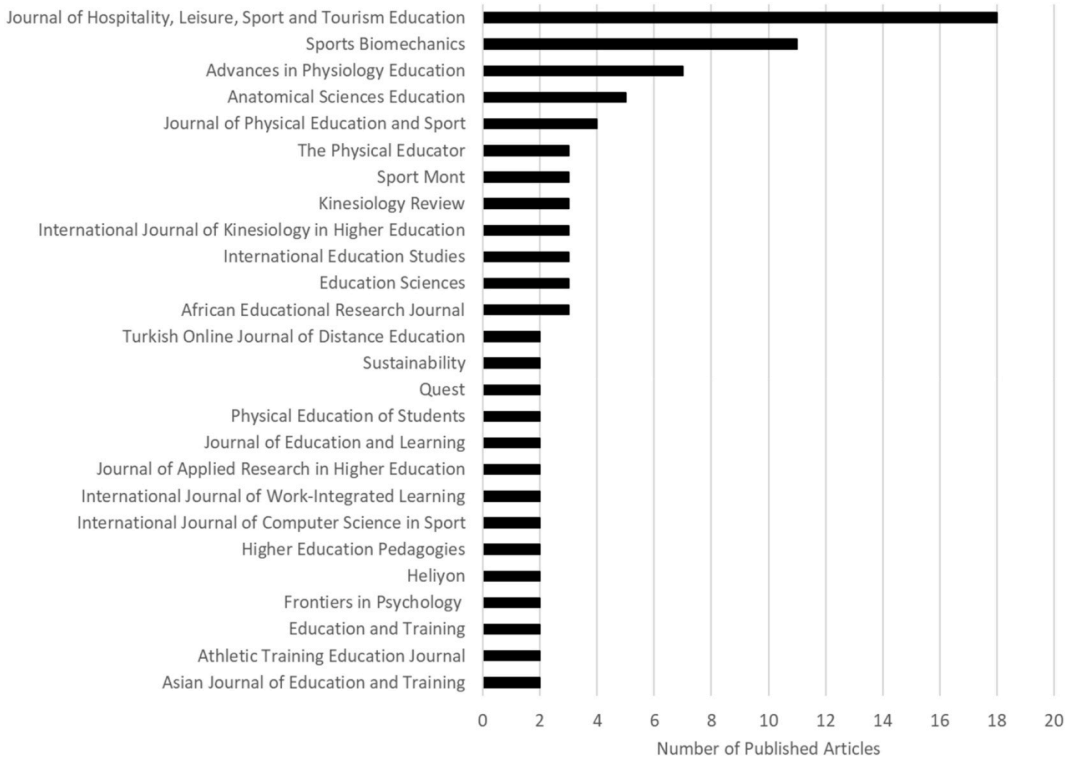

Fig. 4. Density of publications per journal. Journals which only contained one article are omitted from this figure.

Table 2
Frequency of topic category of retrieved articles.

Article Topic Category	Number of Publications	Percentage of Publications
Student experience	49	31
Teaching methods	43	27
eLearning	30	19
Student learning	30	19
Achievement and attainment	25	16
Assessment	18	12
COVID-19	15	10
Student perceptions	15	10
Technology	15	10
Employability	13	8
Course design	12	8
Engagement	11	7
Transferable skills	10	6
Active learning	9	6

Table 3
Frequency of outcome measure category of retrieved articles.

Article Outcome Category	Number of Publications	Percentage of Publications
Student experience	50	32
Student attainment	48	31
Student perceptions	30	19
Student learning	22	14
Assessment (design)	9	6
Course design	9	6
Student attitudes	9	6
Student engagement	9	6
Online learning	8	5
Student satisfaction	8	5

student expectations, student learning style, student wellbeing, teacher performance, teacher student experience, teaching material, transitions, validity and reliability, work balance.

3.5. Literature quality

Overall, data indicated almost two thirds (61 %) of the articles were high quality, with a further 25 % considered satisfactory (see Table 4). Mean quality of the articles has remained consistent across the past 10 years, with a mean MMAT score of 6 in all bar two years (2016 and 2024) when the mean quality fell to 5. Highest research quality was found in articles completed in Australia, Greece and Tiawan (although only a single article originated from Greece and Tiawan). Research quality was also high in the two most frequent countries of origin (UK and USA). Similarly, across the five most common journals publishing pedagogic research in the discipline, the quality of the literature was predominantly of high quality. The three discipline groupings of sport science, kinesiology, and biomechanics all produced a mean high-quality score of 6. Qualitative research methodologies scored slightly higher (6) than both quantitative (5) and mixed-methods (5) research. Research topics with more than three publications all had a quality score of five or six, with attainment, employability, and experiential learning articles having the lowest quality scores.

4. Discussion

The aim of this study was to collate, describe, map and appraise the literature that exists in teaching the unique discipline of sport and exercise in Higher Education. The supplementary file created provides sport and exercise science educators a resource which can be used as an evidence source to enable evidenced based pedagogy in sport and exercise science. Patterns observed when mapping and appraising the data are discussed below.

4.1. Article characteristics

Between 2005 and 2016 the number of articles per annum remained relatively stable. In 2017 and 2018 there was a slight increase in publications, but this returned to 2005–2016 levels in 2019. In 2020 and 2021 there was a large increase in publications with five times the number of articles published than the 2005–2016 baseline. This large increase in publications in the area coincided with the occurrence of the global Covid-19 pandemic and its associated restrictions. During this time most SES academics were unable to continue with their 'normal' research due to working restrictions such as lockdowns and enforced home working. In addition, 30 % of the articles published in this two-year period (2020–2021) were categorised under the topic of Covid-19 and/or eLearning indicating the pandemic itself had provided a topic for research. This increase in SES pedagogic research outputs is also inline with the global increase in publications seen in 2020 and 2021 across all disciplines as evidenced though Scimago Journal rank data which shows a 6.48 % and 7.19 % increase in publications in 2020 and 2021 respectively compared to an average of 5.82 % in the three years preceding and 2.76 % in the three years proceeding.

