ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)

Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Nature- and Outdoor-Based Teaching Methods and Their Relationship to Psychological Resilience Among Physical Education and Sport Sciences Students

Ahlam Dara Azez[1*]
College of Physical Education and Sports Sciences, Al - Hamdaniya University, Iraq[1]
E-mail: dr.ahlamdara@uohamdaniya.edu.iq

Abstract

This study aimed to identify extent to which College of Physical Education and Sports Sciences at Al-Hamdaniya University relies on nature-based teaching methods and levels of psychological resilience possessed by its students. It also sought to determine nature and type of correlation between use of nature-based teaching methods and students' levels of psychological resilience. Descriptive survey and correlational methods were adopted to achieve research objectives and questions. Sample consisted of 150 male students from College of Physical Education and Sports Sciences. This sample was randomly divided into sub-samples for pilot study, preparation, and final study, with 8, 85, and 57 students respectively. To extract necessary data, the researcher developed two scales: first to measure application of nature-based teaching methods and level of psychological resilience among its students. These scales were administered after ensuring their validity and reliability, and results were statistically analyzed using various methods such as arithmetic mean and percentages . Percentile, standard deviation, simple correlation, S.P. Berman-Brown equation, and Guttman equation led to a set of conclusions, the most prominent of which is that current practices of nature-based teaching methods and external environment, and psychological resilience, lack systematic grounding and organized psychological programs, which kept field education in it traditional, and made students' ability to cope with pressures hostage to their individual characteristics and current circumstances, instead of academic and educational construction. However, significant correlation between nature-based teaching methods and external environment confirms that external space constitutes a stimulant and active, and a natural incubator for developing psychological system of students, and works to refine their behavioral and physical characteristics, as well as building their mental immunity, and forming their lines of defense against various educational crises and challenges.

Keywords: Nature-Based Teaching, Outdoor-Based Teaching, Teaching Methods, Psychological Resilience.

Introduction

Educational environment for students of faculties of physical education and sports science is characterized by a diverse nature with a distinctiveness different from other educational disciplines, as it requires them to be able to combine cognitive obligations with physical abilities

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

at same time, and accompanying psychological pressures during lessons and sports competitions, and continuous desire to achieve accomplishments and avoid failures and injuries. Therefore, this multi-dimensional effort makes providing supportive educational environments urgent and necessary, and this requires adopting educational strategies that go beyond limits of traditional stadiums and halls, with aim of providing a stimulating educational environment that supports psychological aspect of students in parallel with physical preparation.

In this context, contemporary educational ideas and trends transcend traditional patterns of teaching and learning process. We see them taking modern directions in presentation of lessons, as they have moved from circle of closed environment towards open spaces as integrated educational environments. This transformation in educational environment in general, and in field of methods of teaching physical education and sports science in particular, has led to transcending boundaries of closed educational environments such as classrooms, playgrounds and halls, and moving towards nature and external environment in an organized manner, as interactive environments that give teaching process tangible applied dimensions and real opportunities for field simulation. Moreover, educational philosophy of outdoor learning processes is based on stimulating sensory and cognitive perception of students, through direct interaction with variables in educational environment. It provides an opportunity for real application of principles of experiential learning based on practice, participation and realistic problem-solving. Moreover, effect of this method extends to achieving a balance between muscular effort exerted and psychological comfort provided by open spaces. Klop č i č & Torkar (2026) indicate that concept of nature-based learning is based on applying lessons outside of traditional classrooms and study spaces, preferably in natural outdoor areas or those designed for this purpose. It also represents a multifaceted framework encompassing diverse environments and objectives, such as outdoor teaching (Klop č i č & Torkar, 2026, p. 1) . Kilburg (2023) adds that this concept is characterized by its focus on teaching educational materials outdoors within educational and academic institution or in its vicinity (Kilburg, 2023, p. 11) . Furthermore, modern educational strategies are philosophies that lead to transforming teaching methods and attitudes from rote learning and memorization to effective field practice, by moving teaching methods and their components from usual halls and playgrounds to natural spaces, such as camps, beaches, and vast natural fields. Employing these open spaces as educational environments gives lessons interactive dimensions based on facing real challenges and adapting to changing environmental conditions, which will stimulate students' mental and motor responses and push them towards creativity in performance. Moreover, educational impact of these teaching practices is not limited to developing students' physical abilities, but extends to building their personal and social characteristics. external nature forces them to enter situations that require self-reliance, quick decision-making, and strengthening values of teamwork to meet demands of field-based dynamic situations. From this perspective, integration of these teaching methods can form what is known as nature-based and external environment-based teaching methods as a teaching approach that enhances students' skill competence. In this area , Knight et al., 2025, mentions that nature-based learning and external environment represent an integrated educational system based on direct interaction and communication with natural elements, so that any educational material or skill can be taught within this external environment, with aim of linking students' learning to surrounding world in nature, to support their growth, and improve their behaviors and positive attitudes towards nature as a basic psychological necessity (Knight et al., 2025, p. 2) .

