

Comparison of Volleyball Skills between Education and Management Female Players in Ramechhap District

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Abstract

Background: One of the most popular sports in Nepal is volleyball, and more women are playing on campuses. However, little scientific research has been done on how well female volleyball players do in Nepal's hilly districts, especially when comparing players from other academic departments.

Methods: Using the standardized Russell-Lange Volleyball Test, this quantitative descriptive-comparative study assessed the repeated volleyball, serving, and overall skill performance of 24 female volleyball players in the Ramechhap District (12 from the Faculty of Education and 12 from the Faculty of Management). To find significant differences across groups, independent samples t-tests were used, and Cohen's d was computed for practical significance.

Results: No statistically significant differences were found between the two groups in any of the variables ($p > .05$) according to the independent samples t-test results. The repeated volley mean for Education Faculty was 18.25 (SD = 1.76), while the mean for Management was 18.75 (SD = 1.86) ($t = -0.685$, $p = .502$). The Education and Management serving exam means were 32.00 (SD = 1.60) and 31.83 (SD = 1.59), respectively ($t = +0.256$, $p = .799$). The overall scores were 50.58 (SD = 2.94) and 50.25 (SD = 2.98), respectively ($t = -0.322$, $p = .750$). The tiny effect sizes ($d = 0.11$ to 0.28) confirmed that the differences were essentially insignificant.

Conclusion: In this situation, female volleyball players' skill development is not significantly impacted by faculty affiliation. Access to high-quality training, motivation, and individual practice seem to be more significant factors in determining skill success.

Novelty: This study challenges presumptions about faculty-based differences in sports skill development by using the Russell-Lange Volleyball Test for the first time to compare skill

performance between female players from the Education and Management faculties in Nepal's hilly district.

Keywords: Faculty of Education, Faculty of Management, Female players, Russell-Lange test, Skill performance, Volleyball

1. Introduction

1.1 Background of the Study

Sports have a vital role in our growth on all levels—physical, mental, social, and emotional. Sports and physical education promote people's overall development, according to a number of educational philosophers (Arnold, 1979; Siedentop, 1994). Physical ability, mental health, leadership traits, teamwork, discipline, self-assurance, and social interaction are all enhanced by sports. Sports and physical education also have a significant effect on kids' academic performance; studies have indicated that children who participate in regular physical exercise exhibit improved learning, focus, and memory recall (Ratey & Hagerman, 2008; Hillman et al., 2008). Students who participate in sports also improve their ability to manage stress, solve problems, and make decisions. As a result, sports are now an integral part of extracurricular activities in educational institutions all over the world.

In this regard, one of the most well-liked team sports worldwide is volleyball. William G. Morgan, an American, founded volleyball in 1895 by combining aspects of basketball, baseball, tennis, and handball (International Volleyball Federation, 2021). The game was once called "Mintonette," but after a demonstration match at Springfield College in 1896, it was changed to "Volleyball". Around 1900, the sport took on its current form, and in 1947 the International Volleyball Federation (FIVB) was founded. In 1964, volleyball was included to the Olympic program for the first time in Tokyo. The FIVB currently has affiliations with over 222 country federations, indicating the sport's widespread appeal. Volleyball is quite popular because of its easy regulations, affordable price, and portability popular even in underdeveloped nations.

Volleyball was first played in Nepal in the 1950s, and the country's second-oldest sports organization, the Nepal Volleyball Association, was founded in 1951 (Nepal Volleyball Association, 2021). This sport was first restricted to the nation's capital, Kathmandu, and a few other cities, but it has since expanded to all 77 districts. The Nepal Volleyball Association has been instrumental in generating players who can compete globally and in staging a number of national-level events. The national volleyball team of Nepal has competed in the Asian, South Asian, and SAARC Games. In educational institutions, volleyball is quite popular. Schools and campuses actively participate in contests at the campus, district, and national levels. The growth of women's volleyball has received particular focus in recent years, and the National Sports Policy, 2076 has also given female players' participation and development top priority (National Sports Council, 2076).

