

Sports engagement and physical literacy as determinants to forecast skills in facilitating bodily exercise for students with special needs: a predictive research design

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Abstract

Low skills in facilitating bodily exercise for student with special needs is alarming. Using predictive research design specifically regression analysis this study aimed to determine the significance of sports engagement and physical literacy as determinants to forecast skills in facilitating bodily exercise for learners with special needs. Involving 150 samples selected through purposive sampling technique, it was concluded that sports engagement and physical literacy significantly predict skills in facilitating bodily exercise for learners with special needs, but the inverse effect of sports engagement weakens the model's strength, thereby only partly affirming the self-efficacy theory. Further research is recommended to replace the sports engagement variable with other factors to explain the remaining 47.6% variance in predicting skills in facilitating bodily exercise for learners with special needs, and qualitative studies may be conducted to identify potential replacement variables.

Keywords: sports engagement; physical literacy; facilitation skills; bodily exercise; students with special needs; predictive research design

1.

Nomenclature

A This study focuses on determining the relationship between sports engagement and physical literacy as determinants in forecasting skills in facilitating bodily exercise for students with special needs. Specifically, the study examines how sports engagement and physical literacy influence the ability of teachers, facilitators, or students to effectively plan, guide, and implement bodily exercises and physical activities suited for learners with special needs.

B The research covers concepts related to inclusive physical education, adaptive physical education, motor skills, and physical activity participation. The respondents of the study may include teachers, physical education facilitators, or students involved in special education programs. The study utilizes a predictive research design to identify whether sports and physical literacy can significantly predict facilitating skills in bodily exercise.

INTRODUCTION

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1.1 The Problem and its Scope

Globally, poor skills in facilitating bodily exercise for students with special needs remain a documented concern in inclusive education. Hence, recent scholarship indicates that many teachers demonstrate poor skills in adapting exercise routines, ensuring safe participation, and promoting inclusive physical engagement among learners with disabilities (Haegele & Zhu, 2023). Furthermore, teachers' poor skills in applying differentiated instruction and individualized exercise strategies in inclusive settings are alarming (Bostrom et al., 2024).

In China, research shows that teachers lack the skills to structure and supervise exercise programs tailored to students with special needs (Peng et al., 2024). In Japan, studies raise concerns about teachers' ability to adapt exercises for inclusive schools (Richardson et al., 2023). Meanwhile, Indonesian research notes challenges in implementing adaptive exercise instruction, especially in inclusive primary and secondary schools (Hakiki et al., 2023).

In the Philippine context, poor skills in facilitating bodily exercise for students with special needs are likewise noted in the emerging literature. Recent local studies report variability in teachers' skills in planning and conducting inclusive physical activities aligned with diverse learner needs (Montecino & Bernaldez, 2025). Additional research highlights gaps in adaptive exercise instruction and assessment practices in inclusive school settings (Martinez, 2024). These findings reflect ongoing challenges in strengthening professional expertise in facilitating bodily exercise for students with disabilities in Philippine schools.

The persistence of poor skills in facilitating bodily exercise for students with special needs carries significant educational implications. Literature associates inadequate facilitation competence with limited student engagement in structured physical activities and reduced inclusivity in school-based exercise programs (Haegele & Zhu, 2023). Scholarly discussions also indicate concerns regarding compromised instructional quality and limited development of learners' physical literacy within inclusive environments (Kahts-Kramer & Wood, 2023; Holland et al., 2023). Collectively, these recent academic findings underscore the continued relevance of addressing professional skill gaps in facilitating bodily exercise for students with special needs.

1.2 Significance of the Study

This study promotes inclusive, equitable education aligned with SDG 4: Quality Education. It emphasizes strengthening teachers' skills in facilitating physical activity for students with special needs. The findings may guide teachers' professional development, support administrators' training, and help policymakers improve teacher education. Ultimately, the study supports high-quality, inclusive educational opportunities that leave no learner behind.