The current educational philosophy aims to build student's personality in an integrated manner that ensures a balance between academic performance and psychological resilience. University

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

life, by its very nature, requires students to acquire behavioral and emotional capabilities that guarantee their academic stability amidst changes in competitive educational environment. This is manifested in their high flexibility in facing pressures and overcoming physical challenges, as well as having ability to recover quickly from unforeseen obstacles that may hinder their athletic and academic progress. Naturally, effectiveness of these adaptive abilities is not limited to overcoming academic obstacles alone, but extends its impact to form basis for shaping their professional future. Graduates of physical education and sports science colleges are qualified, by nature of their work, to assume leadership and guidance roles in diverse interactive environments, such as educational institutions and sports clubs. This requires them to possess personalities capable of managing crises and making appropriate decisions in environments characterized by competition and psychological pressure. Accordingly, investing in enhancing their endurance and ability to face difficulties is true guarantee of providing cadres that possess psychological resilience as a fundamental factor for professional success and self-stability. Here , Wang & Zhang (2025) refer to psychological resilience as a long-term adaptive skill and a psychological trait that enables an individual to fortify themselves in order to overcome difficulties, mitigate negative effects of adverse circumstances, maintain their psychological balance, restore their potential, and enhance their ability to manage and reduce future stressors (Wang & Zhang, 2025, p. 3) . Ghaniya & Saadallah (2023) also refer to it as a continuous characteristic that accompanies an individual throughout their life, is capable of development, and indicates individual's utilization of positive and effective energy to achieve desired goals despite difficulties and challenges they face. In field of education, it represents a dynamic process in which some students choose to persevere rather than succumb to failure resulting from their surrounding circumstances, by applying adaptive strategies to cope with pressures arising from academic challenges (Ghaniya & Saadallah , 2023). p. 378) .

Gains its scientific importance from its alignment with modern educational and psychological trends that emphasize need to balance requirements of physical and skill development with psychological preparation that supports development of students' self-reliance in faculties of physical education and sports science. This importance stems from two fundamental aspects: theoretical and applied. Theoretically, current research is significant in providing sports and educational literature with a theoretical framework that connects two vital variables: field-based teaching methods that utilize open spaces, and psychological outcomes of enhancing students' endurance and their ability to recover quickly from stress. Furthermore, it provides scientific material that fills a clear gap in local research addressing this relationship between two variables, thus opening door for other researchers to conduct similar studies on other groups, levels, and scientific disciplines. applied importance of research lies in offering a clear field vision for curriculum and program designers in faculties of physical education and sports science, as well as for their faculty members, regarding how to utilize external environment as an effective learning medium that contributes to reducing intensity of academic and physical stress among students. Students, which ensures development of qualified teaching, administrative and training staff to meet field challenges, and raises quality of outputs of physical education and sports science colleges educationally and professionally.

Educational environment in colleges of physical education and sports science is based on a philosophy that focuses on preparing specialized personnel who possess a balance between physical abilities and psychological readiness to meet demands of their field specializations. From researcher's field observations as a member of teaching staff in these colleges, a research problem emerged, which is to diagnose extent of academic and physical burdens that students

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

face during their educational journey. This burden increases as a result of confining teaching practices to traditional stadiums and closed halls. Consequently, continuing to use these traditional environments will cause increased mental stress for students and limit their ability to face physical and skill challenges they encounter, or to recover quickly from frustrations they may experience. This prompted researcher to consider procedural teaching solutions to address this research gap by focusing on utilizing external environment as a vital outlet that renews students' energies and enhances their psychological resilience. Based on above, research problem can be summarized in answering following questions:

What is reality, scope, and use of nature-based and external environment-based teaching methods in faculties of physical education and sports science? To what extent do students in faculties of physical education and sports science possess qualities of psychological resilience? To what extent are teaching practices in open environments related to level of psychological resilience and ability to cope with psychological stress among students?

Research objectives to identifying extent to which College of Physical Education and Sports Sciences at Al-Hamdaniya University relies on teaching methods based on nature and external environment when applying educational units during lessons from students' point of view. Identifying levels of psychological resilience possessed by students of Faculty of Physical Education and Sports Sciences at Al-Hamdaniya University from their personal point of view. Identifying nature and type of correlational relationship between use of nature-based and external environment-based teaching methods and levels of psychological resilience among students.

Study Terms

Teaching methods based on nature and external environment: It is defined by (Falzon & Conrad, 2024) as teaching practices that rely on direct interaction with nature and its activities, through implementation of educational units in open outdoor environments, and adapting educational environments to blend with elements and components of nature (Falzon & Conrad, 2024, p. 438) . The researcher defines it as an integrated approach of educational units and teaching practices implemented by faculty of physical education and sports science colleges in open natural environments such as gardens, forests and scout camps, with aim of enhancing students' physical, skill and leadership efficiency, and developing their ability to be self-reliant, according to strict safety and security standards, and evaluating them accurately and clearly.

Psychological resilience: Huang et al., 2026 defines it as a positive psychological energy that enables individuals to maintain their goals , adapt effectively when facing difficulties , fatigue, and setbacks when practicing sports, and represents a constructive and motivating internal psychological environment (Huang et al., 2026, p. 6) . The researcher defines it as ability of students of Faculty of Physical Education and Sports Sciences to continue physical and skill performance calmly and with focus, despite stress and pressure of lessons they are exposed to, as well as their rapid adaptation to changes and critical situations, and their possession of mental toughness and will to regain confidence after facing cases of failure.

Students of Faculty of Physical Education and Sports Sciences: Undergraduate students officially enrolled in colleges of physical education and sports sciences undergo a dynamic educational experience that combines scientific knowledge and field application in various sports, with aim of building their physical and skill capabilities and qualifying them as educational,

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

administrative and leadership cadres capable of contributing in various academic and sports fields.