The hilly Ramechhap District in Nepal's Bagmati Province has a varied topography with elevations ranging from 500 to 4,000 meters (District Development Committee, 2071). Although the development of sports infrastructure has been difficult due to geographical constraints, volleyball is quite popular in this location. A number of competitions, including

the Manthali Mayor Cup and President Cup, have been held in the Ramechhap District Volleyball Association, which is connected to the Bagmati Province Volleyball Association (Nepal Volleyball Association, 2016) (Red Voice Nepal, 2025; The Himalayan Times, 2019). In the Ramechhap District, there are campuses with faculties of education and management where students frequently play volleyball at the campus level. Nevertheless, there isn't a single scientific study on volleyball skill performance in this district, especially one that compares players from the faculties of education and management.

Proficiency in a variety of technical skills is necessary for success in volleyball. These skills can be divided into three categories: fundamental (serving, volleying, setting), intermediate (spiking, blocking, digging), and advanced (strategic play, team coordination) (Katsikadeli, 2014). Since serving is the major way to start an attack and can immediately score points, while volleying aids in ball control and lays the groundwork for successful attacks, this study assessed two essential skills (Magill & Anderson, 2017). These two abilities have a big influence on game performance and are regarded as essential at all game levels. Volleyball skill evaluation is crucial for player growth, training program efficacy, and competition readiness (Collins & Hodges, 2001). Frequent skill evaluation offers an objective foundation for determining skill levels, organizing training, tracking advancement, and choosing a team. In this situation, the Russell-Lange Volleyball Test is a legitimate and trustworthy instrument that can impartially assess the two essential volleyball skills (Collins & Hodges, 2001; Russell & Lange, 1974).

1.2 Literature Review

The theoretical underpinnings and empirical data pertinent to volleyball skill development and comparative studies are reviewed in this section.

1.2.1 Theoretical Framework

Four main theoretical stances serve as the foundation for this investigation. First, physical education targets people's full physical, mental, emotional, and social development, according to "Holistic Pedagogy" (Arnold, 1979). Second, according to "Developmental Systems Theory" (Lerner, 2018), human development results from the dynamic interplay between personal biological traits and environmental opportunities, implying that the campus environment may have a bigger impact than the faculty. Third, "Social Cognitive Theory" (Bandura, 1986) identifies self-efficacy, reciprocal determinism, and observational learning as key components of skill acquisition. This theory holds that players who practice on the same field pick up skills from each other's actions. Fourth, according to "Motor Learning Theory" (Magill & Anderson, 2017), sport skills can only be gained via ongoing practice, feedback, and experience; hence, practice quantity and quality are more important factors than academic affiliation. When taken as a whole, these ideas support the idea that availability to and the caliber of practice have a greater influence on skill performance than faculty alone.

1.2.2 International Studies on Volleyball Skill Performance

Numerous contributing elements have been investigated in research on volleyball skill performance internationally. Katsikadeli (2014) confirmed that technical and strategic skills are fundamental drivers of volleyball performance. Collins and Hodges (2001) highlighted the need of standardized skill testing in volleyball and suggested that training regimens include

assessments such as the Russell-Lange exam. Numerous studies have verified the validity and reliability of the Russell-Lange Volleyball Test, which has been employed in numerous research projects across the globe (Collins & Hodges, 2001; Russell & Lange, 1974; Selvakumar & Palanisamy, 2017).

Farrow and Reid (2018) identified practice frequency and quality, coach quality, and player motivation and focus capacity as major predictors of skill acquisition. High levels of purposeful practice are required to attain excellence, according to Leite, Baker, and Sampaio's (2020) investigation of the importance of deliberate practice in developing volleyball competence. The idea of the athlete monitoring cycle was presented by Gabbett et al. (2019), highlighting the significance of routinely assessing player performance and capability. Research comparing the athletic achievement of students from various academic departments has yielded conflicting findings. According to some research, students with a background in sports science and physical education have better technical abilities (Lidor & Ziv, 2012), but other research has shown that practice and competition experience can offset the impact of academic background (Farrow & Reid, 2018).

1.2.3 Nepali Context and Related Review

Adhikari (2018) discovered that in the Nepali setting, equitable access to extracurricular activities leads to no discernible skill inequalities, even though campus sports participation varies by university. Suvedi (2021) pointed out that although the physical education curriculum teaches fundamental abilities, real performance requires ongoing practice. According to Poudel's (2019) research, faculty members in the fields of science and education exhibited somewhat higher levels of physical activity than those in management and humanities, although this did not always convert into competitive athletic abilities. According to Khadka (2020), management faculty students actively engage in organized sports activities, which promotes a balance between skill development and physical activity.

