Structuring youth sport for development: integrating life skills in NTB Basketball Leagues

Estructuración del deporte juvenil para el desarrollo: integración de habilidades para la vida en las Ligas de Baloncesto de NTB

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Abstract

Introduction: Life skills do not naturally transfer from sport to non-sport contexts without deliberate, structured interventions.
Objective: This study aims to examine the impact of structured life skill integration in youth basketball, exploring different intervention models to enhance life skill development.
Methodology: A quasi-experimental design was employed with a pretest-posttest non-equivalent group format. Participants (72 youth basketball athletes aged 12–18) were purposively assigned to three groups: full integration (Group I), partial integration (Group II), and a control group (Group III). The intervention lasted 13 weeks and involved structured life skill education through training and/or competition. The Life Skill Scale for Sport (LSSS) was used to measure life skill development, with pre- and post-test data analyzed using statistical tests such as ANOVA.
Results: The findings revealed that Group I (full integration) showed the greatest improvement in life skills, with significant gains in teamwork, leadership, emotional regulation, and communication. Group II (partial integration) also demonstrated significant improvements, but to a lesser extent. The control group (no integration) showed modest improvements, but their gains were significantly smaller compared to the experimental groups. Statistical analyses confirmed that full integration of life skills during both training and competition produced the strongest outcomes in life skill development.
Discussion: The findings highlight the importance of intentional, contextually embedded life skill programming in sports and offer practical implications for coaches, policymakers, and sport program designers.
Conclusions: The results suggest that sport, when aligned with PYD goals and structured interventions, can be a transformative environment for youth development.

Keywords

Positive youth development; youth basketball; sport-based intervention; training integration; competition integration; life skill.

Resumen

Introducción: Las habilidades para la vida no se transfieren naturalmente del deporte al contexto no deportivo sin intervenciones deliberadas y estructuradas.
Objetivo: This study aims to examine the impact of structured life skill integration in youth basketball, exploring different intervention models to enhance life skill development.
Metodología: A quasi-experimental design was employed with a pretest-posttest non-equivalent group format. Participants (72 youth basketball athletes aged 12–18) were purposively assigned to three groups: full integration (Group I), partial integration (Group II), and a control group (Group III). The intervention lasted 13 weeks and involved structured life skill education through training and/or competition. The Life Skill Scale for Sport (LSSS) was used to measure life skill development, with pre- and post-test data analyzed using statistical tests such as ANOVA.
Resultados: The findings revealed that Group I (full integration) showed the greatest improvement in life skills, with significant gains in teamwork, leadership, emotional regulation, and communication. Group II (partial integration) also demonstrated significant improvements, but to a lesser extent. The control group (no integration) showed modest improvements, but their gains were significantly smaller compared to the experimental groups. Statistical analyses confirmed that full integration of life skills during both training and competition produced the strongest outcomes in life skill development.
Discusión: The findings highlight the importance of intentional, contextually embedded life skill programming in sports and offer practical implications for coaches, policymakers, and sport program designers.
Conclusiones: The results suggest that sport, when aligned with PYD goals and structured interventions, can be a transformative environment for youth development.

Palabras clave

Desarrollo positivo de jóvenes; baloncesto juvenil; intervención basada en el deporte; integración del entrenamiento; integración de la competición; habilidades para la vida.

Introduction

Positive Youth Development (PYD) has emerged as a globally endorsed framework to foster the holistic development of adolescents. This paradigm emphasizes cultivating a broad set of competencies—including social, emotional, cognitive, and moral dimensions—to empower youth to thrive and contribute positively to their communities. In this context, sport has gained considerable recognition as a vehicle for youth development. Its structured nature, team dynamics, and challenges make sport an ideal platform for instilling life skills as an integral part of PYD (Fraser-Thomas et al., 2005). Given that life skills are a set of psychological assets that enable individuals to cope effectively with the demands of everyday life (Razali, Blegur, et al., 2024; Razali et al., 2025; Razali, Mansur, et al., 2024). These include skills such as decision-making, communication, teamwork, leadership, emotional control, and time management—skills essential for successful adult functioning (Danish et al., 2004; Kendellen et al., 2017).

