

Early Childhood Social Interaction in Sports at Satria Pushbike Community

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Early Childhood;
Pushbike; Sports
Community

Abstract

Early childhood social development is a crucial foundation for future well-being and success. However, increased screen time and reduced face-to-face interaction pose serious challenges. This study aims to describe the forms, dynamics, and facilitative roles of early childhood social interaction in pushbike activities at the Satria Pushbike Purwokerto Community. This research employed a descriptive qualitative approach with mixed methods. Subjects were 15 parents and 1 coach. Data collection used observation, semi-structured interviews, and documentation. Quantitative analysis used SPSS and qualitative analysis used NVivo. Descriptive statistics showed that the average responses fell into the "Often" category (frequency 99) and "Very Often" category (frequency 93). The findings revealed that cooperative play (e.g., sharing tracks, helping fallen friends) was more dominant than competitive interaction. Specific social skills observed included empathy (comforting distressed peers) and conflict resolution (negotiating turns and resolving disputes). NVivo analysis produced 9 project maps confirming that parental roles and emotional support are the most dominant factors. The pushbike community effectively functions as a "social laboratory" for developing children's social interaction, with success depending on synergy between parents, coaches, and the peer environment. This study provides empirical evidence for community-based sports programs oriented toward social interaction in Indonesia.

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INTRODUCTION

Early childhood social development is a fundamental foundation for future well-being and success. The World Health Organization states that good social-emotional development in early childhood is strongly related to academic success, mental health, and the ability to adapt as adults (Hartutik et al., 2021). Social interaction for children is not only a means of communication but also the main vehicle for learning life skills such as sharing, cooperating, resolving disputes, and developing empathy.

Longitudinal research shows that screen time negatively impacts children's social skills (Carson et al., 2019). (Gath et al., 2026) found that screen exposure of more than 2.5 hours per day was associated with higher peer relationship problems at age 8. (Gago-Galvagno et al., 2024) added that playing with physical toys promotes more verbal and non-verbal interactions between caregiver and child. Globally, children are increasingly sedentary due to high use of electronic devices. This situation urges finding activities that encourage children's social interaction in a fun way.

Cycling has been shown to promote prosocial behavior by increasing responsibility, self-confidence, leadership, and social relationships (Murillo et al., n.d.). Pushbike (balance bike) specifically shows positive effects in stimulating gross motor development (Yulianti et al., 2024). (Casman et al., 2021) also reported positive effects of pushbike on children's motor development. (Marufa et al., 2023) found a significant relationship between pushbike use and improved balance. (Schoen et al., 2022) provided evidence that learning to ride a bicycle also develops social interaction and self-esteem.

When done in a community context, pushbike gives children opportunities to make friends and practice social skills. (Taylor et al., 2024) found that outdoor environments rich in affordances increase physical activity, social interaction, and cooperative play in children aged 3-7 years. (Lannoy et al., 2026) confirmed that active outdoor play has a strong positive relationship with children's social health.

In Purwokerto, the Satria Pushbike Community has emerged, accommodating young children to do pushbike activities regularly and in a structured manner. This community creates a conducive social environment for children to interact and develop social skills. Structured and sustainable stimulation in the community has a more optimal impact on child development compared to sporadic stimulation (Hendarsyah & Gustiana, 2024). (Keaulana et al., 2021) emphasized that community-based activities in open air provide dual benefits for children's physical and psychosocial development.

However, most existing studies have focused on the visible outcomes of pushbike activities, such as improved motor coordination, balance, and physical fitness. The invisible dimension namely how children negotiate social rules, express empathy, resolve conflicts, and form friendships on the track has received far less attention. This oversight is significant because social competence developed in early childhood is as vital for long-term well-being as physical health. Moreover, the subtle, context-dependent nature of peer interaction during play demands an in-depth qualitative approach to be properly understood, rather than relying solely on quantitative pre-/post-test designs.

Although many studies have shown the benefits of pushbike for motor development, in-depth studies on the dynamics of children's social interaction in pushbike communities in Indonesia are still very limited. Therefore, this study aims to: (1) identify the forms of social interaction that occur in early childhood in pushbike activities at the Satria Pushbike Purwokerto Community; (2) analyze the dynamics of these social interactions; and (3) explore the role of coaches, parents, and peers in facilitating these interactions. The contribution of this research is to provide empirical evidence on how a pushbike community can function as a vehicle for developing early childhood social interaction, and to serve as a reference for parents, community managers, and policy makers.

METHODS

This research uses a descriptive qualitative approach with mixed methods. The qualitative approach was chosen to explore in-depth understanding of social phenomena in their natural context. The research was conducted at the Satria Pushbike Purwokerto Community, Banyumas Regency, Central Java, from February to March 2026.

