Influential Factors on Student Satisfaction in High School Sports Education: Unravelling the Roles of Instructor Empathy, System Quality, and Reputation

Hasanuddin[1*], Sopyan Saori[2], Abdulelah A. Alghamdi[3], Mochammad Fahlevi[4]

Abstract

The positive impact of sports education programmes in promoting the physical and emotional well-being of students has been firmly proven. However, it is important to comprehend the aspects that lead to student happiness in these programmes in order to guarantee successful execution and favourable results. The present study seeks to examine the impact of instructor empathy, system quality, and reputation on student happiness within the context of sports education programmes offered in high schools in Indonesia. The Privietlab Research Institute administered an online questionnaire to students, resulting in the collection of 364 valid responses. The data was analysed and the study hypotheses were tested using structural equation modelling (SEM). The results of the study indicate that there is a strong and positive relationship between instructor empathy and system quality on reputation. Additionally, reputation was found to have a major beneficial influence on student satisfaction. The findings highlight the significance of instructor empathy, system quality, and reputation in augmenting student satisfaction within sports education programs. Therefore, this research offers significant contributions for educators, school administrators, and policymakers, underscoring the importance of prioritizing these aspects in order to guarantee a superior sports education experience for children in Indonesia.

Keywords: Sports education; Student satisfaction; Instructor empathy; System quality; Reputation; High schools

1. Introduction

Sports education in Indonesian high schools, specifically in the context of SMA, holds significant importance within the educational curriculum as it strives to foster the holistic development of student's physical, mental, and social capabilities (Sutomo & Sugiyanto, 2018). Sports education at high schools in Indonesia encompasses a wide range of components, including theoretical instruction, practical application, engagement in competitive events, and involvement in extracurricular pursuits (Gumantan, Nugroho, & Yuliandra, 2021). The sports education curriculum implemented in Indonesian high schools is encompassed within the topic of Physical Education, Sports, and Health (PJOK) (Ariyadi, Rumini, & Priyono, 2021). The scope of this discipline encompasses a range of fundamental sports principles, practices for physical training, and knowledge pertaining to health (Lyu, Hou, & Wang, 2022). The curriculum has been strategically crafted to facilitate the holistic development of pupils, encompassing both their physical and intellectual capacities, while also fostering an appreciation for the significance of sports and a well-balanced lifestyle. In addition to theoretical instruction, students are also provided with practical training in sports encompassing a range of disciplines, including football, basketball, badminton, volleyball, and athletics (Hastie et al., 2021). These practises provide pupils the chance to cultivate their technical and tactical proficiencies, as well as foster teamwork and sportsmanship.

In many secondary educational institutions in Indonesia, students are afforded the chance to participate in the sports clubs offered within the school (Noboru et al., 2021). These clubs encompass a diverse array of sports, spanning from collective sports to solitary sports. Participation in these sports groups facilitates the enhancement of students' abilities and passions in certain athletic disciplines, while also affording them the chance to engage in interscholastic competition. High school students that engage in athletics frequently partake in inter-school tournaments, encompassing both local and national levels (Burnett, 2020). These tournaments encompass a wide range of sporting activities and are typically coordinated by governmental bodies, sports associations, or educational establishments. By participating in these competitions, students have the opportunity to assess their development

[1] Universitas Medan Area, Medan, Sumatera Utara, Indonesia
[2] Universitas Muhammadiyah Sukabumi, West Java, Indonesia
[3] Faculty of Education, Umm Al-Qura University, Makkah 24382, Saudi Arabia
[4] Management Department, BINUS Online Learning, Bina Nusantara University, Jakarta 11480, Indonesia
*Corresponding Author: hasanuddin@staff.uma.ac.id (Hasanuddin)

and cultivate self-assurance and a spirit of fair play. Sports education in high schools in Indonesia places significant emphasis on the cultivation of students' character, in addition to addressing physical and technical components (Suherman, Supriyadi, & Cukarso, 2019). Students get instruction on the principles of sportsmanship, teamwork, discipline, and responsibility. This initiative is anticipated to foster the development of student's character, encompassing not only their athletic abilities but also their overall conduct in their day-to-day activities. The primary objective of sports education in Indonesian high schools is to cultivate a robust, dynamic, and comprehensive generation by means of diverse sports-related activities and physical education (Rianawaty, Dwiningrum, & Yanto, 2021).

Several factors have been identified as influential in determining the quality and efficacy of sports education. These factors encompass the curriculum, practical training, competitions, extracurricular activities, and character development (Fakhretdinova, Osipov, & Dulalaeva, 2021). The significance of instructor empathy cannot be overstated when it comes to establishing a productive learning atmosphere and exerting an impact on the achievement of sports education in secondary schools (Yates et al., 2021). Instructors that possess empathetic qualities are capable of comprehending and experiencing the emotions, needs, and perspectives of their students. This capability enables educators to cultivate stronger rapport with children, thereby fostering a secure and nurturing educational setting. In the realm of sports education, it is imperative to acknowledge that each student possesses distinct requirements, abilities, and objectives. Teachers who possess empathy demonstrate a heightened awareness of the unique requirements of students and possess a greater capacity to modify instructional approaches and training to effectively address those requirements (Wink, LaRusso, & Smith, 2021). Instructors that possess empathetic qualities have a higher likelihood of being effective in their ability to motivate students. Educators possess the ability to discern and comprehend the various elements that influence student motivation, so enabling them to offer suitable assistance in order to facilitate the realization of students' utmost capabilities. Sports and physical training may elicit stress and anxiety among certain pupils, particularly those who perceive themselves as inadequate or lack self-assurance in their athletic capabilities. The presence of empathy in instructors enables them to identify and manage these emotions, thereby fostering a sense of ease and self-assurance among pupils when engaging in sports-related activities (Rajendran, Athira, & Elavarasi, 2020).

Instances of conflicts can arise in sports settings, either among students or between students and instructors. Instructors that possess a strong capacity for empathy have enhanced proficiency in effectively addressing and resolving problems in an equitable and constructive manner, hence fostering an atmosphere characterized by harmony and collaboration. The field of sports education encompasses not only the cultivation of physical abilities but also the fostering of students' character traits (Prots et al., 2021). Instructors that possess empathetic qualities have the potential to facilitate the cultivation of fundamental values among students, including but not limited to sportsmanship, teamwork, discipline, and accountability. The presence of empathy in sports education within high schools is of utmost importance due to its potential to enhance the caliber of instruction, foster a favourable atmosphere for learning, and facilitate the comprehensive growth of students, including their physical and character development (Harvey, Parahoo, & Santally, 2017).