Life skills do not naturally transfer from sport to non-sport contexts without deliberate, structured interventions (Kendellen & Camiré, 2017; Pierce et al., 2018). This is because not all athletes or coaches prioritize the transfer of life skills into everyday (non-sports) life. In fact, there are a number of life skills that can be learned and developed besides physical activities and skills by paying attention to their characteristics, including in the sport of basketball. Basketball, with its high levels of physical interaction, decision-making under pressure, focus on the target, and emphasis on cooperation, provides a particularly fertile ground for developing such life skills (Cope et al., 2017; Suardika et al., 2022). In Indonesia, where organized youth sports are growing rapidly, integrating life skill education into athletic development represents both a national policy objective and a community-level necessity. However, despite the promise of sport for development, research indicates that life skills do not naturally transfer from sport to non-sport settings without deliberate, structured intervention (Hemphill et al., 2019; Holt et al., 2017; Nugraha et al., 2022). Several studies have reported that while youth participation in sport correlates with increased confidence and interpersonal ability, these outcomes are highly contingent upon the design of the sport experience (Bean & Forneris, 2016; Chinkov & Holt, 2016). Without intentional programming, the opportunity to develop and transfer life skills can be missed.

This challenge highlights the need for models that explicitly incorporate life skill education into the curriculum and routines of sport programs (Ilham et al., 2025). Furthermore, there is a growing body of literature advocating the intentional integration of life skills into training sessions and competitive environments, such as in the studies of Kendellen et al. (2017), Kendellen and Camiré (2017, 2019), Hemphill et al. (2019), and Nugraha et al. (2022). These structured models are more effective in promoting skill internalization and transfer than ad hoc or implicit approaches. Existing literature has explored various approaches to life skill development through sport. For instance, the Teaching Personal and Social Responsibility (TPSR) model, developed by Hellison (2003), integrates life skills such as respect, self-direction, and caring into sport curricula. Similarly, the First Tee Program Weiss et al. (2014) in the U.S. utilizes golf as a medium to teach core values and life skills through structured lessons and reflection. While these models provide valuable insights, they are often tailored to specific sports or cultural contexts. There remains a need to contextualize and test similar models in diverse cultural and sporting environments—including Indonesia's competitive youth basketball ecosystem.

As a micro-system, games and sports have great potential for life skills development because they promote the quality of coach-athlete interactions, peer relationships, and involve organizational structures that focus on goals and reciprocal relationships in building the system. This idea also aligns with the theory of relational developmental systems from Lerner et al. (2005), which supports the PYD approach, where athletes are influenced by their environment and influence that environment, thus positioning athletes (adolescents and young adults) as valuable resources with potential. While we have seen numerous research reports reporting the integration of life skills into sports programs (see the third paragraph), few reports demonstrate the success of life skills integration in sports competitions or leagues. Previous studies by Gould and Carson, 2008 and Kendellen and Camiré (2017) have demonstrated the importance of intentionality in programming to improve life skills; however, there is still insufficient evidence regarding the most effective contexts and methods for implementation in tournament or league sports activities.

The novelty of this study lies in the methodological design and format for implementing or integrating life skills in youth sports. This study is one of the first in Indonesia to systematically examine the integration of life skills in youth sports in a tournament or league format, providing evidence for coaches, athletes, referees, and supporters on best practices in using leagues or tournaments as a means of developing life skills (in addition to sporting skills and achievements). This study highlights the role of sport as a transformative space when pedagogically aligned with development goals. These findings are expected to offer practical implications for sports federations, youth development organizations, and coaching education programs that seek to optimize sport for positive outcomes for youth. In short, this study bridges a critical gap in the sport-for-development literature by comparing three levels of intervention for life skills integration. This study positions sport as a physical activity and an educational arena where young people can develop core competencies essential for lifelong success. The results will inform the development of a replicable and culturally relevant model that aligns with global standards for youth development through sport.