Shahi (2022) used the AAHPER volleyball skill test to compare the volleyball abilities of female students in western Nepal's community and institutional secondary schools. Although there was no significant difference between the groups in setup and serving tests, the study indicated that institutional school girls did better overall on test items. However, there were significant disparities in passing and volleying tests, as well as composite scores. This discovery is especially important because it shows how contextual factors, like the type of school, can have complex effects on skill development that differ depending on the skill type. Another study comparing the volleyball skills of indigenous and non-indigenous basic-level girls in Likhu Rural Municipality revealed that indigenous girls performed marginally better in repeated volley and serving tests, but the z-test results revealed no discernible change. Bohara, Bhatt, Chiluwal, and Thapa (2024) contributed to the expanding corpus of research on contextual factors influencing volleyball skill development in Nepal by comparing the volleyball skills of rural and urban students in Bardiya.

Although it is assumed in the Nepali context that students in the Education Faculty have more technical knowledge and skills because of the structured physical education curriculum, students in the Management Faculty can also acquire skills through extracurricular activities,

competitions at the campus level, and informal practice. Although the Russell-Lange Volleyball Test has been used in numerous studies across the globe, there is very little utilization of it in Nepal. The majority of research has relied on coaches' subjective evaluations or informal observation. In order to lay the groundwork for standardized skill evaluation in the Nepali setting, this study makes use of the test of Russell-Lange.

1.2.4 Research Gap and Rationale

The following factors support the study's justification: (1) there is a dearth of scientific research on the skill performance of female volleyball players in Nepal's hilly districts; (2) no comparative study of players from Education and Management faculties has been carried out in Nepal; (3) the development of female players in Nepal requires special attention (National Sports Policy, 2076); (4) the use of standardized tools like the Russell-Lange test provides reliable and comparative data; (5) the study's findings can offer coaches, educators, and sports policymakers; and (6) the study offers a chance to test theoretical frameworks of skill development in the Nepali context. Given this context, the purpose of this study is to compare volleyball skill performance of female athletes from Ramechhap District's Faculty of Education and Management.

1.3 Research Objectives

1.3.1 General Objective

To compare the volleyball skills of female players from the Ramechhap District's Faculty of Education and Management.

1.3.2 Specific Objectives

1. To compare the repeated volleying performance of female volleyball players from the Faculty of Education and Management in Ramechhap District.
2. To compare the serving performance of female volleyball players from the Faculty of Education and Management in Ramechhap District.
3. To compare the overall volleyball skill performance (Russell-Lange Volleyball Test score) of female volleyball players from the Faculty of Education and Management in Ramechhap District.

1.4 Research Questions

1. Is there a significant difference in the repeated volleying performance of female volleyball players from the Faculty of Education and Management in Ramechhap District?
2. Is there a significant difference in the serving performance of female volleyball players from the Faculty of Education and Management in Ramechhap District?
3. Is there a significant difference in the overall volleyball skill performance of female volleyball players from the Faculty of Education and Management in Ramechhap District?

2. Methodology

In order to compare the volleyball skill performance of female players from the Faculty of Education and Management in the Ramechhap District, this study used a quantitative descriptive-comparative research approach. Campus-level female volleyball players enrolled

at the Ramechhap District's Faculty of Education and Management made up the study population.

2.1 Sample Size Justification

A sample of 24 participants (12 per group) was sufficient to detect large effects with 80% power at $\alpha = .05$, according to Cohen's (1988) power analysis. The sample size was deemed suitable for the descriptive-comparative approach used because of the exploratory nature of this study in the Nepali context and the small number of female volleyball players in the district.

2.2 Sampling Procedure

A total of 24 female volleyball players—12 from the Faculty of Education and 12 from the Faculty of Management—who frequently took part in campus-level volleyball contests and training sessions were chosen using a purposive sampling technique. The participants had played volleyball for one to three years, and their ages ranged from 19 to 22. Current enrollment in either the Education or Management faculty, being female, being between the ages of 19 and 22, having played volleyball for at least a year, and actively participating in campus-level volleyball were all requirements for inclusion.

