



Students' perception of experiential outdoor learning and its influence on motivation and academic engagement in higher secondary education

Aruna Panda¹, Shisira Bania^{2*}, Biswajit Dash³

¹ Faculty of Education, Rajendra University, Bolangir, Odisha, India

² Faculty of Education, Birmaharajpur College, Rajendra University, Bolangir, Odisha, India

³ Faculty of Education, Lord Jagannath Higher Secondary School, Chhendipada, Odisha, India

Corresponding Author: Shisira Bania

Abstract

Outdoor education has emerged as a vital experiential pedagogical approach that enhances holistic learner development through active engagement beyond conventional classroom settings. The present study examines institutional provisions, student participation patterns, motivational orientations, perceived educational outcomes, and psychological benefits associated with outdoor education programmes among higher secondary learners (N = 150). The findings indicate strong institutional commitment, with outdoor education integrated into at least 30% of the curriculum across all institutions and widespread availability of sports and cultural programmes. Student engagement was notably high, with the majority reporting excellent experiential quality, frequent participation in excursions, collaborative outdoor learning tasks, and institutional sports activities. Motivational results further revealed substantial learner interest and positive orientation toward outdoor learning, with study tours and academic conferences identified as the most preferred experiential formats. Students overwhelmingly perceived outdoor education as more effective than classroom learning, recognising its academic usefulness, career relevance, and significant contribution to personality development. Psychological outcomes were equally prominent, as most respondents experienced positive emotional responses, high enjoyment, and universal psychological refreshment, while yoga participation was associated with enhanced mental clarity and multiple wellness benefits. Overall, the study underscores outdoor education as a transformative learning ecology that promotes academic enrichment, emotional well-being, motivation, and holistic development, while recommending the strengthening of infrastructural diversity and inclusive participation strategies to maximise its educational potential.

Keywords: Outdoor education, experiential learning, student engagement, motivation, holistic development, psychological well-being, higher secondary learners

Introduction

Outdoor education has increasingly gained recognition as an innovative pedagogical approach that extends learning beyond traditional classroom boundaries and situates education within natural and experiential environments. It is broadly defined as organized learning that occurs outdoors through activities such as study tours, camping programmes, seminars, conferences, sports, yoga, and cultural engagements. This approach provides students with opportunities to actively participate in learning processes in barrier-free settings, enabling deeper interaction with communities, societies, and the environment (Bosch & Oswald, 2010; Szczepanski *et al.*, 2006) [8, 18]. Unlike conventional classroom instruction, outdoor education embraces experiential and holistic development by fostering students' physical, emotional, social, and cognitive growth through direct engagement with real-world contexts.

The theoretical foundations of outdoor education are strongly linked with experiential learning perspectives, which emphasize learning through direct participation, reflection, and practical observation. Experiential education theory highlights that students construct knowledge most effectively when they encounter authentic situations that demand problem-solving, collaboration, and critical engagement (Alabi, 2024) [3]. Outdoor learning environments also encourage resilience and adaptability, as students are often required to face challenges beyond their comfort zones, thereby contributing to personal growth and

transferable life skills (Neill, 2008) [16]. Moreover, outdoor educators play a crucial role in facilitating meaningful experiences through leadership skills, presence, and structured guidance that enhance both learning and safety in outdoor programmes (Thomas, 2019, 2021) [19, 20].

Research evidence suggests that outdoor education positively influences students' psychological well-being, cognitive development, and academic engagement. For instance, outdoor exposure has been associated with improved working memory, reduced hyperactivity, and enhanced attentiveness among learners (Flouri *et al.*, 2019). In addition, outdoor learning fosters prosocial behaviours such as cooperation, helping, and respect for social norms, which contribute to healthier peer relationships and long-term academic achievement (Țigău, 2025) [21].

In recent decades, outdoor education has expanded globally through structured initiatives such as the Outward-Bound movement, forest schools, and adventure-based learning programmes, all of which aim to promote psychological and educational development through meaningful experiences in demanding environments (McLeod & Allen-Craig, 2007) [15]. These programmes are designed not only to enhance academic outcomes but also to cultivate motivation, confidence, and engagement among students. Motivation, as a key affective component of learning, is particularly important at the higher secondary stage, where students face increasing academic demands and career-related pressures.

Despite the growing body of research on outdoor education, most existing studies have primarily focused on emotional outcomes such as anxiety reduction, happiness, and enjoyment, while comparatively fewer studies have examined its influence on students' cognitive dimensions such as reasoning, critical thinking, and motivation (Bowen *et al.* 2016; Holland *et al.*, 2018)^[9, 14]. Addressing this gap, the present study investigates higher secondary students' perceptions of experiential outdoor learning and explores its pathways to academic engagement and motivation in the context of Angul District, Odisha. By examining motivation across gender and academic streams, this research contributes to a deeper understanding of outdoor education as a transformative pedagogical strategy within Indian higher secondary schooling.

