

Analyze the Enjoyment of Soccer School in the Elementary School Age

Hiroki Tanioka ^{*}, Mitsuhiro Sato [†], Ryuji Tsuge [‡]

Abstract

The importance of enjoying physical exercise and interaction with others in sports has been suggested, however it has not been clarified what activities lead to enjoyment. Therefore, we conducted an online questionnaire survey of students attending soccer school after practice and conducted a correlation analysis of their impressions of attending school, whether they enjoy soccer school activities, and what activities lead to enjoyment, and found that the main factor contributing to their enjoyment of soccer school was game (match), also suggesting that enjoying school is related to running a lot and being involved with the ball a lot. On the other hand, students who could juggle well tended not to enjoy it.

Keywords: Correlation analysis, Enjoyment, Soccer.

1 Introduction

The importance of enjoying physical activities and interacting with others has been suggested in sports [1], however it has not been clarified what kind of activities lead to enjoyment. Therefore, we conducted an online questionnaire survey using Microsoft Forms [2] to school students attending a soccer school and analyzed what they felt about participating in the school, if they enjoyed the activities of the soccer school, and what activities lead to enjoyment. Specifically, we take an online survey of school students to gather feedback on the school. Next, the items of the survey which are tabulated, and trends are analyzed from basic statistics. Furthermore, we analyze the correlation between each survey item and the factors that lead to enjoyment. In addition, the relationships between the questionnaire items are visualized in a cluster map to analyze the relationship between athletic ability and motivation and the school's practice.

2 Purpose of this Research

The soccer school that will cooperate with this study is in line with the educational policy of the soccer schools presented in section 2.1. In addition, Section 2.2 introduced related research on the practice and enjoyment of sports. Based on these studies, our study will determine whether soccer school students enjoy school activities and which activities lead to enjoyment.

^{*} Center for Administration of Information Technology., Tokushima University, Japan

[†] Faculty of Integrated Arts and Sciences, Tokushima University, Japan

[‡] Hometown Promotion Department, Tokushima Vortis, Japan

2.1 Teaching Policy of Tokushima Vortis School

Tokushima Vortis School [3] has the following teaching policy. At Tokushima Vortis Soccer school, the school focuses on teaching human development by emphasizing greetings, rules, manners, cooperation, gratitude, tidiness, discipline, and never giving up. In order to achieve this, the coaches use their attitude and words to convey the importance of becoming a person who is supported by everyone, helping others, and having a considerate heart in the teaching situation. The school also tries to provide instruction that uses different methods for different situations, such as scolding, praising, acknowledging, and making the students think without talking, so that the students can think about what the students need to do immediately, recognize the attempts to challenge themselves and what the students are trying to do, and work to develop the strengths. The school will also encourage the students to develop their strengths.

In the technical aspect of soccer, the school teaches the essence of soccer, “attack - scoring goals” and “defense - taking the ball and defending the goal,” according to the developmental stage and individual differences of each student. In order to achieve these goals, the school will help the students acquire a sense of accomplishment and a feel for the ball by having the students set and achieve goals throughout the entire practice session. In addition, the school communicates with the parents and guardians to determine what each student needs and what the school wants the students to acquire. The school will also teach the students to watch their surroundings and to be able to play the opposite way of their opponents.

2.2 Related Research

A study by Elbe et al. [1] showed that enjoyment of exercise is important for young children ages 8 to 10. In the field of early childhood education, Uchida et al.'s study [4] suggested that a motor play instructional program with an awareness of intrinsic motivation promotes the development of motor skills. Umezaki [5] discusses the importance of individual motivation in sports activities according to life stage, but much work remains to be done.

Scharfen et al. [6] showed that cumulative cognitive test scores were positively correlated with cumulative motor test scores for youth soccer players aged 11 to 13 years. The study by Fumoto et al. [7] showed that ball juggling skills for U-12 generation are not an indicator of a good athlete. Goto et al.'s study [8] showed that for 4th to 6th-graders, there is a high correlation between awareness of the tactic and enjoyment of the game. The results of Goto et al.'s study [9] of junior high school boys suggests that the technique of juggling by instep is a game-enjoyable skill. The findings of these studies suggest that there are some relationships among players' skills, awareness, motor skills, and cognitive abilities.