1.3 Statement of the Problem

This study aimed to determine the significance of sports engagement and physical literacy as determinants of skill development in facilitating bodily exercise for learners with special needs. Specifically, this study pursued the following objectives:

1. To determine the levels of sports engagement in terms of vigor, dedication, and absorption; physical literacy in terms of knowledge and understanding, self-expression and communication, self-confidence; and skills in facilitating bodily exercise in terms of teaching and instruction, communication and cooperation, attitude and belief, and reflection and development
2. To examine the significance of the relationship between sports engagement, physical literacy, and skills in facilitating bodily exercise for students with special needs

3. To analyze the significance of the strength of the model to predict the skills in facilitating bodily exercise for students with special needs, using sports engagement and physical literacy as predictors

1.4 Hypotheses

The hypotheses that follow were tested at the 0.05 level of significance:

Ho1: Sports engagement and physical literacy do not significantly correlate with skills in facilitating bodily exercise for students with special needs.

Ho2: The model's strength to predict students with special needs' skills in facilitating bodily exercise, using sports engagement and physical literacy as predictors, is not significant.

1.5 Theoretical /Conceptual Framework

This study is anchored on Albert Bandura's Self-Efficacy Theory (1977). The theory explains that a person's belief in their ability to perform a task influences motivation, effort, persistence, and performance. Bandura identified mastery experiences, vicarious experiences, social persuasion, and emotional states as the main drivers of self-efficacy. When people believe in their abilities, they put effort into their tasks, persist through challenges, and recover more quickly from failures.

In the context of this study, the sports engagement indicated by vigor, dedication, and absorption (Chen et al., 2025) constitutes a mastery experience for a teacher, as the theory suggests. Moreover, physical literacy, in terms of knowledge and understanding, self-expression and communication, and self-confidence (Schunk & DiBenedetto, 2021), serves as a vicarious experience for teachers, as the theory states. Lastly, skills in facilitating bodily exercise, including teaching and instruction, cooperation, attitude and belief, and reflection (Chow, 2024), reflected teachers' self-efficacy. In conclusion, social persuasion and emotional states, as discussed in the theory, were delimited in this study and warrant further exploration in subsequent studies.

Sports Engagement

- 1.Vigor
- 2.Dedication
- 3.Absorption

Skills in Facilitating Bodily Exercise for Students with Special Needs

- 1.Teaching and Instruction
- 2.Communication and Cooperation
- 3.Attitude and belief
- 4.Reflection and Development

Physical Literacy

- 1.Knowledge and Understanding
- 2.Self-expression and Communication
3. Self-confidence

PREDICTIVE VARIABLES

CRITERION VARIABLES

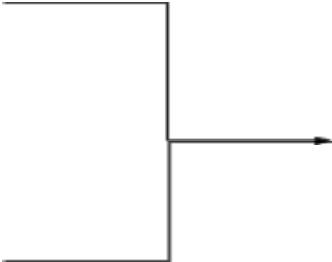


Figure 1. Conceptual Framework of the Study

METHODOLOGY

This chapter presents the methods and procedures the researcher used to conduct the study. The contents of this chapter are research design, research locale, sample, sampling technique, research instruments, data gathering procedure, data analysis, and ethical considerations.

2.1 Research Design

This quantitative study used a predictive research design. Predictive research design is a quantitative research approach that aims to determine whether one or more independent variables can predict a dependent variable. It typically uses statistical techniques such as regression analysis. According to Creswell and Creswell (2018), predictive designs are used when researchers seek to identify variables that influence outcomes and to forecast future performance or behavior based on those variables. This design is used in this study to test the theoretical model, examine causal inferences, and assess how well certain factors contribute to or explain changes in an outcome variable.

2.2 Research Locale

This study was conducted in Public Schools in the San Roque District, Davao City Division, Region XI. All schools in the San Roque District were included in the study. This district is situated in the urban community of Davao, which has diverse cultures, economic activities, and a commitment to environmental sustainability.

San Roque District is known for its large number of teachers who support learners with special needs. It is also observed that all schools have teachers with poor sports skills who handle learners with special needs. Hence, these teachers have been attending training and seminars on how to apply the skills they have developed to deliver inclusive physical education to learners with special needs effectively.

2.3 Sample and Sampling Technique

The respondents of this study comprised one hundred fifty (150) public-school teachers in all elementary schools within the San Roque District. The purposive sampling technique was employed, as it relies on the researcher's judgment in selecting the units (people) to be studied. The purpose of such a technique is to focus on specific characteristics of a group of interest, enabling researchers to answer research questions more effectively (Thomas, 2022). Purposive sampling is appropriate for this study because it targets public elementary school teachers with experience working with learners with special needs.