The inclusion of USA, UK, Spain and Australia in the top five counties of article origin aligns with university rankings in SES which include these four countries in its top seven, Turkey however is an anomaly (Girard and Girard, 2024). Within Turkish universities faculties of SES are common, however through a review of the Turkish Universities' websites it appears the courses delivered by these faculties typically include coaching education, sports management and physical education. These are outside the intended demographics of this study. However, articles typically reported their student participants to be students from the faculty of SES (aligned with the inclusion criteria) and did not specify which course they were undertaking. It is therefore possible that the included articles from turkey contain students out with the intended population however from the information within the studies we cannot be certain. This is a limitation of this study which must be considered when interpreting its findings.

The findings regarding density of publications per journal illustrated in Fig. 4 collectively indicate that there is no clear home for SES teaching and learning research. It is commonplace for professions to have an academic journal concerning their discipline specific education, for example the Journal of Physical Therapy Education, Journal of Medical Education or Journal of Engineering Education. The closest for SES is the Journal of Hospitality, Leisure, Sport and Tourism Education (JoHLSTE) which published 11 % of articles in this review. This journal has a much broader scope than solely SES being the leading international, peer-reviewed educational journal for this broader subject grouping. In addition, of the articles included in this review that were published in JoHLSTE 61 % originated from the UK with other countries represented by only a single article, indicating that this is currently not an international home for SES

Table 4
Overall quality of all articles included in the scoping review based on the MMAT scoring tool.

MMAT Score	Percentage of Publications
2	1
3	4
4	16
5	19
6	24
7	37

Quality indicator: 2–3 – Low; 4–5 – Satisfactory; 6–7 – High.

education research despite being so for the broader subject grouping. The skew towards UK based SES authors in JoHLSTE may be due to its similarity to the UK's expert body for tertiary education's categorisation system which puts SES under the category 'Events, Hospitality, Leisure, Sport and Tourism', this journal consequently published the largest number of articles included in this review (n = 18, 11 %). All the articles published in the African Educational Research Journal (n = 3) came from Turkey. Australia, Spain and the USA did not show any similar country specific skews towards one journal, there was however a skew based on individual researcher's publication density, i.e. the articles published in the Sports Biomechanics journal is primarily research conducted by Knudson and colleagues whose articles account for 73 % of the work published in the journal. This research group are also responsible for 50 % of the work that falls under the biomechanics discipline. The work by this research group also lead to the number of articles falling under the discipline of biomechanics to be higher than those of the other sub disciplines of Sport Science/Kinesiology/SES such as Physiology, Psychology, Anatomy, Strength and Conditioning and Nutrition. The majority of articles (65 %) were classified under the overarching disciplines of Sport Science, Kinesiology, and SES. Most of the articles that were categorised as Kinesiology were conducted in the USA and Canada whereas Sport Science and SES were predominately used outside of the USA and Canada (Europe, Africa, Australasia). This is indicative of the courses offered in the USA and Canada which are typically named Kinesiology or Exercise Science, whereas the terms Sport Science and SES are more common in other parts of the world.

The study designs in the included articles were primarily quantitative (61 %), followed by 26 % mixed methods and 13 % qualitative. Questionnaires were the most frequently used tool to obtain quantitative data, utilising Likert scales or scoring systems. Interviews and focus groups were the most common tools for the collection of qualitative data. The bias towards quantitative methods is also seen within SES research out with the pedagogical discipline with a profile of SES research conducted in Australia reporting 65 % of research to primarily use quantitative research methods (Williams and Kendall, 2007).

4.2. Topics and outcome measures

This review highlighted that research examining learning and teaching in SES investigated a wide variety of topics and measured several different outcomes. The most popular category for both the topic studied and outcome measured is student experience, which is perhaps reflective of the emphasis HE institutions place on being able to improve this key metric, even in challenging circumstances (Neves et al., 2024). Exploring particular teaching methods was also a popular topic, accounting for 27 % of articles reviewed and included examples such as flipped classroom, gamification, 3D digital animation, problem-based learning, cooperative learning, peer-assisted learning and simulation. Encouragingly, these more active learning strategies have been linked to positive experiences and outcomes for SES students (Dane-Staples, 2019; Knudson and Wallace, 2021). Learning and attainment also represented common topics along with e-learning and the effects of COVID – 19, which given the timing of the review, is perhaps unsurprising as institutions look to both mitigate any detrimental effects of the pandemic but also leverage the lessons learned in this period (Vlachopoulos, 2022).

Student achievement and attainment was the second most common outcome measure for the articles within this scoping review. Achievement and attainment for SES students is likely to be influenced by a wide variety of factors, for example, the varied nature of traditional and non-traditional qualification routes to studying the discipline in HE means that students may need more support to achieve (Hastings and Noyes, 2023), and perhaps careful consideration of learning and teaching strategies. Indeed, utilising a variety of active pedagogy strategies highlighted in some of the articles has been shown to improve learning outcomes in STEM subjects (Keogh, Moro, and Knudson, 2021). Additionally, outcomes measured often included student perceptions, attitudes and satisfaction. Understandably, HE institutions place a strong emphasis on addressing the satisfaction of students as a key marker of their quality while recognising key influences on student satisfaction can be their experience of learning design and delivery (Rienties et al., 2015).

