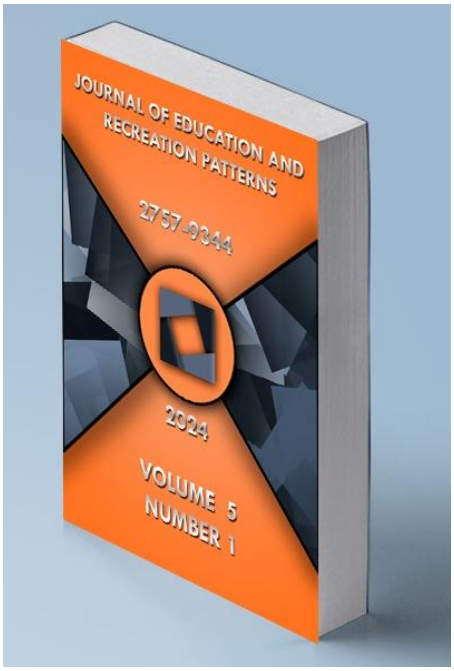


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# Determination of Football Academy Coaches' Attitudes and Thoughts Towards Match Analysis in Football

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# Determination of Football Academy Coaches' Attitudes and Thoughts Towards Match Analysis in Football

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**ABSTRACT**

This study aimed to determine the attitudes and opinions of football academy coaches towards match analysis in football and assess if these vary based on demographic variables. Using a descriptive survey method, data were collected from 210 football academy coaches participating in training in Istanbul during the 2022-2023 season. The study included coaches from 21 clubs in the Spor Toto Super League and Spor Toto 1st League, within the Turkish Football Federation's Football Academies Project.

No sampling was used; instead, the entire population was targeted with voluntary participation, resulting in 112 respondents. Data were collected using the Football Specific Match Analysis Scale by Gürkan et al. (2023). Due to non-normal distribution of data, Mann-Whitney U Test and Kruskal-Wallis Analysis of Variance were employed for statistical analysis, with significance set at 0.05.

Findings revealed that technology use in football, specifically match analysis, is seen as highly beneficial by coaches. Match analysis was considered significantly important and contributive to their development. Coaches generally rated match analysis as "very high" in importance and contribution to player development. It was also found that:

- Younger coaches and those with less experience in the academy league rated match analysis more positively.
- Coaches with higher education levels and higher monthly incomes were more likely to value match analysis highly.
- Differences in attitudes and opinions were significant across age groups, tenure in the academy, education levels, and income brackets.

These results indicate the growing importance of match analysis in football training and development, influenced by demographic factors.

**Keywords:** Academy, Football, Football Academy Coach, Match Analysis.

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## INTRODUCTION

Human beings have carried out some kinetic (protection, eating, drinking, sheltering) activities in order to maintain their vital functions and to survive their generation. In this process of existence, the concept of education has become the most important part of this existence while seeking solutions to the problems faced by human beings. Within the concept of education for centuries, all aspects of developmental factors have revealed the concept of sports training through both protection, defence and combat methods (Açak, 2010; Ceviz & Genç, 2021). Various games such as shooting, horse riding, tepük (football), which are inherited from our ancestors, have been modernised today and football competitions that millions of people watch with admiration have emerged. As a result of the blending of human talent level and education, it has brought the studies on football to the forefront today.

Looking at recent history, football, which was developed by the British in the 19th century, is a popular sports branch that has reached the most fan base by attracting the attention of people all over the continents of the world in a short time (Akgeyik, 2018). This branch, which has a high level of spectator pleasure, is enjoyed by billions of spectators today. In the international arena, billions of football viewers follow the matches on television screens by organisations such as FIFA and UEFA (İnan, 2018). While football is a recreational activity for football fans, it is a method that requires analysis and observation for practitioners. It is one of the most important tasks of a coach to observe the organisations that occur during competitions in order to reach the goal (Franks & Hughes, 2016). The fact that students around the world see the brand as an identity card, perceive it as a status tool in society, and tend to use this brand in their social relations has an extremely important place for many institutions and organizations (Sarıipek 2023). The branch of football has become an important part of life in developed countries with tens of thousands of practitioners and millions of fans, which attracts the attention of large masses, as well as the interest in football in developed countries, which has become an important part of life by moving to football schools and clubs (Schmidt, 1991). Football has become a very powerful phenomenon that involves social, economic, political, cultural and many other fields beyond a 90-minute competition. Beyond the magic of the concept of football, it has become an important branch that deeply affects societies and has become a commercial activity in significant dimensions as well as its rapid progress, high level of spectator pleasure at an exciting level (Kubayi, 2020).

Recently in football; analysis studies using scientific data have become extremely important. From this point of view, match analysis reveals the in-field performance and the formation of data (Dinçer et al., 2017). In our world where knowledge is rapidly increasing and renewed, research in the field of education in recent years has brought about major changes in the perspective of education and the individual (Çağlayan & Sezen, 2007). In the field of match analysis in football, it has become a valuable situation to evaluate and automatically analyse tactical situations based on position data during the match. The ability to obtain a large amount of data with little effort and in a very short time with well-planned match analysis evaluation steps is important for game formation and applications in football, and it is thought that it may bring new changes (Özçilingir, 2021). The analysis parameters used for match analysis in football can give useful results about the match-related statistics of the player's actions such as shooting, fouling, ball control, running distance, sprint count, passing, and the performance indicators of positive or negative teams. There are many positive benefits in terms of tactical evaluations made with video analysis methods Statistical studies can be evaluated by directly entering data with advanced analysis programmes. Through these analysis programs, all specific data such as shots, goals, interceptions, etc. can be analysed and presented graphically to the players (Bilgin, 2019). The implementation of programmes and applications that are considered to be beneficial for tactical training in the feedback process in unit and weekly training has been widely accepted as a very valuable input among

sports scientists, coaches and athletes (Groom & Cushion, 2004). Analysing the competition can help in tactical strategising and decision-making and training analysis can facilitate the provision of enhanced training feedback (Nelson et al., 2014).

The main purpose of this study is to provide coaches and managers debriefing experience to gain more understanding of objectives, processes and results is related to the practice of information in the context of sport (McArdle et al., 2010).

In the light of this information, the aim of this study is to determine the attitudes and opinions of football academy coaches towards match analysis in football, to contribute to football stakeholders in the light of science and to determine whether their attitudes and opinions towards match analysis in football differ according to demographic variables.

