The Talent Pipeline: A strategic approach to player development in professional football

J.H.J. Julicher

2015093/u374409

Thesis committee:

Supervisor: Dr. Jean-Malik Dumas

Second reader: Dr. Elena Golovko

Word count: 10519

Year of Graduation: 2024

Tilburg University

School of Economics and Management

Department of Management

Table of Contents

1. Introduction 4

1.1 Problem Indication 4

1.2 Problem Statement 6

1.4 Thesis Structure 7

2. Theoretical Background and Hypothesis Development 8

2.1 The foundation of football academy development and academic research 8

2.2 Identifying the phases of development 12

2.3 The process of talent development 14

2.3.1 Acquisition 15

2.3.2 Nurture 17

2.3.3 Integration 21

2.4 Internal and external factors 25

2.5 Model development 25

3. Methods and research design 27

3.1 Research Method 27

3.2 Context and sample 27

3.3 Measures 29

3.3.1 Dependent variable 29

3.3.2 Independent variables 30

3.4 Empirical Analysis 32

4. Results 32

4.1 Descriptive Statistics 32

4.2 Multiple Linear Regression Analysis 33

4.3 Findings 34

5.1 Discussion 36

5.2 Limitations 38

5.3 Recommendations 38

5.3.1 Recommendations for academic research 38

5.3.2 Recommendations for managers 39

5.4 Conclusion 40

6. References 41

1. Introduction

1.1 Problem Indication

Association football, commonly called football or soccer, is the most popular spectator sport in the world. With increasingly large revenue streams being involved, the sport has commercialised heavily over the past few decades. As a result, football clubs are more than ever businesses looking for the best ways to use their resources to maximise their returns, be it either in a sporting or financial sense, which are often intertwined in a way. (Carlsson-Wall et al., 2016) (Toma & Campobasso, 2023) On the business side, the industry has made important strides, partly with the help of implementing Corporate Governance practices (Scafarto & Dimitropoulos., 2018), the implementation of CSR practices (Fifka & Jaeger, 2018)(Breitbarth et al., 2020) and the implementation of data-analysis. At the centre of the sporting performance of a football club are the players, which can be classed as a Human Capital resource. (Trequattrini et al., 2012)(Rubio Martin et al., 2022) As in other industries, knowledge transfers in football regarding player performance are not perfect (Lombardi et al., 2020). This offers an incentive to develop human capital internally. Human capital has proven to be an important resource for firms and can be used to increase firm performance. (Ployhart, 2021) Clubs can generate revenue from their players both directly as well as indirectly. A more successful club in the sporting sense will have a larger following, which means more potential customers in the form of, for example, paying stadium visitors, merchandise sales and revenue generated from sponsorships, profiting from the exposure provided. (Dehouche, 2019). Additionally, clubs can choose to directly generate revenue from their human capital resource by selling a player to a different club and receiving a transfer fee. Existing research has shown that a good academy positively affects

transfer value (Balliauw et al., 2022). While qualitative research has been done to try and identify the perceived factors influencing the development of academy players (Mills et al., 2012) (Relvas et al., 2010), little attempts have been made at quantifying the influence of these and other factors, leaving a gap in the literature to be explored. Furthermore, strategy research in the field of sports only takes up a small portion of the overall research in the field of Sports Management. David Shilbury (2012) finds that only 2.5% of papers published in three major Sports Management journals is related to the field of strategy. This further indicates the gap in existing literature. This observation is also made by Bester (2012), who identifies different environments and suggests the need for further research into the elements that influence (parts of) the sports industry.

While research in the specific field of association football is lacking, Smart and Wolfe (2003) find player resources to explain 67% of the variance in winning percentage within Major League Baseball. When defining the players of a club as a resource that can be used to create a competitive advantage, it becomes clear that development of (academy) players is an important way in which directors and managers can create value for their firm. By analysing both external as well as internal factors, managers can be provided with important data which can be used to make strategic decisions within their organisation. For example, by identifying the factors that can be influenced by internal decision making, managers can identify the area in which invested resources are most likely to produce a desired result. One such example of a strategic decision could be establishing partnerships with amateur clubs. Additionally, if external factors prove to be particularly significant, academy investments may not be the best use of firm resources. This paper aims to add to strategic management theory within the sports industry by providing a framework which can aid decision makers in the industry. These factors can be used within

frameworks such as a Balanced Scorecard or a SWOT-Analysis and are therefore useful in the successful development and implementation of strategies for talent development within the sports industry.

Essentially, this thesis aims to shift the focus from finding the factors that influence the performance of an organisation's academy program to a "Build or Buy"- decision by observing the effects of external and internal factors on the productivity levels of a professional football organisation's academy to determine whether circumstances are advantageous for academy returns. In doing so, managers and decision makers are offered further knowledge that can help them decide between focussing on internal development from their own academy program, or investing in attracting external talent by means of transfers.

1.2 Problem Statement

Professional football organisations are approached as being solely a sporting entity, while the industry has developed into a more mature, corporate industry. To ensure extended success, managers need to identify competitive advantages with regards to talent acquisition and development within their academy program. The central problem statement for this thesis is as follows: Can quantitative variables be identified that influence the success of academy programs in professional football?

1.3 Research Questions

What is the effect of set variables, such as club size and the amount of amateur club partnerships, on the success of a youth academy?

Which stage of development is most influential on academy success?

Are the identified external factors more influential than the internal factors?

How do internal and external factors influence each other?

Can failures within the process be identified using available KPI such as, for example, academy level or loaned out players?