Oldac and Olivos (2025) analysed the development of higher education research between 2000 and 2021 using novel natural language processing techniques. They identified 'Teaching and Learning' as a prevalent research topic and within this they identified a focus on 'learning experience', 'approaches to teaching' and 'forms of teaching and their relation to student learning' these directly align to our top five reported topic categories (Table 2). Oldac and Olivos (2025) highlighted that the topic of teaching and learning was where most of the subject specific educational research sat, with other identified topics typically being more generalised e.g. policy, institutional management, theoretical discussion. Consequently, due to our study design defining a specific population sample of students studying Sport Science/Sport and Exercise Science/Kinesiology, it aligns that these border research topics were not identified. Oldac and Olivos (2025) also identified three topics which have increased in prevalence over the last two decades, namely: identity politics and discrimination, access and employability. Of these three only employability was included in the top 10 frequently studied topics in our sport and exercise science specific sample. The topic 'diversity and inclusion' was identified in this scoping review, but it was applied to less than 5 % of the sample indicating a lack of subject specific research available in this emerging area. The topic of 'access' did not appear within this scoping review, this topic identified by Oldac and Olivos (2025) included research concerning people's ability to have equal opportunity to access higher education, mainly via college entrance. Though research indicates that academic outcomes in sport and exercise science can be linked to the qualifications used to access HE, it is acknowledged the demographics of students are not randomly distributed between those qualification pathways (Hastings & Noyes, 2023). Given the range of non-traditional qualifications used by students to access sport and exercise course in HE, it might be considered fruitful for research to further explore the relationships between access and learning and teaching more broadly.

4.3. Literature quality

The assessment of quality is not a specific requirement within a scoping review (Arksey and O'Malley, 2005) and previous scoping reviews on educational practices in HE have not included this step (Hennus et al., 2022; Larsen et al., 2019), it does however provide a

level of knowledge of the relevance, reliability, and validity of the evidence presented. Our assessment indicates that pedagogic research in SES is, in general, of high quality with 61 % of included articles achieving a MMAT score of 6 or greater and 95 % deemed at least of satisfactory quality. This level of high and satisfactory quality may be due to the inclusion criteria set out in the methods of this review, to be included articles were required to be peer-reviewed original research articles.

In the current scoping review, qualitative research articles scored slightly higher than either quantitative or mixed methods using the MMAT. It is possible that understanding how changes to teaching approaches or student experience is more suited to qualitative methods rather than converted to numerical indicators such as ratings of performance or perceptions on Likert scales (Cleland, 2017). Qualitative research addresses the "how" and "why" research questions that enable deeper understanding of experiences, phenomena, and context (Cleland, 2017) that are central to educational inquiry. The epistemological stance of qualitative research, with its emphasis on understanding human experience in natural settings, may be more suited to investigating pedagogical processes and student experiences and this may account for the slightly higher quality score reported in our scoping review due. When educational processes and outcomes are converted to quantitative metrics, such as performance ratings or Likert scale measurements of perceptions, researchers risk losing the rich contextual dimensions that qualitative approaches preserve. Where quantitative measures are utilised, researchers should be aware that they need to consider whether it is the most appropriate for understanding teaching practices or pedagogic outcomes. maintaining methodological coherence between the research question, data collection methods, and should carefully consider whether their chosen metrics and analysis adequately capture the investigated topic. Similarly, mixed methods approaches need to carefully consider the integration of the qualitative and quantitative research components and how they address the specific aspects of the research question. However, future researchers in SES pedagogy should be aware of the strengths and limitations of different methodological traditions and select approaches based on this to maintain the methodological quality within educational research in SES.

4.4. Limitations

When interpreting the findings of this scoping review it is important to acknowledge its limitations. Following abstract review 28 of the articles that were identified for inclusion could not be retrieved for full text review. These could not be retrieved by academics working at five different institutions and through contacting the authors directly, within these articles relevant data may have been lost. This review only includes articles which were written in English, this therefore may have introduced a language bias into the sample.

4.5. Conclusions and recommendations

Aside the surge of literature on the impact of Covid-19 the research is diverse, without a saturation of any facet of pedagogic research in the SES field. Further research specific to SES students is required in all areas however, there are specific gaps in terms of research on ‘diversity and inclusion’ and ‘access to higher education’ which need to be filled. This scoping review has collated mapped and appraised the literature that exists in teaching the unique discipline of sport and exercise in Higher Education. The database created can be used by academics as an evidence source to enable evidenced based pedagogy in sport and exercise science.

CRediT authorship contribution statement

Katherine E. Burgess: Writing – original draft, Methodology, Formal analysis, Writing – review & editing, Project administration, Investigation, Data curation, Conceptualization. **Eddie Bradley:** Writing – review & editing, Methodology, Conceptualization, Writing – original draft, Investigation. **Katie Dray:** Writing – review & editing, Methodology, Formal analysis, Writing – original draft, Investigation, Conceptualization. **Sarah Powell:** Writing – original draft, Investigation, Writing – review & editing, Methodology, Conceptualization. **Oliver Runswick:** Writing – review & editing, Methodology, Conceptualization, Writing – original draft, Investigation.

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Declaration of competing interest

The authors have no conflicts of interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jhlste.2025.100573.

