

The effect of archery class management implementation using the 3-step focus technique for beginners

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Abstract

Introduction: Based on archery skill observations at the initial stage of the lecturing process and the results of the archery skill pretest, it is shown that the students' archery skill scores still do not meet the expected minimum standard. Therefore, this research was conducted to examine the effect of implementing archery class management using the 3-step focus technique for beginners. **Materials and Methods:** Data were quantitatively and qualitatively collected from 30 and 10 students, respectively. The quantitative data were analyzed using paired sample t-test and n-gain score, while the qualitative process comprised data collection, reduction, presentation, and drawing conclusions. **Results:** The paired sample test results showed a significance level of 0.000 less than 0.05, which indicated a significant difference between the pre-test and post-test. N-gain effectiveness test yielded an average value of 0.41 and was within the medium category. Qualitative results showed that the management of archery class, which comprised the 3-step focus technique was excellent and led to improved shot scores. However, there were challenges associated with the mismatched bow and arrow equipment of student body postures. **Conclusions:** In conclusion, the implementation of archery class management using the 3-step focus technique had a significant impact on its skills. The use of this technique proved to be effective in the improvement of learning outcomes, hence it was categorised into the moderate effectiveness category. This was due to the limited bow equipment which did not suit the body posture of beginners and was not in accordance with the arm length and body height at schools or colleges. This technique aimed to provide maximum achievement or results in learning archery skills for beginners, as well as to avoid shoulder and hand injuries due to inappropriate bow draw weights.

Keywords: Classroom management, Technique, Skill outcomes, Beginners, Effectiveness, Barriers.

Introduction

Archery is a sport combining skill and hand strength, to the manual stretching of the bowstring to shoot arrows while simultaneously maintaining stability. The primary aim is to release the arrows from the bow towards the target, to achieve a high score. To excel in this sport, individuals must master a series with ten basic archery carried out sequentially and systematically, starting from the standing to the follow-through primary technique stage to produce the right arrow shot toward the target. Archery sport often includes controlled footwork, specifically when retrieving arrows that have been released or shot at the target. Furthermore, there are essential techniques that comprise a range of skills, including (1) standing, (2) grip basics, (3) hooking, (4) set-up, (5) drawing (both half and full draw), (6) anchoring, (7) aiming, (8) extending, (9) release, and (10) follow-through. Proficiency in these ten basic archery skills is relevant for achieving accuracy. Teachers and lecturers play a significant role in imparting these skills. For the process to be realized effectively, they must obtain knowledge with sincerity, provide motivation, and use appropriate teaching technique (Mukarromah et al., 2021). Success in sport is the dream of every athlete, making coaching and optimal technique essential for realizing these aspirations (Nur, M., & Ilham Kamaruddin, 2021)

To meet the challenges of global competition, academic faculties specializing in sport education, achievements, and recreational activities are committed to organizing educational programs. These programs aim

to nurture the potential of prospective PJOK (Physical Education, Sports, and Health). The desired outcome is to produce well-rounded students with diverse skills, including innovation, technological proficiency, media use, adaptability, effective communication, and creativity (Sulfiani and Dumiyati et al., 2022). In the curriculum of the Health and Recreation Physical Education Study Program (PJOKR) recommended by the Faculty of Sports and Health Sciences (FIKK) at UNY, there is a specific focus on archery as a subject. The learning objectives of the course are as follows 1) Comprehensive understanding- students are expected to apply their knowledge of archery sport, covering topics such as the history, benefits, safety standards, equipment, muscles used, and various techniques, including standing, nocking, handling, set-up, drawing, anchoring, holding, aiming, releasing, follow-through, consistent movement, as well as strategies and tactics. 2) Practical skills- they should be able to design and practice archery using the correct techniques as well as accurately analyze its basic aspects. 3) Problem-solving- the course equips students with the ability to identify, formulate, analyze, and solve problems related to this field. 4) Effective communication- students are encouraged to communicate effectively, both orally and in writing, with regard to archery-related topics. 5) Teamwork- the course emphasizes collaborative work, allowing students to engage in team-based assignments related to this sport (Setyawan, 2022). The course, which is delivered in the final semester, serves as the basis for skill development in professional sport or related extracurricular activities in schools.