3 Research Method

3.1 Targets of the Survey

Our survey targets school students in classes for preschoolers through 6th-graders (ages 5 to 12). We regularly announce how to fill out the survey and encourage people to fill out the online survey. Parents of the school students, along with the students, use the survey site, which is scanned by QR code, to answer the questionnaire.

3.2 Online Questionnaire

To conduct the survey, we used an online survey tool created in Microsoft Forms [2], shown in Figure 1, to survey students at a soccer school. Students could complete the survey using a smartphone or computer with the cooperation of their parents. We tried to make the survey as easy as possible to complete, resulting in an average response time of 305 seconds, with a standard deviation of 328 seconds. This means that most respondents were able to respond within 10 minutes.



Figure 1: Online questionnaire on smartphone in Japanese

3.3 Questionnaire Items

The main questions in the online survey are as follows.

- Did you enjoy the soccer school? (enjoy? - 5-point Likert scale)
- Are you tired? (tired? - 5-point Likert scale)
- Are there any sore spots? (pain? - 5-point Likert scale)
- Did you shoot or pass a lot? (shoot and pass? - 5-point Likert scale)
- Did you do a lot of dribbling? (dribble? - 5-point Likert scale)
- Did you run a lot? (run and sprint? - 5-point Likert scale)
- How many times could you do the juggling? (juggling count - numerics)
- How many goals did you score? (goal count - numerics)
- What practices did you enjoy? (descriptive expression)
- What were practices that you did well? (descriptive expression)
- What were practices that you did not do well? (descriptive expression)

4 Analysis of Survey Results

We conducted a voluntary online questionnaire survey of Tokushima Vortis Soccer School students (20 students per class, total capacity 180 students) for about 5 months from December 2021 to April 2022 and obtained a total of 97 responses from 48 school students. The results of the online survey were reviewed and correlations between the survey items were analyzed.

The questionnaire items were used as variables, which included “the age of the students (1. age)” and a 5-point Likert scale (Very much agree, agree, don't know, not so much agree, and not at all agree), as well as the question “Did you enjoy the school? (2. enjoyed?),” “Did you tired? (3. tired?),” “Do you have any pain? (4. pain?),” “Were you able to shoot and pass the ball? (5. shooting and passing?),” “Did you do a lot of dribbling? (6. dribble?),” and “Did you run a lot? (7. run and sprint?)” were evaluated using a 5-point scale with equal intervals. In addition to this, the number of juggling and goals were evaluated based on self-reports.

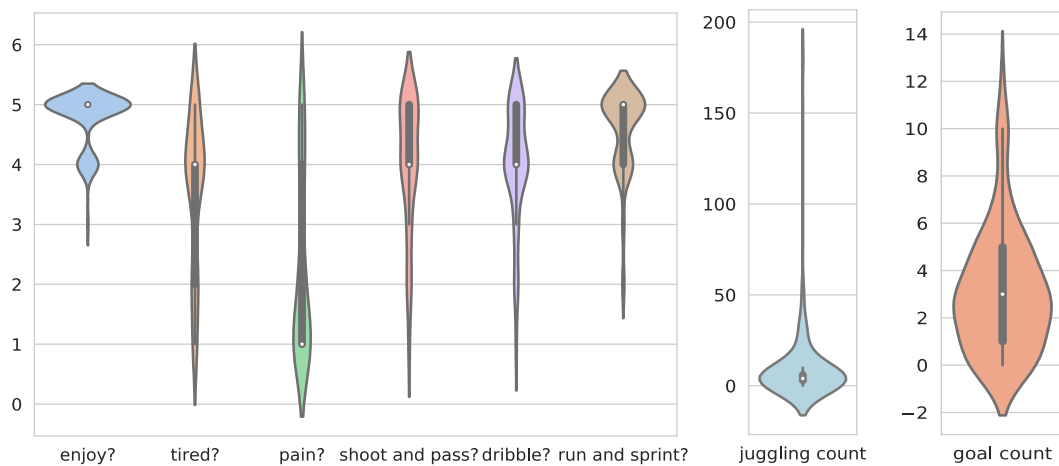


Figure 2: Violin graphs showing distribution of questionnaire results in 5-point Likert scale, juggling count, and goal count

4.1 Questionnaire Results

The results of the questionnaire are shown in Figure 2. The distributions of questionnaire results in 5-point Likert scale show relatively high ratings to “enjoy?,” “tired?,” “shoot and pass?,” “dribble?,” and “run and sprint?,” except for “pain?,” which indicates that few people felt physical pain.