The interrelationship between instructor empathy and system quality is a significant component of sports education within high school settings (Guoyan et al., 2021). According to Stavroulia and Lanitis (2023), the presence of an instructor who demonstrates empathy is a crucial aspect of a sports education system that is of high quality. This instructor, in conjunction with other aspects, contributes to the establishment of a good learning environment and the improvement of students' overall experience. A system of superior quality facilitates convenient access for both students and instructors to essential learning materials, resources, and tools that are necessary for the teaching and learning process (Cabero-Almenara et al., 2022). The enhanced use of the system will contribute to heightened efficiency and efficacy in the learning process, hence leading to improved educational outcomes. A successful system facilitates communication and collaboration among students and professors, as well as among students themselves (Shim & Lee, 2020). In the realm of sports education, the incorporation of crucial elements such as teamwork, strategic deliberations, and constructive feedback assumes a paramount role in facilitating the learning experience. An effective system quality enables teachers to monitor the progress of students, evaluate their competencies and understanding, and deliver constructive feedback. An effective method additionally facilitates students' ability to perceive their own improvement, hence enhancing motivation and self-awareness (Svejenova, Planellas, & Vives, 2010).

The establishment and maintenance of a solid and dependable system is of utmost importance in order to

safeguard the uninterrupted progression of the educational process, minimizing the potential disruptions caused by technical complications (Alsoufi et al., 2020). A system characterized by frequent disruptions or errors has the potential to diminish the quality of the learning experience, leading to disappointment among both students and instructors. The incorporation of technology is frequently observed in high school sports instruction, wherein fitness tracking applications, wearable gadgets, and video analysis are commonly employed. A system of superior quality will possess the capability to smoothly incorporate modern technology, thereby enabling students and instructors to effectively employ these tools in order to augment the learning experience. Within the realm of education, it is imperative for a robust system to effectively protect the confidentiality and integrity of both student and instructor data (Pham et al., 2019). This includes safeguarding personal information, test outcomes, and correspondence records against unauthorized access or misuse. Therefore, the quality of the system plays a vital role in sports education within high schools, as it impacts the efficacy and efficiency of the instructional and learning procedures, while also establishing a secure, consistent, and nurturing learning atmosphere for both students and educators.

The significance of instructor empathy and system quality in establishing a reputation within high school sports instruction (Maher & Morley, 2020). The presence of these interrelated elements has a role in the establishment of a conducive educational setting, which in turn fosters student contentment and ultimately contributes to the development of a favourable institutional standing (Alsheyadi & Albalushi, 2020). The establishment of a strong reputation in the field of sports education frequently leads to elevated expectations among students and parents with regard to the calibre of the sports programmes provided. When the educational institution achieves or surpasses these objectives, students will have a sense of satisfaction with their participation in the athletic programme. Educational institutions that possess a commendable standing in the realm of sports education typically exhibit superior infrastructure and resources, encompassing well-appointed sports fields, state-of-the-art equipment, and proficient coaching personnel. The provision of these facilities and resources is expected to contribute to an increased level of student satisfaction with the sports program, as well as facilitate the realization of their full potential (Finlay, Tinnion, & Simpson, 2022). The maintenance of a strong reputation in the realm of sports education has the potential to provide students with enhanced prospects for personal and athletic development within their chosen sports disciplines. Students are potentially afforded opportunities to participate in tournaments of a more advanced kind, receive specialized training, and receive guidance from committed coaches and school personnel. mitted coaches and school personnel (Thompson et al., 2022). The features mentioned above will contribute to an elevation in student satisfaction within the sports program.

Educational institutions that possess a favourable standing in the realm of sports education often have a robust track record of success in both athletic competitions and supplementary extracurricular activities. Students who engage in the sports programmes offered by these educational institutions will experience a heightened sense of pride in their accomplishments and affiliation with their respective schools, hence augmenting their overall pleasure. Educational institutions that possess a commendable standing in the realm of sports education frequently benefit from robust backing from the surrounding community, encompassing parents, alumni, and sports entities. The provision of this support has the potential to foster a more inclusive and positive atmosphere for students, hence leading to an enhancement in their overall satisfaction with the sports programme. The maintenance of a positive reputation in the realm of sports education has the potential to foster robust social networks and support structures within the student body, coaching staff, and school personnel (Shepherd et al., 2021). Research has shown that students who perceive a high level of support and acceptance within their sports environment are more inclined to experience a greater sense of satisfaction with their overall athletic experience. The impact of reputation on student satisfaction in high school sports education is substantial, as it encompasses various aspects such as expectations, facilities, growth possibilities, achievements, community support, and pre-existing social networks within the school setting.

The interrelationship between instructor empathy, system quality, and school reputation in the context of sports instruction in high schools has a substantial role in shaping student pleasure. The combination of these components results in the establishment of a conducive and interactive learning environment that promotes favourable experiences for students in the field of sports education (Harvey et al., 2017). The importance of student satisfaction in high school sports education lies in its positive correlation with student motivation and commitment toward sports activities (Rojo-Ramos et al., 2022). The presence of high levels of motivation and

dedication has been observed to exert a favourable influence on the academic accomplishments of students, as well as the development of enduring habits pertaining to sports engagement. There is a potential correlation between student happiness in sports education and their performance in school (Harvey et al., 2017). Engaging in enjoyable and satisfying physical activities has the potential to alleviate stress, enhance emotional welfare, and enhance pupils' focus, ultimately resulting in enhanced academic performance. There is a positive correlation between student satisfaction with their sports program and the development of crucial social skills and character qualities, including but not limited to teamwork, communication, sportsmanship, and leadership. The development and refinement of these talents contribute to the holistic growth and enhanced efficacy of students, including their athletic pursuits as well as everyday lives (Opstoel et al., 2020).

There is a positive correlation between student satisfaction in sports education and their retention and loyalty towards their educational institution (Susilawati, Khaira, & Pratama, 2021). This very same positive correlation exists between student satisfaction with their sports program and their inclination to persist at the institution and endorse it to acquaintances or relatives. Enhanced student happiness in the realm of sports education has the potential to foster more support from both parents and the wider community. Parents who observe their children experiencing contentment with the sports program offered by their educational institution are more inclined to provide financial backing and engage in school-related activities. The importance of student satisfaction in high school sports education cannot be overstated, as it has significant implications for various aspects such as motivation, dedication, skill development, retention, school reputation, and support from parents and the community. The presence of instructor empathy, system quality, and school reputation collectively contribute to the establishment of an environment that fosters student satisfaction with their sports education experience (Maher & Morley, 2020). This satisfaction holds significant importance in the realm of sports education within high schools, as it exerts control over various aspects, including students' motivation, academic performance, character growth, retention rates, and the level of support garnered from parents and the community (Harvey et al., 2017).