2.3 Variables

Faculty group (Education/Management) was the independent variable, and serving, repeated volleying, and overall volleyball skill performance (Russell-Lange Volleyball Test score) were the dependent factors.

2.4 Instruments

The standardized Russell-Lange Volleyball exam (Collins & Hodges, 2001), which consists of two parts—the serving exam and the repeated volley test—was used to measure the dependent variables. In the repeated volley test, participants volleyed the ball against the wall continuously for 30 seconds while standing behind a restraining line that was marked three feet from the wall target. The highest score from three trials was recorded as the final score. Participants in the serving test completed 10 legitimate serves from behind the end line toward predetermined scoring zones. The highest score from two trials was recorded as the final score, and points were awarded based on the target zone reached. The repeated volley score and the serving score were combined to determine the total volleyball skill score.

2.5 Data Collection Procedure

The affected campuses granted institutional authorization prior to data collection, and all participants gave their informed consent after being made aware of the goals and methods of the study. Prior to the Russell-Lange Volleyball Test, all participants got uniform instructions and sufficient 4.6 Data Analysis warm-up practice, and the test equipment was prepared and standardized.

2.6 Data Analysis

After confirming the assumptions of normality, homogeneity of variance, and independence of observations, the data were analyzed using descriptive statistics (mean, standard deviation, minimum, and maximum) and an independent samples t-test to identify significant differences between groups. Practical significance was determined using Cohen's d , and statistical significance was determined at $p < .05$.

2.7 Ethical Considerations

Ethical considerations were strictly upheld throughout the study, including informed consent for voluntary participation, the confidentiality of personal data, the right of participants to withdraw at any time without facing repercussions, institutional approval, and secure data storage used exclusively for research.

3. Results and Analysis

The descriptive and inferential analysis of the gathered data is presented in this part. To provide a thorough explanation of the results, each table that was acquired during statistical analysis is discussed in a distinct paragraph.

3.1 Descriptive Statistics

Table 1: Descriptive Statistics of Overall Variables (N = 24)

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Repeated Volley Test	24	18.50	1.769	14	21
Serving Test	24	31.92	1.558	30	35
Age (Years)	24	20.58	1.059	19	22
Experience (Years)	24	1.875	0.850	1	3

Explanation of Table

The descriptive statistics for each of the four variables for the whole sample of 24 participants are compiled in this table. With a mean score of 18.50 and a standard deviation of 1.769 for the repeated volley test, the majority of players' scores fell between 17 and 20, with a minimum score of 14 and a high score of 21 demonstrating substantial variability in this ability. With the majority of scores lying between 30 and 34, the serving test revealed a mean score of 31.92 with a standard deviation of 1.558, indicating greater homogeneity among players. The participants' average age was 20.58 years (SD = 1.059), ranging from 19 to 22 years, and their average volleyball experience was 1.875 years (SD = 0.850), ranging from 1 to 3 years. These demographic figures attest to that all of the participants were young, novice to intermediate players, creating a uniform baseline that improves the significance and dependability of group comparisons.

Table 2: Frequency Distribution of Participants by Faculty

Faculty	Frequency	Percent	Valid Percent	Cumulative Percent
Management	12	50.0	50.0	50.0

Education	12	50.0	50.0	100.0
Total	24	100.0	100.0	

Explanation of Table

The two faculty groups in the study are fairly represented in this table. Twelve (50%) of the twenty-four participants came from the Faculty of Education, and twelve (50%) from the Faculty of Management. The methodological benefit of this completely balanced sample size is that it guaranties that no group is overrepresented, resulting in a robust and objective statistical comparison. The balanced sampling process is confirmed by the cumulative percentage reaching 50% after the first group and 100% after the second. This equal representation guaranties that any observed differences—or lack thereof—cannot be ascribed to unequal group sizes and improves the trustworthiness of the t-test results.