## METHOD

### Research Design

In the research, a descriptive survey method aiming to reveal the current situation was used. Survey models are research approaches that aim to describe a past or current situation as it exists. The event, individual or object that is the subject of the research is tried to be defined in its own conditions and as it is. No effort is made to change or influence them in any way (Karasar, 2008).

### Universe and Sample

In order to create a healthy and sustainable "Academy Model" at international standards for the development of young players in Turkish football, the Turkish Football Federation has launched a new project. This project is carried out in co-operation with Double Pass, a company known for its training and auditing activities with FIFA, UEFA and various country federations (TFF, 2024).

Double Pass is a Belgium-based company specialising in talent development and optimising player potential. It offers comprehensive assessment, consultancy and training services to federations, leagues, clubs and individuals. With more than 20 years of experience and a team of highly trained and professional experts, it has completed many successful projects. He has worked with FIFA, Premier League, Bundesliga, US Soccer, J-League, DBU, Flamengo, Hertha Berlin, SC Internacional, FC Copenhagen and many other reputable organisations. In addition to significantly increasing the efficiency of clubs and academies, it offers services to improve the quality of play on the field (TFF, 2024).

Within the scope of the Football Academies Project carried out by the Football Federation of Turkey in cooperation with Double Pass company; 19 teams (Galatasaray A.Ş., Fenerbahçe A.Ş., Beşiktaş A.Ş., Adana Demirspor A.Ş., Medipol Başakşehir FK, Trabzonspor A.Ş., Vavacars Fatih Karagümrük, Arabam.com Konyaspor, Yukatel Kayserispor, Kasımpaşa A.Ş., MKE Ankaragücü, İstanbulspor A.Ş., Fraport Tav Antalyaspor, Demir Grup Sivasspor, Corendon Alanyaspor, Bitexen Giresunspor, Hangikredi Ümraniyespor, Gaziantep Futbol Kulübü A.Ş, Atakaş Hatayspor) and 19 teams in Spor Toto 1. League (Yılport Samsunspor, Eyüpspor) and U6, U7, U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U19 COACHES of 2 teams (Yılport Samsunspor, Eyüpspor) selected from 19 teams in the Spor Toto 1. League in the same period 4-5 April 2023 [U13-U16, U17-U19], 6-7 April 2023 [U6-U9, U10-U12], 23-24 May 2023 [U13-U16, U17-U19], 25-26 May 2023 [U6-U9, U10-U12], 20-21 June 2023 [U13-U16, U17-U19], 22-23 June 2023 [U6-U9, U10-U12], 15-16 August 2023 [U13-U16, U17-U19], 17-18 August 2023 [U6-U9, U10-U12], 17-18 September 2023 [U6-U9, U10-U12], 26-27 September 2023 [U13-U16, U17-U19].

In the light of this information, the population of the research was formed by the Football Academies Project carried out by the Turkish Football Federation in cooperation with Double Pass company, in the 2022-2023 Season, 19 clubs in the Spor Toto Super League and 2 clubs selected from 19 clubs in the Spor Toto 1. League, a total of 210 football academy coaches participated in the trainings given in Istanbul, including 126 coaches working in U13-U15 and U16-U19 age groups and 84 coaches working in U6-U9 and U10-U12 age groups (TFF, 2024).

In order to obtain reliable data, sampling was not used, the universe was studied on the basis of voluntary participation, and the "self-sampling universe" (Çilenti, 1984) was accepted as the study population of the research.

In the research, face-to-face interviews and online survey application methods (the scale created on the digital platform was sent to the whtasapp applications of the e-mail and phone numbers of the coaches' personal use with the request to be answered on a voluntary basis) were used (Büyüköztürk et al 2014, Özmen and Çakmaklı 2022) and the scale was tried to be applied to all football academy coaches in the universe. The questionnaires were not applied to the coaches who did not want to participate in the survey and did not return the questionnaires.

At the end of this process, it was determined that 112 football academy coaches participated in the data collection process of the research. In this way, the sample group of the research consisted of 112 football academy coaches in total.

As presented in Table and Figure 1 below, it was determined that all of the football academy coaches participating in the study were MALE [n=112; 100,0%]; 30,4% (n=34) had UEFA B, 59,8% (n=67) had UEFA A, 7,1% (n=8) had UEFA ELITE A and 2,7% (n=3) had UEFA PRO LICENCE.

**Table 1**

*Percentage and frequency distributions of football academy coaches participating in the study according to their coaching licences*

| **GENDER** | **f** | **%** |
|---|---|---|
| Male | 112 | 100,0 |
| **Total** | **112** | **100,0** |
| **COACH LICENCE** | | |
| UEFA B Licence | 34 | 30,4 |
| UEFA A Licence | 67 | 59,8 |
| UEFA Elite Youth A | 8 | 7,1 |
| UEFA Pro Licence | 3 | 2,7 |
| **Total** | **112** | **100,0** |

## Data Collection Tools & Process

Football Specific Match Analysis Scale developed by Gürkan et al (2023) was used as a data collection tool in the study.

The pool of fifty-five items created by Gürkan et al (2023) during the development process of the scale was reduced to fifty items in line with expert suggestions. As a result of the opinions received in terms of language and expression, the draft scale was finalised by Gürkan et al (2023). As a result of Exploratory Factor Analysis, overlapping items were removed from the scale and a structure consisting of four sub-dimensions and thirty-two items was obtained. This structure explains 71.593% of the total variance. Gürkan et al (2023) reported that the structure obtained after EFA was sufficient in terms of construct validity. Gürkan et al (2023) determined that the factor load values of the match analysis scale items specific to the football branch took values in the range of 0.584-0.950 and therefore stated that the factor load values of the items were sufficient. As a result of CFA applied to the data collected from another independent sample after EFA, a model consisting of four sub-dimensions and twenty-three items emerged. This showed that the scale structure was also valid in another sample. Gürkan et al. (2023) conducted item analysis based on item-total correlation for the items of the scale. As a result of the item analysis, it was determined that the structure revealed by CFA was preserved. Reliability analyses of the scale; As a result of the test-retest application in the context of stability and internal consistency, it was seen that the scores obtained as a result of the application of the scale and its sub-dimensions to the same sample two weeks apart were similar, and the stability coefficients took values greater than 0.70, which is the critical value for reliability coefficients. Gürkan et al (2023) reported that these results expressed the invariance and stability of the measurement results of the scale being developed and that the scale was reliable. Finally, the internal consistency of the scale was examined by calculating Cronbach's α coefficients, and the Cronbach's α coefficient values calculated for the overall and sub-dimensions of the scale were sufficient, indicating that the scale had internal consistency. As a result of the research conducted by Gürkan et al (2023), it was determined that the match analysis scale specific to the football branch is a valid and reliable measurement tool consisting of 23 items and 4 sub-dimensions.