The population was all active members of the community (aged 2-8 years) along with parents and coaches. The sample was taken by purposive sampling with the criterion: children active in training for at least 3 months. Informants consisted of: (1) main informants: 2-8 young children; (2) supporting informants: parents of these children; (3) key informants: 1 coach. A total of 15 parents and 1 coach participated in filling out the questionnaire.

The research instruments consisted of observation sheets to record children's social interaction behavior, semi-structured interview guides for parents and coaches, picture-elicitation cards for child interviews, and a Likert-scale questionnaire developed by the researcher. Validity was tested through expert judgment, and reliability was tested using Cronbach's Alpha coefficient.

Data collection techniques included: (1) direct observation of children during pushbike activities; (2) semi-structured interviews with parents, coaches and community administrators; (3) play-based interviews with young children (main informants); (4) documentation in the form of photos, videos and activity records.

For the child informants aged 2–8 years, conventional semi-structured interviews were not appropriate due to their limited verbal and cognitive abilities. Therefore, a play-based interviewing approach was employed, integrating questioning into natural play activities during or immediately after pushbike sessions. Simple, open-ended prompts were embedded in the context of their play, such as “Who did you ride with today?” and “What happened when your friend fell down?” To further support children's expression, picture-elicitation techniques were used: children were shown photographs taken during their previous activities (e.g., two children sharing a track, one child helping another) and asked to describe what they saw or how they felt. This child-centered, adaptive strategy allowed the researcher to capture authentic perspectives on friendship, helping, and conflict without forcing formal question-answer routines.

Data validity was guaranteed through source triangulation (comparing data from parents, coaches, observations, and child interviews) and technical triangulation (combining observation, interviews, documentation).

Data analysis used an interactive model with stages: data reduction, data display, and conclusion drawing/verification. Quantitative data from questionnaires were analyzed using SPSS for descriptive statistics (mean, standard deviation, skewness, kurtosis). Qualitative data were analyzed using NVivo for thematic analysis and visualization (word cloud, mind map, project map, hierarchy chart).

RESULTS AND DISCUSSION

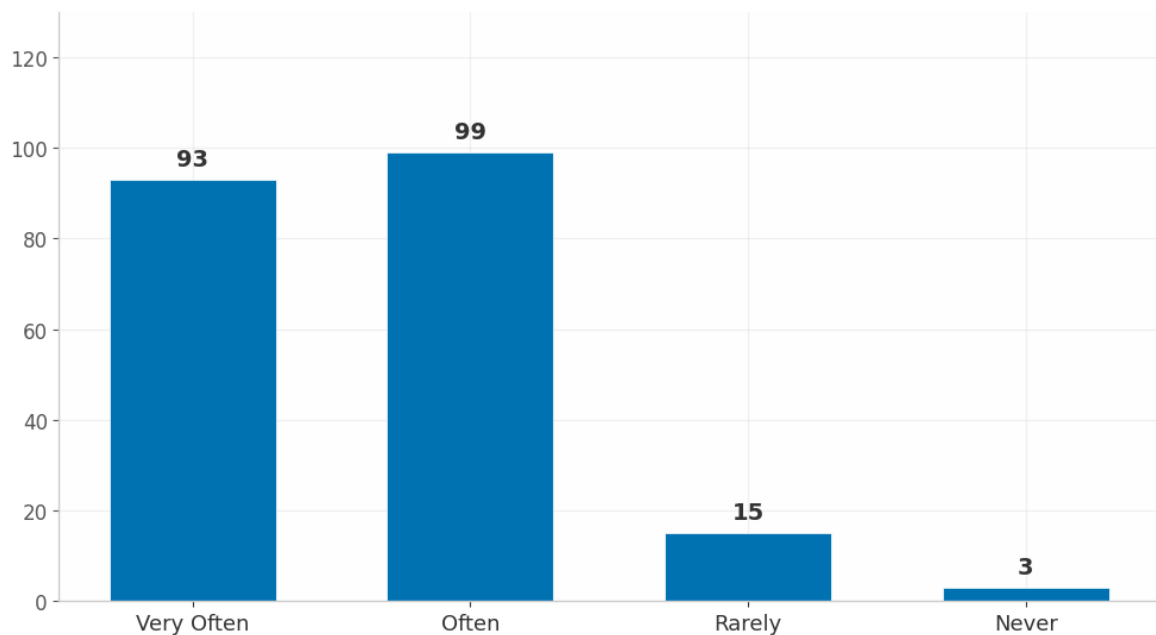
The research implementation took place from February to March 2026, with observation and interview activities carried out in three meetings. The informants obtained were 15 parents and 1 coach, who actively participated in the entire process.

Descriptive analysis of the 15 parent respondents on 14 indicators of social interaction showed that the mean values ranged from 2.50 to 4.00. The standard deviation ranged from 0.000 to 0.997, indicating low variation. Minimum values varied from 1 to 4, with a maximum value of 4. The distribution showed mostly negative skewness (e.g. variables MH, RP, ABR = -3.742) with high kurtosis (14,000), indicating answers concentrated on high scores.