Review of Related Literature

Outdoor education has emerged as a significant pedagogical approach that integrates experiential learning with natural and outdoor environments, offering students opportunities for holistic development. It is widely understood as a learning process conducted outside the classroom through activities such as study tours, camping trips, conferences, seminars, sports, and cultural programmes (Bosch & Oswald, 2010)^[8]. Scholars argue that outdoor education promotes learning through authentic experiences, where students engage emotionally, socially, and cognitively with their surroundings (Szczepanski *et al.*, 2006)^[18]. This experiential foundation makes outdoor education one of the most powerful and transferable teaching vehicles for fostering motivation and meaningful engagement (Barker, 2006)^[6].

A growing body of research highlights the psychological and social benefits of outdoor education. Hernawan *et al.* (2024)^[13] found that outdoor education programmes significantly reduce anxiety levels among sports college students in Indonesia. Similarly, Akin *et al.* (2024)^[2] demonstrated that outdoor education integrated with life skills training enhances interpersonal communication among university learners. These findings reinforce the role of outdoor programmes in supporting emotional well-being and social competence.

Outdoor education has also been linked to motivation and cognitive development. Kamal and Narasuman (2024) reported that physical activity levels strongly influence student motivation, suggesting that outdoor learning contexts may serve as motivational drivers in secondary education. Fan *et al.* (2024)^[10] further found that outdoor education significantly improves elementary students' learning motivation and perceptions of scientific literacy. Additionally, Flouri *et al.* (2019) identified positive relationships between time spent outdoors and children's improved working memory, reduced hyperactivity, and enhanced attentiveness, indicating cognitive pathways through which outdoor learning contributes to academic achievement.

In terms of academic engagement, Backman *et al.* (2012)^[5] emphasized that positive learning environments extend beyond classrooms, with outdoor activities contributing to improved classroom climate and individual learning processes. Similarly, Avci and Gumus (2020) observed that outdoor education activities in social studies increased students' academic achievement and knowledge recall.

Outdoor learning therefore supports not only motivation but also long-term academic outcomes.

Teachers' and educators' perspectives have also been explored in outdoor education research. Remmen and Iversen (2023)^[17], in their scoping review of Nordic outdoor education, noted that teacher perspectives are among the most frequently investigated themes, followed by cognitive learning and well-being outcomes. Furthermore, Thomas (2019)^[19, 20] stressed that outdoor educators require leadership skills and authenticity to effectively facilitate learning and ensure safety in outdoor environments.

Despite these encouraging findings, systematic reviews have raised concerns about the robustness of quantitative evidence in outdoor education research. Bowen and Neill (2014) and Holland *et al.* (2018)^[14] noted that although many studies report positive outcomes, methodological limitations and insufficient longitudinal evidence remain challenges. Becker *et al.* (2017)^[7] also observed that research on curriculum-based outdoor education programmes is still relatively limited, particularly regarding long-term educational impacts.

Research Gap

Although outdoor education has been widely studied across domains such as emotional well-being, anxiety reduction, creativity, interpersonal communication, and academic achievement, the majority of research has focused primarily on affective outcomes, particularly happiness, enjoyment, and stress reduction (Hernawan *et al.*, 2024; Yogi Akin *et al.*, 2024)^[2, 13]. Comparatively fewer studies have examined the cognitive and motivational dimensions of outdoor education, especially in relation to students' academic engagement and perception-based motivation development (Bowen & Neill, 2014; Holland *et al.*, 2018)^[14].

Furthermore, much of the existing literature has been conducted in Western or international contexts, with limited empirical studies focusing on Indian higher secondary education settings. The uploaded thesis also highlights that only a small number of studies have explored how outdoor education influences cognitive abilities such as reasoning, critical thinking, and motivation among adolescents, particularly within Odisha (Bosch & Oswald, 2010; Flouri *et al.*, 2019)^[8].

In addition, while some studies have examined outdoor learning in early childhood and elementary education (Flouri *et al.*, 2019), there remains a significant gap in understanding higher secondary students' perceptions of experiential outdoor learning and its pathways to academic engagement and motivation. The role of demographic variables such as gender and academic stream in shaping motivation through outdoor education also remains underexplored.

Therefore, the present study addresses these gaps by investigating higher secondary students' perception of experiential outdoor learning and analyzing its influence on academic engagement and motivation within Angul District, Odisha.