Within the scope of this study, the values related to the reliability analysis of the overall scale and its factors are given in Table 2.

**Table 2**

*Reliability analysis of Football Specific Match Analysis Scale*

| Football Specific Match Analysis Scale Factors | Cronbach Alpha | Number of Items |
|---|---|---|
| Development | 0,956 | 6 |
| Being Trivialised | 0,739 | 7 |
| Being Seen as Important | 0,636 | 5 |
| Contribution | 0,849 | 5 |
| Football Specific Match Analysis Scale Total Score | 0,838 | 23 |

The evaluation criterion used in the evaluation of Cronbach's alpha coefficient is; $0,00 \leq \alpha < 0,40$ means that the scale is not reliable, $0,40 \leq \alpha < 0,60$ means that the scale has low

reliability, 0,60 ≤ α < 0,80 means that the scale is highly reliable, 0,80 ≤ α < 1,00 means that the scale is highly reliable (Özdamar, 2004).

As can be seen in Table 2, the results of 0,956 obtained in the "Development" dimension, 0,849 obtained in the "Contribution" dimension and 0,838 cronbach alpha coefficient obtained from the overall scale in this study indicate that the overall scale and its two sub-dimensions are highly reliable; The results of 0,739 cronbach alpha coefficient obtained in the dimension of "Perceived as Unimportant" and 0,636 cronbach alpha coefficient obtained in the dimension of "Perceived as Important" showed that the two sub-dimensions of the scale were highly reliable.

The question items forming the dimensions of the Football Specific Match Analysis Scale developed by Gürkan et al (2023), which consists of 23 questions and 4 factors with a 7-point Likert-type rating (7=Strongly Agree, 1=Strongly Disagree) are given in Table 3.

**Table 3**

*Number of items constituting the factors of the Football Specific Match Analysis Scale and question items*

| **Football Specific Match Analysis Scale Factors** | **Article Number** | **Question Items Forming the Factors** |
|---|---|---|
| Development | 6 | (**1** + **2** + **3** + **4** + **5** + **6**) / 6 |
| Being Trivialised | 7 | **(7** + **8** + **9** + **10** + **11**+ **12**+ **13)** / 7 |
| Being Seen as Important | 5 | (**14** + **15** + **16** + **17** + **18**) / 5 |
| Contribution | 5 | (**19** + **20** + **21** + **22** + **23**) / 5 |
| Football Specific Match Analysis Scale Total Score | 23 | **(1** + **2** + **3** + **4** + **5** + **6** + **7** + **8** + **9** + **10** + **11**+ **12** + **13** + **14** + **15** + **16** + **17** + **18** + **19** + **20** + **21** + **22** + **23)** / 23 |

Scoring of the scale is based on sub-dimensions and overall. There are items in the scale that need to be reverse coded (7th, 8th, 9th, 10th, 10th, 11th, 12th and 13th items). For this reason, these items should be reversed when scoring. As the score obtained from the relevant item approaches seven, it is understood that the level of participation of individuals in that item is high, and as the score obtained approaches one, it is understood that the level of participation in the proposition in that item is low (Gürkan et al, 2023).

## Data Analysis

In the data analysis phase, descriptive frequency and percentage distributions of the personal characteristics of the football academy coaches participating in the research were extracted in accordance with the aims of the research. The arithmetic mean and standard deviation values of the coaches' answers to the scale were calculated and the direction of their distribution was determined.

Afterwards, the normality distributions of the scale scores were examined in order to decide which statistical techniques to use in order to determine whether the attitudes and opinions of football academy coaches towards match analysis in football differ according to demographic variables. Normality distributions were tested with Kolmogorov-Smirnov and Shapiro-Wilk tests. As can be seen from the test results in Table 4, the results were significant

in all variables (P<0.05). In other words, it was seen that all variables did not show normal distribution. Therefore, whether the attitudes and opinions of football academy coaches towards match analysis in football differed according to demographic variables was tested with nonparametric tests. Mann-Whitney U Test was used for pairwise comparisons and Kruskal-Wallis Analysis of Variance was used for multiple comparisons. In cases where a significant difference was found because of Kruskal-Wallis Analysis of Variance in multiple comparisons, Mann-Whitney U Test was applied to determine between which groups this difference originated. In all statistical calculations, the basic significance level was accepted as 0.05 and the data were analysed with SPSS 23.0 software.

**Table 4**

*Results of Kolmogorov Smirnov Test and Shapiro Wilk Test for Football Specific Match Analysis Scale of football academy coaches*

| | **Kolmogorov-Smirnov Testi** | | | **Shapiro-Wilk Testi** | | |
|---|---|---|---|---|---|---|
| Football Specific Match Analysis Scale | **Statistic** | **df** | **P** | **Statistic** | **df** | **P** |
| Development | 0,302 | 112 | **0,000*** | 0,603 | 112 | **0,000*** |
| Being Trivialised | 0,258 | 112 | **0,000*** | 0,850 | 112 | **0,000*** |
| Being Seen as Important | 0,299 | 112 | **0,000*** | 0,815 | 112 | **0,000*** |
| Contribution | 0,367 | 112 | **0,000*** | 0,704 | 112 | **0,000*** |
| Football Specific Match Analysis Scale Total Score | 0,246 | 112 | **0,000*** | 0,805 | 112 | **0,000*** |

***p<0,05**

## FINDINGS

The findings pertaining to the data collected for this study are presented in this section.