Archery class is designed with a dual focus, namely the development of its skills and the nurturing of students cognitive and affective aspects. This comprehensive technique is achieved by instilling character values and attitudes through a combination of game activities and archery sport. Moreover, the regular practice of sport, including archery, offers significant physical benefits. Archery activities have been reported to positively impact concentration and improve visual balance stability (Gündüz et al., 2017; Ustun & Tasgin, 2020; Wada & Takeda, 2020). The character values instilled through participation in archery activities are discipline, hard work, independence, respect, and the cultivation of friendly and communicative behavior (Khoeriyah, 2020). Archery activities integrated into higher education institution class contribute meaningfully to the cognitive, affective, and skill-based development of students.

To achieve the objectives of archery class, cognitive abilities, affective aspects, effective class management, appropriate teaching technique, and supportive infrastructure are needed. The research carried out by Rohiyatun & Mulyani (2017), emphasized the significance of classroom management procedures in ensuring the smooth running of the teaching and learning process. Wahid et al. (2018) also concluded that class management activities played a critical role in the creation and maintenance of a conducive atmosphere. Furthermore, the impact of training technique on archery outcomes has been explored by several research. The preliminary research has proven that: (1) the choice between the blind and the blank shoot training technique significantly affect archery accuracy of athletes, (2) the selection of fixed and variable distance drilling training technique significantly influences archery accuracy of athletes, (3) exercises comprised rubber pulling have a measurable impact on the accuracy of beginners (Faqiha & Pratama, 2022; Rahmatics, 2022; and Ardiyanto, 2022). The successful teaching of archery relies on effective classroom management, coupled with the application of appropriate technique.

The initial observations show that archery skills of students currently fall below the expected minimum standard. During the pre-test, the average score for archery skills was relatively 49.1, categorized as poor according to the scoring criteria, which included the following ranges such as Very Good (89 to 100), Good (77 to 88), Fair (64 to 76), and Poor (< 64). This poor performance is attributable to students' lack of familiarity with correct basic archery technique. Specifically, beginners tend to make several basic errors in their technique to archery, these include: (1) in basic standing technique, many beginners fail to keep legs parallel and end up in a twisted position, (2) in basic grip, students often misplace their hands, particularly the left one, thereby failing to grip the bow handle correctly, (3) in basic drawing, beginners frequently struggled to fully draw the bow maximally until it touches the chin and nose, (4) when it comes to basic anchoring technique, majority failed to place the anchor point correctly under the chin, (5) in basic, beginners often make mistakes by not following the proper aiming rhythm, which starts from the blue target area and then transitions the yellow region, (6) basic release shows that these individuals often release the arrow either too quickly or too slowly, finally (7) in basic follow through technique, beginners often struggle to execute the follow-up movement by dropping the bow with a forward and downward rotation. The majority of students practice incorrect basic archery technique, hence their initial scores for related skills are significantly low. This is because beginners among these students never received systematic learning or training regarding correct basic archery technique.

To maximize scoring results in archery, several significant factors should be considered, such as: (1) synchronization of body and bow- achieving a balance between the movement of the body and bow stability is crucial. It enhances the accuracy of archery skills through dedicated balance and bow stability training. (2) Consistency and repetition- to excel in archery, it is essential to maintain a high level of consistency in executing each movement technique. It is important to repeat these technique with precision and (3) Using supporting technology and technique- the integration of technology and effective training technique can greatly benefit archery performance. Examples include Virtual Reality (VR) technology, which aids in teaching archery

effectively, training simulators improve its technique, weight training using the compound set technique to enhance endurance, etc (Sarro et al., 2021; Aslan & Yoncalik, 2023; Zhang, 2021; Sobko et al., 2022; Nasrulloh et al., 2022). Therefore, it is necessary to introduce and teach basic techniques that are appropriate and suitable for beginners. One is the 3-step focus technique, which adheres to international standards and has been widely endorsed by experienced trainers, particularly those from South Korea, renowned for their achievements in traditional archery sport (K. Kim, 2023)