Table 1. Descriptive analysis

	N	Range	Min	Max	Mean	Media n	Mod e	Std. Deviation	Variance	Skewness	Kurtosis	Sum			
	Statis tic	Statis tic	Statis tic	Statis tic	Sta tistic	Std. Error	Statist ic	Stati stic	Statistic	Statistic	Statis tic	Std. Error	Statis tic	Std. Error	Statis tic
IDS	14	1	2	3	2.79	.144	2.79	3	.426	.181	-1.566	.597	.501	1.154	39
DV	14	1	3	4	3.36	.133	3.36	3	.497	.247	.670	.597	-1.838	1.154	47
NV	14	3	1	4	3.07	.267	3.07	4	.997	.995	-.704	.597	-.55	1.154	43
HMD	14	1	2	3	2.50	.139	2.50	2 ^a	.519	.269	.000	.597	-2.364	1.154	35
YRH	14	3	1	4	3.29	.266	3.29	4	.994	.989	-1.218	.597	.521	1.154	46
SH	14	1	3	4	3.50	.139	3.50	3 ^a	.519	.269	.000	.597	-2.364	1.154	49
MH	14	1	2	3	2.93	.071	2.93	3	.267	.071	-3.742	.597	14.00	1.154	41
KL	14	0	3	3	3.00	.000	3.00	3	.000	.000		.597		1.154	42
FB	14	2	2	4	3.29	.163	3.29	3	.611	.374	-.192	.597	-.258	1.154	46
MRA	14	1	3	4	3.71	.125	3.71	4	.469	.220	-1.067	.597	-1.034	1.154	52
RP	14	1	2	3	2.93	.071	2.93	3	.267	.071	-3.742	.597	14.000	1.154	41
MS	14	0	4	4	4.00	.000	4.00	4	.000	.000		.597		1.154	56
SPT	14	0	4	4	4.00	.000	4.00	4	.000	.000		.597		1.154	56
ABD	14	0	3	3	3.00	.000	3.00	3	.000	.000		.597		1.154	42
ABR	14	1	3	4	3.93	.071	3.93	4	.267	.071	-3.742	.597	14.000	1.154	55

Based on **Figure 1**, the "Often" category reached the highest frequency (99), followed by "Very often" (93). This indicates that respondents' perceptions are very positive for all indicators studied.

Descriptive Analysis Results of Respondent Questionnaire Data**Figure 1.** Histogram

NVivo visualization produced a word cloud showing words "Training", "Competition", "Parents", "Development", "Consistency", "Cost", "Mental", and "Process" appeared most dominantly, illustrating a child-centered parenting model.

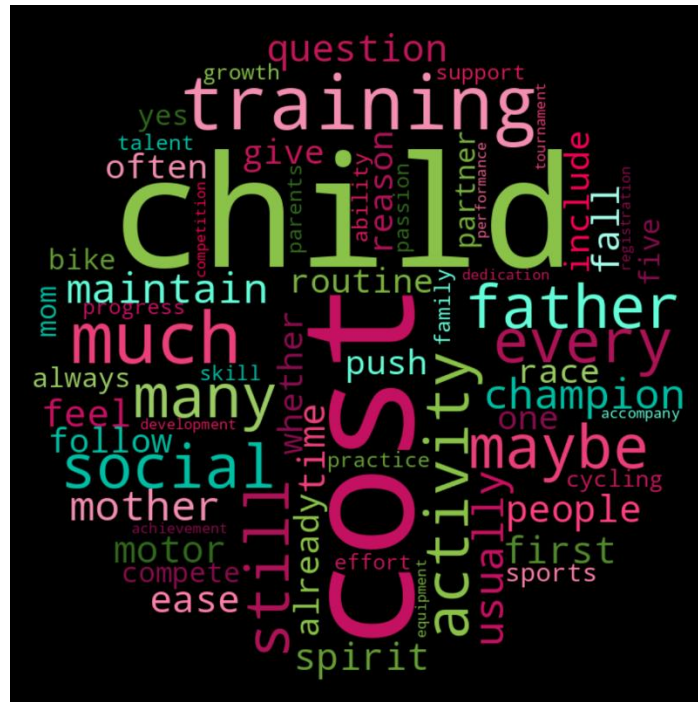


Figure 2. Word cloud of dominant words from NVivo analysis

The mind map describes an integrated parenting ecosystem with the goal of physical health and mental resilience, democratic communication, and mature financial management environment. The success of this ecosystem depends on synergy between social support (parents), instructional approach (coach), and peer interaction. Practical implications: for parents, to utilize interest-based communities as a means of social stimulation; for community managers, as a basis for designing activities that promote specific social skills; for local governments, as a model for effective community-based child development programs.