Despite the fact that several research examining the field of high school sports education and its determinants of success, there persists a dearth of understanding regarding the intricate interplay between instructor empathy, system quality, and school reputation, and their collective influence on student satisfaction. Previous research investigations have predominantly concentrated on one or two of these components, leaving the comprehensive examination of the interplay among all three factors relatively unexplored. The primary objective of this research endeavor is to examine the interplay and collective impact of instructor empathy, system quality, and reputation on student satisfaction within the context of high school sports instruction. In this particular context, the research aims to delve into the elements that impact student contentment and their interconnectedness in forming a productive and nurturing learning setting. This investigation presents a fresh perspective on the examination of high school sports education. It does so by investigating the interplay between instructor empathy, system quality, and reputation. The uniqueness of this study lies in its comprehensive approach, amalgamating these three factors within a unified analytical structure. This enables a more profound comprehension of their mutual influences and their collective contribution to student satisfaction. Consequently, the outcomes of this study are poised to furnish novel insights and pragmatic recommendations, geared towards amplifying the efficacy of sports education in high school settings.

The structure of this research is organized as follows: Initially, a succinct literature review is conducted, delving into the realms of instructor empathy, system quality, and reputation within the context of sports education. Subsequently, the theoretical framework is presented, offering a thorough and substantiated comprehension of how these factors interconnect and wield influence over student satisfaction in the realm of high school sports education. The foundational conceptualization of these factors is then refined through the utilization of empirical data and rigorous analysis, spotlighting the specific impacts of instructor empathy, system quality, and reputation on student satisfaction. Following this, the findings are subjected to a comprehensive discussion, delving into the implications they hold for sports education within high school settings. This discussion expounds upon how the interplay among these factors contributes to the overarching success of sports education programs. Conclusively, the research wraps up by underlining the significance of its all-encompassing approach in comprehending the intricate interrelationships involving instructor empathy, system quality, and reputation. This also encompasses their collective influence on student satisfaction. Moreover, the research highlights the potential for future studies to further enrich our comprehension of sports education within high schools.

2. Methodology

The study included the entire population of students who engaged in sports education programs within high schools in Indonesia. According to Hair et al. (2019), the sample size is a crucial factor in the estimation and interpretation of results in the context of structural equation modelling (SEM). Given the absence of a definitive sample size, it is advisable to use a sample size within the range of 100 to 200. The response rate in the present study pertains to the ratio of fully completed surveys in relation to the overall quantity of questionnaires sent. Among the total of 712 questionnaires that were distributed, a mere 385 were duly completed and subsequently returned. The study's response rate is estimated to be at 54.07%, suggesting that slightly more than half of the questionnaires that were issued were filled out and returned. The present study employs an online questionnaire that was disseminated by the Privietlab Research Centre. The survey was distributed electronically via the Instagram account @privietlab and through email, yielding a cumulative total of 385 participant replies. The researchers performed manual inspections on responses that were incomplete and those that provided identical answers for all the questions. After excluding multiple invalid responses, the present study employed a final sample size of 364 participants.

This study examines the impact of instructor empathy, system quality, school reputation, and student happiness on athletic education within high school settings. All variables in the study employ a Likert scale that spans from 1 to 5. The construct of teacher empathy is operationalized through the use of four indicators, namely: instructors' timely and responsive actions towards students requiring assistance, their genuine interest in resolving student issues, their display of concern, and their overall pleasant disposition towards students. The evaluation of the system quality variable encompasses four indications, namely information layout, visually appealing learning system, informative content, and ease of information retrieval. The evaluation of the reputation variable encompasses three indicators, namely the school's positive standing within the local community, the proficient use of technology by instructors, and the incorporation of electronic communication tools. The measurement of the student happiness variable encompasses four variables, namely satisfaction with the educational institution, fulfilment of student needs, alignment with expectations, and ambitions. The research study seeks to achieve a full comprehension of the aspects that impact student happiness in athletic instruction in high schools by employing these variables, indicators, and scales.

3. Results

The data analysis methodology employed in this work is Structural Equation Modelling (SEM), which encompasses Confirmatory Factor Analysis (CFA), route analysis, and model testing. This study aims to enhance comprehension of the relationship between constructs and their impact on the dependent variable inside the research model through the utilization of structural equation modelling (SEM), confirmatory factor analysis (CFA), and path analysis techniques. Furthermore, the process of model testing serves to verify the compatibility between the suggested model and the collected empirical data, thereby augmenting the dependability and credibility of the research's findings.

Table 1

Factor loadings

							95% Confidence Interval	
Factor	**Indicator**	**Symbol**	**Estimate**	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**
IE	IE1	λ11	0.577	0.041	14.109	< .001	0.497	0.657
	IE2	λ12	0.606	0.042	14.430	< .001	0.523	0.688
	IE3	λ13	0.663	0.040	16.419	< .001	0.584	0.742
	IE4	λ14	0.491	0.043	11.381	< .001	0.406	0.575
R	R1	λ21	0.310	0.034	9.004	< .001	0.242	0.377
	R2	λ22	0.614	0.040	15.186	< .001	0.535	0.693
	R3	λ23	0.557	0.040	13.889	< .001	0.478	0.635
SQ	SQ1	λ31	0.665	0.051	13.163	< .001	0.566	0.764
	SQ2	λ32	0.567	0.041	13.864	< .001	0.487	0.647
	SQ3	λ33	0.670	0.042	15.941	< .001	0.588	0.753
	SQ4	λ34	0.683	0.045	15.104	< .001	0.595	0.772
SS	SS1	λ41	0.599	0.037	16.044	< .001	0.526	0.672
	SS2	λ42	0.657	0.040	16.310	< .001	0.578	0.736
	SS3	λ43	0.687	0.039	17.482	< .001	0.610	0.764
	SS4	λ44	0.613	0.045	13.487	< .001	0.524	0.702

Table 1 presents the results of the factor loadings analysis, a statistical technique employed to investigate the associations between latent variables and their observable indicators. The study was performed utilizing Structural Equation Modelling (SEM) with the data acquired from the responses to the questionnaire. The factor loadings serve as indicators of the magnitude of the association between each latent variable and its respective observable indicators. The present study incorporates latent variables, namely instructor empathy (IE), reputation (R), system quality (SQ), and student satisfaction (SS), each of which is represented by four observable indications. The findings indicate that the factor loadings exhibit statistical significance at the 0.001 level, suggesting a robust association between the latent variables and their corresponding indicators. The factor loadings, which vary between 0.31 and 0.69, indicate that each latent variable accounts for a significant proportion of the variance observed in the indicators. In addition, it is significant that the confidence intervals for all factor loadings exhibit an exclusion of zero, hence suggesting the reliability and robustness of the obtained outcomes. Thus, the results of this study indicate that instructor empathy, reputation, system quality, and student satisfaction are mutually influential aspects within the context of athletic instruction in high schools.

