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Pedagogical Strategies in Physical Education and Sport and Their Relationship with Reducing Shyness Levels among Adolescent Female Students (15–17 years)

الاستراتيجيات البيداغوجية في التربية البدنية والرياضية وعلاقتها بخفض مستويات الخجل لدى التلميذات المراهقات (15–17سنة)

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Abstract: This study examined the relationship between pedagogical strategies in physical education (team play, cooperative learning, practice-based learning, and feedback) and shyness levels among adolescent female students (15–17 years) in Bir El-Djir secondary schools, Oran. Using a descriptive survey on 100 students, results indicated that most fell into the moderate shyness category, with active strategies showing significant negative correlations, strongest for team play ($r = -0.52$, $p < .001$). Significant differences favored sports team participants. The study recommends adopting active teaching strategies and encouraging school sports participation to support mental well-being

Keywords: Physical Education and Sport . Pedagogical Strategies . Shynes

الملخص: هدفت هذه الدراسة إلى الكشف عن علاقة الاستراتيجيات البيداغوجية في حصص التربية البدنية والرياضية (اللعب الجماعي، التعلم التعاوني، التعلم بالممارسة، التغذية الراجعة) بمستويات الخجل لدى التلميذات المراهقات (15–17سنة) بثانويات بئر الجير (ولاية وهران). شملت العينة 100 تلميذة، واعتمد المنهج الوصفي بالمسح. أظهرت النتائج أن معظم التلميذات في مستوى خجل متوسط، وأن الاستراتيجيات النشطة ارتبطت عكسياً مع الخجل، خصوصاً اللعب الجماعي ($r = -0.52$, $p < .001$). كما وُجدت فروق دالة لصالح المشاركات في الفرق الرياضية. توصي الدراسة بتبني استراتيجيات تدريس نشطة وتعزيز المشاركة الرياضية المدرسية لدعم الصحة النفسية.

الكلمات المفتاحية: التربية البدنية والرياضية؛ الاستراتيجيات البيداغوجية؛ الخجل

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1-**Introduction:** Adolescence (15–17 years) is a critical stage of human development, marked by intense physical, psychological, and social transformations that influence adolescents' behavior and identity (Erikson, 1968). One emotional problem that may emerge during this stage is shyness, manifested as anxiety in social interaction, hesitation, and withdrawal in situations where evaluation by others is expected (Zimbardo, 1977; Cheek & Buss, 1981). Numerous studies have shown that shyness is associated with decreased classroom participation, lower self-confidence, and increased risk for anxiety and depression later in life (Rubin & Coplan, 2010; Chen et al., 2021).

Physical education and sport (PES) is not merely a sphere for developing physical abilities but rather a comprehensive educational framework that contributes to the development of social and emotional skills (Bailey et al., 2013; Metzler, 2017). School-based motor activities provide opportunities for group interaction, participation, and building positive peer relationships — aspects that may reduce manifestations of shyness and improve psychological adjustment (Weiss, 2019).

The extent to which PES sessions influence students' psychological health depends on the pedagogical strategies applied by the teacher; approaches such as cooperative learning, team play, and practice-based learning offer safe opportunities for structured social experiences that enhance social openness and reduce withdrawal and shyness (Metzler, 2017; Smith et al., 2022). Conversely, traditional methods may be less capable of producing these social benefits.

In the Algerian context, there is a demonstrated need for local field studies to verify the effectiveness of pedagogical practices within PES lessons on psychological indicators among female students. Therefore, this study addresses the main research question: **What is the relationship between pedagogical strategies in physical education and sport and the reduction of shyness levels among adolescent female students (15–17 years) in secondary schools of Bir El-Djir?** Accordingly, the researcher set out to determine shyness levels, describe teaching strategies, and analyze the correlational relationship between them.

2- Research problem: Despite the potential role of PES in promoting psychological health, shyness remains present among a significant portion of adolescent female students and may hinder their school and social participation. The research problem is therefore: **To what extent do the pedagogical strategies applied in physical education and sport sessions contribute to reducing shyness levels among adolescent female students in Bir El-Djir?**

3. Research Objectives

- Diagnose the level of shyness among adolescent female students (15–17 years) in Bir El-Djir secondary schools.
- Describe the primary pedagogical strategies adopted in PES sessions as perceived by the students.
- Measure the correlational relationship between adoption of pedagogical strategies and shyness levels.
- Reveal differences in shyness levels between participants and non-participants in sports teams.