**Table 5**

*Percentage and frequency distributions of football academy coaches participating in the study according to personal variables*

| **Variables** | **Subcategories** | **f** | **%** | **Total** |
|---|---|---|---|---|
| **Age** | 25-29 years old | 7 | 6,3 | 112 - %100,0 |
| | 30-34 years old | 40 | 35,7 | |
| | 35 years and older | 65 | 58,0 | |
| **Working Time in Academy League** | 1-2 years | 22 | 19,6 | 112 - %100,0 |
| | 3-4 years | 27 | 24,1 | |
| | 5-6 years | 46 | 41,1 | |
| | 7 years and over | 17 | 15,2 | |
| **Education Status** | High school | 13 | 11,6 | 112 - %100,0 |
| | Licnce | 80 | 71,4 | |
| | Postgraduate | 19 | 17,0 | |
| **Monthly Income Status** | Low | 13 | 11,6 | 112 - %100,0 |
| | Centre | 17 | 15,2 | |
| | Good | 82 | 73,2 | |

As can be seen in Table 5, 6,3% (f=7) of the football academy coaches participating in the study were between the ages of 25-29, 35,7% (f=40) were between the ages of 30-34, and 58% (f=65) were in the age group of 35 and above; 19,6% (f=22) have been working in the academy league for 1-2 years, 24,1% (f=27) for 3-4 years, 41,1% (f=46) for 5-6 years, 15,2% (f=17) for 7 and more years; 11,6% (f=13) were high school graduates, 71,4% (f=80) were undergraduate graduates, 17% (f=19) were postgraduate graduates; 11,6% (f=13) had a low monthly income, 15,2% (f=17) had a medium monthly income and 73,2% (f=82) had a good monthly income.

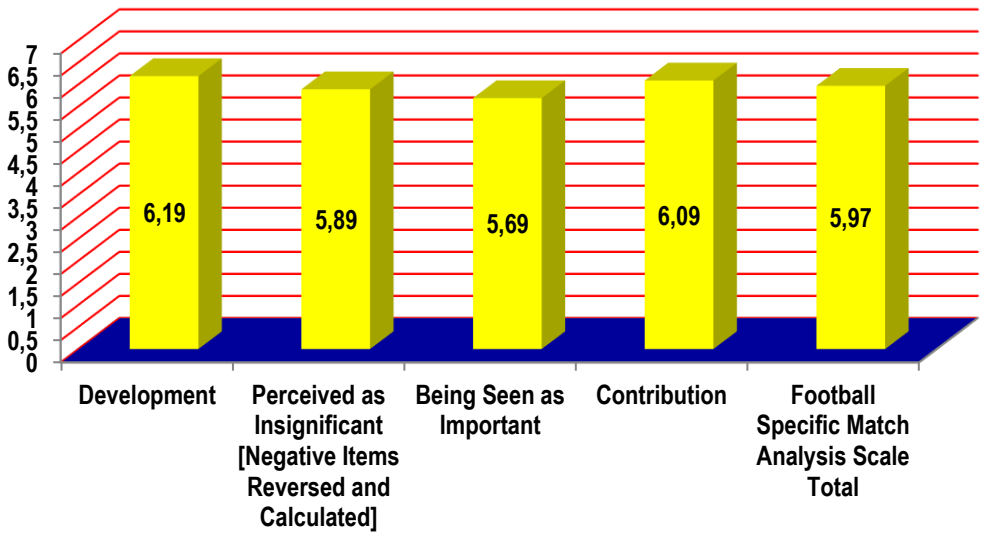
**Table 6**

*Descriptive statistics of Football Specific Match Analysis Scale*

| Scale/Sub Dimensions | Number of Items | Min | Max | $\overline{X}$±SS |
|---|---|---|---|---|
| Development | 6 | 1,50 | 7,00 | 6,19±0,70 |
| Being Considered Insignificant [Unreversed Raw Form of Negative Items] | 7 | 1,00 | 5,29 | 2,10±0,77 |
| Perceived as Insignificant [Negative Items Reversed and Calculated] | 7 | 2,71 | 7,00 | 5,89±0,77 |
| Being Seen as Important | 5 | 2,80 | 7,00 | 5,69±0,67 |
| Contribution | 5 | 4,40 | 7,00 | 6,09±0,37 |
| **Football Specific Match Analysis Scale Total** | 23 | 3,87 | 6,74 | 5,97±0,45 |

**Figure 1**

*Distribution of Average Scores by Coach Licence Level*




As seen in Table 6 and Figure 1, it was determined that the football academy coaches participating in the study had a mean score of 6,19±0,70 in the "Development" sub-dimension, 5,89±0,77 in the "Considered Unimportant" sub-dimension (the mean score obtained after the

negative items were reversed), 5,69±0,67 in the "Considered Important" sub-dimension, 6,09±0,37 in the "Contribution" sub-dimension and 5,97±0,45 in the overall scale.

When the sub-dimensions and the overall scale of the Football Specific Match Analysis Scale were considered within the framework of the research; it was determined that the coaches had the highest mean score in the "Development" sub-dimension (6,19±0,70).