Table 2

Factor Covariances

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
IE	↔	R	0.805	0.037	21.834	< .001	0.733	0.878
IE	↔	SQ	0.645	0.047	13.690	< .001	0.552	0.737
IE	↔	SS	0.828	0.029	28.636	< .001	0.771	0.884
R	↔	SQ	0.811	0.037	21.966	< .001	0.739	0.884
R	↔	SS	0.883	0.028	31.224	< .001	0.827	0.938
SQ	↔	SS	0.771	0.035	22.187	< .001	0.703	0.839

Table 2 presents the covariances of factors among the variables in the structural equation model (SEM). The estimates presented in the table depict the magnitude and orientation of the associations between every pair of variables. The standard errors and z-values offer insights into the accuracy and statistical significance of the estimations, respectively. Confidence intervals are statistical measures that provide an estimated range of values within which the true population parameter is expected to lie, with a specified level of confidence. The table presented illustrates notable positive covariances among instructor empathy (IE) and school reputation (R), instructor empathy and system quality (SQ), as well as instructor empathy and student satisfaction (SS). These findings suggest a positive correlation between increased levels of instructor empathy and higher levels of reputation, system quality, and student satisfaction. There are notable positive covariances among reputation and system quality, reputation and student satisfaction, and system quality and student contentment, suggesting that elevated levels of these variables are linked to increased levels of the aforementioned factors. This finding indicates a positive correlation between elevated levels of instructor empathy and increased levels of reputation, system quality, and student satisfaction. There exist noteworthy positive covariances among reputation and system quality, reputation and student satisfaction, and system quality and student happiness, suggesting that elevated levels of these variables are linked to increased levels of the others. The aforementioned findings offer valuable insights into the intricate interconnections among the variables within the model, hence enhancing our comprehension of the elements that lead to student happiness in sports education within high school settings. Other individuals. The aforementioned findings offer valuable insights into the intricate interconnections among the variables within the model, hence enhancing our comprehension of the elements that lead to student happiness in sports education within high school settings.

Table 3 presents the residual variances corresponding to each indicator inside the model. Residual variance refers to the extent of variability observed in a given indicator that remains unexplained by the remaining variables included in the model. Put otherwise, it denotes the extent to which the indicator is susceptible to measurement mistakes. The table displays the estimates and standard errors for each indicator. The z-value and p-value serve as indicators of the statistical significance of the estimate, with smaller p-values being indicative of a higher level of significance. The 95% confidence intervals establish a range that is expected to encompass the actual value of the residual variance with a 95% level of confidence. In general, the residual variances observed in this model have relatively minimal magnitudes, suggesting that the indicators are effectively monitored and yield dependable data for the study.

Table 3

Residual variances

					95% Confidence Interval	
Indicator	**Estimate**	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**
IE1	0.199	0.023	8.768	< .001	0.154	0.243
IE2	0.203	0.023	8.676	< .001	0.157	0.249
IE3	0.138	0.020	6.999	< .001	0.099	0.176
IE4	0.286	0.029	9.919	< .001	0.230	0.343
R1	0.204	0.020	10.229	< .001	0.165	0.243
R2	0.158	0.022	7.238	< .001	0.115	0.201
R3	0.186	0.023	8.243	< .001	0.142	0.230
SQ1	0.336	0.036	9.260	< .001	0.265	0.408
SQ2	0.203	0.023	8.833	< .001	0.158	0.248
SQ3	0.161	0.022	7.344	< .001	0.118	0.204
SQ4	0.214	0.026	8.097	< .001	0.162	0.265
SS1	0.138	0.016	8.755	< .001	0.107	0.168
SS2	0.153	0.018	8.572	< .001	0.118	0.188
SS3	0.116	0.015	7.547	< .001	0.086	0.146
SS4	0.280	0.028	9.827	< .001	0.224	0.335

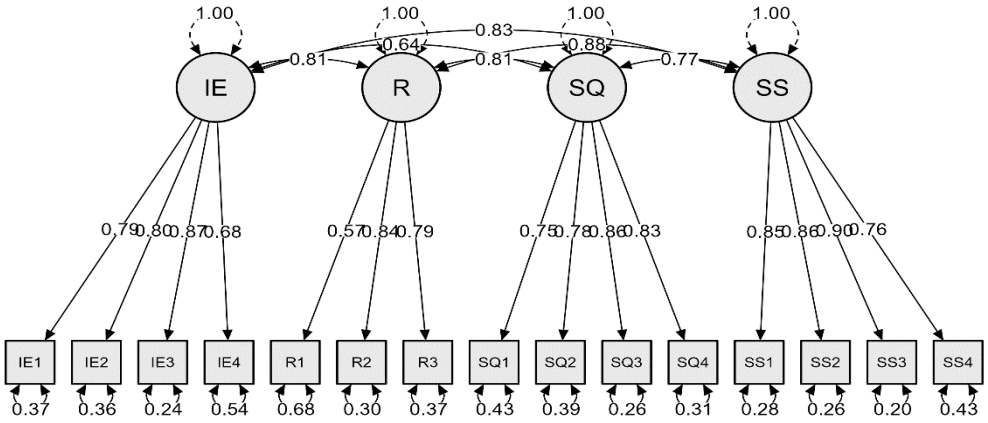

Figure 1. Model plot

Table 4

Model fit

				Baseline test			Difference test		
	AIC	**BIC**	**n**	**χ^2**	**df**	**p**	**$\Delta\chi^2$**	**Δdf**	**p**
Model 1	5730.082	5900.223	238	203.722	86	< .001	203.722	86	< .001

Table 4 and Figure 1 present the model fit statistics for Model 1. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) values are commonly employed as fundamental measures of model fit. The AIC and BIC values serve the purpose of assessing and comparing the relative quality of various models, where lower values are indicative of superior fit. In the present scenario, the AIC value is determined to be 5730.082, whereas the BIC value is calculated to be 5900.223. The table additionally provides a difference test that evaluates the goodness of fit between Model 1 and a null model. The null model refers to a model that lacks any associations between variables, serving as a reference point for evaluating the goodness of fit of Model 1. The difference test involves the comparison of the chi-square (χ^2) value obtained from Model 1 with the χ^2 value obtained from the null model. The 2 values for Model 1 in this instance are 203.722 with 86 degrees of freedom. The p-value, which is less than.001, signifies that Model 1 exhibits a considerably superior fit compared to the null model. In general, the statistical measures of model fit indicate that Model 1 exhibits a favourable match to the data. The lower values of AIC and BIC, which serve as indicators of model fit, suggest a superior

fit. Additionally, the difference test confirms that the model significantly outperforms the null model in terms of better fit.