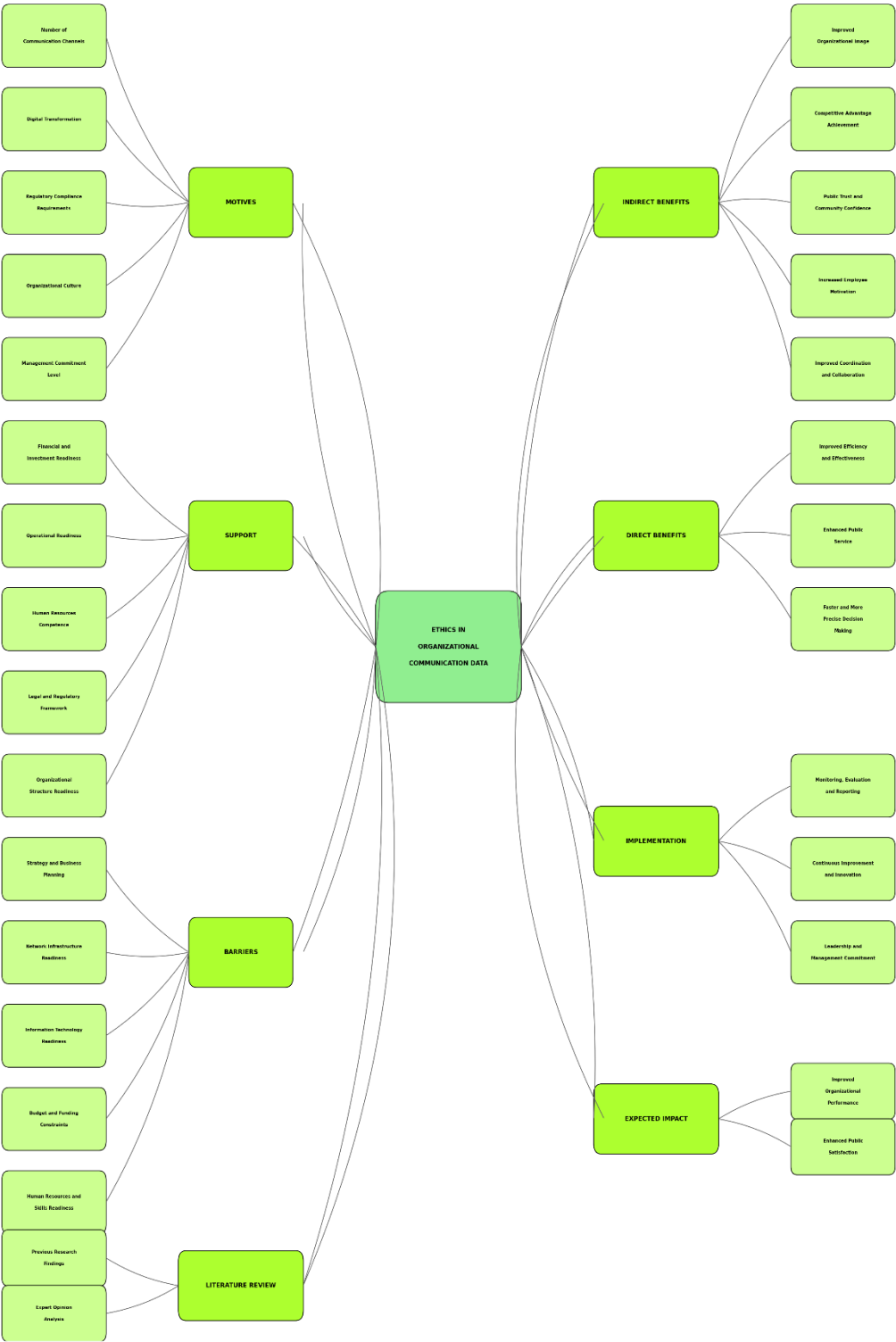


Figure 3. Mindmap

This study produced 9 project maps.
Project Map 1 (Motivation) shows that rewards are used as a recognition instrument.