Research Methodology

In line with nature of study problem and to achieve its objectives, the descriptive approach was adopted using both survey and correlational methods, as it is the most suitable research method for monitoring research variables and relationship between them. This step is one of fundamental pillars that ensures safety of field procedures of research and its generalizability, as it represents human base with appropriate characteristics that is relied upon in achieving research objectives. The research community refers to those individuals who possess characteristics to be studied. In light of nature of this research, research community was defined as students of College of Physical Education and Sports Sciences at Al-Hamdaniya University during academic year (2025-2026). number of members of research community is (189) male and female students, and Table (1) shows details of this community.

Table 1. Shows a description of research population of students from College of Physical Education and Sports Sciences

No.	Academic stage	Male students	Female students	Total
1	First	38	5	42
2	Second	54	11	65
3	Third	42	16	58
4	Fourth	16	7	24
Total		150	39	189

Research Sample

Due to limited research population, which consisted of male students in College of Physical Education and Sports Sciences at Al-Hamdaniya University, the researcher selected, using comprehensive enumeration method, all members of research population from among male students to form main research sample. Accordingly, research population and its sample were merged so that sample would be completely consistent with original population, as total number of students in college is (150) students. According to requirements of research, this sample was divided as follows:

Sample Exploratory Application: A random exploratory sample of (8) students was selected from main research sample, representing (5.3%) of total sample, with aim of applying Nature-Based and External Environment-Based Teaching Methods Scale and Psychological Resilience Scale to them, in order to ensure clarity of their statements and students' understanding of them, as well as to determine approximate time to answer two scales, and to reveal challenges that may face process of applying them.

Sample preparation (statistical analysis): With aim of preparing both Nature-Based and External Environment-Based Teaching Methods Scale and Psychological Resilience Scale for Students of College of Physical Education and Sports Sciences, and to ensure that they possess scientific characteristics of validity and reliability, (85) students were randomly selected to represent this sample, representing (56.7%) of main research sample.

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Sample of final application: Final application sample included remaining members of main research sample after excluding members of both exploratory application sample and preparation sample. number of members of this sample is (57) students, representing a percentage of (38%) of main sample. This sample represents actual field base on which final results of research were based, and interpreted in light of research variables and relationship between them.

Study Tools

In order to collect data required for research, and to answer research questions, the researcher prepared two standardized scales that are appropriate to nature of two research variables whose levels are to be measured, and to identify reality of College of Physical Education and Sports Sciences' reliance on teaching methods based on nature and external environment, and extent to which its students possess components of psychological resilience. Therefore, two scales were prepared for this purpose, and preparation process was carried out according to following steps:

Formulating phrases scale: In order to begin process of formulating statements for each of two research scales, a group of literature and scientific sources that deal with concept of teaching methods based on nature and external environment were reviewed , namely (Tan et al., 2026). (Quay, 2026) (Klop č i č & Torkar, 2026) (Aylward et al., 2025) (Chouhan & Soni, 2025) (Knight et al., 2025) (Abu Hayyaneh, 2024) (Falzon & Conrad, 2024) (Chouhan & Soni, 2025) (Trina et al., 2024) , and concept of psychological resilience (Al-Anzi & Al-Mayahy, 2026) (Liu et al., 2026) (Wang & Zhang, 2025) (Awad and Muhammad , 2025) (Al-Habida and Al-Tashah , 2025) (Al-Amin , 2025) (Abbas , 2025) (Owaid , 2025)
(Al-Maliki, 2024) (Salih et al., 2023) , and accordingly the researcher formulated a set of statements for each of them , and number of these statements amounted to (15) statements for each of them. The researcher took into account a set of matters when formulating these statements, including that they be clear and easy, that they have a unified meaning, and that they include only one idea.

Formulation Alternative answers to scale items: To achieve a logical and appropriate response to actual reality when answering statements of two scales, a set of alternatives was formulated according to five-point Likert scale, which helps to reveal extent to which these students are able to identify reality of nature-based teaching methods and external environment in their college, and to monitor variation in their levels of psychological resilience. In order to be able to process data statistically, a set of alternatives was developed, each of which carries a numerical weight. These alternatives and their weights are shown in Table (2).

Table 2. Shows answer alternatives and numerical weights of research scale items according to five-point Likert scale

Alternative	Weight
Always applies	5
Often applies	4
Sometimes it applies	3
It rarely applies	2
Not applicable	1

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Face validity of two scales (arbitrator validity)

To verify face validity of both Nature-Based and External Environment-Based Teaching Methods Scale and Psychological Resilience Scale, they were presented to a group of (13) experts in field of teaching methods and sports psychology, in order to obtain their opinions on extent to which validity of two scale items and their suitability for measuring two variables in general, as well as ensuring validity of answer alternatives, and after retrieving forms from experts, it was found that their agreement rates on them were close to (84.6% -100%) for scale of teaching methods based on nature and external environment, and to (92.3-100%) for scale of psychological resilience. Thus , both scales maintained their number of items of (15) items without change , in addition to answer alternatives obtaining agreement of (100%) of experts' opinions . Table (3) shows percentages of agreement of experts on scale items.