2.4 Data Gathering Technique

This study employed an online survey to collect data. In quantitative research, survey questionnaires are structured instruments composed mainly of closed-ended questions, such as multiple-choice items or Likert scales, designed to collect standardized numerical data from many participants. They allow researchers to systematically measure attitudes, opinions, behaviours, or demographic characteristics, facilitating

statistical analysis and comparison across respondents. The surveys collect and analyze numerical data. It uses closed-ended questions to speed up analysis because responses are limited and immediately quantifiable (Goodfellow, 2023).

The survey instruments for sports engagement, physical literacy, and skills in facilitating bodily exercise were adapted and modified. The sports engagement questionnaire developed by Guillén and Martínez-Alvarado (2014) consisted of three dimensions, each with a varying number of items: four (4) for vigor, three (3) for dedication, and four (4) for absorption. For the other independent variable, Physical Literacy, the questionnaire developed by Sum et al. (2016) consisted of nine (9) items: three (3) for knowledge and understanding, three (3) for self-expression and communication, and three (3) for self-confidence. Likewise, the instrument for the skills in facilitating bodily exercise, which was developed by Deng et al. (2022) and the dependent variable of the study, was composed of 18 items: six (6) for teaching and instruction, five (5) for cooperation, three (3) for attitude and belief, and four (4) for reflection. Moreover, all of these were analysed using a Likert scale, with the following ratings for the questionnaires: 4 - strongly agree, 3 - agree, 2 - disagree, and 1 - strongly disagree.

2.5 Data Analysis Technique

In analysing the study's results, the researcher used appropriate statistical tools, namely descriptive, correlation, and regression analyses. Mean and standard deviation were used to describe the levels of the variable and the consistency of the responses, respectively. Pearson's r was used to determine the significance of the relationship between dependent and independent variables. Finally, Multiple Linear Regression was used to determine the significance of the individual and combined contributions of sports engagement and physical literacy to students' skills in facilitating bodily exercises.

The following is the interpretation for the descriptive level of the variables.

Scale	Level	Interpretation for Sports Engagement	Interpretation for Physical Literacy	Interpretation for Teachers Skills
3.25 - 4.00	Very High	Very good	Very good physical literacy	Skill in Facilitating Bodily Exercise is Very good
2.50 – 3.24	High	Good	Good physical literacy.	Skill in Facilitating Bodily Exercise is good
1.75 – 2.49	Low	Poor engagement	Poor physical literacy.	Skill in Facilitating Bodily Exercise is poor
1.00 – 1.74	Very Low	Very poor engage	Very poor physical literacy.	Skill in Facilitating Bodily Exercise is very poor

The following is the Standardized Deviation Value Interpretation:

Rage	Description	Interpretation
$SD \leq 0.50$	Highly Consistent Responses	Strong and uniform perception

SD = 0.51 – 1.00	Moderately Consistent Responses	Acceptable consistency
SD = 1.01 – 1.50	Low Consistency Responses	Differing views or experiences
SD > 1.50	Very Low Consistency Responses	High variability and lack of consensus

For the interpretation scale of r-value, the following scheme is used as proposed by Guilford (1956):

Computed r	Descriptive Interpretation
+/- 1.00	Perfect Correlation
Between +/- 0.75 - +/- 0.99	High Correlation
Between +/- 0.51 - +/- 0.74	Moderately High Correlation
Between +/- 0.31 - +/- 0.50	Moderately Low Correlation
Between +/- 0.01 - +/- 0.30	Low Correlation
0.00	No Correlation

In terms of Scale of Beta (β) Coefficient Strength, the following scheme as proposed by Cohen (1988) and Hair, et al. (2019) was used:

β Value Range	Strength of Relationship
$\pm 0.00 - \pm 0.09$	Very Weak
$\pm 0.10 - \pm 0.29$	Weak
$\pm 0.30 - \pm 0.49$	Moderate
$\pm 0.50 - \pm 0.69$	Strong
± 0.70 and above	Very Strong

2.6 Ethical Considerations

This study followed established ethical principles in conducting research with human participants. Permission was obtained from the Department of Education before data collection, and informed consent was obtained from all respondents. Participation was voluntary, and respondents were informed of their right to refuse to answer any question or withdraw at any time. Potential risks and benefits were carefully considered to prevent any harm. The safety, privacy, and confidentiality of participants were protected, and all data were securely handled and used only for academic purposes. The study was reviewed by a panel of experts and received ethical clearance and approval from HCDC – Society for Moral Integrity and Legal Ethics (SMILE) to ensure compliance with institutional ethical standards.