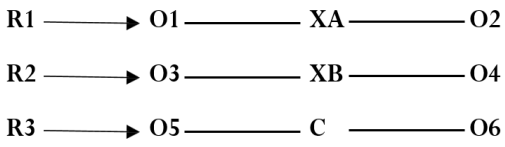
In response to this gap, this study examined the impact of structured life skills integration in youth basketball by exploring different intervention models to enhance life skills development. The research questions were: First, are there significant differences in life skills development between athletes exposed to different integration models? Second, which integration model (practice-only, competition-only, or both) is most significant for enhancing life skills among youth basketball players?

Method

Design

This study employed a quasi-experimental design using a pretest-posttest non-equivalent group format. The research was structured to assess the effects of different life skill integration models on youth athletes' development. Three distinct groups were involved: (1) the full integration group (life skill intervention during both training and competition), (2) the partial integration group (intervention during training only), and (3) the control group (no life skill integration). This design allowed for comparison of the intervention effects while maintaining ecological validity in the natural setting of a youth basketball league. The following is a graphic representation of the research design used multiple treatment and control with pretest (Fraenkel et al., 2011; Shadish William, 2002).

Figure 1. Structure research design



Explanation:

R_1	=	Randomize competition model group integrated during training and competition.
R_2	=	Randomize competition model group, integrated during training only
R_3	=	Randomize non-integrated competition model group
$O_1/O_3/O_5$	=	Pretest
X_A	=	Integrated during training and competition
X_B	=	Integrated during training only
C	=	Non-integrated
$O_2/O_4/O_6$	=	Posttest

There were three groups involved in the research design Multiple Treatment and Control with Pretest. Group R1 was the group that received received life skills integration treatment during the competition and training. Group R2 received integration during training only. Meanwhile, Group R3 was the control group that only received did not receive life skills integration.

Procedure

The design of this study included three groups, namely two treatment groups and one control group. All three groups participated in a basketball competition with a full league system. Before the league competition began, in the pretest stage (O1), the LSSS instrument was distributed and filled out by all samples. This was done to collect initial data from the sample. This pretest data will provide an overview of life skills before the integration of the different competition models provided.

The competition was carried out with a full season league system, each team met twice so that each team played 10 times during the league. The match schedule was only once a week. The 6 participating teams were divided into three groups, R1 namely the group that was integrated during training and competition (XA), R2 was integrated during training only (XB), and R3 was the non-integration group (C). This was to see the differences in the influence given by the integration given to each group.

After the league competition was over, the LSSS instrument was distributed and filled out again by all samples. This was done to collect final data from the sample (02). This posttest data will be compared with the pretest data to assess the changes that occurred. Life skills were integrated into the basketball program through structured activities and discussions, which were in line with the principles of the Positive Youth Development (PYD) framework (Danish et al., 2004; Lerner et al., 2005). In addition, the integration process also uses four principles from Kendellen et al. (2017), namely: (a) focus on one life skill per lesson, (b) introduce the life skill at the beginning ofthe lesson, (c) implement strategies to teach the life skill throughout the lesson, and (d) debrief the life skill at the end of the lesson.

Participants

Participants in this study were young athletes aged 12-18 years who participated in a basketball league in NTB totaling 72 players. This basketball competition uses a full season league system and is focused on East Lombok district with 6 female team participants from 6 school teams that successfully qualified for the top 6 round in the 2024 East Lombok district POPDA selection. The researcher took a sample of female players because in the implementation of the 2024 POPDA selection, the women's team competition was evenly distributed, in contrast to the men's team which was only dominated by 2 teams. This was done so that the implementation of the competition was not dominated by only a few teams.

The eligibility criteria included athletes who had completed at least one full season in the league, were actively participating in training, and whose parents consented to their involvement in a life skill-oriented intervention. The sampling ensured representativeness across skill levels, with no significant differences in baseline performance or demographic characteristics among the three groups.