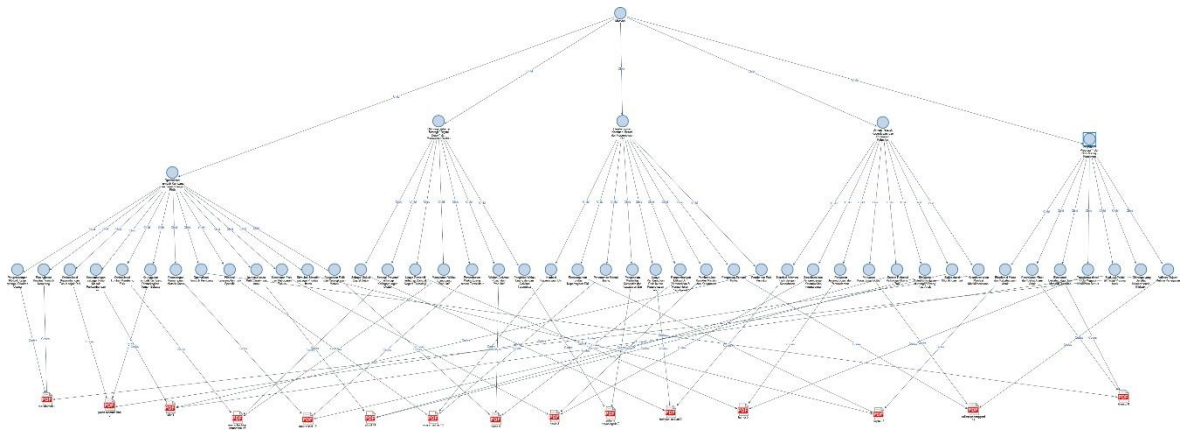


Figure 4. projectmap 1 Motivation

Project Map 2 (Instrumental Support) confirms that parental presence is an emotional anchor.

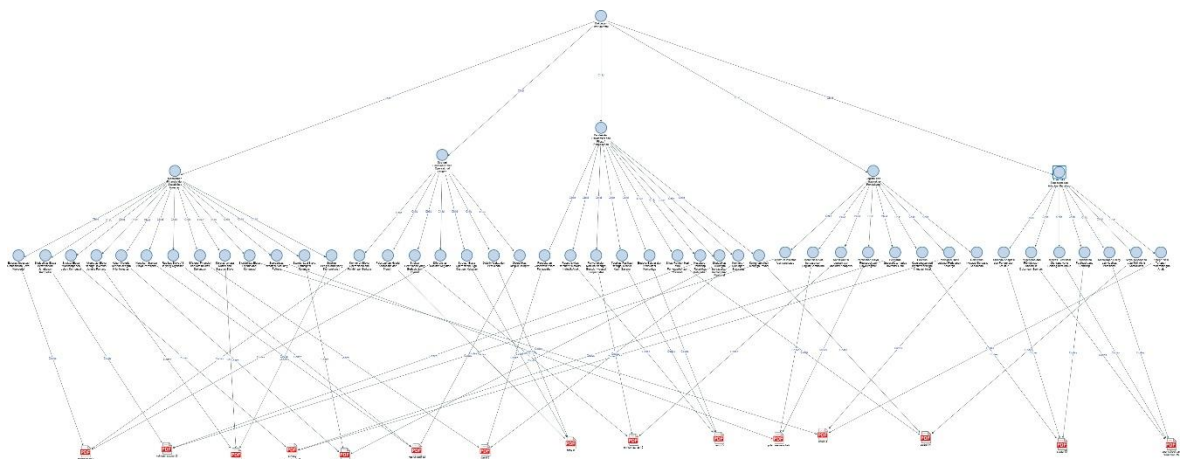


Figure 5.projectmap 2 Instrumental support

Project Map 3 (Emotional Support) shows that emotional support must be accompanied by resource readiness.

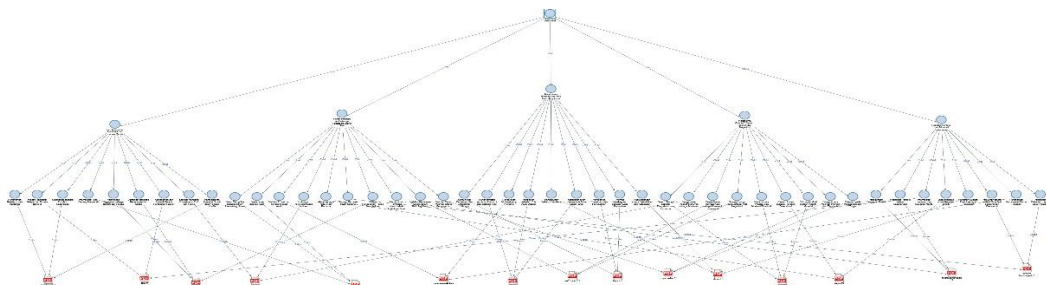


Figure 6. projectmap 3 Emotional support

Project Map 4 (Direct Involvement) highlights active presence in the field.