Table 5

Fit indices

Index	Value
Comparative Fit Index (CFI)	0.953
T-size CFI	0.925
Tucker-Lewis Index (TLI)	0.942
Bentler-Bonett Non-normed Fit Index (NNFI)	0.942
Bentler-Bonett Normed Fit Index (NFI)	0.921
Parsimony Normed Fit Index (PNFI)	0.755
Bollen's Relative Fit Index (RFI)	0.904
Bollen's Incremental Fit Index (IFI)	0.953
Relative Noncentrality Index (RNI)	0.953

Note. T-size CFI is computed for $\alpha = 0.05$

Note. The T-size equivalents of the conventional CFI cut-off values (poor < 0.90 < fair < 0.95 < close) are poor < 0.85 < fair < 0.913 < close for model: Model 1

Table 5 displays the fit indices pertaining to a statistical model, namely one that is most likely a structural equation modelling (SEM) or a confirmatory factor analysis (CFA) model. Fit indices are commonly employed in order to assess the degree to which a model aligns with the observed data. A positive correlation exists between the values of the fit indices and the quality of the model fit. The table has multiple fit indices, each assessing distinct facets of model fit. The Comparative Fit Index (CFI) is a statistical measure that assesses the fit of a model by comparing it to a null model that assumes no link exists among the variables. A confirmatory fit index (CFI) value of 0.953 suggests that the model exhibits a good fit to the data since it closely approximates the recommended threshold of 0.95. The topic of interest in this study is the T-size CFI. The concept of CFI (Comparative Fit Index) encompasses a variant of CFI that incorporates the consideration of the sample size employed in the investigation. The numerical value of 0.925 shows a strong level of agreement or compatibility. The Tucker-Lewis Index (TLI) is a metric that shares similarities with the Comparative Fit Index (CFI). However, TLI differs in that it imposes a penalty on the model for an excessive number of parameters. A TLI rating of 0.942 suggests a strong level of fit. The Bentler-Bonett Non-normed Fit Index (NNFI), alternatively referred to as the Bentler-Bonett Index or the Tucker-Lewis Index 2, is a statistical measure. The analysis involves a comparison between the model and a baseline model that posits independence among the variables. A non-normed fit index (NNFI) value of 0.942 suggests a satisfactory level of fit. The Bentler-Bonett Normed Fit Index (NFI) is a statistical measure that assesses the fit of a model by comparing it to a baseline model. However, the NFI is normalised to a range of values between 0 and 1. A normalised fit index (NFI) value of 0.921 suggests a strong level of fit. The Parsimony Normed Fit Index (PNFI) quantifies the degree to which a model adequately fits the observed data, taking into account the level of complexity inherent in the model. A PNFI value of 0.755 suggests that the model exhibits a comparatively higher level of complexity in relation to the observed data. The Relative Fit Index (RFI) developed by Bollen is a statistical measure that assesses the fit of a model by comparing it to a null model. This index also considers the sample size of the study. A RFI rating of 0.904 signifies a strong level of agreement or compatibility. The Incremental Fit Index (IFI) proposed by Bollen is a measure that shares similarities with the Comparative Fit Index (CFI). However, unlike the CFI, the IFI does not incorporate any adjustments to account for the number of parameters included in the model. A result of 0.953 suggests a strong level of agreement or correspondence between the observed data and the theoretical model, indicating a favourable match. The Relative Noncentrally Index (RNI) is a metric used to quantify the noncentrality of the chi-square distribution. A result of 0.953 signifies a strong level of agreement or correspondence between the observed data and the theoretical model, suggesting a favourable degree of fit. Additional information regarding the interpretation of the T-size Comparative Fit Index (CFI) value and the cut-off values for the conventional CFI index can be found in the footnotes of the table. In general, the fit indices indicate that the model adequately aligns with the observed data.

Table 6

Other fit measures

Metric	Value
Root mean square error of approximation (RMSEA)	0.076
RMSEA 90% CI lower bound	0.062
RMSEA 90% CI upper bound	0.089
RMSEA p-value	0.001
T-size RMSEA	0.090
Standardized root mean square residual (SRMR)	0.039
Hoelter's critical N (α = .05)	127.929
Hoelter's critical N (α = .01)	140.506
Goodness of fit index (GFI)	0.992
McDonald fit index (MFI)	0.781
Expected cross validation index (ECVI)	1.268

Note. T-size RMSEA is computed for $\alpha = 0.05$

Note. The T-size equivalents of the conventional RMSEA cut-off values (close < 0.05 < fair < 0.08 < poor) are close < 0.065 < fair < 0.093 < poor for model: Model 1

Table 6 presents a range of fit indices for Model 1, which is presumed to be a structural equation model or a confirmatory factor analysis model. These indices are employed to assess the degree of conformity between the model and the data, and they are commonly utilized to compare several models in order to determine the model that best matches the data. The fit indices can be categorized into two distinct groups: fit measures and fit indices. Root Mean Square Error of Approximation (RMSEA), T-size RMSEA, Standardised Root Mean Square Residual (SRMR), and Expected Cross Validation Index (ECVI) are all measures of how well the model fits. The fit indices encompass several measures, such as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Bentler-Bonett Non-normed Fit Index (NNFI), Bentler-Bonett Normed Fit Index (NFI), Parsimony Normed Fit Index (PNFI), Bollen's Relative Fit Index (RFI), Bollen's Incremental Fit Index (IFI), and Relative Noncentrally Index (RNI). The Comparative Fit Index (CFI), TLI, and NNFI are fit indices that assess the degree to which a model fits the data in relation to a null model. The Comparative Match Index (CFI), Tucker-Lewis Index (TLI), and Non-Normed Fit Index (NNFI) are all measured on a scale ranging from 0 to 1. Higher values on these indices are indicative of a more favourable match. In this instance, the Comparative Fit Index (CFI) stands at 0.953, the Tucker-Lewis Index (T-size CFI) at 0.925, and the Non-Normed Fit Index (NNFI) at 0.942. These values collectively indicate a favourable alignment between the model and the data. The Root Mean Square Error of Approximation (RMSEA) gauges the divergence between the model and the data, where values approaching 0 signify a stronger match. In this particular case, the RMSEA is 0.076, a tad above the conventional benchmark of 0.05, indicating a somewhat suboptimal correspondence.