Instrument

The main instrument used in this study was an adaptation of the Life Skills Scale for Sport (LSSS) constructed by Cronin and Allen (2017). The LSSS instrument consists of 47 question items with a measurement scale in the form of a Likert scale with a scale range of 1 (not at all) to 5 (very much). Life Skills Scale for Sport is an instrument to assess eight dimensions of life skills, namely teamwork, goal setting, social skills, leadership, problem solving and decision making, interpersonal communication, emotional skills, and time management. First, seven items from the teamwork indicator with $\alpha = 0.84$, including the item: “Help build team/group spirit.” Second, seven items from the goal-setting indicator with $\alpha = 0.89$, including the item: “Check progress towards my goals.”

Third, four items from the time management indicator with $\alpha = 0.89$, including the item: “Manage my time well.” Fourth, eight items from the emotional skills indicator with $\alpha = 0.89$, including the item: “Use my emotions to stay focused.” Fifth, four items from the interpersonal communication indicator with $\alpha = 0.88$, including the item: “Pay attention to what someone is saying.” Sixth, five items from the social skills indicator with $\alpha = 0.85$, including the item: “Maintain close friendships.” Seventh, eight items from the leadership indicator with $\alpha = 0.92$, including the item: “Be a good role model for others.” Finally, four items from the problem-solving and decision-making indicators with $\alpha = 0.88$, including “Think carefully about a problem.”

Data analysis

In this study, the proposed hypothesis aims to determine whether there is a difference in influence between the three groups (I, II, and II) on improving life skills. The difference in influence between the three

experimental groups is determined by comparing the difference between the pretest and posttest results of each group. The null hypothesis (H_0) states that there is no significant difference between groups I, II and III, while the alternative hypothesis (H_1) states that there is a significant difference in influence between the three groups.

Table 1. Normality test

	Tests of normality					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	.090	72	.200*	.970	72	.086
Posttest	.076	72	.200*	.971	72	.093

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Prerequisite tests were carried out before data analysis was carried out, namely by testing normality using the Kolmogorov-Smirnov test and data homogeneity using the Leneve test. The results of the normality test showed that the data were normally distributed (see Table 1) and varian data homogen (see Table 2). Thus, hypothesis testing was carried out using parametric statistical tests, namely the ANOVA test. With this approach, data analysis provides a clear understanding of the effect of treatment on improving life skills, and helps determine whether the three experimental groups produce statistically different results.

Table 2. Test of homogeneity

	Tests of homogeneity of variances				
		Levene statistic	df1	df2	Sig.
Difference	Based on mean	1.480	2	69	.235
	Based on median	1.441	2	69	.244
	Based on median and with adjusted df	1.441	2	68.158	.244
	Based on trimmed mean	1.471	2	69	.237

Results

Based on the descriptive data presented in Table 3, the average score on the pretest and posttest difference data for the group with integration in competition and training was 15.75 with a standard deviation of 3.404, while the group with integration in training alone had an average score of 11.54 with a standard deviation of 4.180 and the control group had an average score of 5.88 with a standard deviation of 3.505. Overall, each group showed an increase but group I showed the highest increase. These data indicate that integration in competition and training has a more significant impact on increasing life skills scores compared to the integration group during training alone and the control group.

Table 3. Description of integration life skills measurement result

					% Confidence interval for mean			
	N	Mean	Std. deviation	Std. error	Lower bound	Upper bound	Min	Max
KI	24	15.75	3.404	.695	14.31	17.19	9	23
KII	24	11.54	4.180	.853	9.78	13.31	5	19
KIII	24	5.88	3.505	.716	4.39	7.36	2	15
Total	72	11.06	5.477	.645	9.77	12.34	2	23

Based on Table 4 (T4), the sig. value is 0.001 <0.05, so the average is different, so it can be concluded that the average increase in life skills of these three groups has a significant difference. This means that there is a difference in the influence of the integrated league competition model during training and competition with the integrated league competition only during training and non-integrated league competition on the development of life skills of young athletes in the context of PYD. Because there is a difference, to find out the results of the difference, it is continued with post hock LSD/Tukey.