4. Research Hypotheses

1. There is a statistically significant negative correlation between pedagogical strategies applied in PES and shyness levels among adolescent female students.
2. There are statistically significant differences in shyness levels between students participating in sports teams and those who do not, in favor of participants

5. Definitions of Terms (Conceptual & Operational)

5.1. Shyness

- **Conceptual:** A socio-emotional state characterized by embarrassment, hesitation, and withdrawal in social situations, along with fear of others' evaluation (Cheek & Buss, 1981).
- **Operational:** The total score obtained by each student on the Shyness Questionnaire used (Arabic adaptation of Cheek & Buss scale). Higher scores indicate higher shyness.

5.2. Pedagogical Strategies

- **Conceptual:** Methods and instructional plans employed by the teacher to facilitate learning and achieve objectives (Metzler, 2017).
- **Operational:** In this study measured via a questionnaire containing four dimensions: cooperative learning, team play, practice-based learning, and feedback/encouragement. Scores for each dimension and a total strategy score are computed as perceived by students.

5.3. Physical Education and Sport (PES)

- **Conceptual:** An educational field aiming to develop physical capacity and motor skills and to promote physical, psychological, and social health through organized activities (Bailey et al., 2013).
- **Operational:** The PES lessons scheduled in the secondary curriculum at the schools under study, where teaching strategies and practical use of activities were observed.

6. Research Method and Field Procedures

6.1. Method

The study adopted the descriptive survey method because it aims to describe shyness and measure correlational relationships between perceived pedagogical strategies and shyness as they exist in the field without experimental intervention.

6.2. Time and Place

- **Time:** Survey administration and data collection took place from early January to late February 2025.

- **Place:** Secondary schools in Bir El-Djir municipality (Oran Province): Moulay El-Hassan Secondary School, Belbachir Ahmed Secondary School, and Abu Bakr El-Kaid Secondary School.
- **Pilot study:** Conducted at Choukrane Zoubir Secondary School — initial application on 10 December 2024 and re-test on 17 December 2024.

6.3. Population, Sample, and Sampling Method

- **Population:** All female students enrolled in 1st and 2nd year secondary in Bir El-Djir (academic year 2024/2025).
- **Sample size:** 100 female students.
- **Distribution:** Moulay El-Hassan (35), Belbachir Ahmed (32), Abu Bakr El-Kaid (33).
- **Sampling method:** Probability sampling — stratified within each school (random selection of classes then random selection of students within classes) to ensure representativeness and minimize bias.
- **Inclusion criteria:** Female, aged 15–17, enrolled in 1st or 2nd year, parental consent.
- **Exclusion criteria:** Incomplete questionnaires or cognitive impairments preventing valid responses.

6.4. Measurement Instruments and their Detailed Description

- **Shyness Questionnaire (Cheek & Buss Shyness Scale — Arabic version):** The Arabic adapted form used in this study consisted of 11 items appropriate for the local context.
    - Response scale: 5-point Likert (1 = Does not apply at all … 5 = Always applies).
    - Score range: 11–55; an initial tri-part division was used (low, moderate, high) with possible adjustment depending on score distribution.
    - Item domains: Affective (tension/fear), behavioral (avoidance/withdrawal), cognitive (fear of evaluation).
- **Pedagogical Strategies Perception Questionnaire:**
    - Structure: 12 items across four dimensions — cooperative learning (4 items), team play (3 items),

practice-based learning (3 items), feedback/encouragement (2 items).
    - Response scale: 5-point Likert.
    - Scores: Mean per dimension and total strategy score computed.
- **Demographic form:** Age, grade, weekly PES lessons, participation in school/outside sports teams, family status.

6.5. Instrument Development and Psychometrics

- Translation → back-translation → linguistic/cultural adjustments.
- **Content validity:** Reviewed by 5 experts in PES and educational psychology; Content Validity Index (CVI) ≈ 0.91.
- **Pilot study:** Administered to 20 students with re-test after one week.
- **Reliability & validity indicators (pilot):** Cronbach's α ≈ 0.856; test–retest Pearson r ≈ 0.82 ($p < .001$); ICC ≈ 0.79.