- Most students enjoyed the school.
- Some students felt tired.
- A few students felt physical pain.
- Some students had lots of shoots and passes.
- Some students had lots of dribbles.
- Many students ran and sprinted a lot.

- The numbers of juggling times were distributed around 10, and only one person had more than 100 times (180 times).
- The average number of goal scores was about three, indicating that most students scored one to five goals more.

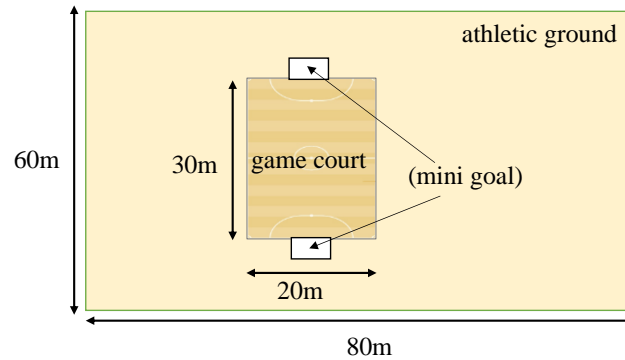


Figure 3: Athletic ground size for practices and game court size for small-sided game

4.2 Keyword Analysis

The results of the questionnaire are shown in Figure 4. The distributions of questionnaire results in 5-level Likert scale show relatively high ratings to “enjoy?,” “tired?,” “shoot and pass?,” “dribble?,” and “run and sprint?,” except for “pain?,” which indicates that few people felt physical pain.

- The most enjoyable practice was the game (match).
- The exercises that went well were shooting, passing, and dribbling, in that order, and a variety of others.
- The exercises which did not go well were dribbling, shooting, and passing, in that order, with little variation.

There were 37 responses that said they enjoyed the game (match), four times as many as the second most popular practice, dribbling, with 10 responses. The practices that went well were shooting (50), passing (46), and dribbling (32), in that order, far ahead of juggling (6) and below. The practices that were not done well were dribbling (33), shooting (25), and passing (23), in that order, diverging from juggling (10) and below. The size of the ground used for practices and the size of the court at the time of the game (match) are shown in Figure 3. The game is as small-sided games (SSG) [10] which are typically described as smaller versions of the formal. Tokushima Vortis School incorporates SSG games into the second 30 to 40 minutes of the second half of practice sessions that are 60 minutes practice session of seven classes for preschool through 4th grade, or 75 minutes practice session for two 5th-6th grade classes.