RESULTS

In this chapter, the researcher presented the results of the analysis and interpretation of the data gathered. Specifically presented are descriptive analysis, correlation analysis, regression analysis, and the summary of findings.

3.1 Descriptive Analysis

Table 1 is the descriptive table. It contains the variables included in the study, namely, sports engagement, physical literacy, and skills in facilitating bodily exercise for students with special needs, with

their respective indicators. It also contains the number of samples, the mean, the standard deviation, and their descriptive interpretations.

Table 1. Descriptive Table, n=150

Variables	Mean	SD	Descriptive Interpretation
Sports Engagement	3.30	.517	Very High
1. Vigor	3.21	.556	High
2. Dedication	3.41	.532	Very High
3. Absorption	3.28	.568	Very High
Physical Literacy	3.43	.444	Very High
1. Knowledge and understanding	3.55	.489	Very High
2. Self-expression and Communication	3.30	.562	Very High
3. Sense of self and self-confidence	3.44	.530	Very High
Skills in Facilitating Bodily Exercise	3.55	.418	Very High
1. Teaching and Instruction	3.56	.463	Very High
2. Cooperation and Communication	3.64	.437	Very High
3. Attitude and Belief	3.61	.464	Very High
4. Reflection and Development	3.39	.545	Very High

Table 1 specifically shows that the sports engagement variable had a mean score of 3.30 (SD=0.517), which is described as a very high level, indicating very good engagement, and a moderately consistent response pattern among respondents, indicating acceptable consistency. Two of its indicators are rated very high, while the other is high.

Moreover, Table 1 shows that the physical literacy variable had a mean score of 3.43 (SD=0.444), which is described as a very high level, denoting very good physical literacy; highly consistent responses among respondents indicate a strong, uniform perception. All the indicators had respective means at a very high level.

Finally, the skills in facilitating bodily exercise variable obtained a mean score of 3.55 (SD=0.418), which is described as very high-level, indicating that skills in facilitating bodily exercise are very good; highly consistent responses among respondents indicate a strong, uniform perception. All the indicators had respective means at a very high level.

3.2 Correlation Analysis

Table 2 presents the correlation analysis. It specifically includes the independent variables, namely, sports engagement and physical literacy. It also includes the criterion variable, the skill of facilitating bodily exercise for students with special needs. Lastly, it contains the R-value, the p-value, the decision on the hypotheses, and the corresponding interpretation.

Table 2. Relationship Between Variables

Variables	Skills in Facilitating Bodily Exercise for students with Special Needs			
	<i>r</i>	p-value	Decision on H_0	Interpretation

Sports Engagement	0.494	.000	Reject	Moderate low significant
Physical Literacy	0.724	.000	Reject	Moderate high significant

Level of Significance: 0.05

Decision Rule: Reject H_0 if $p < 0.05$

Table 2 specifically shows that the correlation between sports engagement and the skills in facilitating bodily exercise variable yielded a p-value of 0.000, which is less than 0.05, indicating a significant association. Hence, the null hypothesis was rejected. It indicates a statistically significant correlation. With an r-value of 0.494, this correlation is considered moderately low. Furthermore, the table shows that the correlation between physical literacy and skills in facilitating bodily exercise yielded a p-value of 0.000, which is less than 0.05, indicating a significant association. Hence, the null hypothesis was rejected. This finding indicates that the relationship between physical literacy and the skills that facilitate bodily exercise is significant. With $r=0.724$, the correlation is moderately high.

Both sports engagement and physical literacy were found to have significant relationships with skills in facilitating bodily exercise, leading to the rejection of the null hypotheses for both variables. However, while sports engagement demonstrated only a moderately low association with facilitating skills, physical literacy showed a considerably stronger, moderately high association. This comparison indicates that physical literacy is more closely linked to teachers' skills in facilitating bodily exercise than to sports engagement.