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Reference	Journal	Country of origin	Discipline	Topics	Methods	Outcomes	MMAT Score
Dixon, 2005	International Journal of Mathematical Education in Science	UK	Biomechanics	Teaching Methods, Assessment	Quantitative	Student acheivement, assessment	7
Meeuwsen et al., 2005	Perceptual and motor skills	USA	Motor Control	Teaching Methods	Mixed Methods		6
Bulger, 2006	The Physical Educator	USA	Exercise Science	Experiential learning, Student Experience, Employability, Workbased Learning	Mixed Methods	Experiential learning, student experience, course design	4
Sleap and Reed, 2006	Teaching in Higher Education	UK	Sport Science	Teaching Methods, Employability, Experiential Learning	Mixed Methods	employability, experiential learning, student learning	3
McCullagh and Wilson, 2007	Quest	USA	Psychology	Teaching Methods	Qualitative	Teaching material	4
Biscomb et al., 2008	Journal of Hospitality, Leisure, Sport and Tourism Education	England	Sport Science	Student Experience, Assessment, Teaching Methods	Quantitative	Student experience	4
Hsieh and Knudson, 2008	Sports Biomechanics	USA	Biomechanics	Student Behaviours, Learning Styles, Achievement/Attainment	Quantitative	Student learning and behaviours	6
Martin et al., 2008	Journal of Hospitality, Leisure, Sport and Tourism Education	England	Sport and Exercise Science	Learning Styles, Student Experience, Problem Based Learning	Quantitative	Student perception	5
Morton et al., 2008	Advances in Physiology Education	UK	Physiology	Student Learning, Assessment	Quantitative	student learning, assessment, attainment	6
Valeiro, et al., 2008	Fitness and Performance	Spain	Physical Activity and Sports Science	Achievement/Attainment	Quantitative		4
McCarroll et al., 2009	Advances in Physiology Education	USA	Anatomy	Course Design, Teaching Methods, Student Learning	Quantitative	Student acheivement, perception of learning tool	6
Phillips, 2009	Bioscience Education	UK	Sport Science	Critical Apprsail Skills, Course Design, Academic Skills, Student Learning	Quantitative	Course design, student attainment	6

Cumming, 2010	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport and Exercise Science	Group Work, Transferable Skills	Quantitative	learning and grade	7
Kibele, 2010	International Journal of Computer Science in Sport	Germany	Biomechanics	Elearning, Blended Learning, Motivation	Quantitative	quality of provision	4
Martin et al., 2010	Journal of Hospitality, Leisure, Sport and Tourism Education	New Zealand	Sport, Recreation and Business Studies	Student Learning, Assessment, Teaching Methods	Qualitative	Student learning	5
Papastergiou, 2010	Computers and Education	Greece	Sport Science	Transferable Skills, Employability, Technology, Course Design	Mixed Methods	Course design, ICT, student attainment	7
Roznawski and Wiemeyer, 2010	International Journal of Computer Science in Sport	Germany	Sport Science	Student Learning, Achievement/Attainment, Student Motivation, Elearning	Mixed Methods	e-learning interactivity	7
Leser et al., 2011	Journal of Sports Science and Medicine	Austria	Sport Science	Student Perception, Technology, Elearning, Student Experience	Mixed Methods	student skill and perceptions	5
Mytton and Rumbold, 2011	Innovations in Education and Teaching International	UK	Sport Science	Teaching Methods, Student Experience, Student Transitions	Quantitative	Student experience, transitions	7
Payne and Brown, 2011	Evaluation in Higher Education	UK	Biomechanics	Assessment, Teaching Methods	Mixed Methods	Student acheivement, perception of learning tool	6
Testa, 2011	International Education Studies	UK	Sport Science	Student Experience, Blended Learning	Quantitative	student experience, student atitudes	5
Garceau et al., 2012	Sports Biomechanics	USA	Biomechanics	Course Design, Teaching Methods	Mixed Methods	Course design, student learning, teaching methods	7
Henning et al., 2012	Journal of Athletic Training (National Athletic Trainers' Association)	USA	Athletic Training	Teaching Methods, Student Attitudes, Student Perceptions	Quantitative	Student perception	7
Hildenbrand et al., 2012	Athletic Training Education Journal	USA	Kinesiology	Assessment, Rubrics	Qualitative	Rubric development, assessment, student experience	4

Hsieh et al., 2012	Sports Biomechanics	USA	Biomechanics	Student Experience, Learning Styles	Quantitative	Student learning style	6
Hsieh et al., 2012	Journal of College Science Teaching	USA	Biomechanics	Achievement/Attainment, Student Learning	Quantitative	student achivement, student behaviour, student characterisitics	7
Arslan, 2013	Journal of Hospitality, Leisure, Sport and Tourism Education	Turkey	Sport Science	Student Experience, Assessment	Quantitative	Student assessment preferences	6
Bruce-Low et al., 2013	Advances in Physiology Education	UK	Sport Science	Elearning, Teaching Methods, Achievement/Attainment, Technology	Mixed Methods	student attainment, student experience	7
Duncan et al., 2013	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Strength and Conditioning	Teaching Methods, Problem Based Learning	Qualitative	thematic analysis	3
Kelly and Bishop, 2013	journal of research	USA	Motor Control	Elearning, Engagement, Achievement/Attainment	Quantitative	student enagement, student attainment	5
Barr, 2014	Innovative Higher Education	USA	Kinesiology	Student Experience, Engagement	Mixed Methods	student engagement, student experience	7
Comfort and McMahon, 2014	Journal of Applied Research in Higher Education	UK	Sport Science	Peer Teaching, Achievement/Attainment, Student Learning, Teaching Methods	Quantitative	Course design, student learning, teaching methods	7
Hoyek et al., 2014	Anatomical Sciences Education	France	Anatomy	Teaching Methods, Assessment, Student Learning	Quantitative	Student attainment, factors affecting learning	7
Kuruganti, 2014	Collected Essays on Learning and Teaching	USA	Exercise Science	Student Experience, Achievement/Attainment	Quantitative	Perceived competance	3
Mahar et al., 2014	Kinesiology Review	USA	Kinesiology	Teaching Methods	Quantitative	Teaching methods	7
Roper and Santiago, 2014	Adapted Physical Activity Quarterly	USA	Kinesiology	Student Experience, Equality, Diversity and Inclusion	Qualitative	Student learning	7
Dobson et al., 2015	Advances in Physiology Education	USA	Kinesiology	Student Learning, Assessment	Quantitative	Student learning, assessment	7