Table 3. It shows apparent validity and extent to which experts agree on statements of two scales

Teaching methods based on nature and external environment				Psychological resilience			
Phrase sequence	Expert consensus			Phrase sequence	Expert consensus		
	Suitable	Unsuitable	Percentage		Suitable	Unsuitable	Percentage
1	13	-	100%	1	12	1	92.3%
2	13	-	100%	2	12	1	92.3%
3	13	-	100%	3	12	1	92.3%
4	11	2	84.6%	4	13	-	100%
5	11	2	84.6%	5	13	-	100%
6	12	1	92.3%	6	13	-	100%
7	13	-	100%	7	12	1	92.3%
8	13	-	100%	8	12	1	92.3%
9	12	1	92.3%	9	13	-	100%
10	12	1	92.3%	10	13	-	100%
11	11	2	84.6%	11	13	-	100%
12	11	2	84.6%	12	12	1	92.3%
13	13	-	100%	13	13	-	100%
14	13	-	100%	14	13	-	100%
15	13	-	100%	15	12	1	92.3%

Exploratory application of scales

Initial versions of both Nature-Based and External Environment-Based Teaching Methods Scale and Psychological Resilience Scale were administered to a group of students in main research sample, representing pilot study sample of (8) students from College of Physical Education and Sports Sciences at Al-Hamdaniya University. pilot study was conducted on (February 16, 2026). This pilot study helped the researcher determine time students needed to answer items on two scales, as well as identify challenges they might face. The researcher encounters challenges when applying this to research sample , as well as identifying how clear are statements in two scales? For them, response time on scale was determined to be (16) On average, one minute.

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Applying scale to preparation sample

Both scales were applied in their initial form to a sample of (85) students from College of Physical Education and Sports Sciences at Al-Hamdaniya University , representing statistical analysis sample. Application took place during period between (8-11/3/2026). After application was completed and forms were retrieved, it was found that (81) form Some of them are suitable for statistical analysis, while (4) forms were invalidated due to their unsuitability. After transcribing responses and collecting data, the researcher extracted internal consistency and reliability validity coefficients for two scales.

Validity of internal consistency of two scales

To verify that both Nature-Based and External Environment-Based Teaching Methods Scale and Psychological Resilience Scale possess internal consistency characteristics, correlation coefficient between scores of statements and total scale score was extracted, using Pearson's correlation coefficient as a statistical means for this purpose. Table (4) shows internal consistency coefficients of statements of two scales.

Table 4. Shows internal consistency coefficients of statements of two scales

Teaching methods based on nature and external environment			Psychological resilience		
phrase	Its correlation with overall scale score		phrase	Its correlation with overall scale score	
	Degree of correlation	Level of significance		Degree of correlation	Level of significance
1	0.436	0.000	1	0.505	0.000
2	0.302	0.002	2	0.653	0.000
3	0.723	0.000	3	0.374	0.000
4	0.617	0.000	4	0.675	0.000
5	0.564	0.000	5	0.189	0.057
6	0.527	0.000	6	0.346	0.000
7	0.600	0.000	7	0.703	0.000
8	0.532	0.000	8	0.705	0.000
9	0.528	0.000	9	0.712	0.000
10	0.629	0.000	10	0.576	0.000
11	0.598	0.000	11	0.712	0.000
12	0.686	0.000	12	0.421	0.000
13	0.516	0.000	13	0.666	0.000
14	0.373	0.000	14	0.639	0.000
15	0.453	0.000	15	0.782	0.000

From observing Table (4), it becomes clear to us that all scales of teaching methods based on nature and external environment had significant internal consistency with overall form of scale, with correlation coefficients approaching (0.302-0.723), at significant significance levels approaching (0.002-0.000), so that scale would maintain its number of items of (15) items as it is without change, while most of items of scale of psychological resilience had significant

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

consistency coefficients with overall score of scale, with correlation degrees approaching (0.346-0.782) at significance levels of (0.000), with exception of item (5), which was inconsistent with overall form of scale, as its degree of correlation with overall score of scale reached (0.189) at a significance level of (0.057), which required its deletion, so that number of items of scale would be (14) items.

Reliability coefficients for scales

Split-half method was adopted to calculate stability value for each of scale for teaching methods based on nature and external environment, and scale for psychological resilience, which is based on dividing scale items into two equal or nearly equal halves. The researcher extracted reliability half for two scales by dividing items of each of them into two halves, first of which includes results of odd items of two scales , while second includes results of even items of them. Then correlation coefficients between two halves of two scales were extracted through statistical means represented by Pearson 's correlation coefficient. In this way, reliability half for two scales was extracted , and to obtain total value of reliability coefficients for them, the researcher processed extracted values through Spearman-Brown t- equation for scale with even items, and Guttman t-equation for scale with odd items. Table (5) shows reliability coefficients of two scales.

Table 5. Shows reliability coefficients of two scales using split-half method and its statistical treatments

No.	Scale	Half stability	Treatment	Reliability
1	Teaching methods based on nature and external environment	0.708	Spearman-Brown	0.829
2	Psychological resilience	0.832	Jetman	0.881

Tools in final form

After process of preparing both Nature-Based Teaching Methods and External Environment Scale at College of Physical Education and Sports Sciences, and Psychological Resilience Scale for its students, and verifying that they possess scientific characteristics of validity and reliability, final form of Nature-Based Teaching Methods and External Environment Scale was settled on (15) statements, and Psychological Resilience Scale was settled on (14) statements. statements of two scales are answered according to five alternatives: (always apply, often apply, sometimes apply, rarely apply, do not apply), which carry weights (5-4-3-2-1) respectively, because all statements were positive in their formulation. The highest score that a student can obtain when answering Nature-Based Teaching Methods and External Environment Scale is (75) points, while the lowest value is (15) points, while the highest score that a student can obtain when answering Psychological Resilience Scale is (70) points, and lowest score is (14) points.