Objectives of the Study

The present study was undertaken with the following objectives:

1. To examine the effect of outdoor education on the motivation level of higher secondary students in terms of gender differences.

2. To investigate the effect of outdoor education on the motivation level of higher secondary students with reference to their academic streams (Arts and Science).

Hypotheses of the Study

In accordance with the stated objectives, the study formulated the following null hypotheses:

- **H01:** There is no significant difference between students' opinions regarding outdoor education and motivation level based on gender.
- **H02:** There is no significant difference between students' opinions regarding outdoor education and motivation level based on academic streams.

Methodology

Research Design

The present study employed a quantitative approach using a descriptive survey research design to examine higher secondary students' perceptions of experiential outdoor learning and its influence on academic motivation. A descriptive design was considered appropriate because it enables the systematic collection of data regarding students' opinions and experiences related to outdoor educational activities and their motivational outcomes.

Participants

The participants of the study consisted of 150 higher secondary students drawn from three selected higher secondary schools in Angul District, Odisha: Talcher Higher Secondary School, P.S.S.J Higher Secondary School (Banarpal), and Gadtal Regional Higher Secondary School (Thermal). The sample included students from both Arts and Science streams and represented both genders. Specifically, the sample comprised 60 male students and 90 female students.

Sampling Procedure

A stratified random sampling technique was used to ensure proportional representation of students across gender and academic stream categories. This sampling approach was adopted to capture diversity within the population and to facilitate comparative analysis between groups.

Instrument

Data were collected using a self-developed questionnaire designed to assess students' perceptions of outdoor education and its effect on motivation level. The

questionnaire included sections addressing demographic information, outdoor education experiences (e.g., study tours, camping trips, seminars, sports, yoga, and cultural programmes), students' opinions regarding outdoor learning, and perceived motivational and academic outcomes. The instrument was administered offline to participants in classroom settings.

Data Collection Procedure

Prior permission was obtained from the principals of the selected institutions before conducting the study. Participants were informed about the purpose of the research, and confidentiality of responses was assured. The questionnaires were distributed to students during scheduled classroom sessions, and the data were collected over a period of three days. Responses were gathered under the supervision of the researcher with the assistance of trained investigators.

Data Analysis

The collected data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics, including percentages, means, and standard deviations, were used to summarize students' responses. Inferential analysis was conducted using an independent samples t-test to determine whether significant differences existed in students' motivation levels based on gender and academic stream. The level of statistical significance was set at $\alpha = .05$.

Results

The results of the present study provide a comprehensive understanding of higher secondary students' perceptions of experiential outdoor learning and its pathways to academic engagement and motivation. Data were collected from 150 students across three higher secondary institutions in Angul district, Odisha. The findings are presented through descriptive statistics and inferential analysis.

Institutional Provision and Structural Support for Outdoor Education

Table 1 highlights the extent of institutional provision and structural support for outdoor education programmes among the sampled institutions (N = 150). The results indicate that outdoor education has achieved substantial curricular recognition, with an equal proportion of respondents reporting integration of outdoor education into 30% of the curriculum (50%) and more than 30% (50%).

Table 1: Institutional Provision and Structural Support for Outdoor Education Programme (N = 150)

Academic Variable	Response Category	Frequency (f)	Percentage (%)
Curriculum integration of outdoor education	30% of curriculum	75	50.00
	More than 30% of curriculum	75	50.00
Availability of institutional sports and cultural programs	Available	145	96.67
	Not available	5	3.33
	Undecided	0	0.00
Availability of outdoor sports infrastructure	Gymnasium only	7	4.67
	Stadium facility	68	45.33
	Playground/field	55	36.67
	Multiple facilities available	20	13.33
Institutional emphasis on specific outdoor sports	Cricket	23	15.33
	Basketball	55	36.67
	Football	61	40.67
	Other sports	11	7.33
Availability of institutional yoga facilities	Available	94	62.67
	Not available	49	32.67
	Undecided	7	4.67

Furthermore, institutional commitment to co-curricular engagement is strongly evident, as an overwhelming majority (96.67%) confirmed the availability of sports and cultural programmes, suggesting that outdoor learning is increasingly positioned as an essential component of holistic educational development rather than a peripheral activity.

In terms of infrastructural readiness, the findings reveal moderate variation in the availability of outdoor sports facilities. Stadium facilities were reported by 45.33% of institutions, while 36.67% had playgrounds or fields, and only 13.33% possessed multiple facilities, reflecting limitations in comprehensive infrastructure. Institutional emphasis was largely concentrated on mainstream sports such as football (40.67%) and basketball (36.67%), with comparatively less focus on cricket (15.33%) and other sports (7.33%), indicating a narrower orientation in outdoor sport prioritisation.