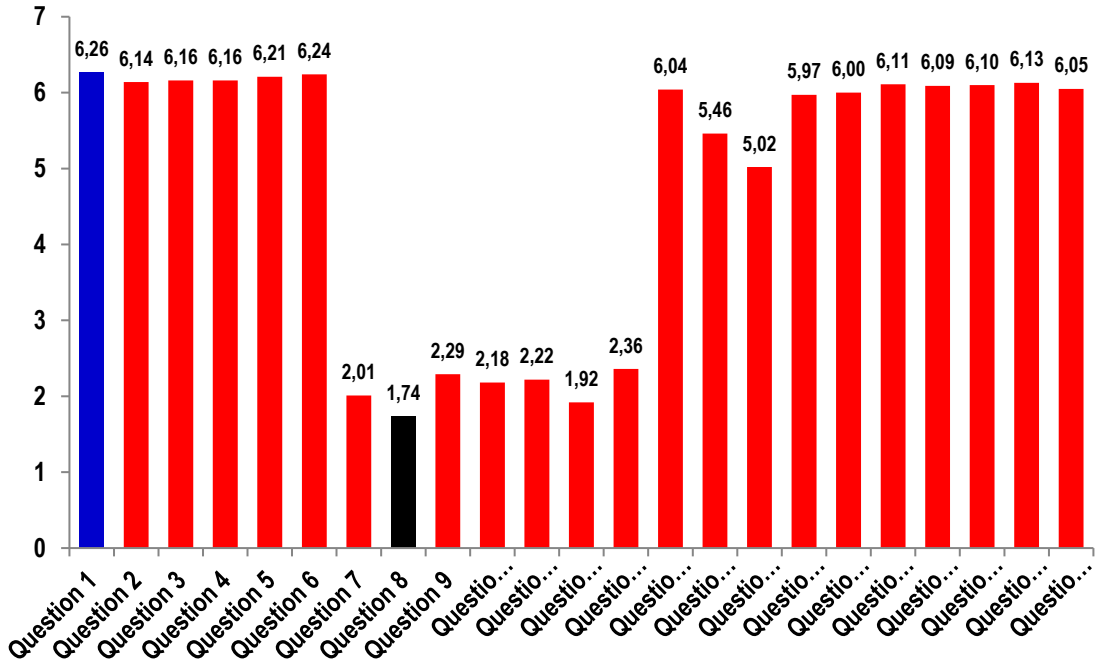
**Table 7**

*Football Specific Match Analysis Scale item statistics*

| | **Scale Items** | $\overline{X}$±SS |
|---|---|---|
| 1 | Match analysis helps football coaches in their professional development | 6,26±0,76 |
| 2 | Football coaches determine different tactics as a result of statistical data obtained by match analysis | 6,14±0,79 |
| 3 | Match analysis helps football coaches to make a positive difference on the pitch | 6,16±0,81 |
| 4 | Match analysis provides information to coaches about the performance of footballers on the pitch | 6,16±0,82 |
| 5 | Match analysis increases the football knowledge of coaches | 6,21±0,76 |
| 6 | Match analysis allows football coaches to improve their tactical skills | 6,24±0,73 |
| 7 | Match analysis does not contribute to the professional development of football coaches | 2,01±1,49 |
| 8 | Match analysis is of no importance for the sporting development of footballers | 1,74±0,78 |
| 9 | Footballers do not take into account the data obtained by the match analysis method | 2,29±1,36 |
| 10 | Match analysis methods do not have an important place in winning football matches | 2,18±1,39 |
| 11 | The development of match analysis has not affected the number of clubs in need of football analysts | 2,22±1,22 |
| 12 | Football coaches do not attach importance to match analysis | 1,92±0,86 |
| 13 | Match analysis is not used in amateur leagues | 2,36±1,41 |
| 14 | With the development of technology, the level of development of football analysts interested in match analysis is increasing. | 6,04±0,86 |
| 15 | Club managers have more confidence in football coaches who apply match analysis methods | 5,46±1,32 |
| 16 | Football fans/viewers have expectations for match analyses | 5,02±1,53 |
| 17 | There is an increase in the number of analysts working at football clubs | 5,97±0,60 |
| 18 | There is an increase in scientific studies on match analysis in football | 6,00±0,61 |
| 19 | Match analysis allows footballers to recognise themselves in sporting terms | 6,11±0,49 |
| 20 | Match analysis allows footballers to improve themselves in sporting terms | 6,09±0,43 |
| 21 | Match analysis contributes to the objective evaluation of individual performances of footballers | 6,10±0,44 |
| 22 | Match analysis helps the tactical development of footballers | 6,13±0,46 |
| 23 | The frequency of use of match analysis methods in football is increasing in the field of sports sciences | 6,05±0,55 |

**Figure 2**

*Football Specific Match Analysis Scale Item Statistics*




As seen in Table 7 and Figure 2, in the Football Specific Match Analysis Scale, which was applied to determine the attitudes and opinions of the coaches towards match analysis in football, the statement with the highest mean was item 1, which is one of the items forming the "Development" dimension as "Match analysis helps the professional development of football coaches" (6,26±0,76). It was determined that the statement with the lowest mean was item 8, which is one of the items that constitute the dimension of "Considered Unimportant" as "Match analysis has no importance for the sportive development of football players" (1,74±0,78).

**Table 8**

*Kruskal Wallis-H test results showing the comparison of football academy coaches' opinions on match analysis in football according to age variable*

| | | Age | f | $\overline{X}$ | Row Average | Sd | $X^2$ | P | Significant Difference |
|---|---|---|---|---|---|---|---|---|---|
| Development | A | 25-29 years old | 7 | 6,71 | 88,21 | 2 | 11,236 | **0,004*** | **A>B A>C** |
| | B | 30-34 years old | 40 | 6,15 | 47,30 | | | | |
| | C | 35 years and older | 65 | 6,16 | 58,75 | | | | |
| Being Trivialised | A | 25-29 years old | 7 | 6,10 | 63,36 | 2 | 4,819 | 0,090 | - |
| | B | 30-34 years old | 40 | 6,16 | 64,47 | | | | |
| | C | 35 years and older | 65 | 5,71 | 50,85 | | | | |
| Being Seen as Important | A | 25-29 years old | 7 | 6,05 | 70,79 | 2 | 7,687 | **0,021*** | **B>C** |
| | B | 30-34 years old | 40 | 5,88 | 64,83 | | | | |
| | C | 35 years and older | 65 | 5,54 | 49,84 | | | | |
| Contribution | A | 25-29 years old | 7 | 6,08 | 55,64 | 2 | 2,185 | 0,335 | - |
| | B | 30-34 years old | 40 | 6,03 | 51,66 | | | | |
| | C | 35 years and older | 65 | 6,13 | 59,57 | | | | |
| Football Specific Match Analysis Scale Total | A | 25-29 years old | 7 | 6,24 | 79,43 | 2 | 5,195 | 0,074 | - |
| | B | 30-34 years old | 40 | 6,07 | 59,76 | | | | |
| | C | 35 years and older | 65 | 5,88 | 52,02 | | | | |

***p<0,05**

As seen in Table 8, the mean scores of the coaches' Football Specific Match Analysis Scale sub-dimensions of being considered insignificant [$X^2_{(2)}$=4,819; P>0,05], contributing [$X^2_{(2)}$=2,185; P>0,05] and overall [$X^2_{(2)}$=5,195; P>0,05] did not differ significantly according to the age variable; Football Specific Match Analysis Scale development [$X^2_{(2)}$=11,236; P<0,05] and being considered important [$X^2_{(2)}$=7,687; P<0,05] sub-dimension mean scores differed significantly according to age variable.