Table 3: Frequency Distribution of the Repeated Volley Test

Score	Frequency	Percent	Valid Percent	Cumulative Percent
14	1	4.2	4.2	4.2
15	1	4.2	4.2	8.3
17	3	12.5	12.5	20.8
18	8	33.3	33.3	54.2
19	3	12.5	12.5	66.7
20	5	20.8	20.8	87.5
21	3	12.5	12.5	100.0
Total	24	100.0	100.0	

Explanation of Table

A distinct pattern of skill distribution among the participants may be seen in the frequency distribution of repeated volley test scores. Eight participants (33.3%) obtained the most common score of 18, which is consistent with the mean score of 18.50. The majority of players appear to have moderate volleying abilities based on this concentrated concentration. Three participants each (12.5%) received scores of 17, 19, and 21, while five participants (20.8%) received scores of 20. Very bad performance was uncommon, as only one individual (4.2% each) scored at the extremes of 14 and 15. In a similar vein, just three individuals received the highest possible score of 21. The assumption of normality necessary for parametric testing is supported by this distribution pattern, which resembles a normal curve. The players' ball control and stability skills appear to be quite uniform, with only a small number performing

exceptionally well or falling well short, based on the clustering of scores in the middle range (17–20), which includes 19 participants (79.1%).

Table 4: Frequency Distribution of the Serving Test

Score	Frequency	Percent	Valid Percent	Cumulative Percent
30	5	20.8	20.8	20.8
31	6	25.0	25.0	45.8
32	5	20.8	20.8	66.7
33	4	16.7	16.7	83.3
34	2	8.3	8.3	91.7
35	2	8.3	8.3	100.0
Total	24	100.0	100.0	

Explanation of Table

The serving test frequency distribution exhibits an even more compact distribution than the repeated volley test, showing better homogeneity in serving ability. Six participants (25.0%) got the modal score of 31, which was followed by scores of 30 and 32 with five participants each (20.8%) and score 33 with four participants (16.7%). Surprisingly, 20 out of 24 individuals (83.3%) had scores between 30 and 33, indicating that most players have comparable levels of serving accuracy. Excellent servers were rare, as just two participants (8.3%) received scores of 34 and 35, respectively. This modest variability is confirmed by the standard deviation of 1.558. This distribution indicates that rather than faculty-specific benefits, serving effectiveness is impacted by general characteristics like basic training acquired by all players. Notably, there were no exceptionally low ratings (below 30), indicating that every member possessed at least rudimentary serving competency.

Table 5: Frequency Distribution of Age and Experience

Age (Years)	Frequency	Percent
19	4	16.7
20	8	33.3
21	6	25.0
22	6	25.0
Total	24	100.0

Experience (Years)	Frequency	Percent
1	8	33.3
2	7	29.2
3	9	37.5
Total	24	100.0

Explanation of Table

The distribution of participants by age and volleyball experience—two crucial demographic factors for guaranteeing internal validity—is shown in this dual table. Eight individuals (33.3%) were 20 years old, making up the largest age group. Six participants (25.0%) were 21 and 22 years old, while four participants (16.7%) were 19 years old. All of the participants were young adults in their late teens to early twenties, as indicated by the distribution's average age of 20.58 years. Nine individuals (37.5%) had three years of volleyball experience, eight participants (33.3%) had one year, and seven participants (29.2%) had two years. The majority of participants were in the early phases of skill development, as indicated by their average experience of 1.875 years. Because the two faculty groups are identical in terms of age and experience, these variables are eliminated as potential confounding factors, guaranteeing that any observed differences in skill performance would be due to faculty affiliation or other factors rather than demographic discrepancies.

3.2 Inferential Statistics and Group Comparison

Table 6: Comparative Analysis of Volleyball Skill Performance by Faculty (Independent Samples t-test)

Variable	Faculty	N	Mean	Std. Deviation	t-value	p-value	Cohen's d
Repeated Volley	Education	12	18.25	1.76	-0.685	.502	0.28
Management	12	18.75	1.86				
Serving Test	Education	12	32.00	1.60	+0.256	.799	0.11
Management	12	31.83	1.59				
Overall Score	Education	12	50.25	2.98	-0.322	.750	0.20
Management	12	50.58	2.94				

Note: Degrees of freedom (df) = 22 for all tests, and $p > .05$ in all cases.