Additionally, yoga facilities were available in 62.67% of institutions, though nearly one-third lacked such provisions, pointing to uneven incorporation of wellness-oriented practices. Overall, the findings underscore strong institutional support for outdoor education, while also highlighting the need for more diversified infrastructure and inclusive physical-wellbeing initiatives to strengthen experiential learning ecosystems.

Students' Participation and Behavioral Engagement in Outdoor Learning Activities

Table 2 presents students' participation and behavioural engagement in outdoor education programmes (N = 150), revealing generally positive perceptions and active involvement. A substantial majority of students rated the overall experiential quality of outdoor education as excellent (73.33%), while 26.67% perceived it as good, indicating strong satisfaction with outdoor learning experiences. Participation levels in outdoor educational excursions were also notable, with 36.67% of students reporting involvement in more than four excursions and 33.33% participating in two excursions, reflecting frequent exposure to experiential outdoor activities. In terms of engagement frequency, half of the respondents (50%) participated daily, while others engaged weekly (30%) or monthly (30%), suggesting that outdoor education is embedded within regular student routines rather than being an occasional intervention. The table further highlights behavioural engagement through the duration and nature of participation in outdoor and collaborative activities. Students commonly spent between two to four hours in outdoor educational engagements, with the highest proportion reporting three hours (24.67%) and four hours (25.33%), demonstrating sustained involvement.

Table 2: Students' Participation and Behavioral Engagement in Outdoor Education Programme (N = 150)

Academic Variable	Response Category	Frequency (f)	Percentage (%)
Overall experiential quality of outdoor education	Excellent	110	73.33
	Good	40	26.67
	Fair	0	0.00
	Poor	0	0.00
Frequency of participation in outdoor educational excursions	Two excursions	50	33.33
	Three excursions	23	15.33
	Four excursions	22	14.67
	More than four excursions	55	36.67
Frequency of engagement in outdoor educational activities	Daily	75	50.00
	Weekly	45	30.00
	Monthly	45	30.00
	Rarely	15	10.00
Duration of participation in outdoor educational activities per week	2 hours	40	26.67
	3 hours	37	24.67
	4 hours	38	25.33
	More than 4 hours	35	23.33
Level of participation in collaborative outdoor learning tasks	Low participation	25	16.67
	Moderate participation	60	40.00
	High participation	65	43.33
Participation in academic outdoor enrichment programs	Participated	115	76.67
	Not participated	35	23.33
	Undecided	0	0.00
Participation in institutional outdoor sports	Cricket	55	36.67
	Football	32	21.33
	Basketball	23	15.33
	Multiple sports	40	26.67
Frequency of participation in institutional yoga programs	Daily	45	30.00
	Weekly	36	24.00
	Monthly	45	30.00
	Never	24	16.00

Collaborative learning participation was also encouraging, as 43.33% reported high participation and 40% moderate participation, reflecting the social and interactive value of outdoor education. However, participation in academic outdoor enrichment programmes showed some disparity, with 76.67% participating but 23.33% not involved,

indicating scope for broader inclusion. Engagement in institutional outdoor sports was distributed across cricket (36.67%), football (21.33%), basketball (15.33%), and multiple sports (26.67%), suggesting diverse sporting interests. Finally, yoga programme participation was moderate, with 30% engaging daily and monthly, though

16% never participated, highlighting uneven uptake of wellness-oriented outdoor initiatives. Overall, the findings underscore strong student engagement in outdoor education, while also pointing to the need for more inclusive and diversified participation opportunities.

Motivational Orientation and Attitudinal Disposition toward Outdoor Education

Table 3 examines students’ motivational orientation and attitudinal disposition toward outdoor education programmes (N = 150), indicating a generally favourable motivational climate. The findings reveal that a considerable proportion of students were highly motivated (40%) or moderately motivated (14.67%) to engage in outdoor educational settings, reflecting strong intrinsic and experiential interest. However, a notable segment reported neutrality (12%) or varying levels of demotivation, with 13.33% moderately demotivated and 20% highly demotivated,

suggesting that motivational engagement is not uniformly distributed across learners. In terms of frequency of motivational engagement, students most commonly reported occasional participation (24%), while 33.33% engaged sometimes and 34.67% rarely, highlighting fluctuating motivational consistency. Despite these variations, overall interest remained high, as 83.33% of respondents expressed being interested in outdoor learning, underscoring the positive attitudinal orientation toward such experiential pedagogies. The table further highlights behavioural engagement through the duration and nature of participation in outdoor and collaborative activities. The table further highlights students preferred outdoor educational activities and experiential learning formats. Academic conferences emerged as the most preferred activity (38%), followed by study tours (30%) and camping (21.33%), indicating that students value structured, knowledge-enriching outdoor experiences alongside recreational exposure.