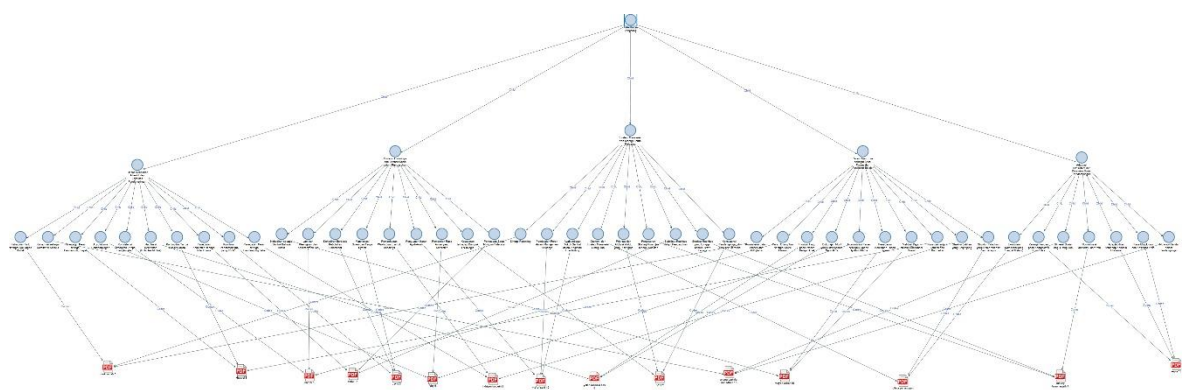


Figure 7. projectmap 4 Direct Involvement

Project Map 5 (Expectations) reveals parents' highest expectations are on character building, independence, and long-term mental health.

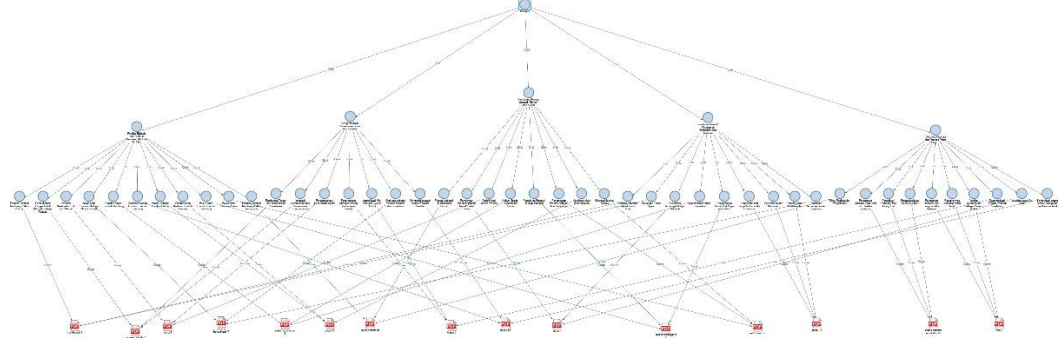


Figure 8. projectmap 5 Expectations

Project Map 6 (Instructional Approach) emphasizes effective instruction requires building concentration and emotional security.

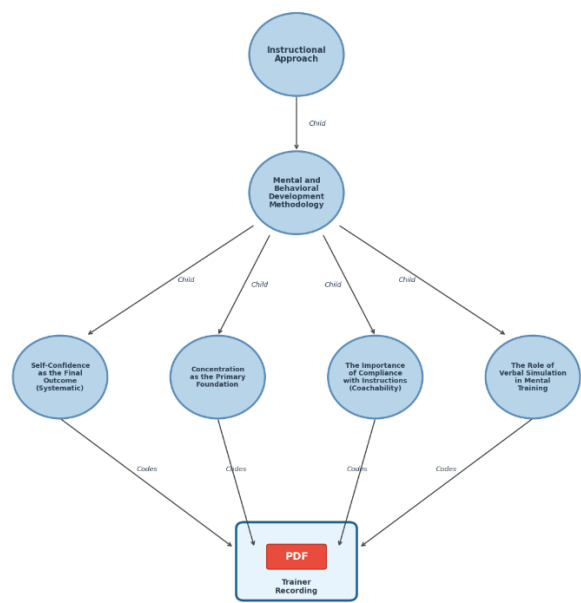


Figure 9. projectmap 6 Instructional Approach

Project Map 7 (Peer Interaction) describes the community as a social classroom.

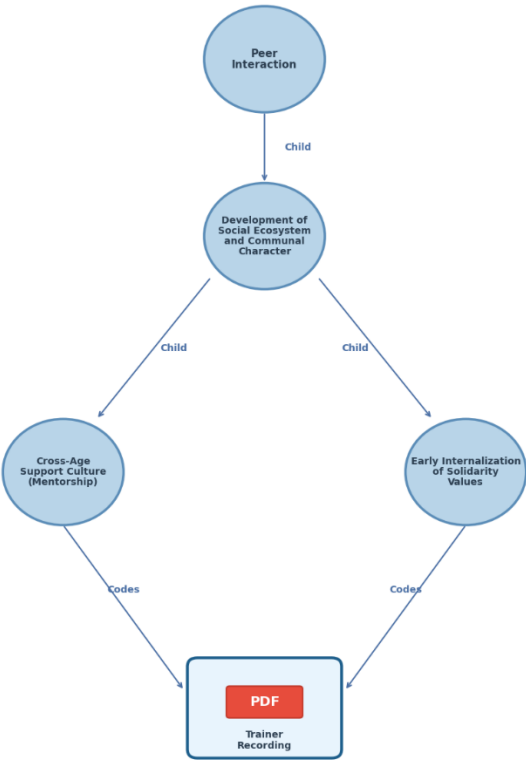


Figure 10. projectmap 7 Peer Interaction

Project Map 8 (Parental Role) shows parents as safe haven and strategist.