However, the p-value associated with the RMSEA stands at 0.001, signifying that the model demonstrates a statistically significant enhancement over a null model. The T-size RMSEA is 0.090, surpassing the customary threshold of 0.05, signalling a suboptimal fitness. The Standardized Root Mean Square Residual (SRMR), which measures the average variance between observed and anticipated covariance matrices, is recorded at 0.039 – a signal of a robust fit. The Expected Cross-Validation Index (ECVI) evaluates the model's prospective adaptation to novel data, with reduced values indicating heightened predictive prowess. Here, the ECVI tallies at 1.268, moderately elevated, suggesting that the model's predictive capabilities might not be notably strong. In summation, these fitness indices collectively imply that Model 1 reasonably aligns with the data, although there exists leeway for enhancement within certain dimensions.

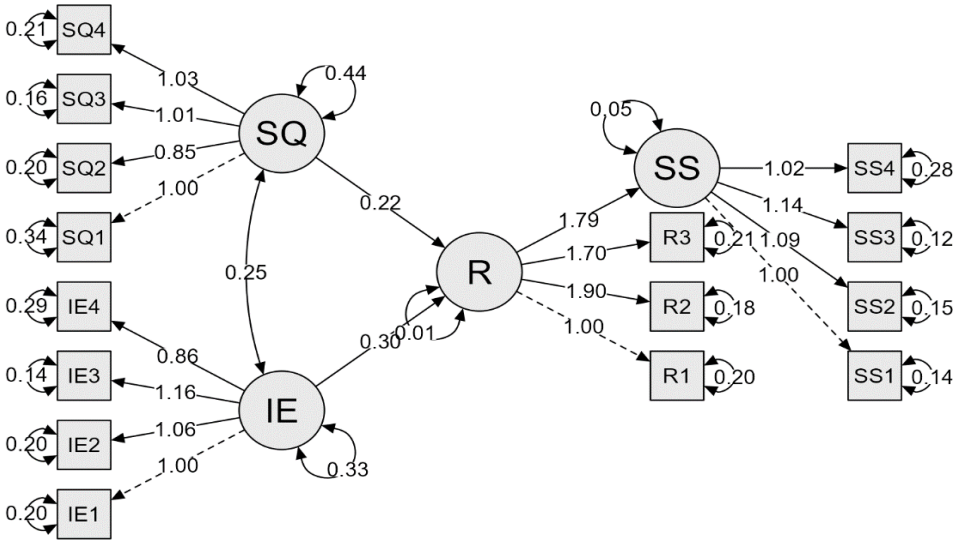

Figure 2. Path diagram

Table 7

Regression coefficients

						95% Confidence Interval		Standardized		
Predictor	**Outcome**	**Estimate**	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**	**All**	**LV**	**Endo**
IE	R	0.301	0.044	6.799	< .001	0.214	0.388	0.554	0.554	0.554
SQ	R	0.225	0.036	6.235	< .001	0.154	0.295	0.478	0.478	0.478
R	SS	1.786	0.198	9.037	< .001	1.398	2.173	0.929	0.929	0.929

Note: instructor empathy (IE), reputation (R), system quality (SQ), and student satisfaction (SS),

Table 7 provides a depiction of the findings derived from a regression analysis encompassing three predictor variables – Instructor Empathy (IE), System Quality (SQ), and Reputation (R) – and their respective outcomes – Reputation (R) and Student Satisfaction (SS). Based on the insights garnered from Figure 2 and the outcomes presented in Table 7, it is established that the connection between Instructor Empathy (IE) and Reputation (R) yields a coefficient of 0.301, accompanied by a p-value of <.001. This p-value attests to the significance of the relationship, thereby warranting the acceptance of hypothesis 1. In a similar vein, the relationship between System Quality (SQ) and Reputation (R) manifests a coefficient value of 0.225, aligned with a p-value of <.001. This statistical significance endorses the acceptance of hypothesis 2. Moreover, the interplay between Reputation (R) and Student Satisfaction (SS) is characterized by a coefficient value of 1.786, alongside a p-value of <.001. This outcome substantiates the acceptance of hypothesis 3. To succinctly recapitulate, the tabulated information elucidates the results yielded by a regression analysis, spotlighting statistically meaningful associations between the predictor variables (IE, SQ, and R) and their corresponding outcomes (R and SS). The coefficients, z-values, and p-values collectively bolster the weight of these relationships, as underscored by the confidence intervals and standardized values. Notably, the table also underscores that the standardized coefficients remain consistent for both the Latent Variable (LV) and Endogenous Variable (Endo) models. This similarity signifies that the relationships between predictors and outcomes hold irrespective of whether the model is estimated at the latent or observed variable level.

4. Discussion

Drawing from the study's introduction and the subsequent outcomes, a conclusive deduction can be made: instructor empathy, system quality, and school reputation each wield substantial influence in enriching student satisfaction within the domain of high school sports education. The findings aptly buttress the three hypotheses put forth, unravelling notable correlations among the variables under scrutiny.

Hypothesis 1 proposed that a positive connection exists between instructor empathy (IE) and reputation (R). The obtained results, characterized by a coefficient value of 0.301 and a p-value of <.001, strongly indicate a significant association between instructor empathy and reputation (Harvey et al., 2017). This outcome solidifies the notion that educators characterized by heightened empathy levels play a pivotal role in bolstering the reputation of the school's sports education programs. Instructors who exhibit empathy are adept at comprehending and addressing the needs of students, thereby fostering constructive relationships and cultivating an environment conducive to supportive learning. The findings underscore the pivotal role that instructor empathy assumes in augmenting the standing of the school's sports education within the broader context (Thowfeek & Jaafar, 2012).

Hypothesis 2 postulated a positive correlation between system quality (SQ) and reputation (R). The study's findings bring to light a coefficient value of 0.225 coupled with a p-value of <.001, serving as conclusive evidence of a noteworthy relationship between system quality and reputation. This discovery casts a spotlight on the pivotal role that a top-notch sports education system assumes in shaping a robust reputation for the institution (Gürkut & Nat, 2017; Harvey et al., 2017). An exemplary system facilitates effortless access to learning resources, materials, and tools, thereby fostering seamless communication and collaboration among both students and educators. Furthermore, a system characterized by high quality ensures stability, dependability, and data security, thereby culminating in heightened educational achievements and an elevated reputation (Bakrie, Sujanto, & Rugaiyah, 2019).

Hypothesis 3 advanced the idea that reputation (R) positively influences student satisfaction (SS). The findings shed light on a coefficient value of 1.786, coupled with a p-value of <.001, underscoring a substantial and meaningful link between reputation and student satisfaction. This observation affirms the notion that educational institutions endowed with a commendable reputation in sports education tend to cultivate elevated levels of student contentment (Rojo-Ramos et al., 2022). A robust reputation sets the stage for elevated anticipations among both students and parents. Consequently, when these expectations are not just met but surpassed, it engenders a heightened sense of satisfaction among students. Additionally, a sterling reputation opens doors to superior facilities, resources, and opportunities for athletic growth, ultimately amplifying student satisfaction levels and fostering commendable achievements (Alsheyadi & Albalushi, 2020).