3.3 Regression Results

Table 3 displays the regression table. It contains the predictors, namely, sports engagement and physical literacy. It contains the criterion variable, which is the skill of facilitating bodily exercise. It also displays the β coefficient, t value, p-value, the decision on the hypothesis, and the corresponding interpretation.

Table 3. Regression Table

Variable	Skills in Facilitating Bodily Exercise						
	Unstandardized Coefficients		Standardized Coefficients				
	B	SE	Beta	t	Sig.	Decision on H_0	Interpretation
(Constant)	1.221	0.188		6.486	0.000		
Sports Engagement (SE)	-0.012	0.064	-0.015	-0.193	0.847	Fail to Reject	Not Significant
Physical Literacy (PL)	0.691	0.074	0.734	9.287	0.000	Reject	Significant

Model Summary:

$R = 0.724$; $R^2 = 0.524$; $F\text{-value} = 80.811$; $p\text{-value} = 0.000$

Predictive Model: $SFBE = -0.012 SE + 0.691 PL + 1.221$

The table shows that the unstandardized beta coefficient for sports engagement is -0.012, for physical literacy is 0.691, and the constant is 1.221. Hence, the model to predict skills in facilitating bodily exercise is $SFBE = -0.012 SE + 0.691 PL + 1.221$. With a p-value of 0.000, which is less than the 0.05 confidence level, the model to predict skills in facilitating bodily exercise is significant. The R^2 of 0.524 indicates that 52.4% of

the variance in the criterion variable is strongly predicted by sport engagement and physical literacy.

Table 3 specifically shows that the sports engagement variable had an unstandardized β coefficient of 0.012, indicating a 12% increase in its influence on skills in facilitating physical exercise for students with special needs. Such a percentage of influence is not significant, as indicated by the p-value of 0.847, which is greater than the 0.05 alpha level of confidence; the null hypothesis is not rejected.

Moreover, the physical literacy variable had an unstandardized β coefficient of 0.691, indicating a 69.1% increase in the influence on skills in facilitating physical exercise for students with special needs. Such a degree of influence is significant, as denoted by the p-value of 0.000, which is less than the level of significance; the null hypothesis is likewise rejected. This indicates that the degree of influence is statistically significant.

Finally, Table 3 shows the combined degree of sports engagement and physical literacy in skills that facilitate bodily exercise. The combined degree was found to be statistically significant, as indicated by an F-value of 80.811 and a p-value of 0.000, which is below the 0.05 alpha level. This suggests that while both factors independently contribute to skills in facilitating bodily exercise, their joint impact forms a powerful explanatory model when other factors are kept constant. It shows that the two predictive variables yielded an r^2 of 0.524, indicating that, together, they account for 52.4% of the variance in facilitating bodily exercise among students with special needs.

3.4 Summary of Findings

Based on the statistical results, it was specifically found that:

1. Sports engagement and physical literacy have moderately low and moderately high correlations with skills in facilitating bodily exercise, respectively.
2. The model's strength to predict students with special needs' skills in facilitating bodily exercise, using sports engagement and physical literacy as predictors, is significant.

DISCUSSIONS

This chapter, the researcher presents the discussion and the results of the study. It specifically includes reviews of previous published studies that are either supported or denied by the result of this study.

Sports engagement and physical literacy have moderately low and moderately high correlation with skills in facilitating bodily exercise, respectively.

The result of this study shows that sports engagement and physical literacy have moderately low and moderately high correlation with skills in facilitating bodily exercise. This finding supports the assertion of Yu Ying et. al., (2025) who found that physical literacy shows a moderate positive correlation with levels of physical activity among diverse populations, suggesting that higher physical literacy is linked with greater engagement in physical movement and activity behaviors. Moreover, this current finding also affirms with Melby et., al., (2023) stating that Danish adolescents showed a positive association between physical literacy and sport/exercise participation, where physical literacy significantly correlated with the amount of physical activity and sport engagement time. In contrary, this current finding opposed the assertion Valentine et. al., (2025) stating that self-reported physical literacy scores did not significantly associate with objective measures of motor skill performance, suggesting that higher perceived physical literacy does not necessarily correspond to better physical skill competence. While Valentine et. al., have only 28 samples, this current

finding employed 150 samples.