The presented information analyzed the need for effective class management technique to enhance archery skills of beginners. To address this, the adoption of the 3-step focus technique for teaching archery to beginners, drawn from a respected South Korean expert (Tak, n.d.), is considered highly suitable. This technique is effortlessly integrated into the four main stages of class management namely planning, organization, implementation or instruction, and evaluation or assessment. The 3-step focus technique comprised the following components: (1) half-pull movement technique with the shot focused on the color blue, (2) anchor movement with shooting focused on yellow, and (3) release movement with the hand scratching or rubbing towards the back of the neck (Tak, n.d.). Based on the previous identified challenges and descriptions, it is necessary to examine the effect of implementing archery class management using the 3-step focus technique, which assess its effectiveness and identify potential obstacles. The novelty of this research is expected to improve the learning outcomes in archery class, specifically with respect to the skills of students.

Materials and Methods

Research Design

A mixed-method design combining both quantitative and qualitative was adopted to provide a complete and better understanding of the research problem. Following a sequential explanatory design proposed by Sugiyono (2019), this research initially comprised the collection and analysis of quantitative data and subsequently incorporated a qualitative stage to strengthen and complement the quantitative results. In the quantitative aspect, a one-group pre-test-post-test pre-experimental design was used. The qualitative design used a sequential exploratory design to obtain feedback and insights related to the implementation of archery class management using the 3-step focus technique to improve the shooting results of beginners. This present research was carried out at the PJKR FIK UNY Indonesia Study Program, focusing on fifth-semester students from the Class of 2020 who took Archery Orpil class.

Research Participants

The population used for the quantitative analysis was 80 students enrolled in archery class at the PJKR FIK UNY Study Program. A sample of 30 students were selected using the cluster random sampling technique from classes A, B, C, D, and E. Data collection was conducted through an archery test, where each student shot 36 arrows from a distance of 15 meters. This test was taken both before and after class was delivered using the 3-step focus technique. The procedure the archery test is stated as follows:

1. Students stand on the shooting line and shot six arrows within a maximum time limit of three minutes per session.
2. After all students had completed their arrow shots, referees were appointed to calculate the respective scores.
3. Scores were determined based on the arrows that stuck to the target face, with yellow, red, and blue scoring ranging from 10 to 9, 8 to 7, and 6 to 5, respectively.
4. After tallying all the shot scores obtained, they are summed and converted to a numerical value on a scale of 1 to 100.

In the qualitative analysis, 10 student representatives who actively participated in archery class were selected using purposive sampling. This deliberate technique had specific considerations (Sugiyono, 2016). The collection of qualitative data was carried out through semi-structured interviews. During these interviews, participants were asked a series of questions that comprised various aspects, including their comments, suggestions, associated factors, challenges faced, and ideas for improving this activity.

Statistical Analysis

The first quantitative data analysis technique included the use of paired sample t-test analysis with the SPSS program. This analysis was conducted to determine how the implementation of the archery sports class management using the 3-step technique affected the shooting results of beginners. The research design for this stage is shown in Table 1:

Table 1. Pre-experimental designs (one-group pre-test-post-test design)

	Pre-test	treatment	Post-test
Information:	O1	X	O2
O1	: Pre-test Results		
X	: Implementation of Archery Class Management Using the 3-Step Focus Technique		
O2	: Post-test Results		

The second quantitative data analysis adopted N-gain Score Test to assess the effectiveness of implementing archery class management using the 3-step focus technique on the shooting results of beginners. N-gain Score Test analysis at this stage was carried out using the following formula:

$$g = \frac{Sf - Si}{Smax - Si}$$

Information:

g = Gains
Sf = Post-test average value
Si = Pre-test average value
Smax = Maximum value

The effectiveness criterion is based on the criteria outlined by Hakes, (1998) as shown in Table 2:

Table 2.

g value	Criteria
$G \geq 0.7$	Tall
$0.3 \leq G < 0.7$	Currently
$G < 0.3$	Low

The third data analysis adopted qualitative technique, which adhered to the four essential steps outlined in the Miles and Huberman model, namely a) data collection, b) reduction, c) presentation, and d) concluding (Miles & Huberman, 1994). Following this framework, the qualitative data was systematically compiled and organized, providing descriptive insights to enhance and complement the quantitative information obtained.