To conclude, the study outcomes provide robust backing for the idea that instructor empathy, system quality, and school reputation form an intricate web of interrelated elements that wield notable influence over student satisfaction within the realm of high school sports education. Through a judicious amalgamation of these factors, educational institutions can sculpt a learning milieu that is not only supportive but also engaging, thereby fostering a climate conducive to positive student

experiences. The results accentuate the pivotal role accorded to instructor empathy, system quality, and school reputation in augmenting the efficacy of sports education within high school settings. These factors exert their impact across diverse dimensions, encompassing student motivation, academic accomplishments, character nurturing, retention rates, as well as garnering support from parents and the broader community.

5. Conclusion and Implication

The study's findings substantiate the integral role of instructor empathy, system quality, and school reputation as intertwined factors that exert a substantial impact on student satisfaction within the sphere of high school sports education. Through a synergistic amalgamation of these elements, educational institutions can fashion an environment that is both nurturing and engaging, fostering positive student experiences in the realm of sports education. This comprehensive approach not only sheds light on the intricate interplay among these factors but also underscores their collective influence on student contentment, an essential facet of the triumph of sports education in high schools.

The implications stemming from these findings hold significance for an array of stakeholders, including school administrators, policymakers, and sports educators. With a strategic focus on augmenting instructor empathy, system quality, and school reputation, institutions can elevate the overall encounter and gratification of students engaged in sports education pursuits. This proactive approach can subsequently resonate across multiple domains, stoking student motivation, bolstering academic accomplishments, nurturing character development, and bolstering retention, while also soliciting support from parents and the broader community.

Effecting this transformation entails investing in instructor training that sharpens empathetic prowess, cultivating and sustaining high-quality sports education systems, and ardently cultivating and maintaining a robust reputation in the sports education domain. In essence, by adopting these strategies, schools can holistically enrich the educational journey of students while invigorating the realm of sports education in high schools.

6. Limitation and Future Research

While the study's findings provide valuable insights, it's crucial to recognize their limitations in the process of interpreting the results. One primary limitation pertains to the utilization of a cross-sectional design. This design constraint restrains the capacity to definitively establish causative links between the examined variables. Incorporating longitudinal studies could potentially offer a more comprehensive understanding of how instructor empathy, system quality, and school reputation interact and evolve over time.

Another limitation is the study's constrained focus exclusively on high school sports education. Consequently, the generalizability of the findings might be circumscribed when applied to different educational tiers or settings. To address this, future research endeavours could diversify their scope to encompass alternative contexts, thereby engendering a broader perspective of the factors' ramifications.

In light of these limitations, there is an imperative for forthcoming research to address these gaps and unearth novel areas of inquiry. Longitudinal studies stand to be pivotal in ascertaining the causal dynamics that underlie instructor empathy, system quality, school reputation, and student satisfaction in the realm of sports education. Moreover, researchers could delve into the potential roles played by other variables, such as instructor competence, student engagement, and parental involvement, in contributing to student satisfaction. By broadening the study's purview to encompass distinct educational strata or settings, researchers could glean insights into the universal applicability of the observed patterns.

Lastly, future research could venture into the domain of interventions and strategies designed to augment instructor empathy, system quality, and school reputation within the context of sports education. These insights could offer actionable recommendations for educational institutions striving to enhance student satisfaction and elevate the overall success of their sports programs.

References

Alsheyadi, A. K., & Albalushi, J. (2020). Service quality of student services and student satisfaction: the mediating effect of cross-functional collaboration. *The TQM Journal, 32*(6), 1197-1215. https://doi.org/10.1108/TQM-10-2019-0234

Alsoufi, A., Alsuyihili, A., Msherghi, A., Elhadi, A., Atiyah, H., Ashini, A., Ashwieb, A., Ghula, M., Ben Hasan, H., & Abudabuos, S. (2020). Impact of the COVID-19 pandemic on medical education: Medical students' knowledge, attitudes, and practices regarding electronic learning. *PloS one, 15*(11), e0242905. https://doi.org/10.1371/journal.pone.0242905

Ariyadi, J. I., Rumini, R., & Priyono, B. (2021). The Evaluation of Physical Education Sport and Health during the Covid-19 Pandemic at Junior High Schools in Central Semarang Indonesia. *Journal of Physical Education and Sports, 10*(3), 250-256. https://doi.org/10.15294/jpes.v10i3.48448

Bakrie, M., Sujanto, B., & Rugaiyah, R. (2019). The influence of service quality, institutional reputation, students' satisfaction on students' loyalty in higher education institution. *International Journal for Educational and Vocational Studies, 1*(5), 379-391. https://doi.org/10.29103/ijevs.v1i5.1615

Burnett, C. (2020). Key findings of a national study on school sport and physical education in South African public schools. *South African Journal for Research in Sport, Physical Education and Recreation, 42*(3), 43-60. https://hdl.handle.net/10520/ejc-sport-v42-n3-a4

Cabero-Almenara, J., Guillén-Gámez, F. D., Ruiz-Palmero, J., & Palacios-Rodríguez, A. (2022). Teachers' digital competence to assist students with functional diversity: Identification of factors through logistic regression methods. *British Journal of Educational Technology, 53*(1), 41-57. https://doi.org/10.1111/bjet.13151

Fakhretdinova, G. N., Osipov, P., & Dulalaeva, L. P. (2021). Extracurricular activities as an important tool in developing soft skills. In *Educating Engineers for Future Industrial Revolutions: Proceedings of the 23rd International Conference on Interactive Collaborative Learning (ICL2020)* (pp. 480-487). Springer. https://doi.org/10.1007/978-3-030-68201-9_47

Finlay, M. J., Tinnion, D. J., & Simpson, T. (2022). A virtual versus blended learning approach to higher education during the COVID-19 pandemic: The experiences of a sport and exercise science student cohort. *Journal of hospitality, leisure, sport & tourism education, 30*, 100363. https://doi.org/10.1016/j.jhlste.2021.100363

Gumantan, A., Nugroho, R. A., & Yuliandra, R. (2021). Learning during the covid-19 pandemic: Analysis of e-learning on sports education students. *Journal Sport Area, 6*(1), 51-58. https://doi.org/10.25299/sportarea.2021.vol6(1).5397