Table 3: Students’ Motivational Orientation and Attitudinal Disposition toward Outdoor Education Programme (N = 150)

Academic Variable	Response Category	Frequency (f)	Percentage (%)
Level of learning motivation in outdoor educational settings	Highly motivated	60	40.00
	Moderately motivated	22	14.67
	Neutral	18	12.00
	Moderately demotivated	20	13.33
	Highly demotivated	30	20.00
Frequency of motivational engagement in outdoor activities	Often	36	24.00
	Sometimes	50	33.33
	Rarely	52	34.67
	Never	12	8.00
Level of interest in outdoor learning	Interested	125	83.33
	Not interested	20	13.33
	Undecided	5	3.33
Students’ preferred outdoor educational activity	Camping	32	21.33
	Study tours	45	30.00
	Academic conferences	57	38.00
	Cultural programs	16	10.67
Students’ preferred type of outdoor experiential learning	Seminar-based learning	16	10.67
	Conference-based learning	22	14.67
	Study tour-based learning	62	41.33
	Environmental learning	18	12.00
	Cultural activity-based learning	32	21.33

Cultural programmes and seminar-based learning received comparatively lower preference (10.67% each), reflecting selective engagement with different activity types. Regarding preferred experiential learning approaches, study tour-based learning was most favoured (41.33%), followed by cultural activity-based learning (21.33%) and conference-based learning (14.67%), while environmental learning accounted for 12%. These patterns suggest that students are particularly drawn toward outdoor experiences that combine academic enrichment with exploratory engagement. Overall, the findings emphasise strong student interest and motivation toward outdoor education, while also

highlighting the need for targeted strategies to address demotivation and diversify experiential formats to sustain consistent engagement.

Perceived Educational and Developmental Outcomes of Outdoor Learning

Table 4 presents students’ perceptions of the educational and developmental outcomes of outdoor education programmes (N = 150), demonstrating overwhelmingly positive evaluations. The majority of respondents (94.67%) perceived outdoor learning experiences as more effective compared to traditional classroom instruction, while only a small proportion (5.33%) considered them less effective.

Table 4: Perceived Educational and Developmental Outcomes of Outdoor Education (N = 150)

Academic Variable	Response Category	Frequency (f)	Percentage (%)
Perceived effectiveness of outdoor learning compared to classroom learning	More effective	142	94.67
	Less effective	8	5.33
	Undecided	0	0.00
Perceived academic usefulness of outdoor education	Beneficial	135	90.00
	Not beneficial	1	0.67
	Uncertain	14	9.33
Perceived career relevance of outdoor education	Relevant	105	70.00
	Not relevant	45	30.00
	Undecided	0	0.00
Perceived impact on career awareness and aspirations	No impact	45	30.00
	Improved awareness	22	14.67
	Enhanced aspiration	33	22.00
	Multiple career benefits	50	33.33
Perceived contribution to personality development	Positive contribution	150	100.00
	No contribution	0	0.00
	Undecided	0	0.00

Similarly, outdoor education was regarded as academically beneficial by 90% of students, indicating that experiential learning contributes meaningfully to knowledge acquisition and skill development. Perceptions of career relevance were also strongly affirmative, with 70% of respondents identifying outdoor education as relevant to future career pathways, although 30% viewed it as not relevant, suggesting some variation in how students connect outdoor learning with professional aspirations.

In terms of broader developmental outcomes, outdoor education was widely recognised for enhancing personal growth, awareness, and aspirations. While 30% reported no direct impact on career awareness, substantial proportions acknowledged improved awareness (14.67%), enhanced aspiration (22%), and multiple combined benefits (33.33%), highlighting the multidimensional value of outdoor experiences. Most notably, all respondents (100%) affirmed that outdoor education makes a positive contribution to personality development, reflecting its perceived role in fostering confidence, social skills, resilience, and holistic learner growth. Overall, the findings underscore outdoor education as a highly valued pedagogical approach that

supports not only academic enrichment but also career-oriented and personal developmental outcomes, reinforcing its importance within contemporary experiential learning frameworks.