Table 4. Results of the ANOVA test

ANOVA						
		Sum of squares	df	Mean square	F	Sig.
Gain	Between groups	1178.694	2	589.347	42.756	<.001
	Within groups	951.083	69	13.784		
	Total	2129.778	71			

Based on the results of the Multiple Comparisons (T5) Group I had the greatest increase compared to group II and group III. This can be seen from the average increase of 15.75 (T3) with a mean difference with group II of 4.208 and with group III of 9.875. This indicates that integration during competition and training has a better influence on improving life skills than integration during training alone, let alone without integration. While group II had an average increase of 11.54 (T3) and a mean difference with group III of 5.667. This indicates that integration during training has a better influence on improving life skills than without integration.

To further investigate specific research questions, the results of the Multiple Comparisons were employed to compare gain scores between selected pairs of groups: Group I vs. Group II: There was a statistically significant difference ($p < 0.05$), demonstrating that full integration is more effective than training-only models. Group I vs. Group III: Results showed a highly significant difference ($p < 0.05$), reinforcing the value of intentional programming compared to standard practice. Group II vs. Group III: The difference was also significant ($p < 0.05$), indicating that even partial integration yields measurable benefits over no intervention.

These findings strengthen the case for structured life skill programming in youth sports, with the most effective outcomes observed when integration occurs in both training sessions and competitive matches.

Table 5. Multiple comparisons result using the Tukey LSD

Multiple comparisons							
Dependent variable: Gain							
						95% Confidence interval	
	(I) Group	(J) Group	Mean difference (I-J)	Std. error	Sig.	Lower bound	Upper bound
Tukey HSD	KI	KII	4.208*	1.072	<.001	1.64	6.78
		KIII	9.875*	1.072	<.001	7.31	12.44
	KII	KI	-4.208*	1.072	<.001	-6.78	-1.64
		KIII	5.667*	1.072	<.001	3.10	8.23
	KIII	KI	-9.875*	1.072	<.001	-12.44	-7.31
		KII	-5.667*	1.072	<.001	-8.23	-3.10
LSD	KI	KII	4.208*	1.072	<.001	2.07	6.35
		KIII	9.875*	1.072	<.001	7.74	12.01
	KII	KI	-4.208*	1.072	<.001	-6.35	-2.07
		KIII	5.667*	1.072	<.001	3.53	7.80
	KIII	KI	-9.875*	1.072	<.001	-12.01	-7.74
		KII	-5.667*	1.072	<.001	-7.80	-3.53

*. The mean difference is significant at the 0.05 level.

Discussion

The results of this study confirm that structured integration of life skills within both training and competition contexts yields significant benefits for youth athlete development, particularly within the framework of Positive Youth Development (PYD). The main finding—that the group exposed to both training and competition integration (Group I) demonstrated the highest improvement in life skills—provides robust evidence that intentional, contextually embedded life skill programming is more effective than partial or non-integrated approaches. When life skills are explicitly integrated in both structured training and live competition, athletes are provided with diverse opportunities for observational learning and experiential application. Group I's statistically significant improvement, combined with the relatively lower standard deviation, indicates not only efficacy but consistency in developmental outcomes. This mirrors findings who argued that life skills are best internalized when consistently reinforced across multiple sport settings (Kendellen & Camiré, 2017).

Furthermore, the Ecological Systems Theory by Bronfenbrenner (1994) supports the importance of multi-layered environmental influences. Integrating life skills into both practice and competitive environments aligns with the concept of nested systems—training as a microsystem and competition as a broader mesosystem. By reinforcing life skill development in multiple layers of the athlete's ecological environment, the intervention addresses both personal and contextual factors that influence youth development (Fraser-Thomas et al., 2005; Holt et al., 2017). Interestingly, Group II, which received integration only during training, still exhibited significant improvement, although to a lesser extent. This suggests that structured training environments alone can support life skill development, albeit with limitations. The result aligns with studies who found that life skills embedded in training contexts have a meaningful impact when sessions include guided reflection and goal-setting (Bean & Forneris, 2016). However, the absence of in-game reinforcement potentially limits the real-time application of those skills under pressure—an essential element for skill transfer beyond sport (Gould & Carson, 2008; Pierce et al., 2017).