The predictive model for skills in facilitating bodily exercise for students with special needs, using sports engagement and physical literacy as predictors, is strong.

The result of this study that the predictive model for skills in facilitating bodily exercise for students with special needs, using sports engagement and physical literacy as predictors, is strong. This study supports Öztürk et al. (2023) asserting that physical literacy significantly predicts adolescents' physical activity levels, indicating that students with higher physical literacy are more likely to actively participate in exercise and develop stronger movement-related skills. Moreover, this current study also affirms Villa-González, et. al., (2024) assert that adolescents with higher levels of perceived physical literacy demonstrated greater participation in muscle-strengthening activities and higher levels of muscular fitness, emphasizing its predictive role in physical exercise performance. However, this study stating that predictive model for skills in facilitating bodily exercise for students with special needs is strong, agrees with Britton et al. (2023), physical literacy significantly predicts children's physical activity engagement and well-being, demonstrating that higher levels of physical literacy contribute to stronger participation in movement-related activities and physical competence.

Conclusion

Based on findings, it is concluded that sports engagement and physical literacy as determinants to forecast skills in facilitating bodily exercise for learners with special needs is significant; however, the sports engagement inversely predict the criterion hindering the attainment of the very strong strength (52.4%) of the predictive model. Hence, the self-efficacy theory is only partly affirmed stating that a person's belief in their ability to accomplish a task significantly influences their motivation, effort, persistence, and performance. Self-efficacy is shaped by four main sources: mastery experiences, vicarious experiences, social persuasion, and emotional states. When individuals believe in their capabilities, they are more likely to exert effort, persist through challenges, and recover quickly from setbacks.

Recommendation:

Based on the conclusion, it is recommended that further research may be pursued replacing the sports engagement variable with other variables not covered in the study to trace the 47.6% variance to forecast the skills in facilitating bodily exercise for learners with special needs. Furthermore, qualitative study may be explored to generate themes that may be utilized as replacement variables.

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Appendix A.

A.I. Survey Questionnaire

Sports Engagement and Physical Literacy as Determinants to Forecast Skills in Facilitating Bodily Exercise for Students with Special Needs:
A Predictive Research Design

Instruction: Please indicate your level of agreement with the statements below regarding your attitudes toward sports and physical activities. Select a number from “1” (strongly disagree) to “4” (strongly agree) by putting a check (✓). Your honest responses are deeply valued and will remain confidential. They are essential in helping educators understand how sports can better support and empower learners with diverse needs.

Scale	Description
4	Strongly Agree
3	Agree
2	Disagree
1	Strongly Disagree

Part I: Sports Engagement

Items	4	3	2	1
Vigor				
1. As a teacher, I am persistent in my sport activity.				

2.	As a teacher, I am strong and vigorous in my sport activity.				
3.	As a teacher, when I get up in the morning, I look forward to going to train				
4.	As a teacher, I am able to train for long periods of time				
Dedication					
1.	As a teacher, I feel inspired whilst carrying out my sport activity				
2.	As a teacher, I am enthusiastic about my sport activity				
3.	As a teacher, I am proud of the work I do				
Absorption					
1.	As a teacher, I am absorbed in my sport activity.				
2.	As a teacher, time flies when I am training or competing				
3.	As a teacher, I am happy when I am engrossed in my sport activity				
4.	As a teacher, I am oblivious to everything going on around me when I train				

Part II: Physical Literacy

Items	4	3	2	1
Knowledge and Understanding				
1. I have a positive attitude and interest in sports.				
2. I appreciate myself or others doing sports.				
3. I am aware of the benefits of sports related to health				
Self-expression and Communication				
1. I am physically fit, in accordance to my age.				
2. I possess self-management skills for fitness.				
3. I possess self-evaluation skills for health,				
Self-confidence				
1. I have strong social skills.				
2. I am confident in wild/natural survival.				
3. I am capable in handling problems and difficulties.				