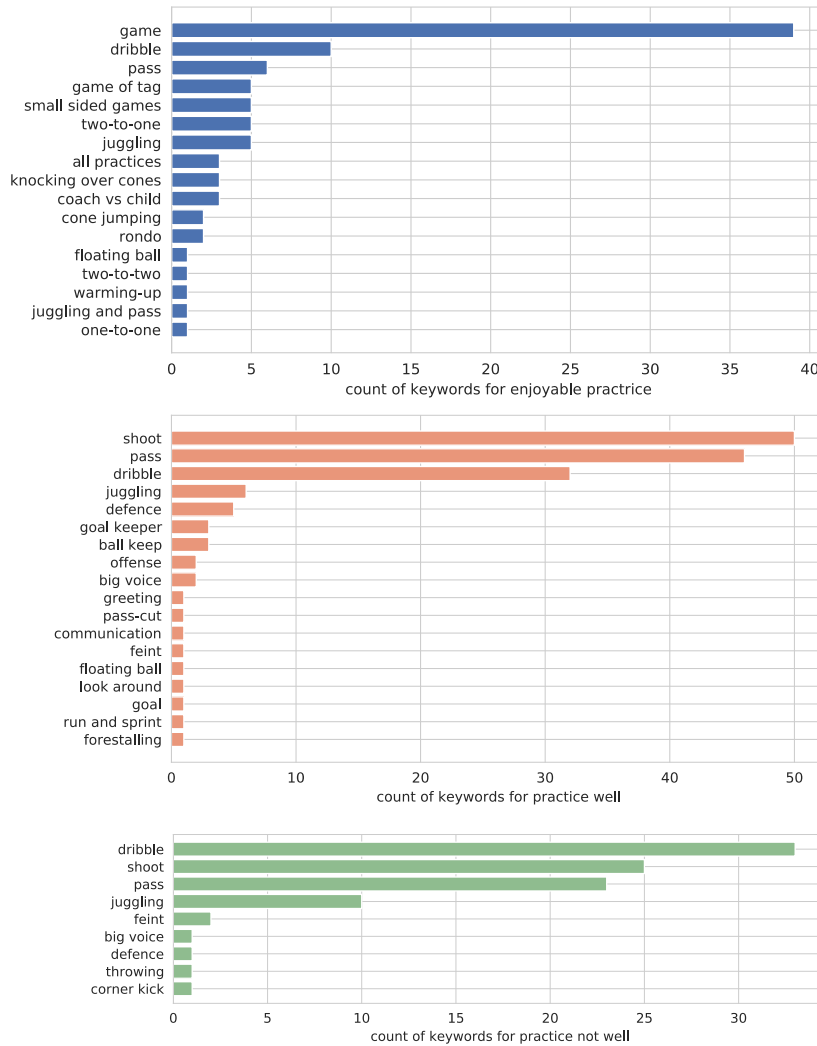


Figure 4: Questionnaire keywords for enjoyable practice, practice well, and practice not well

4.3 Correlation Analysis

The correlation between each of the survey items is analyzed with Pearson product-moment correlation coefficient. The results of the correlation analysis based on the questionnaire results are shown in Table 1. Looking at correlations ($p < 0.05$), we see that “run and sprint?” is positively correlated with “enjoy?,” and conversely, “juggling count” is negatively correlated with “enjoy?.” Furthermore, we see that “run and sprint?” is positively correlated with “shoot and pass?” and “dribble?.” we also see that “goal count” is both “shoot and pass?” and “dribble?.” The correlations show that the data can be divided into two major clusters. In the first cluster (cluster 1), there are large relationships based on the correlation coefficient among “enjoy?,” “goal count,” “run and sprint?,” “shoot and pass?,” and “dribble?.” In the second cluster (cluster 2), there are relationships among “juggling count,” “age,” “tired?.” Looking at the details, we can say the following.

Table 1: Correlation analysis of survey results

Variables	1	2	3	4	5	6	7	8	9
1. age	—								
2. enjoy?	-0.17	—							
3. tired?	0.05	-0.14	—						
4. pain?	-0.13	0.00	0.10	—					
5. shoot and pass?	-0.15	* 0.24	0.10	0.04	—				
6. dribble?	* -0.26	0.10	0.05	-0.04	** 0.68	—			
7. run and sprint?	-0.20	** 0.30	0.08	-0.17	** 0.43	** 0.40	—		
8. juggling count	0.09	** -0.31	0.19	-0.03	0.13	0.16	0.00	—	
9. goal count	* -0.21	-0.03	0.02	-0.05	** 0.53	** 0.48	* 0.26	* 0.25	—
count	95	97	97	97	97	97	97	97	97
mean	8.07	4.78	3.53	2.23	4.00	4.00	4.56	9.23	3.10
std	1.63	0.44	1.27	1.51	1.10	0.97	0.71	20.21	2.65
min	5	3	1	1	1	1	2	0	0
25%	7	5	2	1	4	4	4	3	1
50%	8	5	4	1	4	4	5	4	3
75%	10	5	4	4	5	5	5	6	5
max	12	5	5	5	5	5	5	180	12

Note. * p < .05, ** p < .01 (two-tailed), including two persons of unknown age.

- There is no correlation between “age” and “juggling count.”
- There is a negative correlation between “age” and “goal count,” which depends on the age group.
- There is a weak correlation between “juggling count” and “goal count.”