Intervention

The implementation of archery class management, using the 3-step focus technique, includes four crucial aspects within the management function section, namely 1) planning, 2) organizing, 3) implementation, and 4) evaluation or assessment. Additionally, in the application of "the 3-step focus technique", inspired by the theory introduced by Kim Hyung Tak, a respected archery expert from South Korea (Tak, n.d.), the stages comprise a 3-step focus technique, inspired by Kim Hyung Tak, a respected archery expert from South Korea (Tak, n.d.), the stages included:

1. Technique: Half-pull movement with a focus on the blue color, as shown in Figure 1,
2. Technique: Anchor movement with an emphasis on the yellow color, as shown in Figure 2,
3. Technique: Release motion including hand scratching or swiping towards the back of the neck, as shown in Figure 3.

Figure 1.

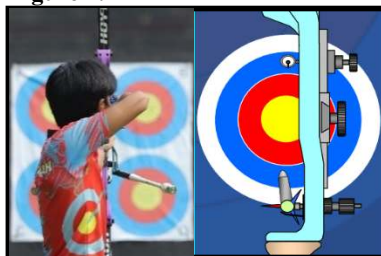


Figure 2.



Figure 3.



Results

The quantitative analysis results, shown in Table 4, provide descriptive statistics for the data. In the experimental pre-test using the 3-step focus technique, the data showed minimum and maximum scores, average value, and standard deviation of 16, 69, 49.10, and 14.854, respectively. As for the post-test results, the data showed minimum, maximum, average, and standard deviation values of 51, 100, 70.80, and 13.604, respectively.

Table 4. Descriptive Statistics

Descriptive Statistics	N	Minimum	Maximum	Average	Std. Deviation
Kim Technique Pre-Test Experiment	30	16	69	49.10	14,854
Kim Technique Post-Test Experiment	30	51	100	70.80	13,604
Valid N (listwise)	30				

The Kolmogorov-Smirnov and Shapiro-Wilk tests, as shown in Table 5, both yield a significance value (sig.) greater than 0.05. This indicates that the results of the normality tests suggest all experimental pre-test and post-test data are normally distributed.

Table 5. Tests of Normality

Tests of Normality		Kolmogorov-Smirnova			Shapiro-Wilk		
	Class	Statistics	df	Sig.	Statistics	df	Sig.
Results (Kim Technique Archery Test)	Kim Technique Pre-Test Experiment	.144	30	.115	.939	30	.084
	Kim Technique Post-Test Experiment	.098	30	.200*	.951	30	.175

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The results of the paired sample t-test in Table 6 show a paired sample test significance value (2-tailed) of 0.000, which is less than 0.05. This indicates a significant difference in the average student archery shooting learning outcomes between the pre-test and post-test of the experimental class after implementing the 3-step focus technique.

Table 6. Paired Samples Test

Paired Samples Test												
		Paired Differences								t	df	Sig. (2-tailed)
		Average	std. Dev.	std. Error Average	95% Confidence Interval of the Difference							
					Lower	Upper						
Pair 1	Kim Technique Pre-Test											
	Experiment - Kim Technique Post-Test Experiment	-21,700	15,875	2,898	-27,628	-15,772	-7,487	29	.000			

The paired samples statistics output in Table 7 shows that the experimental pre-test and post-test values are 49.10, and 70.80, respectively. This descriptive increase from the pre-test to the post-test shows that implementing class management using the 3-step focus technique effectively improved student learning outcomes in archery shots.

Table 7. Paired Samples Statistics

Paired Samples Statistics		Average	N	std. Deviation	std. Error Average
Pair 1	Kim Technique Pre-Test Experiment	49.10	30	14,854	2,712
	Kim Technique Post-Test Experiment	70.80	30	13,604	2,484

To determine the effectiveness of implementing archery class management using the 3-step focus technique, N-gain score test analysis was conducted. It was designed to determine the effectiveness of a particular technique. According to the results shown in Table 8, the average n-gain score is 0.41, it was included in the medium category. The range of N-gain values spans from a minimum of 0.04 to a maximum of 1.00. Therefore, the use of the 3-step focus technique for teaching archery falls within the medium effectiveness category.