Part III: Skills in Facilitating Bodily Exercise for Students with Special Needs

Items	4	3	2	1
Teaching and Instruction				
1. I am always concerned with how well the students with learning needs keep up with the pace of my teaching.				
2. I use modern techniques to meet the educational needs of all students in my class, including those with learning needs.				
3. I try many approaches to improve the interactive participation of students with learning needs during class activities.				
4. I can deal with challenging emotional behaviors of students with learning needs who exhibit these problems during class.				
5. I adjust the content and method of evaluation in a flexible manner to assess the performance of students with learning needs.				
6. I adjust the objectives, content, and method of instruction based on the needs of students with learning needs.				
Communication and Cooperation				

1.	I believe that regular schools have a responsibility to provide appropriate education for all students, including those with learning needs.				
2.	I believe that inclusive education brings about meaningful changes in mainstream teachers and supports their professional growth.				
3.	I believe that placing students with learning needs in regular schools offers greater developmental benefits than alternative placements such as special schools, rehabilitation centers, or homeschooling.				
4.	I support my school's endeavor to implement inclusive education.				
5.	I believe that including students with learning needs in regular classes enhances the social and emotional development of their peers without learning needs.				
Attitude and Belief					
1.	I encourage students with and without learning needs to help each other in their studies and daily life.				
2.	I communicate with school principals about any issues I encounter teaching students with learning needs in my class.				
3.	I make effective efforts to create an atmosphere of acceptance and caring in my class.				
Reflection and Development					
1.	I reflect on my inclusive practices through various means (e.g. diary writing, reflect upon teaching plans, and self-evaluation of teaching effectiveness)				
2.	I often summarize my experiences and learn from the inadequacies of my inclusive education practice				
3.	I put the results of my reflection about inclusive education into practice.				
4.	I have specific inclusive education development plans, including clear objectives, content, and approaches.				

A.2. Raw Result

Sports Engagement

Frequentist Scale Reliability Statistics

Coefficient	Estimate	Std. Error	95% CI	
			Lower	Upper
Coefficient α	0.974	0.010	0.955	0.993

Frequentist Individual Item Reliability Statistics

Item	Coefficient α (if item dropped)			Item-rest correlation		
	Estimate	Lower 95% CI	Upper 95% CI	Estimate	Lower 95% CI	Upper 95% CI
1. I am persistent in my sport activity	0.970	0.948	0.992	0.936	0.868	0.969

Frequentist Individual Item Reliability Statistics

Item	Coefficient α (if item dropped)			Item-rest correlation		
	Estimate	Lower 95% CI	Upper 95% CI	Estimate	Lower 95% CI	Upper 95% CI
2. I am strong and vigorous in my sport activity	0.972	0.952	0.993	0.849	0.705	0.926
3. When I get up in the morning I look forward to going to train	0.973	0.954	0.993	0.813	0.641	0.908
4. I am able to train for long periods of time	0.973	0.952	0.993	0.824	0.660	0.913
5. I feel inspired whilst carrying out my sport activity	0.971	0.950	0.992	0.900	0.798	0.952
6. I am enthusiastic about my sport activity	0.972	0.952	0.992	0.858	0.720	0.930
7. I am proud of the work I do	0.977	0.958	0.995	0.680	0.424	0.836
8. I am absorbed in my sport activity.	0.969	0.947	0.992	0.950	0.896	0.976
9. Time flies when I am training or competing	0.970	0.947	0.992	0.937	0.871	0.970
10. I am happy when I am engrossed in my sport activity	0.971	0.949	0.992	0.906	0.810	0.955
11. I am oblivious to everything going on around me when I train	0.971	0.950	0.992	0.893	0.786	0.948

Physical Literacy*Frequentist Scale Reliability Statistics*

Coefficient	Estimate	Std. Error	95% CI	
			Lower	Upper
Coefficient α	0.858	0.035	0.789	0.926

Frequentist Individual Item Reliability Statistics

Item	Coefficient α (if item dropped)			Item-rest correlation		
	Estimate	Lower 95% CI	Upper 95% CI	Estimate	Lower 95% CI	Upper 95% CI
1. I have a positive attitude and interest in sports.	0.853	0.772	0.935	0.521	0.198	0.742
2. I appreciate myself or others doing sports.	0.853	0.773	0.933	0.464	0.124	0.706
3. I am aware of the benefits of sports related to health	0.858	0.796	0.921	0.390	0.035	0.658
4. I am physically fit, in accordance to my age.	0.842	0.764	0.921	0.586	0.287	0.782
5. I possess self-management skills for fitness.	0.838	0.760	0.915	0.634	0.354	0.809
6. I possess self-evaluation skills for health,	0.833	0.753	0.914	0.673	0.412	0.831
7. I have strong social skills.	0.835	0.751	0.919	0.669	0.407	0.830
8. I am confident in wild/natural survival.	0.831	0.747	0.914	0.697	0.449	0.845
9. I am capable in handling problems and difficulties.	0.837	0.756	0.918	0.637	0.359	0.811