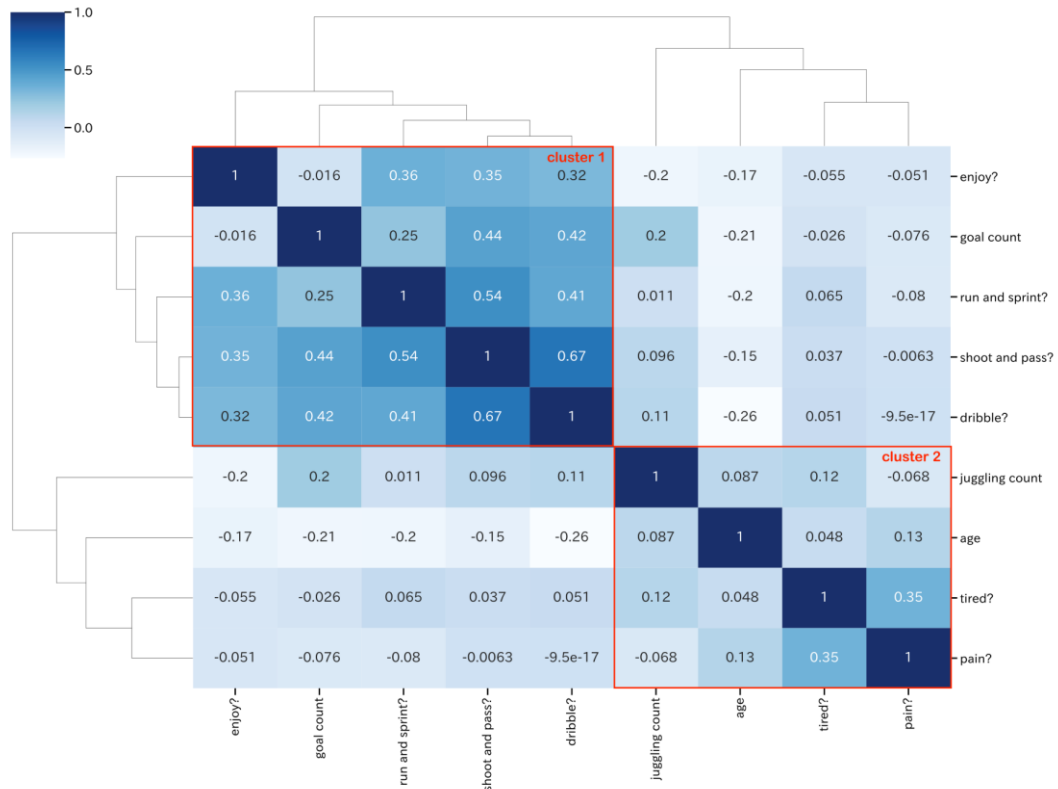


Figure 5: Cluster map for correlations regarding survey responses

From cluster 1, we can read that in order to dribble, shoot and pass a lot, you need to run well, and by running well, you can score goals and enjoy the game (match). From cluster 2, we can read that the number of people who have pain and are tired increases with age, and that people who juggle a lot have the opinion that they are tired and do not fully enjoy the game (match).

4.4 Cluster Mapping

Furthermore, a clustermap [11] based on correlations is created as shown in Figure 5. The clustermap plots correlations between questionnaire results as a hierarchically clustered heat map using correlation as distance metric.

- A cluster consists of “enjoy?,” “goal count,” “run and sprint?,” “shoot and pass?,” and “dribble?”
- The other cluster consists of “juggling count,” “age,” “tired?” and “pain?”