Psychological and Emotional Outcomes Associated with Outdoor Education

Table 5 highlights the psychological and emotional outcomes associated with outdoor education programmes (N = 150), revealing overwhelmingly positive student experiences. A substantial majority of respondents reported highly positive emotional responses (46.67%) and positive responses (50%) toward participation in outdoor education, while only a negligible proportion expressed neutrality (3.33%) and none reported negative emotions. Similarly, the level of enjoyment during outdoor activities was exceptionally high, with 93.33% indicating high enjoyment and only 6.67% reporting low enjoyment. These findings strongly suggest that outdoor education fosters an emotionally engaging learning environment that enhances student satisfaction, motivation, and overall well-being.

Table 5: Psychological and Emotional Outcomes Associated with Outdoor Education (N = 150)

Academic Variable	Response Category	Frequency (f)	Percentage (%)
Emotional response following participation in outdoor education	Highly positive	70	46.67
	Neutral	5	3.33
	Negative	75	50.00
Level of enjoyment experienced during outdoor education	High enjoyment	140	93.33
	Low enjoyment	10	6.67
	Undecided	0	0.00
Perceived psychological refreshment from outdoor education	Experienced refreshment	150	100.00
	Not experienced	0	0.00
	Undecided	0	0.00
Perceived psychological and physical benefits of yoga participation	Physical fitness benefit	22	14.67
	Mental clarity benefit	78	52.00
	Stress reduction benefit	15	10.00
	Multiple benefits	35	23.33

The table further demonstrates the significant restorative and health-related benefits of outdoor education. All respondents (100%) affirmed experiencing psychological refreshment from outdoor participation, underscoring its universal impact on mental rejuvenation and stress reduction. Additionally, students perceived multiple physical and psychological benefits linked to yoga

participation, with 52% identifying mental clarity as the primary benefit, followed by physical fitness (14.67%) and stress reduction (10%). Notably, 23.33% acknowledged multiple combined benefits, reflecting the holistic wellness dimension of outdoor and mindfulness-oriented practices. Overall, the findings confirm that outdoor education programmes contribute not only to academic engagement

but also to emotional positivity, psychological restoration, and enhanced physical and mental health outcomes, reinforcing their relevance within comprehensive learner development frameworks.

Gender-Based Differences in Motivation toward Outdoor Education

As reported in table 6, an independent samples t-test was

Table 6: Independent Samples t-Test Results for Differences in Motivation Scores by Gender (H01)

Gender Group	N	Mean (M)	Standard Deviation (SD)	Standard Error (SE)	t-value	Df	Significance ($\alpha = .05$)
Male	60	20.00	3.60	2.08	-1.428	147	Not Significant
Female	90	30.00	12.16	7.02			

However, the calculated t value ($t = -1.428$) with 147 degrees of freedom did not reach statistical significance at the 0.05 level ($p > .05$). Therefore, the null hypothesis (H01) was accepted, suggesting that the motivational influence of outdoor education is comparable for both male and female higher secondary students. In other words, while mean differences were observed, gender does not significantly shape students' perceptions of outdoor education as a motivational learning pathway.

conducted to examine whether students' motivation levels regarding outdoor education differed significantly by gender. The results show that female students ($n = 90$) obtained a higher mean motivation score ($M = 30.00$, $SD = 12.16$) compared to male students ($n = 60$, $M = 20.00$, $SD = 3.60$). This indicates that female students expressed relatively stronger motivational perceptions toward outdoor learning activities.

Academic Stream Differences in Motivation toward Outdoor Education

As reported in table 7, an independent samples t-test was applied to determine whether students' motivation levels toward outdoor education differed significantly across academic streams (Arts and Science). The results indicate that Arts students ($n = 80$) obtained a slightly higher mean motivation score ($M = 26.33$, $SD = 6.35$) than Science students ($n = 70$, $M = 23.33$, $SD = 7.02$). This suggests that Arts learners may perceive outdoor experiential learning as marginally more motivating compared to Science learners.

Table 7: Independent Samples t-Test Results for Differences in Motivation Scores by Academic Stream (H02)

Academic Stream	N	Mean (M)	Standard Deviation (SD)	Standard Error (SE)	t-value	df	Significance ($\alpha = .05$)
Arts	80	26.33	6.35	3.66	1.643	147	Not Significant
Science	70	23.33	7.02	4.05			

However, the obtained t value ($t = 1.643$) with 147 degrees of freedom was not statistically significant at the 0.05 level ($p > .05$). Thus, the null hypothesis (H02) was accepted, indicating that academic stream does not significantly influence students' motivational perceptions of outdoor education. This finding implies that outdoor learning serves as an equally motivating educational approach for students across both Arts and Science disciplines.