Teachers' Skills*Frequentist Scale Reliability Statistics*

Coefficient	Estimate	Std. Error	95% CI	
			Lower	Upper
Coefficient α	0.952	0.013	0.927	0.978

Note. Variables Regular schools are obliged to provide appropriate education to all students, including those with learning needs. and I support my school's endeavor to implement inclusive education. correlated perfectly.

Frequentist Individual Item Reliability Statistics

Item	Coefficient α (if item dropped)			Item-rest correlation		
	Estimate	Lower 95% CI	Upper 95% CI	Estimate	Lower 95% CI	Upper 95% CI
1. I am always concerned with how well the students with learning needs keep up with the pace of my teaching.	0.952	0.923	0.980	0.611	0.322	0.796
2. I use modern techniques to meet the educational needs of all students in my class, including those with learning needs.	0.948	0.920	0.976	0.815	0.644	0.909
3. I try many approaches to improve the interactive participation of students with learning needs during class activities.	0.949	0.922	0.977	0.718	0.482	0.856
4. I can deal with challenging emotional behaviors of students with learning needs who exhibit these problems during class.	0.949	0.922	0.976	0.771	0.569	0.886
5. I adjust the content and method of evaluation in a flexible manner to assess the performance of students with learning needs.	0.948	0.921	0.976	0.781	0.585	0.891
6. I adjust the objectives, content, and method of instruction based on the needs of students with learning needs.	0.949	0.922	0.976	0.755	0.542	0.877
7. Regular schools are obliged to provide appropriate education to all students, including those with learning needs.	0.951	0.925	0.977	0.621	0.336	0.802
8. Inclusive education fosters positive changes in mainstream teachers and promotes their professional development.	0.950	0.924	0.977	0.660	0.393	0.824
9. Regular school placement is more beneficial to the development of students with learning needs than other placements such as special schools, rehabilitation centers, and home schooling.	0.950	0.923	0.976	0.702	0.458	0.848
10. I support my school's endeavor to implement inclusive education.	0.951	0.925	0.977	0.621	0.336	0.802
11. The inclusion of students with learning needs in regular classes will promote the development of their peers without learning needs.	0.950	0.924	0.977	0.684	0.430	0.838

Frequentist Individual Item Reliability Statistics

Item	Coefficient α (if item dropped)			Item-rest correlation		
	Estimate	Lower 95% CI	Upper 95% CI	Estimate	Lower 95% CI	Upper 95% CI
12. I encourage students with and without learning needs to help each other in their studies and daily life.	0.953	0.927	0.980	0.446	0.102	0.695
13. I communicate with school principals about any issues I encounter teaching students with learning needs in my class.	0.950	0.920	0.979	0.700	0.454	0.847
14. I make effective efforts to create an atmosphere of acceptance and caring in my class.	0.948	0.920	0.976	0.831	0.672	0.917
15. I reflect on my inclusive practices through various means (e.g. diary writing, reflect upon teaching plans, and self-evaluation of teaching effectiveness)	0.948	0.922	0.974	0.811	0.637	0.906
16. I often summarize my experiences and learn from the inadequacies of my inclusive education practice	0.949	0.920	0.977	0.770	0.567	0.885
17. I put the results of my reflection about inclusive education into practice.	0.948	0.920	0.976	0.796	0.610	0.898
18. I have specific inclusive education development plans, including clear objectives, content, and approaches.	0.948	0.922	0.973	0.819	0.650	0.910

A.3. Reliability Test Result

Variable	Number of Items	Cronbach's Alpha	Interpretation	Decision
Variable 1. Sports Engagement	11	0.974	Excellent	None of the items have been deleted
Variable 2. Physical Literacy	9	0.858	Good	None of the items have been deleted
Variable 3. Teachers' Skills	18	0.952	Excellent	None of the items have been deleted