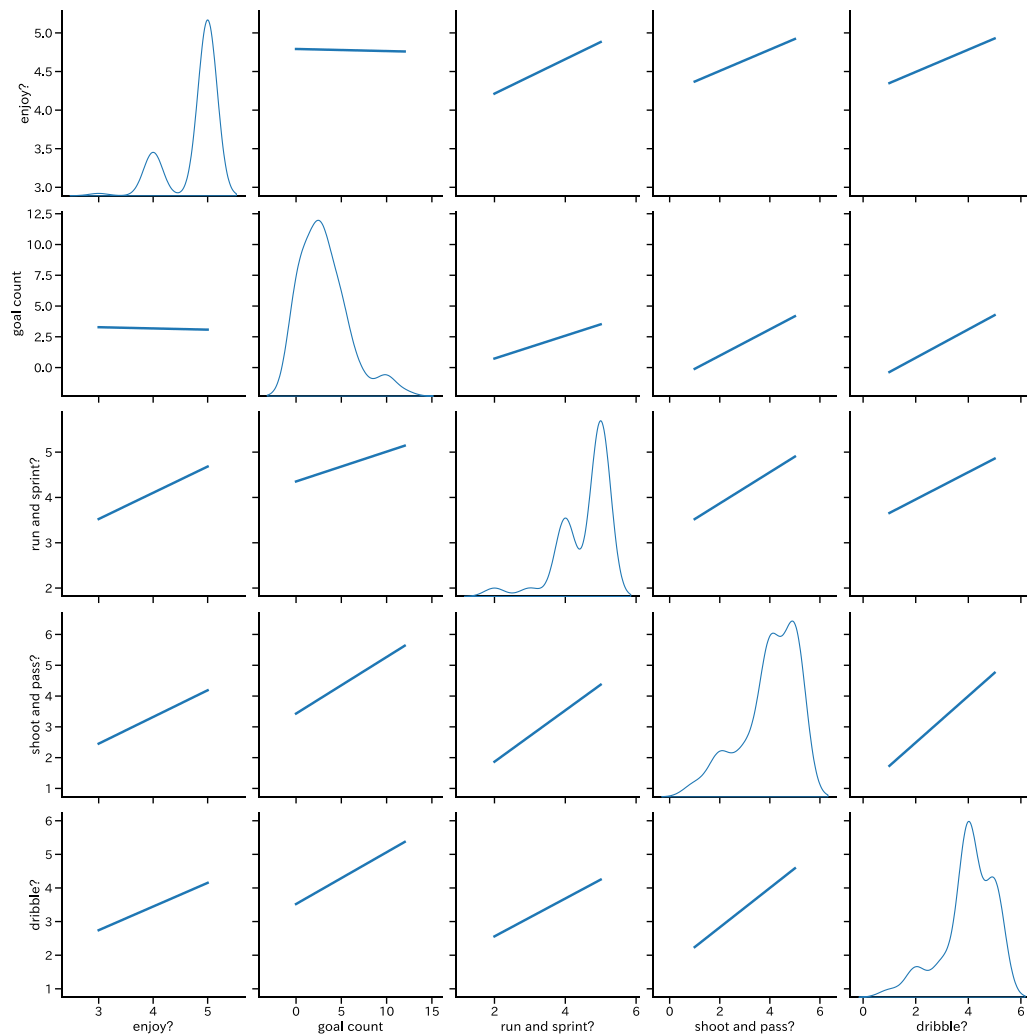


Figure 6: Pair plots of cluster 1 for “enjoy?,” “goal count,” “run and sprint?,” “shoot and pass?,” and “dribble?”

Figure 6 shows cluster 1 in plotted pairwise, which are relationships among “enjoy?,” “goal count,” “run and sprint?,” “shoot and pass?,” and “dribble?.” Figure 7 shows cluster 2 of relationships among “juggling count,” “age,” “tired?” and “pain?.” Cluster 1 can be seen as grouping opinions related to enjoyment and cluster 2 can be seen as grouping opinions related to tiredness and pain. Interestingly, age and the number of juggling are included in cluster 2.