Method for determining item levels of two scales

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

To extract levels of both Nature-Based and External Environment-Based Teaching Methods Scale and Psychological Resilience Scale, (Class Length) method was used to determine these levels, as shown in Table (6).

Table 6. Statistical criterion adopted to interpret categories and levels of response to two research scales (Alkharusi, 2022)

Category	Percentage	Interpretation
1 – 1.80	20% - 36%	Very low
1.81 – 2.60	<36%- 52%	Low
2.61 – 3.40	<52% - 68%	Middle
3.41 – 4.20	<68.2%-84%	High
4.21 – 5.00	<84%-100%	Very high

Statistical methods used in research

Statistical analysis in this research relied on Statistical Package for Social Sciences (SPSS), using a set of statistical methods, as follows: Percentage, simple correlation coefficient (Pearson, split-half method, Equation (S.P. Berman -Brown), equation (Gutman), class length, arithmetic mean, standard deviation, significance level (Sig).

Results and Discussing

Presenting results of first objective (To identify extent to which College of Physical Education and Sports Sciences at Al-Hamdaniya University relies on teaching methods based on nature and external environment when applying educational units during lessons from students' point of view).

Table 7. Statistical indicators for items of Nature-Based and External Environment-Based Teaching Methods Scale

No.	Phrase	Mean	Standard deviation	Percentage	Level
1	curricula of faculties of physical education and sports science include educational units that are applied in open, natural environments.	3.15	1.222	63%	Middle
2	Learning objectives are formulated to include development of athletic skills in outdoor environment.	3.38	1.090	67.6%	Middle
3	college adopts clear standards for evaluating student performance in outdoor sports activities.	3.32	1.536	66.4%	Middle

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

No.	Phrase	Mean	Standard deviation	Percentage	Level
4	Instructors integrate environmental culture into steps of preparing and implementing outdoor sports activities.	3.00	1.243	60%	Middle
5	Instructors utilize surrounding natural resources such as parks, forests, and beaches to enhance students' physical fitness.	2.56	1.148	51.2%	Low
6	college provides its students with opportunities to participate in scouting camps and educational field trips held in nature.	3.26	1.676	65.2%	Middle
7	Instructors use outdoor environment to teach students sports leadership and team management skills in open spaces.	2.91	1.100	58.2%	Middle
8	green spaces and gardens surrounding college are used for relaxation and physical relaxation exercises after exertion.	3.06	1.441	61.2%	Middle
9	Instructors take into account prevailing social and cultural aspects when organizing outdoor sports activities.	3.53	1.447	70.6%	High
10	instructors possess ability to manage external lessons efficiently.	3.41	1.360	68.2%	High
11	Fitness exercises are regularly carried out outdoors instead of in indoor gyms.	2.88	1.188	57.6%	Middle
12	college provides necessary supplies and services, such as transportation and specialized equipment, to conduct lessons in remote natural environments.	3.09	1.660	61.8%	Middle
13	college requires strict standards of security, safety, and risk management during implementation of outdoor sports activities.	3.71	1.513	74.2%	High
14	college's outdoor teaching methods rely on competitive group games that increase students' physical interaction outdoors.	2.96	0.943	59.2%	Middle
15	Instructors are keen to link outdoor sports activities with survival skills and self-reliance in open	3.26	1.475	65.2%	Middle

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

No.	Phrase	Mean	Standard deviation	Percentage	Level
	environments.				
Scale		3.16	1.336	63.2%	Middle

Table (7) shows that responses to items on Nature-Based Teaching Methods and External Environment scale fell within high, medium, and low ranges. Items (1, 2, 3, 4, 6, 7, 8, 11, 12, 14, and 15) showed medium response levels, with mean scores of (3.15 , 3.38 , 3.32 , 3.00 , 3.26 , 2.91 , 3.06 , 2.88 , 3.09 , 2.96 , and 3.26). Items (9, 10, and 13) showed high response levels, with mean scores of (3.53 , 3.41 , and 3.71). Item (5) showed a low response level with a mean score of (2.56). Therefore, overall score for scale was at a medium level. My calculation reached (3.16), with a percentage of (63.2%).

Average result shown by scale of teaching methods based on nature and external environment reflects an academic deficiency in field of education based on open spaces. It also indicates a clear gap between theoretical plans and actual application of its sports programs. The researcher can attribute this educational limitation to fact that outdoor activities adopted by College of Physical Education and Sports Sciences are limited to traditional aspects only. Despite faculty's efforts to integrate educational units in open air, and their formulation of objectives that call for developing learning of sports skills in nature, and their connection with college's provision of some trips and scouting camps for its students, and provision of field facilities for them, these practices remained within recreational and organizational framework, without being transformed into integrated educational and physical strategies. This is in addition to timid reality of utilizing surrounding environmental capabilities to raise levels of physical and leadership efficiency among students, and sufficiency of gardens and narrow green spaces within university walls to carry out relaxation and physical fitness exercises in a varying manner, which may be due to several reasons, including concerns related to safety of students, difficulty of managing potential risks when carrying out lessons in open places, or due to lack of financial funding allocated by college to implement remote field activities. This has deprived students of experiencing physical challenges offered by diverse natural terrains that support development of their true athletic abilities.