Riskowski, 2015	Sports Biomechanics	USA	Biomechanics	Achievement/Attainment, Student Learning	Quantitative	Course design, student learning, student experience	7
Simonson, 2015	Advances in Physiology Education	USA	Physiology	Course Design	Quantitative	reccomended course content	4
Walsh et al., 2015	The Physical Educator	USA	Kinesiology	Service learning, Employability, Mentorship, Student Experience	Qualitative	Student perspectives, student experience, employability	7
Anderton et al., 2016	International Journal of Higher Education	Australia	Anatomy and Physiology	Teaching Methods, Active Learning, Student Perceptions, Student Experience	Quantitative	Student Experience, percieved competance, student opinion, student atainment	5
Ekkekakis et al., 2016	Research quarterly for Exercise and Sport	USA	Kinesiology	Student Knowledge	Quantitative	Student Attainment	6
Lantzy, 2016	Reference Services Review	USA	Kinesiology	Achievement/Attainment, Elearning	Quantitative	Student attainment/experience	6
Reddan et al., 2016	International Journal of Sports Science & Coaching	Australia	Sport Coaching	Student Experience, Teaching Methods	Quantitative	Student experience	7
Sudibyo et al., 2016	International Education Studies	Indonesia	Sport Science	Teaching Methods, Academic Skills	Quantitative	student atainment,	4
Wiemeyer and Schmitz, 2016	Advances in Inteligent Systems and Computing	Germany	Biomechanics	Student Learning, Self Regulation	Quantitative	learning effort (duration and frequency) and outcome (42 item test)	4
Barr, 2017	Journal of Computer Assisted Learning	USA	Kinesiology	Elearning, Engagement, Technology	Quantitative	student enagementt, student experience	6
Fraile et al., 2017	Studies in Educational Evaluation	Spain	Sport Science	Self Efficacy, Rubrics	Quantitative	self regulation, attainment, self efficacy	7
González-Serrano et al., 2017	Journal of Physical Education and Sport	Spain	Sport Science	Entrepreneurship, Student Attitudes, Equality, Diveristy and Inclusion	Quantitative	Student attitudes and intentions	4
Hall et al., 2017	Asia-Pacific Journal of Cooperative Education	Australia	Sport and Exercise Science	Workbased learning, Personal and Profesional Development, Transferable Skills, Employability	Qualitative	thematic analysis, student experience, graduate atributes	6

Houghton et al., 2017	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport and Exercise Science	Student Learning, Course Design	Quantitative	Student Attainment	7
Keogh et al., 2017	Sports Biomechanics	Australia	Kinesiology	Elearning, Blended Learning, Active Learning, Technology	Qualitative	Student perceptions, experience, online learning	7
Mandeville et al., 2017	Journal of College Teaching & Learning	USA	Kinesiology	Teaching Methods, Personal and Profesional Development, Transferable Skills, Achievement/Attainment	Quantitative	student atainment,	5
O et al., 2017	Quest	USA	Kinesiology	Teaching Methods, Service Learning, Student Perceptions, Student Experience	Mixed Methods	student experience, student perception	5
Pearson et al., 2017	International Journal of Exercise Science	USA	Exercise Science	Research in Teaching, Student Perceptions	Quantitative	Student perception	5
Yüksel and Gündüz, 2017	European Journal of Education Studies	Turkey	Sport Science	Assessment, Staff Perceptions	Mixed Methods	assessment design	5
Botha-Ravyse et al., 2018	South African Journal for Research in Sport Physical Education and Recreation	South Africa	Sport Science	Student Learning, Student Experience, Gamification, Teaching Methods	Mixed Methods	Student learning and satisfaction	5
Catena and Carbonneau, 2018	Anatomical Sciences Education	USA	Biomechanics	Teaching Methods, Active Learning, Student Experience, Achievement/Attainment	Quantitative	student experrience, student attainment	7
de Hollander et al., 2018	Student Success	Australia	Sport and Exercise Science	Student Experience, Workbased Learning	Qualitative	Student experience.	7
Douglas, 2018	Higher Education Pedagogies	UK	Sport and Exercise Science	Authentic Assessment, Assessment, Personal and Professional Development, Engagement	Mixed Methods	student engagement, student experience	7
Gedye and Beaumont, 2018	Education and Training	UK	Business	Employability, Student Perceptions, Assessment	Mixed Methods	Student perceptions, experience	4