**Table 9**

*Kruskal Wallis-H test results showing the comparison of football academy coaches' thoughts on match analysis in football according to the variable of working time in the academy league*

| | | Length of Service in the Academy League | n | $\overline{X}$ | Row Average | Sd | $X^2$ | P | Significant Difference |
|---|---|---|---|---|---|---|---|---|---|
| Development | A | 1-2 years | 22 | 6,25 | 69,73 | 3 | 9,869 | **0,020*** | **A>C** **B>C** |
| | B | 3-4 years | 27 | 6,20 | 64,09 | | | | |
| | C | 5-6 years | 46 | 6,15 | 47,74 | | | | |
| | D | 7 years and older | 17 | 6,21 | 51,03 | | | | |
| Being Trivialised | A | 1-2 years | 22 | 5,37 | 39,55 | 3 | 8,248 | **0,041*** | **B>A** **C>A** |
| | B | 3-4 years | 27 | 6,00 | 59,33 | | | | |
| | C | 5-6 years | 46 | 6,05 | 59,45 | | | | |
| | D | 7 years and older | 17 | 5,99 | 65,97 | | | | |
| Being Seen as Important | A | 1-2 years | 22 | 5,41 | 37,16 | 3 | 11,466 | **0,009*** | **B>A** **C>A** **D>A** |
| | B | 3-4 years | 27 | 5,84 | 63,76 | | | | |
| | C | 5-6 years | 46 | 5,74 | 60,83 | | | | |
| | D | 7 years and older | 17 | 5,68 | 58,29 | | | | |
| Contribution | A | 1-2 years | 22 | 6,00 | 53,91 | 3 | 1,348 | 0,718 | - |
| | B | 3-4 years | 27 | 6,21 | 61,44 | | | | |
| | C | 5-6 years | 46 | 6,05 | 55,87 | | | | |
| | D | 7 years and older | 17 | 6,12 | 53,71 | | | | |
| Football Specific Match Analysis Scale Total | A | 1-2 years | 22 | 5,75 | 41,84 | 3 | 6,662 | 0,084 | - |
| | B | 3-4 years | 27 | 6,06 | 63,87 | | | | |
| | C | 5-6 years | 46 | 6,01 | 56,75 | | | | |
| | D | 7 years and older | 17 | 6,01 | 63,09 | | | | |

***p<0,05**

As can be seen in Table 9, the mean scores of the coaches' Football Specific Match Analysis Scale contribution [$X^2_{(3)}$=1,348; P>0,05] sub-dimension and overall [$X^2_{(3)}$=6,662; P>0,05] did not differ significantly according to the variable of working time in the academy league; Football Specific Match Analysis Scale development [$X^2_{(3)}$=9,869; P<0,05], being considered unimportant [$X^2_{(3)}$=8,248; P<0,05] and being considered important [$X^2_{(3)}$=11,466; P<0,05] sub-dimension mean scores differed significantly according to the working time in the academy league.

**Table 10**

*Kruskal Wallis-H test results showing the comparison of football academy coaches' thoughts on match analysis in football according to the education status variable*

| | | Education Status | n | $\overline{X}$ | Row Mean | Sd | $X^2$ | P | Significant Difference |
|---|---|---|---|---|---|---|---|---|---|
| Development | A | High School | 13 | 6,03 | 60,73 | 2 | 2,420 | 0,298 | - |
| | B | Licence | 80 | 6,17 | 53,73 | | | | |
| | C | Postgraduate | 19 | 6,39 | 65,29 | | | | |
| Being Trivialised | A | High School | 13 | 5,35 | 43,08 | 2 | 2,591 | 0,274 | - |
| | B | Licence | 80 | 5,97 | 58,11 | | | | |
| | C | Postgraduate | 19 | 5,96 | 58,89 | | | | |
| Being Seen as Important | A | High School | 13 | 5,16 | 34,23 | 2 | 7,925 | **0,019*** | **B>A C>A** |
| | B | Licence | 80 | 5,76 | 59,58 | | | | |
| | C | Postgraduate | 19 | 5,77 | 58,76 | | | | |
| Contribution | A | High School | 13 | 6,10 | 59,04 | 2 | 1,208 | 0,547 | - |
| | B | Licence | 80 | 6,07 | 54,81 | | | | |
| | C | Postgraduate | 19 | 6,16 | 61,87 | | | | |
| Football Specific Match Analysis Scale Total | A | High School | 13 | 5,65 | 42,12 | 2 | 3,525 | 0,172 | - |
| | B | Licence | 80 | 6,00 | 57,16 | | | | |
| | C | Postgraduate | 19 | 6,08 | 63,55 | | | | |

***p<0,05**

As can be seen in Table 10, the coaches' mean scores of Football Specific Match Analysis Scale development [$X^2_{(2)}$=2,420; P>0,05], being considered unimportant [$X^2_{(2)}$=2,591; P>0,05], contributing [$X^2_{(2)}$=1,208; P>0,05] sub-dimensions and overall [$X^2_{(2)}$=3,525; P>0,05] did not differ significantly according to the educational status variable, while the mean scores of the Football Specific Match Analysis Scale sub-dimension of being considered important [$X^2_{(2)}$=7,925; P<0,05] differed significantly according to the educational status variable.

**Table 11**

*Kruskal Wallis-H test results showing the comparison of football academy coaches' opinions on match analysis in football according to the monthly income status variable*

| | | Income Status | n | $\overline{X}$ | Row Mean | Sd | $X^2$ | P | Significant Difference |
|---|---|---|---|---|---|---|---|---|---|
| Development | A | Low | 13 | 6,52 | 75,00 | 2 | 6,783 | **0,034*** | **A>C** |
| | B | Centre | 17 | 6,15 | 62,50 | | | | |
| | C | Good | 82 | 6,15 | 52,32 | | | | |
| Being Trivialised | A | Low | 13 | 5,56 | 40,73 | 2 | 3,589 | 0,166 | - |
| | B | Centre | 17 | 5,80 | 57,44 | | | | |
| | C | Good | 82 | 5,97 | 58,80 | | | | |
| Being Seen as Important | A | Low | 13 | 5,76 | 60,69 | 2 | 4,204 | 0,122 | - |
| | B | Centre | 17 | 5,43 | 42,68 | | | | |
| | C | Good | 82 | 5,73 | 58,70 | | | | |
| Contribution | A | Low | 13 | 6,10 | 51,15 | 2 | 1,270 | 0,530 | - |
| | B | Centre | 17 | 6,00 | 52,35 | | | | |
| | C | Good | 82 | 6,11 | 58,21 | | | | |
| Football Specific Match Analysis Scale Total | A | Low | 13 | 5,97 | 58,77 | 2 | 0,196 | 0,906 | - |
| | B | Centre | 17 | 5,85 | 58,71 | | | | |
| | C | Good | 82 | 5,99 | 55,68 | | | | |

***p<0,05**

As can be seen in Table 11, the mean scores of the coaches' Football Specific Match Analysis Scale for the sub-dimensions of being considered unimportant [$X^2_{(2)}$=3,589; P>0,05], being considered important [$X^2_{(2)}$=4,204; P>0,05], contributing [$X^2_{(2)}$=1,270; P>0,05] and overall [$X^2_{(2)}$=0,196; P>0,05] did not differ significantly according to the monthly income

status variable, whereas Football Specific Match Analysis Scale development [$X^2_{(2)}$=6,783; P<0,05] sub-dimension mean scores differed significantly according to the monthly income status variable.