Explanation of Table 6

The findings of the independent samples t-test, which answers all three study questions, are shown in this crucial table. The Education Faculty mean for repeated volley performance

was 18.25 (SD = 1.76), but the Management Faculty mean was 18.75 (SD = 1.86). Although the Management group scored somewhat higher, the t-value of -0.685 and p-value of 0.502 ($p > .05$) show that this difference is not statistically significant. Cohen's $d = 0.28$ indicates a tiny effect size, indicating that this change is virtually insignificant. This indicates that players from both faculties have about identical ball handling and volleying steadiness.

The Education Faculty mean for serving performance was 32.00, whereas the Management mean was 31.83. There was no significant difference, as indicated by the t-value of +0.256 with $p = 0.799$, which was well above the .05 cutoff. Cohen's $d = 0.11$, which is regarded as insignificant, indicates that serving accuracy is essentially the same across groups.

The Management Faculty scored marginally better (50.58) than the Education Faculty (50.25) for total volleyball skill performance, but the t-value of -0.322 and p-value of 0.750 ($p > .05$) indicate that there was no significant difference. Cohen's $d = 0.20$ is a modest effect size, indicating that the practical importance would be negligible even if statistical significance were attained with a larger sample. When taken as a whole, these three t-tests consistently show that female volleyball players in Ramechhap District's skill performance is unaffected by faculty affiliation.

4. Discussion

The outcomes of this study clearly reveal that female volleyball players from the Education and Management faculties in Ramechhap District do not differ considerably in their volleyball skills—whether in repeated volleying, serving, or overall performance. This finding is intriguing and merits more investigation from both theoretical and practical perspectives.

First, these results are in complete agreement with the Motor Learning Theory (Magill & Anderson, 2017), which states that continuous training, constructive criticism, and frequent practice lead to skill growth. Students from the Management Faculty are not excluded from formal physical education sessions, even though those from the Education Faculty do. Inter-faculty competitions, friendly matches, and shared campus sessions provide them with ample practice. Players from both institutions frequently wind up training on the same court in a location like Ramechhap, where there are few sports facilities. This automatically balances the quantity and caliber of practice each receive, which helps to explain why their skill levels ended up being so close. This result is in line with Shahi's (2022) findings that skill development is greatly influenced by contextual factors like the type of school and the availability of practice opportunities.

Developmental Systems Theory (Lerner, 2018), which reminds us that our talents are formed by both who we are and the environment we are in, lends more credence to this theory. The university playing field proved to be a tremendous equalizer in this study, giving everyone the same possibilities regardless of faculty affiliation. The players from both groups' comparable ages (20.5 years on average) and levels of experience (1.9 years) also contribute to the explanation of why their skill development advanced at a comparable rate. This is consistent with the findings of Bohara et al. (2024), who discovered that skill development patterns might be influenced by environmental factors such rural versus urban environments.

Likewise, Vlasenko (2025) showed that customized training models that Significant increases are produced by customized training models that take into consideration students' starting levels of physical fitness, indicating that the quality of training—rather than the faculty label—is what matters most.

The findings are consistent with Bandura's Social Cognitive Theory (1986). When players train together day after day, they learn by watching each other. Regardless of whether they come from management or education, others quickly take up a strong method that one player demonstrates. Similarly, coaches' praise and corrections are based more on who consistently shows up and works hard than on the faculty members they are a part of. As a result, talent development becomes a shared process that benefits both groups equally. In a similar vein, Hammoudi et al. (2025) discovered that interesting teaching strategies like instructional games Practically speaking, the small effect sizes we discovered—Cohen's d values ranging from 0.11 to 0.28—really make the point. The differences would probably still be negligible even if we had evaluated 100 or more players. This clearly implies that access to resources, practice time, and facilities are more important for the development of sports skills on Nepali campuses, particularly in hilly districts like Ramechhap, than a student's background in education or management. This result is in line with a study conducted internationally by Farrow and Reid (2018), who also came to the conclusion that skill growth is primarily driven by regular involvement, regardless of the players' educational background. Additionally, Katsikadeli (2014) stressed that technical skills are acquired through practice rather than merely formal education. Abd and Khalaf (2024) discovered important discrepancies amongst elite Iraqi clubs, which lends more credence to the idea that abilities equalize in shared spaces and performance varies in different training environments.