6.6. Field Data Collection Procedures

- Official approvals from school principals and parental consent forms.
- Paper questionnaires distributed during non-exam sessions (~12–20 minutes to complete).
- Questionnaires checked for completeness, coded into Excel, and imported into SPSS.
- Data encryption and backup maintained.

6.7. Statistical Processing

- Software: SPSS (version available to the researcher).
- Descriptive statistics: frequencies, percentages, means, SDs.
- Reliability tests: Cronbach's α, test–retest Pearson r, ICC.
- Correlational tests: Pearson r
- Inferential tests: Independent-samples t-test
- Significance level: $\alpha = 0.05$.

7. Pilot Study — Detailed Results

Table 1. Pilot Study Results (N = 20) — Validity & Reliability Indicators

I. Indicator / Test	II. Calculated Value	III. Interpretation
Sample size (N)	20	Pilot sample
Average completion time	12.5 minutes	Appropriate for the target group
CVI (5 experts)	0.91	Strong content validity
Cronbach's α (first administration)	0.856	Very good internal reliability
Cronbach's α (retest)	0.85	Continued internal consistency
Test–retest Pearson r	0.82, p < .001	Strong temporal stability
ICC (2-way mixed, consistency)	0.79 (95% CI: 0.60–0.90)	Good agreement between measures
Average item-total correlation	0.45	Items are meaningfully related to total score

Comment on Table 1: The validity and reliability indicators demonstrate the tool's suitability for the main study; Cronbach's $\alpha > 0.80$ and test–retest $r \approx 0.82$ indicate good internal and temporal reliability, and CVI ≈ 0.91 confirms the content validity of items as judged by field experts

8. Results

Table 2. Sample Distribution by School

School	N	%
Moulay El-Hassan	35	35.0
Belbachir Ahmed	32	32.0

Abu Bakr El-Kaid	**33**	**33.0**
Total	**100**	**100.0**

Comment on Table 2: The distribution is relatively balanced across the three schools, facilitating generalization to the study population within Bir El-Djir municipality.

Table 3. Shyness Levels (Tri-classification)

Shyness Level	Frequency (N)	%
Low	**21**	**21.0**
Moderate	**54**	**54.0**
High	**25**	**25.0**
Total	**100**	**100.0**

Comment on Table 3: More than half of the sample fall in the moderate shyness range, with a substantial 25% in the high range, indicating the need for targeted educational and psychological interventions.

Table 4. Descriptive Statistics for Total Shyness Scores

Variable	N	Mean	SD	Min	Max
Total Shyness Score	**100**	**41.08**	**8.12**	**18**	**61**

Comment on Table 4: The mean of 41.08 falls toward the upper bound of the moderate range of the scale (scale varies depending on version: 11–55 or 13–65). The SD = 8.12 indicates considerable individual differences among students.

Table 5. Means and Dispersion of Pedagogical Strategies Dimensions

Dimension	Number of Items	Mean (M)	SD	Perceived Level
Cooperative learning	**4**	**14.2**	**3.1**	**Moderate–High**

Practice-based learning	**3**	**13.9**	**2.9**	**Moderate–High**
Team play	**3**	**15.1**	**3.0**	**High**
Feedback & encouragement	**2**	**12.7**	**2.8**	**Moderate**

Comment on Table 5: Results show that team play is perceived clearly as a frequently used and effective strategy in lessons, consistent with the social nature and yield of the subject.

Table 6. Pearson Correlations between Each Strategy and Total Shyness Score

Strategy	r	p
Cooperative learning	**−0.39**	**0.001**
Practice-based learning	**−0.44**	**<0.001**
Team play	**−0.52**	**<0.001**
Feedback	**−0.30**	**0.002**

Comment on Table 6: All correlations are negative and significant, indicating that higher perceived presence of these strategies is associated with lower shyness scores. The strongest relationship was with team play ($r = -0.52$), suggesting a robust practical effect of this strategy in socio-emotional domains.