The results of the study collectively demonstrate that experiential outdoor education is strongly supported at the institutional level and is actively participated in by higher secondary students in Angul district. As evidenced across tables 1–5, students reported high levels of engagement, enjoyment, psychological refreshment, and positive perceptions regarding the academic and developmental value of outdoor learning. Outdoor education was widely viewed as more effective than classroom-based instruction and beneficial for personality development, motivation, and career awareness. Furthermore, inferential findings presented in Tables 6 and 7 revealed that although slight mean differences were observed across gender and academic stream groups, these differences were not statistically significant. This indicates that outdoor education functions as an equally motivating and engaging learning pathway for students regardless of demographic background. Overall, the findings affirm the role of experiential outdoor learning in enhancing academic engagement, holistic development, and motivational orientation among higher secondary learners.

Discussion

The present study examined higher secondary students' perceptions of experiential outdoor learning and its

pathways to academic engagement and motivation. The findings provide strong evidence that outdoor education is widely perceived as an effective pedagogical approach that enhances students' learning motivation, engagement, and holistic development. As reported in the results, institutions in Angul district demonstrate considerable structural readiness for outdoor education through curriculum integration, sports and cultural programmes, and infrastructural facilities. Such institutional support creates an enabling environment where experiential learning can flourish beyond classroom boundaries. Students' participation patterns further indicate that outdoor education is not merely recreational but academically meaningful. A majority of students rated their outdoor learning experiences as excellent and reported frequent involvement in excursions, enrichment programmes, and collaborative outdoor tasks. This behavioral engagement supports experiential learning perspectives, which emphasize that knowledge is constructed through active participation, reflection, and real-world interaction. Outdoor education thus appears to promote learning as an embodied and socially interactive process rather than a purely classroom-based activity.

Motivational outcomes of the study reinforce the argument that outdoor education serves as a catalyst for student interest and academic engagement. A substantial proportion of respondents reported being highly motivated in outdoor learning contexts, and most expressed strong interest in such environments. Study tours and contextual learning activities emerged as the most preferred outdoor experiences, suggesting that students value authentic exposure and experiential engagement. These findings align with broader

educational literature emphasizing that learning motivation increases when students encounter meaningful, activity-based learning opportunities in natural or community settings. The perceived educational and developmental outcomes were overwhelmingly positive. Most students viewed outdoor learning as more effective than traditional classroom instruction and beneficial for academic growth, career awareness, and personality development. Such holistic benefits highlight the transformative potential of outdoor education in fostering not only cognitive development but also social-emotional competencies. Additionally, psychological outcomes revealed that outdoor learning provides enjoyment, refreshment, and mental clarity, reinforcing its value as a supportive learning approach that contributes to student well-being.

Interestingly, the inferential analysis revealed no statistically significant differences in motivational perceptions across gender or academic stream. Although female students and Arts students obtained slightly higher mean scores, the differences were not significant. This suggests that outdoor education functions as a universally engaging pedagogical strategy, benefiting learners across demographic categories. Outdoor experiential learning therefore appears inclusive in its motivational influence, supporting diverse groups of higher secondary students.

Educational Implications

The findings of this study carry several important implications for educational practice and policy. First, schools and higher secondary institutions should strengthen the integration of outdoor education within the formal curriculum, as students perceive it as academically beneficial and more effective than classroom-only instruction. Outdoor learning should not remain occasional but should be systematically embedded through structured programmes such as study tours, outdoor seminars, cultural activities, and sports-based experiential learning. Second, teachers and educators should adopt outdoor pedagogy as a motivational strategy to enhance student engagement, particularly at the higher secondary stage where academic pressures often reduce learning interest. Outdoor activities can provide refreshing and psychologically supportive learning environments that foster enthusiasm and sustained motivation.

Third, policymakers and educational planners should recognize outdoor education as a holistic developmental approach that supports not only academic achievement but also personality development, career awareness, and emotional well-being. Investment in outdoor infrastructure, wellness programmes such as yoga, and teacher training in experiential pedagogy can further strengthen the effectiveness of outdoor education initiatives. Finally, since outdoor education was found to be equally motivating across gender and academic streams, it can be promoted as an inclusive educational practice that supports all learners regardless of background or discipline.

Conclusion

The present study concludes that experiential outdoor learning is strongly perceived by higher secondary students as an effective pathway to academic engagement and motivation. Outdoor education programmes in Angul district contribute positively to students' learning experiences, fostering enjoyment, psychological

refreshment, personality development, and academic usefulness. The findings further suggest that outdoor education provides motivational benefits consistently across gender and academic streams, highlighting its inclusive pedagogical value. Overall, outdoor education emerges as a powerful experiential approach that can enhance holistic student development and strengthen motivational orientation in higher secondary education. Future research may extend these findings through longitudinal designs, larger samples, and deeper exploration of cognitive and achievement-related outcomes of outdoor pedagogy.