It's interesting to note that our results contradict the widely held belief that students in the Education Faculty should score better just by virtue of their formal physical education instruction. Suvedi (2021) noted that talents are developed by constant, practical application rather than classroom knowledge alone. Even though they might not have as much official training, management students actively participate in campus competitions and casual activities to make up for it. This implies that the academic curriculum is not as important as the campus sports culture as a whole. This is consistent with Shahi's (2022) results that while institutional school girls did better overall, the differences were not uniform across all skill types, showing that various factors beyond formal teaching influence skill development. Additionally, Gasparatou et al. (2025) noted that female volleyball tends to prioritize defensive organization and sustained rallies, which may be better fostered through shared practice experiences than through formal instruction alone.

The results are consistent with a research conducted in Likhu Rural Municipality on the volleyball skills of indigenous and non-indigenous female pupils, which found no discernible differences in repeated volley testing or serving. This pattern of non-significant differences across numerous group comparisons in the Nepali context shows that shared practice venues and common training experiences may be more influential than group-specific elements in determining fundamental volleyball skills.

Of course, we need to be honest about the limitations of this study. It is challenging to extrapolate the results to other districts or to bigger populations with just 24 individuals. Although helpful, the Russell-Lange exam only assesses two abilities—volleying and serving—omitting other crucial elements like blocking, spiking, digging, and setting. Additionally, we were unable to account for psychological elements that could influence players' performance on any given day, such as motivation, anxiousness, or confidence. Additionally, because this study was cross-sectional, it just provides a snapshot; we are unable to determine how these players' abilities may have changed over time. These constraints could be addressed in future studies by using larger sample sizes, including more skill measurements, and using longitudinal strategies to monitor skill growth over time.

Despite these limitations, the studies give significant insights. They remind us that the possibilities for students to practice, learn from one another, and develop as a group are more important when discussing skill development than the faculty members they are a part of. The shared campus setting may be a benefit in disguise in locations like Ramechhap where resources are scarce since it puts everyone on the same playing field, both literally and symbolically.

4. Conclusion and Recommendations

4.1 Conclusion

The volleyball skill performance of female players from the Faculty of Education and Management in the Ramechhap District did not differ significantly, according to this study. Both faculties showed similar levels of overall skill performance, serving accuracy, and ball control. According to the results, volleyball skill development is not significantly impacted by faculty affiliation in this situation. Instead, more significant factors influencing skill performance are individual practice, motivation, and access to high-quality training. These results provide a useful basis for further research and justify the policy of giving all students, regardless of faculty, equal access to sports. For female volleyball players in Nepal to improve their talents, regular skill evaluation, evidence-based training methods, and excellent coaching are crucial.

4.2 Recommendations

4.2.1 Recommendations for Coaches and Physical Education Teachers

Coaches and physical education instructors should give all players equal training chances regardless of their faculty affiliation, according to the study's conclusions. Coaches should concentrate on treating individual skill deficiencies with customized training methods rather than classifying players according to faculty. To monitor each player's development, regular skill evaluations utilizing straightforward standardized exams like the Russell-Lange test should be carried out. Players will be able to learn from one another and develop a stronger sports culture by planning cooperative practice sessions and inter-faculty competitions. Coaches should make the most of the facilities that are available and establish inclusive training environments in the context of Ramechhap, where resources are scarce.

4.2.2 Recommendations for Campus Administrations

Campus administrators should guaranty that all faculties have equitable access to volleyball amenities, including courts, nets, and balls, without favoring any one group. It is crucial to fund high-quality coaching and training programs that are accessible to all students. Priority should be given to establishing inclusive environments where all students can advance their talents and to developing clear sports policies that promote equitable participation. Additionally, administrations want to think about funding projects for coach development and ongoing skill evaluation programs.

4.2.3 Policy Recommendations for the Ministry of Education and Sports

The Ministry of Education and Sports is suggested to implement the following particular policy proposals in light of the findings:

- (a) To guaranty that no student is disadvantaged because of their academic affiliation, educational institutions should need equal access to sports facilities for all faculties.
- (b) To enable objective tracking of player progress and program efficacy, standardize skill assessment procedures for campus-level sports programs.
- (c) Set aside funds specifically for the development of women's sports in hilly areas, including programs for coach training, equipment provision, and infrastructure development.
- (d) Create coach training programs that emphasize evidence-based skill development strategies, with a focus on inclusive training techniques that help all students, regardless of their educational background.
- (e) Integrate regular skill assessment into the physical education curriculum to enable systematic tracking of student progress and identification of areas requiring additional support.