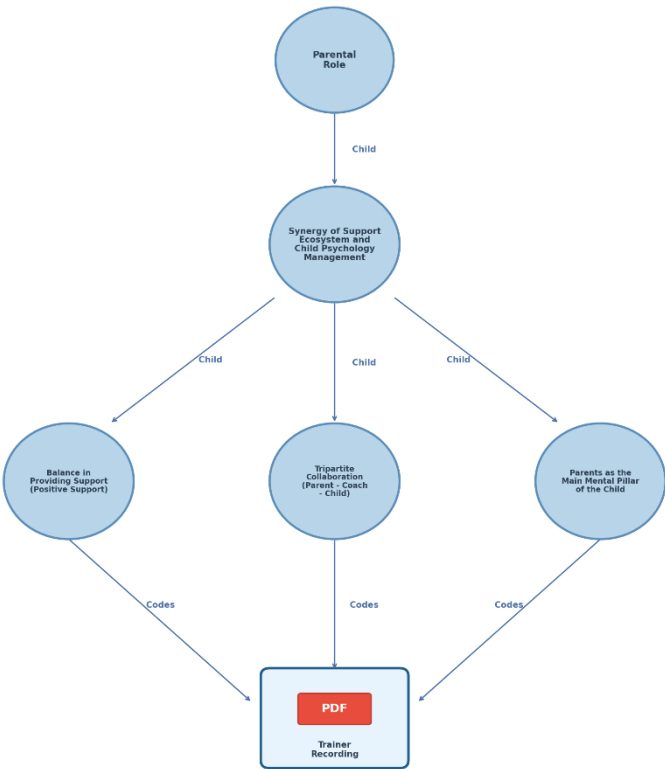


Figure 11. projectmap 8 Parental Role

Project Map 9 (Conflict Handling) confirms conflict as an opportunity for character learning.

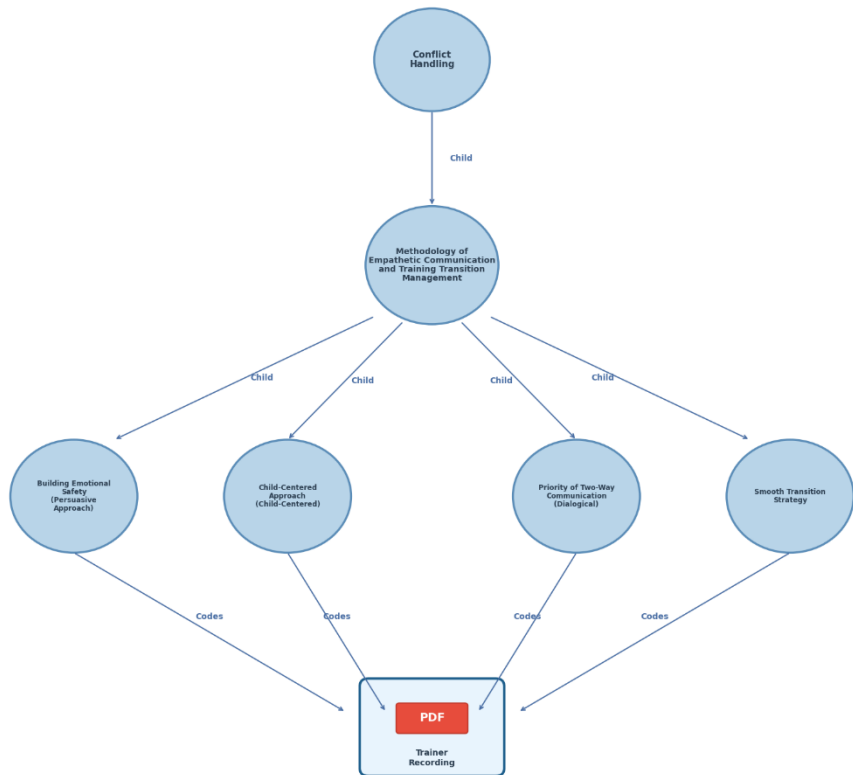


Figure 12. projectmap 9 Conflict Handling

The hierarchy chart shows the largest cluster is Social Support & Parental Role, followed by Motivation Mechanisms & Expectations, Instructional Strategies & Conflict Handling, and Instrumental Support & Peer Interaction. This confirms that family involvement is the most dominant variable.