In this regard , AVCI & GÜMÜ Ş (2020) state that nature-based and environmentally oriented education is an educational necessity. Its basic requirements are defined by essential elements, including identifying suitable outdoor environments and habitats for learning, and educational content related to nature and surrounding environment, while ensuring a clear aim and objective for implemented educational activity (AVCI & GÜMÜ Ş , 2020, p. 173) . Parker (2022) also states that nature-based learning strategy requires flexible teaching methods based on inquiry and a nature-related curriculum, along with a clear organizational framework that balances risk management and safety with securing necessary financial and logistical support. (Parker, 2022, p. 4603) . Kilburg, 2023, states that for teaching to succeed in outdoor environment, it is necessary to empower teachers in this type of education by providing training programs that give them independence and confidence in managing student behavior when conducting lessons in nature and outdoor environment (Kilburg, 2023, p. 22) .

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Presenting results of second objective entitled (Identifying levels of psychological resilience possessed by students of College of Physical Education and Sports Sciences at Al-Hamdaniya University from their personal point of view)

Table 8. Statistical indicators for items of psychological resilience scale

No.	Phrase	Mean	Standard deviation	Percentage	Level
1	I have ability to maintain my physical performance with high spirits despite feeling fatigued.	3.32	1.394	66.4%	Middle
2	I am able to remain calm and focused when competition intensifies during lessons.	2.82	1.410	56.4%	Middle
3	I can adapt quickly to difficult and stressful lesson levels.	2.85	1.222	70%	Middle
4	I can control my emotions and behavior when faced with provocative situations during lessons.	3.15	1.360	63%	Middle
5	I regain my self-confidence and confidence in my performance very quickly after experiencing a loss or failure in tests.	2.62	1.090	52.4%	Middle
6	Temporary frustration motivates me to redouble my efforts to improve my physical and technical skills.	3.21	1.261	64.2%	Middle
7	I have a constant feeling that difficult circumstances in my university life will not last long and will improve.	3.44	1.339	68.8%	High
8	I am confident in my ability to make decisive and correct decisions in critical and confusing sporting situations.	3.38	1.483	67.6%	Middle
9	I take full responsibility for results of my athletic and academic performance without blaming others.	3.64	1.384	72.8%	High
10	I feel I possess mental toughness to compete with colleagues who surpass me in physical abilities.	3.30	1.521	66%	Middle
11	I view mistakes I make during athletic performance as opportunities for learning and self-improvement.	3.31	1.364	66.2%	Middle
12	I can separate personal problems from academic commitments within college	3.25	1.662	65%	Middle
13	I am looking for alternative ways to overcome obstacles that hinder my academic and athletic development.	3.47	1.384	69.4%	High

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

No.	Phrase	Mean	Standard deviation	Percentage	Level
14	I have will to make a gradual and strong comeback after suffering sports injuries during lessons.	3.14	1.516	62.8%	Middle
Scale		3.20	1.385	64%	Middle

It is evident from reading data in Table (8) that statements of Psychological Resilience Scale among students of College of Physical Education and Sports Sciences came at levels close to (medium and high), as statements (1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 14) achieved medium levels of response, with arithmetic means of (3.32 , 2.82 , 2.85 , 3.15 , 2.62 , 3.21 , 3.38 , 3.30 , 3.31, 3.25, 3.14), while statements (7, 9, 13) achieved high levels of response, with arithmetic means of (3.44 , 3.64 , 3.47). As a final result, scale in its entirety achieved a (medium) level with an arithmetic mean of (3.20), and a percentage of (64%).

Average score on psychological resilience scale for students of Faculty of Physical Education and Sports Sciences shows a mediocre indicator that falls short of desired goal of equipping students with high levels of mental toughness. The researcher attributes this psychological fluctuation among students to absence of systematic strategies aimed at developing students' psychological resilience. Although students possess some abilities that enable them to maintain physical performance under stress, maintain focus and composure during intense athletic competition, and adapt to its difficulty acceptably, these skills remain within ordinary ranges. They lack ability to withstand crises and challenges for extended periods, exhibit clear hesitation and an inability to control their emotions when faced with provocative situations, regain confidence after failing tests, and channel this frustration into motivation for increased effort. Furthermore, they struggle to make decisive decisions in stressful athletic situations and find it difficult to compete with peers who surpass them in skill and fitness. They also clearly conflate their personal crises with their responsibilities. researcher also attributes this average result in students' psychological resilience to lack of emotional stability in high-pressure situations, to fact that curricula they are exposed to during their college years focus only on skill and physical aspects, neglecting organized psychological preparation, with absence of specialized training capable of building solid psychological resilience.

In this area , Salih et al. (2023) indicate that achieving and enhancing psychological resilience in students requires assigning them comprehensive responsibilities during learning period to simulate their future work environment. They also emphasize need to design preventative programs to reduce low levels of psychological resilience and to develop guidance and counseling programs specifically designed to enhance this resilience (Salih et al., 2023, p. 313) . Hussain et al. (2024) point out that achieving psychological resilience necessitates two essential dimensions: ability to effectively cope with stress and crises by overcoming difficult situations, utilizing positive personal traits such as self-control and appropriate decision-making; and ability to adapt to life after crisis by regaining feelings of happiness and optimism (Hussain). (and others, 2024, p. 6) . As for (Al-Habida and Al-Tashah , 2025) , they indicate that psychological resilience of students requires providing psychological and social care and support, developing their skills in coping with pressures within educational environment, enhancing their self-confidence, and their positive view of their own abilities (Al-Habida and Al-Tashah , 2025. p. 48) .