4.2.4 Implementation Challenges and Solutions

There are a number of significant obstacles to the application of this study's conclusions in the Ramechhap environment, including a lack of adequate sports facilities in mountainous areas, budgetary limitations, geographic issues, a lack of experienced coaches, and a lack of knowledge about standardized testing. The following solutions are suggested to address these issues: make use of already-existing community facilities and create low-cost training alternatives using locally available materials; look for partnerships with local government, sports organizations, and the private sector for resource sharing and sponsorship; create mobile training programs that travel to different locations and hold centralized training camps during holidays; collaborate with national sports organizations for coach training and create mentorship programs with seasoned coaches from other districts; and hold workshops and training sessions for coaches and teachers on the use of standardized skill assessment tools. Effective implementation of these solutions requires coordination and continuous effort among all stakeholders.

4.2.5 Recommendations for Future Research

Future researchers should consider the following directions:

1. Repeat this study in other districts across Nepal with larger sample sizes to enhance generalizability of findings.

2. Include other volleyball skills such as setting, spiking, blocking, and digging in the assessment for a more complete picture of skill performance.
3. Employ qualitative methods such as interviews and observations to understand the deeper reasons behind skill development patterns.
4. Conduct longitudinal studies that follow players over time to observe how skills grow and change with experience.
5. Track factors such as practice frequency, training quality, and motivation to better understand the true determinants of skill performance.
6. Investigate the effectiveness of different training interventions in the Nepali context.
7. Examine the role of psychological factors including motivation, anxiety, and self-efficacy in skill performance among female volleyball players.
8. Conduct comparative studies involving both male and female players to identify gender-specific patterns in skill development.

5. Final Conclusion

This study found no significant differences in volleyball skill performance between female players from the Faculty of Education and Management in Ramechhap District. Both faculties demonstrated comparable levels of ball control, serving accuracy, and overall skill performance. The findings suggest that in this context, faculty affiliation does not meaningfully influence volleyball skill development. Rather, individual practice, motivation, and access to quality training are more important determinants of skill performance. These findings support the policy of providing equal sports opportunities to all students regardless of faculty and provide a valuable foundation for future research. Regular skill assessment, evidence-based training practices, and quality coaching are essential for developing volleyball skills among female players in Nepal.

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Appendices

Appendix A: Data Collection Sheet

(Russell-Lange Volleyball Test Score Sheet)

Participant ID: _____ Faculty: _____
 Date: _____ Age: _____ Experience (years): _____

Repeated Volley Test

Trial Score
 Trial 1 _____
 Trial 2 _____
 Trial 3 _____
 Best Score _____

Serving Test

Trial Score
 Trial 1 _____
 Trial 2 _____
 Best Score _____
 Overall Volleyball Skill Score

Component Score

Best Repeated Volley _____
 Best Serve _____
 Overall Score _____
 Test Administrator: _____ Signature: _____

Appendix B: Complete Raw Data Matrix

Table B1: Raw Data of All Participants (N = 24)

S.N.	Faculty Code	Repeated Volley Test	Serving Test	Age (Years)	Experience (Years)
1	1	21	32	20	1
2	1	18	34	19	3
3	1	19	30	21	1
4	1	18	35	20	2
5	1	20	33	22	2



6	1	19	32	19	1
7	1	17	31	21	1
8	1	15	30	21	3
9	1	18	31	20	3
10	1	17	33	22	2
11	1	18	32	20	1
12	1	19	31	22	1
13	2	20	30	21	3
14	2	18	35	20	1
15	2	17	31	22	1
16	2	20	33	19	2
17	2	18	31	21	2
18	2	20	33	20	3
19	2	18	32	20	1
20	2	14	31	22	3
21	2	21	30	19	2
22	2	18	32	21	3
23	2	20	34	20	2
24	2	21	30	22	1

Note: Faculty Code 1 = Management, Faculty Code 2 = Education