SOCIAL INTERACTION OF YOUNG CHILDREN IN SPORTS PARTICIPATION AT SATRIA PUSHPIRE PURWOKERTO COMMUNITY									
Direct Involvement			Emotional Support			Motivation			
Parental Role as Facilitator	Managerial Strategy and Planning	Adaptive Mechanism	Role of Significant Others	Nurturing Environment		Optimization of Turnover Intention			
Philosophy of Absenteeism	Psychological Dimension of Engagement		Mechanism of Encouragement	Communication Channel					
Expectations			Behavioral Regulation and Emotional Stability			Nurturing Self-Efficacy	Dimension of Intrinsic Drive		
Biological and Physical Foundation	Mental Health and Well-being	Knowledge Acquisition				Journey of Self-Discovery	Sport Commitment		
Motivation Dynamics and Drive	Achievement Paradigm								
			Emotional Support (cont.)			Motivation (cont.)			
Instrumental Support			Approach in Conflict Resolution	Handling Pressure	Role of Mentorship	Practice Consistency	Training Discipline		
Financial and Skill Management	Logistics and Infrastructure	Dynamic Adjustment	Methodology of Support	Method of Intervention	Sine Qua Non	Competition Readiness	Goal Orientation		
Psychosocial Approach and Guidance	Development Strategy and Coaching		Integration of Values			Feedback Loop	Evaluation System		

Figure 13. Hierarchy chart

Integration of SPSS and NVivo data shows that social support, especially from parents, is the most crucial factor for children's social interaction development. This aligns with (Hartutik et al., 2021) who state that children's personal social development is influenced by the learning environment and stimulation provided. In the Satria Pushbike Community, a structured yet enjoyable environment creates rich interaction opportunities (Keaulana et al., 2021).

The forms of social interaction include associative interactions (cooperation, sharing, helping) and dissociative interactions (healthy competition or mild conflict). This supports (Hayati & Putro, 2021) who argue that play trains negotiation, sharing, waiting turns, and understanding others' perspectives.

The dynamics of social interaction develop over time with meeting routines. Children who initially seemed shy began to approach friends, imitate positive behavior, and invite others to play together. This pattern confirms (Hendarsyah & Gustiana, 2024) that structured and sustainable stimulation has a more optimal impact than sporadic stimulation.

Parents and coaches play crucial roles. Parents act as emotional and instrumental facilitators they supervise safety, model social behavior, mediate conflicts, and provide logistical support. Coaches design collaborative activities and create clear rules. This aligns with (Schoen et al., 2022) who reported that changes in children's social interaction depend on active involvement of parents and coaches.

High motivation is rooted in emotional security and democratic parenting. Children who receive consistent emotional support tend to be more socially explorative, recover faster from disappointment, and show more empathy.

Interestingly, pushbike in this community not only shapes young athletes but also builds children's character to be disciplined, independent, and mentally tough. This goes beyond previous findings that emphasized motor aspects (Yulianti et al., 2024). (Casman et al., 2021) also focused more on physical aspects. (Marufa et al., 2023) similarly emphasized motor development. (Veiga et al., 2023) showed that an outdoor-based movement program significantly improved self-regulation and relationship skills in preschool children. Thus, the pushbike community functions as a "social laboratory".

The pushbike ecosystem builds a solid socio-emotional foundation through collaboration between parents, coaches, and peers. (Lannoy et al., 2026) reinforces that structured outdoor environments for group physical activity provide dual benefits for early childhood development. (Taylor et al., 2024) also confirms that outdoor physical activity positively impacts children's social health.

Limitations include a limited number of respondents (15 parents, 1 coach), a relatively short observation period, and potential bias from parents who already have a positive perception of the community. Future research should involve more respondents, with a longitudinal duration, and compare several similar communities.

CONCLUSION

This study concludes that pushbike activities in the Satria Pushbike Purwokerto Community function as a vehicle for developing early childhood social interaction. The forms of interaction include cooperation, sharing, communication, empathy, healthy competition, and conflict resolution. The dynamics of interaction develop positively over meeting routines, driven by the active role of parents as emotional and instrumental facilitators, and coaches as designers of the social learning environment. The success of this ecosystem depends on synergy between social support (parents), instructional approach (coach), and peer interaction. Practical implications: for parents, to utilize interest-based communities as a means of social stimulation; for community managers, as a basis for designing activities that promote specific social skills. Importantly, regarding conflict which naturally emerges on the track when children compete for turns or space parents and coaches should not view minor disputes as problems to be eliminated. Instead, these conflicts serve as vital 'teachable moments' within the pushbike social laboratory. Guiding children to negotiate, apologize, and take turns transforms everyday friction into authentic lessons in empathy, self-regulation, and fair play. For local governments, as a model for effective community based child development programs.

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