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Presenting results of third objective (identifying nature and type of correlational relationship between use of nature-based and external environment-based teaching methods and levels of psychological flexibility among students)

Table 9. Shows correlation coefficient and level of statistical significance between two measures among members of sample

Variables	Degree of correlation	Level of significance
Teaching methods based on nature and external environment	0.609	0.000
Psychological resilience		

Results of Table (9) show that there is a significant positive correlation between nature-based teaching methods and external environment and psychological flexibility, as degree of correlation between them reached (0.609), at a statistical significance level of (0.000), which proves that relationship between two variables is real and highly statistically significant.

The researcher believes that this strong moral connection explains vital role that nature plays as an educational environment that contributes to enhancing mental resilience and psychological flexibility. Breaking away from pattern of lessons inside traditional halls, auditoriums, and playgrounds, and facing physical, skill-based, and psychological challenges in open air, all of this would place students in real and realistic situations that require them to have ability to make quick decisions and to continuously adapt to variables of natural environment and conditions of free competition. This direct interaction with external environment also contributes significantly to reducing their stress levels, increases their ability to control their emotions, and renews their self-confidence after experiencing educational failures. Undoubtedly, relying on natural terrain, survival strategies, and outdoor group activities goes beyond limits of developing physical and skill-based competence. It goes beyond that to form an educational and psychological support that raises students' ability to persevere and face psychological and academic pressures with efficiency, stability, and flexibility.

Conclusions

Average result of nature-based and external environment teaching methods scale in College of Physical Education and Sports Sciences indicates that current teaching practices in this college lack a systematic foundation for an integrated educational philosophy that links field education with specialized psychological and environmental requirements, and have kept it within a standard performance framework that does not elevate it to become a systematic and planned productive environment. Average result of psychological resilience scale among students of College of Physical Education and Sports Sciences indicates that these students' ability to cope with field pressures and challenges remained dependent on individual personal characteristics and immediate environmental influences, as a result of absence of organized psychological preparation programs within college's academic curriculum. Significant correlation between nature-based teaching methods and external environment and psychological resilience of students indicates fact that open nature and external environment are active stimuli for developing psychological system of students, and that open educational field is a natural incubator for refining behavioral, physical and skill-based traits, building their mental immunity, and forming their psychological defense lines against educational crises and challenges.

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

Recommendations

study recommends that College of Physical Education and Sports Sciences move teaching activities in nature and outdoor environment from their current traditional style to become a planned and systematic executive framework, through formation of joint scientific committees within college that work on preparing a reference guide for teaching practices, which ensures formulation of innovative educational units that are subject to continuous evaluation and meet requirements of open educational environment. Curriculum developers and educational programs in College of Physical Education and Sports Sciences include organized psychological preparation programs and training as an essential part of college's curricula, to consolidate students' self-coping mechanisms for dealing with difficulties they may encounter during their studies, and to enhance their psychological resilience based on well-studied scientific principles, away from randomness and individual differences. College should invest in college's open fields as an integrated educational and developmental tool, by designing educational programs that integrate motor performance with behavioral development, in order to enhance students' mental immunity and raise their level of competence in facing academic challenges and difficulties.

References

- Al-Amin, S. A. (2025). Psychological resilience and its relationship to mental alertness among students of Faculty of Physical Education and Sports Sciences at Al-Jafara and Al-Marqab University. *Libyan Journal of Educational Sciences* , *Issue 14* (February), pp. 237-264 .
- Hussein, M. H. M., Jarar, H. M. M., and Al-Atrash, M. H. H. (2024). Psychological resilience among physical education teachers of students with special educational needs in Jerusalem Governorate. *International Journal of Sports Science* , *Volume 6* (Issue 5), pp. 4-13 .
- Abbas, M. S. (2025). effect of a counseling program on developing psychological resilience among students at Diyala University. *Al-Fath Journal for Educational and Psychological Research* , *29* (3), pp. 227-250 . https://doi.org/10.64940/jfath/2025.29.3.11
- Awad, A. A., and Muhammad, L. N. (2025). Psychological rationality and its relationship to psychological resilience in volleyball among students of some colleges of physical education and sports science. *Anbar University Journal of Physical and Sports Sciences* , *Volume 16* (Issue 3), pp. 411-425 .
- Owaid, F. H. (2025). Psychological resilience and its relationship to social skills among some students at Salahaddin University. *Journal of Studies and Research in Physical Education* , *35* (1), 684–695 . https://doi.org/10.55998/jsrse.v35i1.877
- Ghaniya, A., & Saadallah, A. (2023). Level of psychological resilience among university students. *Journal of Psychological Studies* , *Volume 14* (Issue 1), pp. 377-390 .
- Al-Habida, J. M., and Al-Tashah, F. M. (2025). Psychological resilience and its relationship to psychological security among students of College of Basic Education in State of Kuwait. *Journal of Educational Studies and Research* , *Volume 5* (Issue 13), pp. 45-81 .