## DISCUSSION & CONCLUSION

It was determined that the football academy coaches who participated in the study had a mean score of 6,19±0,70 in the "Development" sub-dimension of the Football Specific Match Analysis Scale; 5,89±0,77 in the "Considered Unimportant" sub-dimension (the mean score obtained after the negative items were reversed); 5,69±0,67 in the "Considered Important" sub-dimension; 6,09±0,37 in the "Contribution" sub-dimension and 5,97±0,45 in the overall scale (Table 6, Figure 2). When the sub-dimensions and the overall scale of the Football Specific Match Analysis Scale were considered within the framework of the research, it was determined that the coaches had the highest mean score in the "Development" sub-dimension (6,19±0,70).

In order to interpret the mean scores of the football academy coaches who participated in the study from the sub-dimensions and total of the Football Specific Match Analysis Scale; the formula of Interval width (a) = Array width / Number of groups to be made (Tekin 1993) was used [1=Strongly disagree (1,00-1,85 & VERY LOW); 2=Disagree (1,86-2,71 & LOW); 3=Slightly disagree (2,72-3,57 & CLOSE TO LOW); 4=Uncertain (3,58-4,43 & MEDIUM); 5=Partially agree (4,44-5,29 & CLOSE TO HIGH); 6=Agree (5,30-6,15 & HIGH); 7=Fully agree (6,16-7,00 & VERY HIGH)] (Yılmaz and Akgün 2019).

In this context, when the sub-dimension and total score averages of the Football Specific Match Analysis Scale were taken into consideration, it was determined that the level of participation of the coaches participating in the research to the items constituting the "Development" sub-dimension of the Football Specific Match Analysis Scale was "VERY HIGH", and the level of participation to the items constituting the sub-dimensions of "Considered Unimportant (taking into account the mean scores obtained after the negative items were reversed and calculated)", "Considered Important", "Contribution" and all items constituting the overall scale was "HIGH".

Considering these results, it can be concluded that the use of technology in football continues to increase day by day and match analysis, which is one of the most important of these technologies, is described by the coaches participating in the research as an important factor that contributes to their development at a "very high" level in the form of "helping their professional development, enabling them to determine different tactics as a result of the statistical data obtained, helping them to make a positive difference in the field, providing them with information about the field performances of football players, increasing their football knowledge, enabling them to improve their tactical skills".

In the same way, while match analysis is considered to be of "high" importance by the coaches participating in the research in the form of "increasing the development level of football analysts through this method used with the development of technology, club managers having more confidence in football coaches who apply these methods, football fans/ spectators having expectations for the application of this method, an increase in the number of analysts working in football clubs, an increase in scientific studies on this subject"; "it does not contribute to their professional development, it has no importance for sportive development, football players do not take into account the data obtained by this method, this method does not have an important place in winning matches, the development of this method does not affect the number of clubs that need football analysts, coaches do not attach importance to analyses and this method cannot be used in amateur leagues". Again, in parallel with these results, match analysis was described by the coaches participating in the study as a CONTRIBUTIVE factor at a "high" level in the form of "enabling football players to recognise and improve themselves

in a sportive sense, enabling football players to evaluate their individual performances objectively, helping the tactical development of football players and increasing the frequency of use of these methods in the field of sports sciences day by day".

In the Football Specific Match Analysis Scale, which was applied to determine the attitudes and thoughts of football academy coaches towards match analysis in football, the statement with the highest mean was item 1, which is one of the items forming the "Development" dimension as "Match analysis helps the professional development of football coaches" (6,26±0,76). It was determined that the statement with the lowest mean was item 8, which is one of the items that constitute the "Considered Unimportant" dimension as "Match analysis has no importance for the sportive development of football players" (1,74±0,78) (Table 7 and Figure 3).

The 7th, 8th, 8th, 9th, 10th, 10th, 11th, 12th and 13th items in the scale are negative and are scored in reverse order. The sum of these 7 items constitutes the "Perceived Insignificance" dimension of the scale. When analysing the item statistics of the Football Specific Match Analysis Scale, the 7th, 8th, 9th, 10th, 10th, 11th, 12th and 13th items were given in their raw form before they were reverse scored. As can be seen in the analysis given in the findings section, the first 7 items (match analysis does not contribute to the professional development of football coaches; match analysis has no importance for the sportive development of football players; football players do not take into account the data obtained by match analysis method; match analysis methods do not have an important place in winning football matches; the development of match analysis has not affected the number of clubs that need football analysts; football coaches do not attach importance to match analysis; match analysis is not used in amateur leagues) were found to be these items. The fact that the coaches had the lowest average in these 7 items scored in reverse order and in the "Considered Unimportant" dimension of match analysis formed by these items in its raw form before being scored in reverse order, in other words, the fact that they reported that they "disagreed" with these seven items is an approach that shows that their attitudes and opinions towards match analysis in football are positive.

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factors of "seeing match analysis as unimportant", "believing that match analysis contributes" and all the statements in the scale including the items that make up these factors did not differ significantly according to the age variable, while their attitudes and opinions towards the factors of "helping their development" and "seeing match analysis as important" differed significantly according to the age variable (Table 8).

As a result of the analysis made over the binary combination of age variables in the factors of "development" and "considered important"; it was found that the level of evaluating match analysis in football as an important factor contributing to their development was significantly higher among the coaches in the 25-29 age range than the coaches in the 30-34/35 and above age range. Again, it was determined that the coaches in the 30-34 age range considered match analysis in football more important than the coaches aged 35 years and above. In accordance with these results, it is possible to say that the attitudes and opinions of football academy coaches who are younger in age are significantly higher than the coaches who are older than them in terms of evaluating match analysis as an "important" factor that contributes to their "development".