Gonzalez-Serrano et al., 2018	Journal of Physical Education and Sport	Spain	Sport Science	Student Intentions, Entrepreneurship	Quantitative	Student intentions	5
Heaviside et al., 2018	Higher Education Pedagogies	UK	Psychology	Problem Based Learning, Employability, Transferable Skills, Teaching Methods	Qualitative	student experience, student perception of learning	7
Hsieh and Knudson, 2018	Sports Biomechanics	USA	Biomechanics	Student knowledge, Learning Characteristics	Quantitative	Student Attainment	6
Ortega Toro and Salado Tarodo, 2018	*Apunts. Educación Física y Deportes*	Spain	Sport Science	Research in Teaching, Course Design	Quantitative	Course design, research design	7
Otero-Saborido et al., 2018	Education and Training	Spain	Physical Activity and Sports Science	Teaching Methods, Reflective practice, Self Assessment	Quantitative	validity and relaibiliy	4
Sato and Haegele, 2018	Online Learning	USA	Kinesiology	Elearning, Student Experience	Qualitative	student experience, student acievement	7
Seaholme, 2018	International Journal of Work-Integrated Learning	New Zealand	Sport and Exercise Science	Student Experience, Workbased Learning, Personal and Professional Development, Reflective Practice	Qualitative	student experience, perceived competance, personal development	7
Tallach, 2018	International Journal of Kinesiology in Higher Education	USA	Kinesiology	Service learning, Employability, Engagement	Quantitative	Student experience, employability, student attitude	5
Edo et al., 2019	Journal of University Teaching & Learning Practice	Ethiopia	Sport Science	Course Design, Student Experience	Mixed Methods	Student experience, teacher experience, student atainment	7
Knudson and Wallace, 2019	Sports Biomechanics	USA	Biomechanics	Student Experience, Teaching Methods, Active Learning	Quantitative	Student attainment/experience	5
Kramer et al., 2019	Across the Disciplines	USA	Kinesiology	Academic Skills, Teaching Methods	Quantitative	student atainment	5
Reinke, 2019	Advances in Physiology Education	Australia	Anatomy and Physiology	Teaching Methods, Engagement, Achievement/Attainment, Active Learning	Quantitative	student engagement, student achivement	6

Viana et al., 2019	Anatomical Sciences Education	Brazil	Anatomy	Teaching Methods, Achievement/Attainment	Quantitative	student atainment	6
Wijayatunga et al., 2019	International Journal of Obesity	USA	Kinesiology	Teaching Methods, Student attitudes	Quantitative	Student attitudes	7
Al Awamleh, 2020	Annals of Applied Sport Science	Jordan	Sport Science	Elearning, Blended Learning, Student Satisfaction, Student Experience	Quantitative	Online/blended learning.	6
Bostanci, 2020	Asian Journal of Education and Training	Turkey	Sport Science	Learning Styles	Quantitative	learning styles	6
Burkhart et al., 2020	Journal of Nutrition Education and Behavior	Australia	Nutrition	Student Experience, Learning Styles, Teaching Methods	Quantitative	Student engagement and achivement	7
Dobrosielski et al., 2020	Journal of Physical Education and Sport	USA	Physiology	Student Learning, Teaching Methods	Quantitative	Student learning and growth	5
Espada et al., 2020	Research in Learning Technology	Spain	Sport Science	Teaching Methods, Student Learning	Quantitative	Perceived competance	5
Filiz, 2020	International Journal of Educational Methodology	Turkey	Sport Science	Transferable Skills	Quantitative	percieved competance	7
Fraile et al., 2020	Relieve	Spain	Sport Science	Group Work, Transferable Skills	Quantitative	Group work grade	5
Gümüş and Gençoğlu, 2020	International Education Studies	Turkey	Anatomy	Teaching Methods, Technology, Achievement/Attainment	Quantitative	student experience, student atainment	5
Kalkan, 2020	African Educational Research Journal	Turkey	Sport Science	Elearning, Readiness, Student Experience	Quantitative	student perceptions, readiness	7
Kaya, 2020	Journal of Education and Learning	Turkey	Sport Science	Lifelong Learning	Quantitative		6
Kutz et al. 2020	Kinesiology Review	USA	Kinesiology	Teaching Methods, Retention	Mixed Methods	employability, professionalism, graduate prospects	7
Laidlaw and Din, 2020	The Canadian Journal for the Scholarship of Teaching and Learning	Canada	Kinesiology	Course Design, Student Experience, Student Learning	Qualitative	student experience, factors which influence learning	7

Lee et al., 2020	Journal of Experiential Education	USA	Kinesiology	Service learning, Experiential Learning, Equality, Diveristy and Inclusion	Quantitative	Student Attitude	6
Lozano et al., 2020	sustainability	Spain	Physical Activity and Sports Science	Student Perception, Student Learning, Teaching Methods	Mixed Methods	student skill and perceptions	5
Matic et al., 2020	Sport Mont	Montenegro	Sport Science	Staff Perceptions, Workload	Mixed Methods	Staff perceptions	3
Matthews et al., 2020	BMC Sport Science, Medicine and Rehabilitation	Ireland	Sport and Exercise Science	Student Learning, Student Experience, Student Satisfaction, Engagement	Mixed Methods	Student learning and satisfaction	4
Noon and Eyre, 2020	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport Science	Assessment, Student Perceptions	Mixed Methods	Assessment design, student learning, feedback, student perceptions	6
Ozturk et al., 2020	African Educational Research Journal	Turkey	Sport Science	Elearning, Academic Skills, Student Attitude	Quantitative	Academic skill level, student attitude	7
Popovic et al., 2020	Sport Mont	Serbia	Sport Science	Student Expectations, Research in Teaching	Quantitative	Student expectations	3
Rigamonti et al., 2020	Health Promotion International	Germany, Italy, UK	Sport and Exercise Science	Student Learning, Social Media, Elearning	Quantitative	geographic location	5
Santiago et al., 2020	The Physical Educator	USA	Kinesiology	Service learning, Student Experience, Personal and Professional Development	Qualitative	student experience	7
Sukendro et al., 2020	Heliyon	Indonesia	Sport Science	COVID-19, Technology, Elearning	Quantitative	Student learning, online learning	5
Uluöz, 2020	African Educational Research Journal	Turkey	Sport Science	COVID-19, Student Experience, Elearning	Qualitative	student experience	7
Wallace et al., 2020	Journal of Hospitality, Leisure, Sport and Tourism Education	USA	Biomechanics	Student Learning, Student Experience, Teaching Methods	Quantitative	Student learning and satisfaction	5
Bayyat et al., 2021	Turkish Online Journal of Distance Education	Jordan	Sport Science	Student Learning, Blended Learning	Quantitative	demographics	6