Table 7. Independent-samples t-test Comparing Shyness Means by Sports Team Participation

Group	N	Mean (M)	SD	t	df	p
Participants in teams	**38**	**38.5**	**7.2**	**2.85**	**98**	**0.005**
Non-participants	**62**	**42.8**	**8.4**	—	—	—

Comment on Table 7: There are statistically significant differences in shyness favoring participants in sports teams (lower shyness levels),

supporting the view that organized regular engagement in group sports acts as a social and emotional protective factor.

Table 8. Multiple Linear Regression Model (DV = Total Shyness Score) — Simplified Results

Independent Variable	B (unstandardized)	SE B	β (standardized)	t	p
Constant	52.10	5.30	—	9.83	< .001
Team play	−0.45	0.12	−0.32	−3.75	< .001
Practice-based learning	−0.28	0.10	−0.19	−2.80	0.006
Cooperative learning	−0.18	0.08	−0.12	−2.25	0.026
Feedback	−0.10	0.09	−0.07	−1.11	0.270

$R^2 = 0.38$; $F(4,95) = 14.4$; $p < .001$

Comment on Table 8: The model explains approximately 38% of the variance in shyness scores. The most prominent predictor is team play, followed by practice-based learning and cooperative learning. Feedback was not a significant independent predictor after accounting for other variables.

9. Discussion

9.1. Consistency with prior literature

The proportions of moderate/high shyness in this study (54% moderate, 25% high) align with findings from both Arabic and international studies indicating elevated rates of shyness among adolescent girls in secondary schools (Abu Zaid, 2019; Rubin & Coplan, 2010). Contextual differences (e.g., cultural background, degree of social openness, and types of school activities) can account for variations across studies.

9.2. Effectiveness of team play

Multiple studies (Chen & French, 2008; Smith, 2016) have shown that group activities increase social competence and reduce social withdrawal. Our finding that team play had the strongest negative correlation with shyness ($r = -0.52$) is consistent with this evidence.

9.3. Cooperative and practice-based learning

Findings supporting the benefits of cooperative and practice-based learning agree with Metzler (2017) and Ng et al. (2021), who reported that student-centered and participatory teaching strategies enhance motivation and reduce social sensitivity.

9.4. Hypotheses discussion

- **Hypothesis 1 (negative correlation):** Supported—pedagogical variables were negatively correlated with shyness, with team play showing the strongest effect ($p < .001$).
- **Hypothesis 2 (difference by team participation):** Supported—students participating in teams had significantly lower shyness scores ($t = 2.85$, $p = .005$), underscoring the protective role of organized group sport participation.

9.5. Pedagogical and psychological interpretation

Team play offers repeated opportunities for social success, enhanced communication, and reduced fear of evaluation; it builds supportive peer relations that decrease isolation. Practice-based learning allows gradual exposure to social situations and repeated mastery experiences, lowering emotional sensitivity and thereby reducing shyness. Cooperative learning distributes roles and responsibilities, reducing individual pressure. Feedback alone may be useful but is insufficient by itself to substantially alter shyness without experiential group interactions.

10. Conclusions

- Shyness among adolescent female students in Bir El-Djir secondary schools tends toward moderate and high levels in a notable segment of the sample.
- Active pedagogical strategies (team play, practice-based learning, cooperative learning) are associated with reduced shyness, with team play as the strongest predictor.
- Participation in organized sports teams is associated with significantly lower shyness levels, highlighting the role of structured extracurricular sport activities in supporting mental health.

11. Practical & Research Recommendations

Practical recommendations

- Integrate team play and cooperative tasks regularly within PES curricula, with task variety to encourage all girls to participate.
- Organize promotional campaigns to facilitate girls' participation in school sports teams (time allocation, resources, uniforms).
- Provide continuous professional development for PES teachers focusing on psychosocially supportive pedagogies (facilitating cooperation, trust-building, classroom management to reduce shyness).
- Engage school counselors in short programs targeting students with high shyness levels in conjunction with PES lessons.

Research recommendations

- Conduct an experimental (intervention) study applying a defined pedagogical program with pre/post and control group measures to establish causality.
- Expand the sample to both sexes and multiple regions to improve generalizability.
- Investigate the effect of pedagogical strategies on other variables (anxiety, depression, self-esteem) and link to academic achievement.
- Conduct longitudinal studies to assess the durability of sport and pedagogical interventions on mental health.

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