Table 8. N-gain Score Test Results

No	Name	Free Test/Middle Semester Practice Exam														Conv.	Conv.	N-gains
		R1	R2	R3	R4	R5	R6	Pre	R1	R2	R3	R4	R5	R6	Post	Pre	Post	
1	MFA	18	37	21	14	21	13	124	28	6	27	8	26	32	127	64	66	0.04
2	RCF	20	12	5	29	11	24	101	10	15	11	34	30	7	107	52	55	0.07
3	FN	12	5	7	19	23	7	73	12	21	19	38	18	6	114	38	59	0.34
4	NA	17	19	7	21	24	21	109	25	24	16	21	17	21	124	56	64	0.18
5	MZA	11	0	24	11	7	21	74	14	10	21	12	11	31	99	38	51	0.21
6	DAD	7	17	6	24	27	13	94	22	16	29	20	19	25	131	49	68	0.37
7	RKS	17	26	40	21	17	11	132	12	20	25	35	30	28	150	68	78	0.30
8	MKA	30	10	7	32	23	28	130	21	21	34	7	23	27	133	67	69	0.05
9	RFA	14	6	0	5	6	11	42	12	26	13	21	26	10	108	22	56	0.44
10	APS	0	5	9	23	5	9	51	20	36	18	34	16	19	143	26	74	0.65
11	MIAR	12	15	13	27	16	12	95	7	22	44	27	22	34	156	49	81	0.62
12	AR	28	20	25	11	0	7	91	22	26	7	34	6	43	138	47	72	0.46
13	AW	19	11	23	27	14	7	101	23	35	0	18	29	7	112	52	58	0.12
14	AYN	7	5	11	0	7	0	30	0	7	31	11	27	25	101	16	52	0.44

15	MAA	23	23	24	20	17	27	134	23	32	23	26	31	24	159	69	82	0.42
16	MRR	20	22	21	0	8	19	90	30	27	37	37	28	34	193	47	100	1.00
17	INAI	6	29	14	13	32	37	131	27	20	30	21	34	27	159	68	82	0.45
18	MKA	7	0	22	13	13	10	65	18	21	20	17	6	34	116	34	60	0.40
19	HYTP	22	0	5	19	23	28	97	11	33	39	15	36	33	167	50	87	0.73
20	NLPS	18	12	19	17	20	28	114	17	31	20	43	27	21	159	59	82	0.57
21	ADF	0	0	6	11	0	27	44	11	45	39	12	18	26	151	23	78	0.72
22	LNS	6	26	13	19	18	10	92	11	34	19	33	16	26	139	48	72	0.47
23	TR	20	9	7	17	25	27	105	19	31	45	38	26	31	190	54	98	0.97
24	SN	7	6	14	12	25	11	75	0	10	19	15	28	47	119	39	62	0.37
25	SANS	31	12	36	8	19	5	111	36	38	31	28	40	15	188	58	97	0.94
26	ZPP	8	24	22	36	14	6	110	11	26	20	20	22	22	121	57	63	0.13
27	IPA	21	12	17	25	33	15	123	16	28	14	30	9	33	130	64	67	0.10
28	AAF	13	0	5	0	24	26	68	23	17	18	16	10	16	100	35	52	0.26
29	ZHB	14	22	17	30	18	26	127	16	12	22	29	27	26	132	66	68	0.08
30	JWA	14	24	12	39	14	8	111	24	21	27	25	7	33	137	58	71	0.32
Average																		0.41
At a minimum																		0.04
Maximum																		1.00

The management of archery class using the 3-step focus technique yielded substantial improvements in shot scores. However, it encountered challenges linked to archery equipment that was mismatched with the body postures of students, including their arm lengths, and heights. The results were extracted from qualitative data analysis conducted through interviews with students participating in archery class. The summarized responses from these interviews are shown in Table 9:

Table 9. Interview Result

No	Name	Statement of Student Participating in Archery Class
1	ZF	The Kim technique proved to be highly effective in the post-test scores, with students executing the step-by-step practice successfully. However, a significant obstacle encountered was the inappropriate choice of the bow, which had an adverse impact on achieving suboptimal results.
2	KV	The Kim technique is suitable, however, the issue lies with the bow being unsuitable and mismatched.
3	FZ	The class was well-structured, with clear steps that started with warm-up exercises and gradually introduced more complex techniques. Implementing Kim technique resulted in improved shot accuracy. However, there was a minor setback during the post-test, mainly due to a lack of focus, which limited the increase in scores compared to the pre-test.
4	US	The Kim technique is highly suitable and effective. Meanwhile, a challenge arises when it comes to acquiring bows that are not commonly used and do not match the body posture of students.
5	AD	The Kim technique was effectively applied, but there was a significant break of two months between the pre-test and post-test sessions due to theoretical class. A more continuous technique, with theoretical and practical lessons conducted in closer succession, could potentially lead to better post-test results.
6	AL	The Kim technique taught is quite effective and interesting.
7	LD	The Kim technique was effective and led to improved scores in the post-test.
8	WD	The application of the Kim technique led to improved scores in the post-test compared to the pre-test. However, the increase was not significant due to the mismatch between the bow and the posture of students.
9	CY	At the beginning of class, lecturers provided simple materials, and as students progressed, the techniques became more comfortable. After implementing Kim technique, there was an improvement in post-test shot scores compared to the pre-test. However, the increase was not significant due to several weeks without practice, causing a decline in archery skills.
10	FB	During field practice, students struggled to achieve accurate shots due to incomplete mastery of the techniques and stages in the Kim technique. Additionally, the choice of an inappropriate bow adversely affected the shooting results.

Discussion

Based on the paired samples test results, the significance value (2-tailed) is less than 0.05, indicating a significant difference in the average student archery shooting learning outcomes between the pre-test and post-test after implementing archery class management using the 3-step focus technique. Additionally, the output of paired samples statistics shows that the pre-test and post-test scores were 49.10, and 70.80, reflecting a descriptive improvement. The results suggest that using a well-managed technique, such as the 3-step focus

technique, in both theoretical and practical archery learning can enhance the learning outcomes of beginners. This is in line with previous research, which emphasized the importance of appropriate teaching technique and their impact in the achievement of optimal learning outcomes. RN Sari (2022) stated the need to subject students to effective learning in class through concentration and the use of suitable diverse techniques. Nugraha (2018) emphasized the significance of adopting an effective classroom strategy that prepares students for learning, enhance their concentration, and incorporate appropriate and varied teaching techniques. Recent research by Faqiha & Primary, (2022), Rahmatika, (2022), and Ardiyanto, (2022) reported the impact of specific archery techniques on accuracy. One particular technique is the 3-step focus technique, which streamlined archery movements. This process comprised a sequence of steps, firstly, it combines the drawing and aiming techniques, transitioning from targeting the top blue color to the yellow one on shooting the target. This technique effectively minimizes body vibrations or sway during the critical moments before the arrow is released toward the target. In archery, avoiding postural tremors when aiming is one of the essential factors in improving shot accuracy (Ogasawara et al., 2023). This technique is similar to Kim Hyung Tak theory which comprised a three-step process, namely half-pull, anchor and conclusion movement technique with a focus on the blue, yellow color, a release movement with the hand-swiped towards the back of the neck (Tak, n.d.).