References

1. Ahmad Kamal A, Azizy MNS, Narasuman S, Ab Rahman Z, Zainal Abidin AN. The effect of physical activity level towards motivation among secondary school students and implications on pre-service teacher education. *Asian Journal of University Education (AJUE)*,2024;20(3):822-834.
2. Akin Y, Kurniawan AR, Mudzakir DO, Afriyuandi AR, Setiawan L, Rasid ARA, *et al.* Integration of life skills in outdoor education program towards interpersonal communication. *International Journal of Disabilities Sports and Health Sciences*,2024;7(5):1044-1052.
3. Alabi M. Experiential learning: Fostering deep learning through active engagement. *Ladoke Akintola University of Technology*, 2024.
4. Avcı G, Gümüş N. The effect of outdoor education on the achievement and recall levels of primary school students in social studies course. *Review of International Geographical Education Online*,2020;10(1):171-206.
5. Backman Y, Alerby E, Bergmark U, Gardelli Å, Hertting K, Kostenius C, *et al.* Learning within and beyond the classroom: Compulsory school students voicing their positive experiences of school. *Scandinavian Journal of Educational Research*,2012;56(5):555-570.
6. Barker M. Outdoor education an actual reality experience. In *Outdoor Education Conference*, Bendigo, 2006.
7. Becker C, Lauterbach G, Spengler S, Dettweiler U, Mess F. Effects of regular classes in outdoor education settings: A systematic review on students' learning, social and health dimensions. *International journal of environmental research and public health*,2017;14(5):485.
8. Bosch R, Oswald M. Adolescents' perceptions of an adventure-based programme. *Perspectives in Education*,2010;28(1):64-76.
9. Bowen DJ, Neill JT, Crisp SJ. Wilderness adventure therapy effects on the mental health of youth participants. *Evaluation and program planning*,2016;58:49-59.
10. Fan MR, Tran NH, Huang CF. Effects of outdoor education on elementary school students' perception of scientific literacy and learning motivation. *European Journal of Educational Research*,2024;13(3):1353-1363.
11. Flouri E, Mueller M, Idsøe T, Nærde A. Outdoor play areas in childcare settings and children's physical aggression: A longitudinal study of Norwegian kindergartens. *European Journal of Developmental Psychology*,2023;20(2):307-326.

12. Flouri E, Mueller M, Idsøe T, Nærde A. Outdoor play areas in childcare settings and children's physical aggression: A longitudinal study of Norwegian kindergartens. *European Journal of Developmental Psychology*,2023;20(2):307-326.
13. Hernawan H, Makadada FA, Hakim H, Taufik MS, Puspodari P, Kholis MN, *et al.* Outdoor education program reduces anxiety levels in Indonesian sports college students. *Retos*,2024;60:21-26.
14. Holland WH, Powell RB, Thomsen JM, Monz CA. A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 2018, 10(3).
15. McLeod B, Allen-Craig S. What outcomes are we trying to achieve in our outdoor education programs? *Journal of Outdoor and Environmental Education*,2007;11(2):41-49.
16. Neill JT. Enhancing life effectiveness: The impacts of outdoor education programs (Doctoral dissertation, University of Western Sydney (Australia)), 2008.
17. Remmen KB, Iversen E. A scoping review of research on school-based outdoor education in the Nordic countries. *Journal of Adventure Education and Outdoor Learning*,2023;23(4):433-451.
18. Szczepanski A, Malmer K, Nelson N, Dahlgren LO. Outdoor Education-Authentic Learning in the Context of Landscape Literary education and sensory experience. Perspective of Where, What, Why, How and When of learning environments. Inter-disciplinary context and the outdoor and indoor dilemma. In the Third International Outdoor Education Research Conference–Widening Horizons: Diversity in Theoretical and Critical Views of Outdoor Education Conference, 2006.
19. Thomas GJ. Learning to be a group facilitator in outdoor education: Using self-awareness to overcome fears and be fully present. *Journal of Adventure Education and Outdoor Learning*,2019;19(4):287-300.
20. Thomas GJ. Learning to be a group facilitator in outdoor education: Using self-awareness to overcome fears and be fully present. *Journal of Adventure Education and Outdoor Learning*,2019;19(4):287-300.
21. Țigău NC. Outdoor Activities as A Framework for The Development of Emotional and Social Competencies. *New Perspectives on Multiculturality. Intersecting Discourses and Dialogues*, 2025.