Böke and Tüfekçi, 2021	Physical Education of Students	Turkey	Sport Science	Student Learning, Student Experience, COVID-19, Elearning	Quantitative	Student learning, Anxiety,	4
Caputo et al., 2021	Advances in Physiology Education	USA	Kinesiology	COVID-19, Student Experience, Student learning	Mixed methods	Student experience	5
Escamilla-Fajardo et al., 2021	Journal of Hospitality, Leisure, Sport and Tourism Education	Spain	Sport Science	Assessment, Teaching Methods, Technology, Social Media	Mixed Methods	Assesment design, student perceptions	7
Fernández-Ruiz et al. 2021	Assessment in education: principles, policy and practice	Spain	Sport Science	Assessment	Mixed Methods	learning outcome	6
Gallot et al., 2021	Educational Technology & Society	France	Anatomy	Technology, Student Experience, Teaching Methods	Qualitative	student experience, student atainment	2
García et al., 2021	Revista iberoamericana de psicología del ejercicio y el deporte	Spain	Anatomy	Teaching Methods, Student Experience	Quantitative	Student perceptions/experience/satisfaction	6
González-Serrano et al., 2021	Journal of Hospitality, Leisure, Sport and Tourism Education	Spain and Portugal	Sport Science	Student Intentions, Student Attitudes, Entrepreneurship	Quantitative	Student intentions	7
Gough et al., 2021	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport and Exercise Science	Assessment, Attendance, Engagement	Quantitative	student enagement, student attainment	7
Herguner et al., 2021	The Turkish Online Journal of Educational Technology	Turkey	Sport Science	Student Experience, COVID-19, Distance Learning, Elearning	Quantitative	student attitude	6
Judge et al., 2021	Physical Educator	USA	Exercise Science	Experiential Learning, Service Learning, Student Experience	Quantitative	student experience	3
Karaca and Ilkim, 2021	Turkish Online Journal of Distance Education	Turkey	Sport Science	Student Experience, COVID-19, Distance Learning, Elearning	Quantitative	student experience, factors which influence learning, student attitude	7
Kaya, 2021	Journal of Education and Learning	Turkey	Sport Science	Student Experience, Elearning, Distance Learning, COVID-19	Qualitative	student experience	7

Kurudirek and Kurudirek, 2021	Asian Journal of Education and Training	Turkey	Sport Science	COVID-19, Staff Perceptions, Elearning	Quantitative	innovativness of academics, attitudes of academics	6
López-Moranchel et al., 2021	Education Sciences	Spain	Biomechanics	Teaching Methods, Student Experience, Technology	Quantitative	Student attainment, Student experience.	4
Martin, 2021	International Journal of Kinesiology in Higher Education	USA	Strength and Conditioning	Workbased Learning, Experiential Learning, Student Experience, Authentic Learning	Mixed Methods	student experience, student atainment, student percieved ability	5
Narasaki-Jara et al., 2021	International Journal of Kinesiology in Higher Education	USA	Kinesiology	Student Experience, Equality, Diversity and Inclusion	Qualitative	student experience	7
Navandar et al., 2021	Frontiers in Psychology	Spain	Biomechanics	Elearning, Student Experience, Social Media	Quantitative	Student experience, assessmetn design	6
Roldan and Reina, 2021	Frontiers in Psychology	Spain	Sport Science	Elearning, Achievement/Attainment, Equality, Diveristy and Inclusion, Self Efficacy	Quantitative	Student Self Efficacy	7
Stirling et al., 2021	International Journal of Work-Integrated Learning	Canada	Kinesiology	Workbased Learning, Engagement, Experiential Learning	Mixed Methods	Student engagement, student experience	7
Syahruddin et al., 2021	Heliyon	Indonesia	Sport Science	Technology, Distance Learning, COVID-19	Quantitative	learning	7
Tadesse and Edo, 2021	Journal of Applied Research in Higher Education	Ethiopia	Sport Science	Achievement/Attainment, Engagement	Quantitative	Student learning, engagement	4
Vineyard et al., 2021	Athletic Training Education Journal	USA	Athletic Training	Student Wellbeing	Quantitative	Student wellbeing	5
Zarubica et al., 2021	Sport Mont	Montenegro	Sport Science	Teaching Methods, Elearning, Social Media	Quantitative	Teaching methids, student perceptions, online learning	6
Bradley et al., 2022	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport and Exercise Science	Transferable Skills, Employability	Quantitative	student opinion	4