Group III, which did not receive any life skill integration, also showed a modest but statistically significant improvement. This aligns with research indicating that sport in and of itself can foster certain psychosocial skills through informal experiences (Cope et al., 2017; Holt et al., 2017). Nonetheless, the significantly lower gain score compared to the other two groups highlights the limitations of relying on sport as a "natural" context for development without intentional design. It reinforces the critique that life skill transfer is unlikely to occur without deliberate pedagogical strategies (Danish et al., 2004). The layered nature of the intervention in Group I, which involved goal-setting, in-game application, and post-game reflection, supports the importance of experiential learning theory. This approach encourages athletes to engage in a cycle of action, reflection, and adaptation—a process identified by Gould and Carson (2008) as vital for life skill acquisition. The integration of leadership, teamwork, and emotional regulation into the weekly rhythm of the basketball league likely contributed to deeper internalization and broader transferability of these competencies.

Moreover, the findings underscore the role of coaches as critical agents of life skill transmission. The full integration model relied heavily on coach facilitation during both training and competition. This highlights the necessity for coach education programs to include modules on life skill development and intentional programming, as previously advocated by Santos et al. (2019). A coach's ability to frame experiences, guide reflection, and model behavior significantly shapes the developmental potential of sport contexts (Petitpas et al., 2005). From a policy perspective, these results are timely and significant. The Indonesian government, through the Law no. 11 of 2022 concerning Sports (Kementerian Pemuda dan Olahraga Republik Indonesia, 2022), emphasizes the role of sport in character and youth development. This study provides empirical backing for integrating PYD-aligned curricula in national and regional sports programs, especially those targeting school-aged athletes. By demonstrating that a structured intervention model leads to better outcomes than conventional approaches, the study informs stakeholders about scalable and evidence-based methods to improve youth sport systems.

This research also contributes methodologically by employing a validated instrument LSSS and a rigorous quasi-experimental design to compare different intervention modalities. While the lack of full randomization may limit causal inference, the design remains appropriate and ethical for applied settings, where control over assignment is often constrained. The use of pre- and post-test comparisons, coupled with multiple inferential tests, enhances the robustness of findings. Nevertheless, some limitations should be acknowledged. First, the study was conducted in a single geographic and cultural context, which may limit generalizability. Cultural factors influence how life skills are interpreted and enacted, and thus replication in different contexts is recommended. Second, the follow-up period was limited to the 13-week intervention. Future studies could examine long-term retention and transferability of life skills into non-sport domains such as school or community settings (Kendellen & Camiré, 2017).

Finally, while this study focused on basketball, the principles of the intervention model are adaptable to other sports. The integration of pre-session discussion, active in-game application, and post-session reflection offers a modular framework that can be implemented in football, volleyball, or even individual sports like athletics. Future comparative studies across sports could yield deeper insights into which environments are most conducive to specific life skills. In summary, this study provides strong empirical support for the intentional, structured integration of life skills into youth sports programs. The findings not only confirm the superiority of combined training and competition-based interventions but also

reinforce broader theories of youth development, ecological systems, and experiential learning. The evidence presented lays the foundation for replicable practice models and sets the stage for further innovation in sport-based youth development programming.

Conclusions

This study demonstrates that life skills can be effectively developed through sport when integrated intentionally within both training and competition contexts. The experimental findings clearly show that the group receiving life skill interventions in both settings achieved the highest gain in skill development, surpassing those exposed only during training or not at all. These results validate the critical role of structured pedagogical design in achieving PYD outcomes. The intervention model employed—featuring pre-session goal-setting, real-time application during games, and post-session reflection—proved to be a replicable and impactful method for fostering teamwork, leadership, emotional regulation, and communication among youth athletes. The implications extend to coaches, policymakers, and sport program designers, reinforcing the need to move beyond incidental development and adopt intentional strategies that align with broader developmental goals. Furthermore, this research contributes to the growing literature on sport as a context for life skill acquisition and offers a scalable framework that can be adapted across sports and cultural contexts. Future research should explore long-term effects and generalization of life skills into educational and community domains. However, we recommend that future research tighten the research design to increase the credibility of the results of life skills integration into sports leagues or competitions.

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