- Abu Hayyaneh, R. (2024). Outdoor Nature-Based Learning Programs: Impact of Outdoor Environmental Education Programs on Students' Knowledge, Attitudes, and Behaviors toward Nature Conservation. Case of Nature Knights Program, Ajloun and Azraq, Jordan. In *Edu Research Indonesian Institute For Corporate Learning And Studies (IICLS)* . Doctoral thesis, University of Calgary, Calgary, Canada.
- Al-Anzi, H. K. M., & Al-Mayahy, R. J. A. (2026). Academic Hope and Psychological

Resilience Among University Students. *Indonesian Journal of Educational Methods Development* , *21* (1), 1–20. https://doi.org/10.21070/ijemd.v21i1.1016

- Al-Maliki, DMAKK (2024). Psychological resilience and its relationship to achievement motivation for students of fourth stage in faculty of physical education and sports sciences at Al-Mustansiriya University. *International Journal of Sports, Health and Physical Education* , *6* (2), 05–10. https://doi.org/10.33545/26647559.2024.v6.i2a.138
- Alkharusi, H. (2022). A descriptive Analysis and Interpretation of Data from Likert Scales in Educational and Psychological Research. *Indian Journal of Psychology and Education* , *Vol. 12* (No.2), pp. 13-16.
- AVCI, G., & GÜMÜŞ, N. (2020). Effect of Outdoor Education on Achievement and Recall Levels of Primary School Students in Social Studies Course. *Review of International Geographical Education Online*, *10* (SpecialIssue1), 171–206. https://doi.org/10.33403/rigeo.638453
- Aylward, T., Coulter, M., & Farrelly, T. (2025). Outdoor learning on edge of Europe: a systematic review of practice from Ireland. *Journal of Adventure Education and Outdoor Learning* , *1* (Apr), 1–24. https://doi.org/10.1080/14729679.2025.2494033
- Chouhan, S., & Soni, N. (2025). Efficacy of Nature Based Teaching on Emotional Competencies of Adolescents. *International Journal of Multidisciplinary Research* , *2* (6), 5–12.
- Falzon, D., & Conrad, E. (2024). Designing primary school grounds for nature-based learning: A review of evidence. In *Journal of Outdoor and Environmental Education* (Vol. 27, Number 3). Springer Nature Singapore. https://doi.org/10.1007/s42322-023-00142-4
- Huang, H., Hu, J., Li, Y., Xu, L., & Li, C. (2026). association between physical education teachers' autonomy support and college students' exercise engagement: serial mediating role of basic psychological needs and psychological resilience. *BMC Psychology* , *1* (May), 1–29. https://doi.org/10.1186/s40359-026-04672-6
- Kilburg, H. L. (2023). *Nature-Based Education: Expanding Walls of Classroom* . University Honors.
- Klopčič, M., & Torkar, G. (2026). Key Predictors of Outdoor Science Teaching in Regular Classes. *Educational Sciences* , *16* (5), 778. https://doi.org/10.3390/educsci16050778
- Knight, J., Schultz, C., Stonehouse, P., Johnson, C. W., Howard, J., Williams, Y., Harrington, A., & Warner, E. (2025). How nature-based learning impacts teachers: Discoveries for well-being in and with project EXPLORE community. *Interdisciplinary Journal of Environmental and Science Education*, *21* (1), 1–13. https://doi.org/10.29333/ijese/15813
- Liu, X., Wang, J., Yang, Y., & Qin, T. (2026). *Physical Activity and Psychological Resilience in University Students: Evidence From a Moderated Mediation Framework* (pp. 1–15). Shandong Vocational and Technical University of International Studies. https://doi.org/10.21203/rs.3.rs-8654377/v1
- Parker, L. (2022). Outdoor Learning, A Pathway to Transformational Learning? Or Another Educational Gimmick? *International Journal for Cross-Disciplinary Subjects in Education* , *13* (1), 4600–4611. https://doi.org/10.20533/ijcdse.2042.6364.2022.0565
- Quay, J. (2026). From programming to curriculum in planning and teaching outdoor education. *Journal of Outdoor and Environmental Education* , *1* (May), 1–19. https://doi.org/10.1007/s42322-026-00253-8
- Salih, A. O., Younis, A. A., & Chtourou, H. (2023). Psychological resilience for students of faculty of physical education and sports science. *Physical Education of Students* , *27* (6), 313–318. https://doi.org/10.15561/20755279.2023.0602

ISSN: 2798-7345 (online)
ISSN: 2830-2648 (print)
Vol (7) No (2)
doi:

JOURNAL OF EDUCATION AND SPORT SCIENCE (JESS)
http://publikasiilmiah.unwahas.ac.id/index.php/JESS

- Tan, F., You, G., Li, Y., & Gao, J. (2026). Predictors of intellectual development in outdoor sports education mediated by student satisfaction and moderated by prior outdoor experience. *Scientific Reports* , *16* (1), 12229. https://doi.org/10.1038/s41598-026-43731-1

- Trina, N.A., Monsur, M., Cosco, N., Shine, S., Loon, L., & Mastergeorge, A. (2024). How Do Nature-Based Outdoor Learning Environments Affect Preschoolers' STEAM Concept Formation? A Scoping Review. *Educational Sciences* , *14* (6), 1–21. https://doi.org/10.3390/educsci14060627

- Wang, J., & Zhang, R. (2025). effect of employment stress on employment anxiety among physical education students: mediating role of social support and psychological resilience. *Frontiers in Psychology*, *16* (September), 1–11. https://doi.org/10.3389/fpsyg.2025.1533218