Guoyan, S., Khaskheli, A., Raza, S. A., Khan, K. A., & Hakim, F. (2021). Teachers' self-efficacy, mental well-being and continuance commitment of using learning management system during COVID-19 pandemic: a comparative study of Pakistan and Malaysia. *Interactive Learning Environments*, 1-23. https://doi.org/10.1080/10494820.2021.1978503

Gürkut, C., & Nat, M. (2017). Important factors affecting student information system quality and satisfaction. *EURASIA Journal of Mathematics, Science and Technology Education, 14*(3), 923-932. https://doi.org/10.12973/ejmste/81147

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review, 31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Harvey, H. L., Parahoo, S., & Santally, M. (2017). Should gender differences be considered when assessing student satisfaction in the online learning environment for millennials? *Higher Education Quarterly, 71*(2), 141-158. https://doi.org/10.1111/hequ.12116

Hastie, P. A., Wang, W., Liu, H., & He, Y. (2021). The effects of play practice instruction on the badminton content knowledge of a cohort of Chinese physical education majors. *Journal of Teaching in Physical Education, 41*(3), 347-355. https://doi.org/10.1123/jtpe.2021-0075

Lyu, Z., Hou, Y., & Wang, Y. (2022). Research on the current situation of college students' physical health under the background of the integration of sports and medicine. *Journal of Healthcare Engineering, 2022*, 1581282. https://doi.org/10.1155/2022/1581282

Maher, A. J., & Morley, D. (2020). The Self stepping into the shoes of the Other: Understanding and developing self-perceptions of empathy among prospective physical education teachers through a special school placement. *European Physical Education Review, 26*(4), 848-864. https://doi.org/10.1177/1356336X19890365

Noboru, T., Amalia, E., Hernandez, P. M. R., Nurbaiti, L., Affarah, W. S., Nonaka, D., Takeuchi, R., Kadriyan, H., & Kobayashi, J. (2021). School-based education to prevent bullying in high schools in Indonesia. *Pediatrics international, 63*(4), 459-468. https://doi.org/10.1111/ped.14475

Opstoel, K., Chapelle, L., Prins, F. J., De Meester, A., Haerens, L., van Tartwijk, J., & De Martelaer, K. (2020). Personal and social development in physical education and sports: A review study. *European Physical Education Review, 26*(4), 797-813. https://doi.org/10.1177/1356336X19882054

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education, 16*(1), 1-26. https://doi.org/10.1186/s41239-019-0136-3

Prots, R., Yakovliv, V., Medynskyi, S., Kharchenko, R., Hryb, T., Klymenchenko, T., Ihnatenko, S., Buzhyna, I., & Maksymchuk, B. (2021). Psychophysical training of young people for homeland defence using means of physical culture and sports. *BRAIN: Broad Research in Artificial Intelligence and Neuroscience, 12*(3), 149-171. https://doi.org/10.18662/brain/12.3/225

Rajendran, P., Athira, B. K., & Elavarasi, D. (2020). Teacher Competencies for Inclusive Education: Will Emotional Intelligence Do Justice? *Shanlax International Journal of Education, 9*(1), 169-182. https://doi.org/10.34293/education.v9i1.3494

Rianawaty, I., Dwiningrum, S. I. A., & Yanto, B. E. (2021). Model of Holistic Education-Based Boarding School: A Case Study at Senior High School. *European Journal of Educational Research, 10*(2), 567-580. https://doi.org/10.12973/eu-jer.10.2.567

Rojo-Ramos, J., González-Becerra, M. J., Gómez-Paniagua, S., & Adsuar, J. C. (2022). Satisfaction with physical activity among students in the last cycle of primary education in extremadura. *International Journal of Environmental Research and Public Health, 19*(11), 6702. https://doi.org/10.3390/ijerph19116702

Shepherd, H. A., Evans, T., Gupta, S., McDonough, M. H., Doyle-Baker, P., Belton, K. L., Karmali, S., Pawer, S., Hadly, G., & Pike, I. (2021). The impact of COVID-19 on high school student-athlete experiences with physical activity, mental health, and social connection. *International Journal of Environmental Research and Public Health, 18*(7), 3515. https://doi.org/10.3390/ijerph18073515

Shim, T. E., & Lee, S. Y. (2020). College students' experience of emergency remote teaching due to COVID-19. *Children and youth services review, 119*, 105578. https://doi.org/10.1016/j.childyouth.2020.105578

Stavroulia, K. E., & Lanitis, A. (2023). The role of perspective-taking on empowering the empathetic behavior of educators in VR-based training sessions: An experimental evaluation. *Computers & Education, 197*, 104739. https://doi.org/10.1016/j.compedu.2023.104739

Suherman, A., Supriyadi, T., & Cukarso, S. H. I. (2019). Strengthening national character education through physical education: An action research in Indonesia. *International Journal of Learning, Teaching and Educational Research, 18*(11), 125-153. https://doi.org/10.26803/ijlter.18.11.8

Susilawati, E., Khaira, I., & Pratama, I. (2021). Antecedents to student loyalty in Indonesian higher education institutions: the mediating role of technology innovation. *Educational Sciences: Theory & Practice, 21*(3), 40-56. https://doi.org/10.12738/jestp.2021.3.004

Sutomo, J., & Sugiyanto, A. K. (2018). Evaluation Study of the Curriculum Physical Education in Senior High School as The Implementer of Curriculum 2013. *Journal of Physical Education, 5*(1), 53-57. https://doi.org/10.15640/jpesm.v5n1a6

Svejenova, S., Planellas, M., & Vives, L. (2010). An individual business model in the making: A chef's quest for creative freedom. *Long Range Planning, 43*(2-3), 408-430. https://doi.org/10.1016/j.lrp.2010.02.002

Thompson, F., Rongen, F., Cowburn, I., & Till, K. (2022). The impacts of sports schools on holistic athlete development: a mixed methods systematic review. *Sports medicine, 52*(8), 1879-1917. https://doi.org/10.1007/s40279-022-01664-5

Thowfeek, M. H., & Jaafar, A. (2012). Instructors' View about Implementation of E-learning System: An Analysis based on Hofstede's Cultural Dimensions. *Procedia-Social and Behavioral Sciences, 65*, 961-967. https://doi.org/10.1016/j.sbspro.2012.11.227

Wink, M. N., LaRusso, M. D., & Smith, R. L. (2021). Teacher empathy and students with problem behaviors: Examining teachers' perceptions, responses, relationships, and burnout. *Psychology in the Schools, 58*(8), 1575-1596. https://doi.org/10.1002/pits.22516

Yates, A., Starkey, L., Egerton, B., & Flueggen, F. (2021). High school students' experience of online learning during Covid-19: the influence of technology and pedagogy. *Technology, Pedagogy and Education, 30*(1), 59-73. https://doi.org/10.1080/1475939X.2020.1854337