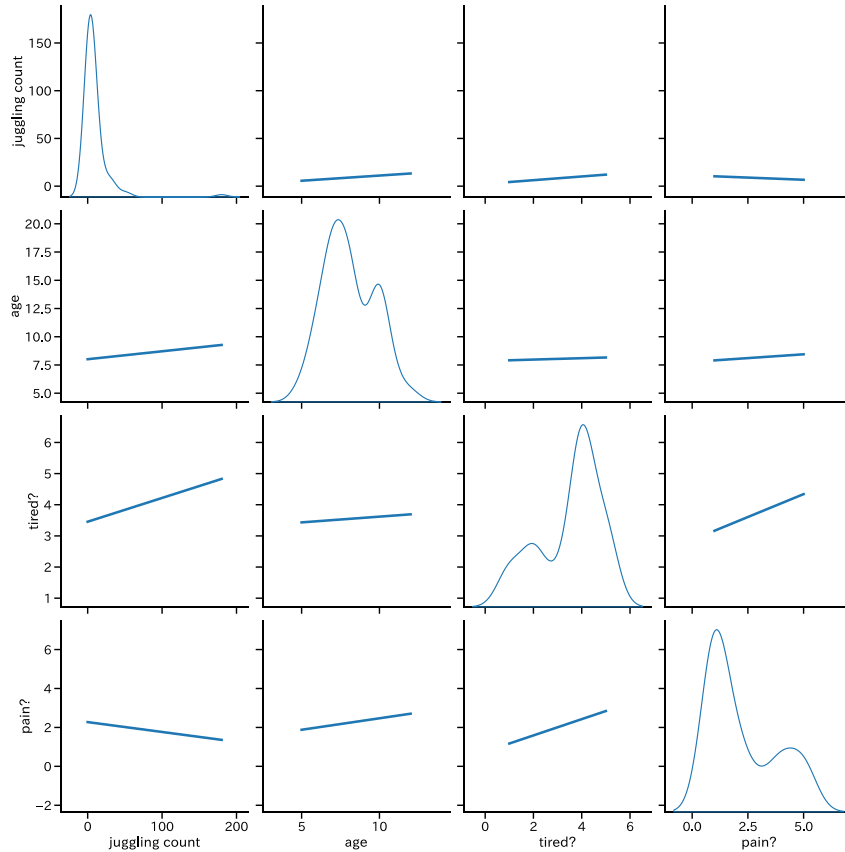


Figure 7: Pair plots of cluster 2 for “juggling count,” “age,” “tired?” and “pain?”

5 Discussion

The results of the correlation analysis showed that there were slightly positive correlations between “enjoy?” and “shot and passed?,” and between “enjoy?” and “ran and sprint?.” These correlations indicate that running a lot and shooting and passing a lot are linked to enjoyment for the school students. On the other hand, there was a slightly negative correlation between “enjoy?” and “juggling count.” It can be said that students with insufficient juggling ability were able to enjoy the game. The students who answered “shoot and pass?” had a significant correlation with the answers “dribbling?” and “run and sprint?,” as well as with “goal count.” The answer of “goal count” related to the game (match) that students enjoyed the most, which is considered to be the most important factor in soccer, there were significant correlations with “shoot and pass?” and “dribble?.” In this connection, there was a slight correlation between “run and sprint?” and “juggling count.” These results indicate that even within soccer schools in the elementary school age, it is necessary to juggle and run fast as well as to be involved with the ball a lot and to dribble in order to score goals.

6 Conclusion

Using an online survey system created for easy unpacking with a smartphone, we tabulated the results of a voluntary survey administered to Tokushima Vortis soccer school students and analyzed the correlation between the practice they enjoyed and the survey items. In summary, we can say the following.

- 1) Students who participated in the soccer school evaluated themselves that enjoyed the games (matches).
- 2) Students who evaluated themselves that enjoyed soccer school ran and evaluated themselves that sprinted a lot.
- 3) Students who evaluated themselves that ran a lot, evaluated themselves that dribbled a lot, shot a lot, and passed a lot.
- 4) Students who evaluated themselves that dribbled a lot, evaluated themselves that shot a lot, passed a lot, and scored a lot of goals.
- 5) Students who evaluated themselves that juggled a lot evaluated themselves that did not enjoy soccer school.

The results of the analysis of keywords indicate that the content of the practice that students enjoyed was the game (match), which was more important to the students than any other practice. The results of the correlation analysis showed that the students who enjoyed the practice were those who ran well. We also found that students who scored more points were characterized by running more and being more involved with the ball. On the other hand, it was found that students with higher juggling skills did not enjoy the game as much. This is an issue that needs further investigation.

Interestingly, while parents want their children to score many goals, the children themselves seem to enjoy running and being involved with the ball more than scoring itself. This discrepancy is expected to become a very important aspect of the school's educational policy and service design. In the future, we would like to investigate in detail what kind of exercise actually feels like a lot of running, and the relationship between skill level and physical activity. Additionally, we will clarify the causal relationship between enjoyment and running well.

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