Archery achievement depends on several factors, including learning and teaching management, technique application, technical training, physical conditioning, tactical acumen, and mental fortitude. These elements have been subjects of extensive research, yielding valuable insights and practical recommendations. It is also necessary to use video and multimedia technology to improve the skills of both coaches and athletes while facilitating their understanding of all training aspects (Vlasov et al., 2017). Another research conducted by Akbar & Nurhayati, (2019) stated that kinesthetic perception played a significant role in archery proficiency. The application of the game (AVShoot), designed to be fun, can improve accuracy among beginners (Fierera, 2022). The adoption of the self-check style technique has proven effective in improving archery aiming skills (Arisman et al., 2021). Furthermore, artificial intelligence (AI) has proven effective in classifying and predicting the talent scouting of outstanding archery athletes (Musa et al., 2019). The Weighted Product (WP) technique has shown a high percentage of success in supporting archery talent selection system (Utomo et al., 2019). To ensure the effective application of archery sport technique, sound class management both in theory and practice is relevant. Rohiyatun & Mulyani (2017), stated that there is a relationship between classroom management procedures and the smooth teaching and learning process. These activities are designed to cultivate an environment conducive to efficient and effective learning (Wahid et al., 2018). The class manager plays a major role in creating a practical learning atmosphere (Hidayat et al., 2020). It was deduced that the well-managed incorporation of the 3-step focus technique into archery teaching, comprised both theory and practice, used to significantly enhance archery learning outcomes of beginners.

The effectiveness of teaching archery using the 3-step focus technique, drawn from the expertise of South Korean archery authorities such as Tak (n.d.), was assessed through n-gain score analysis. The results indicate an average n-gain score of 0.41, placing it in the medium effectiveness category. The range of n-gain scores varies from a minimum of 0.04 to a maximum of 1.00. Consequently, the application of the 3-step focus technique can be considered moderately effective in improving archery learning outcomes (South Korea Tak, n.d.). Previous research also supported the positive impact of using specific technique on archery accuracy (Faqiha & Pratama, 2022; Rahmatika, 2022; and Ardiyanto, 2022). Additionally, South Korean archery coaches are renowned globally for their exceptional achievements in this sport (H.-B. Kim et al., 2015). However, the effectiveness of implementing the 3-step focus technique appears to fall under the moderate category. This assessment takes into account the qualitative results, which suggested equipment-related constraints, such as bows and arrows are not in line with the body proportions (arm length and body height) of students, influenced the effectiveness, despite the significant improvement in student archery skill scores achieved through this technique.

Using improperly sized bow and arrow equipment not suited to the arm length of archers can affect archery performance and pose a risk of injuries to the shoulder and hands. This mismatch can make the drawing technique significantly more challenging and physically demanding. Technique that minimizes physical fatigue typically lead to improved performance (Stone, 2007). Additionally, achieving accuracy in archery depends on the synchronization between the body vibrations and the bow during the shot (Sarro et al., 2021). These vibrations, while subtle, have a considerable impact on shot accuracy and are challenging to discern visually (Ogasawara et al., 2021). An incorrect bow-drawing technique can lead to muscle fatigue due to its increased exertion and when persistently used, results in injuries to archers or athletes (Zulkifli Ahmad et al., 2022). Archery-related injuries often arise from repetitive movements under substantial loads and inaccurate techniques, increasing the risk of injuries (Niestroj et al., 2018). To prevent injuries arising from equipment issues, proper maintenance and inspection before and after practice or competition are crucial. Additionally, all athletes must use safety equipment when engaging in archery (Niestroj et al., 2018). In the pursuit of enhanced achievement and safety in archery, efforts to refine bow and arrow equipment are essential for ensuring the quality of archery gear are still in progress (Zulkifli Ahmad et al., 2022). The teaching of archery using the well-managed 3-step

focus technique both in theory and practice has been proven effective in enhancing the learning outcomes of beginners. This effectiveness falls under the moderate category due to constraints related to ill-fitting bow and arrow equipment that is not in line with the body posture of the students, including arm length and height.

Conclusions

In conclusion to the research data analysis and discussion, the following were drawn: (1) The implementation of archery class management using the 3-step focus technique in both theory and practice classes had a significant positive impact on improving the learning outcomes of beginners, (2) The use of this technique in teaching archery, when well-managed, proved to be effective in enhancing archery skills. However, this effectiveness fell into moderate category due to limitations in bow equipment that did not match the body posture (arm length and body height) of beginners, (3) Archery class management using the 3-step focus technique was highly suitable for practical-based learning activities, both in sport education and competitions held in schools and tertiary institutions, (4) Properly fitted archery sport equipment in line with the body posture (arm length and body height) of students was relevant for achieving maximum learning outcomes as well as avoiding shoulder and hand injuries due to mismatch of bow pulling load..

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