Bradley et al., 2022	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport and Exercise Science	Transferable Skills, Employability, Student Perceptions	Mixed Methods	student perceptions	7
Bucea-Manea-Țoniș et al., 2022	Sustainability	Romania	Sport Science	Teaching Experiences, Elearning, COVID-19	Quantitative	Course design, teacher performance, work balance, online learning	4
Chobphon, 2022	The Qualitative Report	Thailand	Sport Science	Self Efficacy, Reflective practice, Workbased Learning	Qualitative		6
Chuang et al., 2022	Journal of Hospitality, Leisure, Sport and Tourism Education	Taiwan	Sport Science	Course design, Technology, Employability, Active Learning	Quantitative	Teahing methods, student learning, student experience	7
Eswaramoorthi et al., 2022	Journal of environmental research and public health	Malaysia	Sport Science	Elearning, Achievement/Attainment, Student Satisfaction, Student Experience	Quantitative	attainment, satisfaction	6
Ferrer-Pardo et al., 2022	Education Sciences	Spain	Sport Science	Student Learning, Rubrics, Assessment	Quantitative	Assessment, student perceptions	5
Finlay et al., 2022	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport Science	COVID-19, Course Design, Elearning, Student Experience	Mixed Methods	Course design, online learning, student experience	6
Finlay et al., 2022	Journal of Hospitality, Leisure, Sport and Tourism Education	UK	Sport Science	Attendance, COVID-19, Achievement/Attainment	Quantitative	Student performance	7
Knudson, 2022	Sports Biomechanics	USA	Biomechanics	Teaching Methods, Active Learning, Achievement/Attainment	Quantitative	teaching methods, student learning, student perceptions	7
Lara-Bocanegra et al., 2022	Sport in Society	Spain	Sport Science	Employability, Entrepreneurship	Quantitative	Student attitude to entrepenurship	4
Liu et al., 2022	Kinesiology Review	USA	Exercise Science	Mentoring, Belonging, Student Satisfaction, Student Experience	Mixed Methods	student experience, student satisfaction	4
McKay et al., 2022	Curriculum Studies in Health and Physical Education	USA	Kinesiology	Student Experience, Teaching Methods	Qualitative	Student experience	7
Nachman et al., 2022	Sport, Education & Society	canada	Kinesiology	Equality, Diversity and Inclusion	Mixed Methods	student experience	6

Peart et al., 2022	Journal of Biological Education	UK	Physiology	Teaching Methods, Achievement/Attainment, Technology	Mixed methods	Student attainment, Student experience.	7
Setiakarnawijya et al., 2022	Journal of Physical Education and Sport	Indonesia	Sport Science	Student Perceptions, Elearning	Quantitative	Student perceptions	6
Sevillano-Monje et al., 2022	Education Sciences	Spain	Sport Science	Course Design, Teaching Methods, Achievement/Attainment, Student Experience	Mixed Methods	Student attainment and experience.	4
Trabelsi et al., 2022	Trends in Neuroscience and Education	Tunisia	Sport Science	Elearning, Student Learning, Technology, COVID-19	Mixed Methods	Student perceptions, student learning	4
Anderson, 2023	Journal of Learning Development in Higher Education	New Zealand	Sport and Exercise Science	Assessment, Rubrics, Student Perceptions	Mixed Methods	student perceptions	5
Cripps et al., 2023	International Journal of Work Integrated Learning	Australia	Sport Science	Employability, Student Perception, Transferable Skills	Mixed Methods	Student perceptions	7
Da Costa et al., 2023	Journal of Hospitality, Leisure, Sport and Tourism Education	Portugal	Sport Science	Student Learning, Entrepreneurship	Mixed Methods	Student perceptions	5
Felton, 2023	Sports Biomechanics	UK	Biomechanics	Student Perception	Quantitative	Student perceptions	6
González-Gálvez et al., 2023	Cultura, Ciencia y Deporte	Spain	Sport Science	Teaching Methods, Student Learning	Quantitative	Student performance, student satisfaction	7
Jimenez-Monteagudo et al., 2023	European Journal of Special Needs Education	spain	Physical Activity and Sports Science	Self Efficacy, Equality, Diversity and Inclusion	Mixed Methods	Student Self Efficacy	7
Jones et al., 2023	Active Learning in Higher Education	USA	Kinesiology	Student Experience, Teaching Methods, Gamification	Quantitative	Student experience	4
Knudson, 2023	Sports Biomechanics	USA	Biomechanics	Engagement, Active Learning, COVID-19, Elearning	Mixed Methods	student experience, student atainment	6
Rabattu et al., 2023	Anatomical Sciences Education	France	Anatomy	Achievement/Attainment, Technology	Quantitative	Student attainment	6

Savaş and Turan, 2023	Physical Culture and Sport. Studies and Research	Turkey	Sport Science	Elearning, Student Learning, COVID-19, Distance Learning	Quantitative	e-learning and student perceptions	7
Temel et al., 2023	Physical Education of Students	Sweden	Sport Science	Achievement/Attainment, Student Learning, Learning Styles	Quantitative	Student learning, acheivement	4
Belando-Pedreño et al., 2024	Retos: Nuevas Tendencias en Education Fisica, Deporte y Recreacion	Spain	Anatomy	Teaching Methods, Student Perception, Simulation	Mixed Methods	Student perceptions	4
Chuan-Chih et al., 2024	Mathematics Teaching research Journal	Chile	Kinesiology	Student Perceptions, Achievement/Attainment, Teaching Methods	Mixed Methods	Student perceptions, acheivement	5
Latre-Navarro et al., 2024	Anatomical Sciences Education	Spain	Anatomy	Student Learning, Teaching Methods, Gamification	Quantitative	Student learning, statisfaction	6
Wallace and Knudson, 2024	Sports Biomechanics	USA	Biomechanics	Teaching Methods, Blended Learning, Active learning	Quantitative	student attainment, student perception of learning	6