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factor of "believing that match analysis contributes" and all the statements in the scale including the items that make up this factor did not differ significantly according to the variable of working time in the academy league; while their attitudes and opinions towards the factors of "helping their development" and "seeing match

analysis as insignificant and important" differed significantly according to the variable of working time in the academy league (Table 9).

As a result of the analysis made over the binary combination of the working time in the academy league variable in the factors of "Development", "Considered unimportant" and "Considered important"; it was found that the level of evaluating match analysis in football as an important factor that contributes to their development was significantly higher for the coaches who worked in the academy league between 1-2 years and 3-4 years compared to the coaches who worked in the academy league between 5-6 years.

Again, it was determined that the attitudes and thoughts of the coaches working in the academy league in the range of 3-4 years and 5-6 years were significantly higher than the coaches working in the academy league in the range of 1-2 years.

Finally, it was determined that the coaches working in the academy league for 3-4 years, 5-6 years and 7 years / more have a higher level of SEEING match analysis in football as IMPORTANT than the coaches working in the academy league for 1-2 years.

Within the scope of these results, it can be said that the attitudes and opinions of the coaches who have less working time in the academy league are significantly higher in terms of evaluating match analysis as a factor that contributes to their "development" than the coaches who have worked in the academy league more than themselves; in parallel to this, the attitudes and opinions of the coaches who have less working time in the academy league are significantly lower in terms of "considering match analysis unimportant" in football than the coaches who have worked in the academy league more than themselves. In other words, it can be said that the coaches who have more time working in the academy league have significantly lower thoughts about the contribution of match analysis in football to their development than the coaches who have less time working in the academy league, while their thoughts that match analysis is unimportant are significantly higher.

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factors of "helping", "believing that match analysis contributes", "seeing match analysis as "unimportant" and all the statements in the scale including the items that make up these factors did not differ significantly according to the educational status variable; while their attitudes and opinions towards the factor of "seeing match analysis as important" differed significantly according to the educational status variable (Table 10).

As a result of the analysis made on the binary combination of the education level variable in the factor of "perceived important"; it was determined that coaches with undergraduate and graduate degrees perceived match analysis in football as more important than coaches with high school degrees. Within the scope of these results, it is possible to say that football academy coaches with a high level of education have significantly higher attitudes and opinions towards the "importance" of match analysis in football than coaches with a low level of education.

It was determined that the attitudes and opinions of the football academy coaches participating in the research towards the factors such as "seeing match analysis as unimportant and important", "believing that match analysis contributes" and all the statements in the scale including the items that make up these factors did not differ significantly according to the monthly income status variable; while their attitudes and opinions towards the factor that match analysis helps their "development" differed significantly according to the monthly income status variable (Table 11).

In the "Development" factor, as a result of the analysis made on the binary combination of the monthly income status variable; it was found that the level of evaluation of match analysis in football as an important factor contributing to their development was significantly

higher for coaches with low monthly income status than for coaches with good monthly income status. According to these results, it can be said that football academy coaches with low monthly income level have significantly higher attitudes and opinions regarding the evaluation of match analysis as a factor contributing to their "development" than coaches with high monthly income level.

## Conclusion

In conclusion, it is important to emphasise that football is not only a game but also a strategic, tactical and emotional experience. Match analysis helps teams to understand their strengths and weaknesses, improve their game strategy and better prepare for future competitions. Beyond statistics, match analysis provides a broader perspective of football by assessing the performances of players, the tactical choices of coaches and the influence of fans. Teams that recognise that football is not only an on-field competition, but also a battle of strategy, team cooperation and emotional bonding can improve and perform better based on the results of match analysis, contributing to the universal appeal and continuous evolution of football.

Future research should seek to build on our findings and analyses by examining each of these areas in more detail as they relate to the day-to-day realities and challenges that performance analysts face when trying to navigate workplace relationships and interactions. Here, consideration should be given to where analysts find themselves interacting with fellow employees, who they find themselves interacting with, how they interact with these individuals to present themselves as credible, as well as the intended and unintended consequences of their decisions and actions (Nelson et al., 2023).

Although it is seen in the relevant literature on match analysis that studies have been conducted to determine the performances of clubs (Erdoğan, 2021, Özçilingir, 2021, Tunç, 2021, Ağyol, 2022, Seyfeli, 2022); there is no research in which the attitudes and thoughts of the participants regarding match analysis are determined. In this context, it is thought that the results of the research will contribute to the relevant literature.

## Recommendations

We think that football and match analysis is an important training tool for coaches and managers. The following suggestions can be made to coaches and managers about football-specific match analysis:

For each match analysis, goals such as effective use of analysis tools, determining the scope of the analysis, comprehensive data collection, effective use of technology, etc. should be set. These goals can help athletes to achieve certain improvements and develop their abilities. Detailed examination of matches using video analysis, GPS technology and other advanced technological tools can help to analyse players' physical activity, movement and team strategies.

Personalised Training Programmes: Personalised training programmes can be created for coaches with different demographic characteristics. These programmes can support the development of coaches by targeting their identified weaknesses. For example, trainings focusing on basic match analysis skills can be organised for coaches with less experience.

Mentoring and Coaching Services: The fact that coaches have different demographic characteristics may indicate that their needs and strengths may be different. Therefore, a mentoring or coaching network of experienced coaches can be established. This network can provide support in accordance with the individual needs of coaches.

Learning Opportunities from Multiple Sources: Various learning opportunities can be offered for coaches with different levels of education and experience. By utilising multiple

sources such as online courses, seminars, books and video content, each coach can learn at their own pace and in accordance with their preferences.

Continuous Evaluation and Feedback: Coaches' development processes should be regularly evaluated and feedback should be provided. In addition to emphasising the strengths of the coaches, these evaluation processes can help to create individual development plans by identifying areas of development.

Networking and Communication: Networking events can be organised to encourage communication and information sharing among coaches with different demographic characteristics. These events can create an environment of mutual support and co-operation by enabling coaches to learn from each other and share their experiences.

These suggestions can help coaches with different demographic characteristics to develop and successfully apply their match analysis skills.

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## Author(s)' statements on ethics and conflict of interest

**Ethics statement:** We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

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