1.4 Thesis Structure

To answer the questions that follow from chapter 1, this thesis will follow the following structure. Chapter 2 will analyse and identify relevant existing literature to identify variables that may influence football academies, upon which the theoretical framework for the empirical analysis will be built. This chapter will also provide important background information for the reader to be aware of existing structures within professional football academies and relevant organisational structures in the Netherlands. Afterwards, chapter 3 will discuss the methods used in the statistical analysis and provide extensive information regarding the source of the data used alongside the context from which the sample data is taken. Chapter 4 will then discuss the results that follow from the statistical analysis that follow from the dataset established in chapter 3. At the end, chapter 5 will discuss the findings that follow from the statistical analysis and the implications of these findings for managers and decision makers in professional football academies. Additionally, chapter 5 will also discuss limitations and provide opportunities for further academic research to build on the findings in this thesis.

2. Theoretical Background and Hypothesis Development

2.1 The foundation of football academy development and academic research

The development of top level athletes is a well established area of study within the field of Sport Science, with a wide range of studies aimed at identifying talented athletes (Reeves et al., 2018)(Fortin-Guichard et al., 2022), developmental factors for individuals(Mills et al., 2012)(Cooper, 2020) and defining talent (Baker et al., 2018). Programs also exist on a national as well as international level to identify the optimal way to guide the development of talented young football players by creating a framework for professional football organisations to base their academy program on. On the national level, these guidelines are established by the National Football Association. In the Netherlands this is the Koninklijke Nederlandse Voetbalbond, or KNVB for short. In 2014 the KNVB introduced the "Kwaliteit en Performance Programma", which can be translated as the "Quality and Performance Program" (KNVB, 2014). This was an attempt to further improve the level of youth football in the Netherlands to ensure a sporting climate in which players at any level can develop their football skills in a pleasant and supportive environment. With the help of the consultancy firm NMC Bright, which specialises in top level athlete development, they identified the necessary facilities and knowledge needed within academies at every level of Dutch football, ranging from small and local amateur academies to internationally acclaimed academies such as the Ajax academy. Based on their findings, the program identified four levels of football academies. The lowest level is that of a "Local Level

Academy", which consists entirely of academy programs from amateur clubs that are looking to provide a more serious environment for their young players to develop when compared to other amateur clubs. The second level is that of a "Regional Level Academy". At this level, we find the first professional football academies. At the regional level, clubs are looking to widen their capture area to identify and attract the best players in their respective region. As of 2020 (NMC Bright), the academies of 11 professional football organisations in the Netherlands are classified as being a Regional Level Academy. The next step up in the pyramid is that of a "National Level Academy". At a national level academy, clubs have a wide network of partners, consisting of amateur clubs and talent scouts to identify and attract the biggest talents from the country. As of 2020, 12 academies in the Netherlands are classified as being a National Level Academy. This is the first level at which no amateur clubs are found, as this level requires resources and funding that is not achievable for clubs at the amateur level of the game. One notable academy within the National Academy level is the combined academy program of professional football organisations Heracles Almelo and FC Twente. While the clubs are fierce historical rivals from the same area and matches between the two are considered to be so called "Derbies", the two clubs work together to provide an academy program of a high standard for all talent in the region of Twente. This collaboration started in 2003 (FCTwente/Heraclesacademie, 2024), in which FC Twente initially provided the majority of the required funding. This collaboration was advantageous for both clubs: Heracles Almelo lacked the necessary resources and funds to establish a successful academy program of their own, hindering them in the recruitment of young players. FC Twente on the other hand was now able to access Heracles existing network of amateur partnerships and could house part of their academy at the training facilities of Heracles Almelo. Their shared academy program was later joined by Go Ahead Eagles as part of the

KNVB's "Regionale Jeugdopleiding", or RJO, to establish 14 Regional Academies, consisting of collaborations between clubs that were active in the same region, that would provide coverage for the entire country. This project however was later scrapped in favour of incentivising clubs to have their own individual academies (KNVB, 2020). Currently, the Heracles Almelo/FC Twente academie is the only existing collaboration between two professional clubs at an academy level. The highest level in the academy pyramid is that of an "International Level Academy". As of 2020, 6 academies in the Netherlands are classified as being an International Level Academy. At the international level academies, professional clubs are looking to identify the players with the most potential both within the Netherlands as well as outside of the Netherlands. While transfers of underage players are limited by UEFA, clubs are allowed to attract international players in certain circumstances.

Clubs at any level can apply for the K&P Program, after which they can receive an audit which is aimed at identifying the current level of the club's academy program. The first step in this process is a consultation during which an employee of NMC Bright. During this meeting, the consultant will help the club establish their goals and ambitions and give an indication on whether they think these ambitions are achievable for the club. The second step in this process is an audit during which the clubs existing infrastructure and organisational structure are assessed.

This audit will focus on 11 topics which can be divided into three pillars: "Vision and Strategy", "Practice" and "Performance. The complete overview can be seen in figure 1. The third step in this process is a review in which the candidate club receives the results of the audit and gets advice on how they can further improve their academy program. The fourth and final step in this process consists of an audit report put together by NMC Bright and delivered to the

candidate club. If NMC Bright concludes that the candidate club's academy program complies with the requirements for an official certification, the club will receive this certification. If NMC Bright concludes that the club is still lacking in certain areas of their academy program, the candidate club gets a twelve month period in which they can work on the areas that require improvement, after which they can ask for a re-evaluation. Within the K&P Performance Program, over 170 clubs in the Netherlands have an official certified academy program, offering extensive opportunities for young and talented players across the entire country.



Figure 1

The 11 topics covered in the K&P Audit (KNVB)

2.2 Identifying the phases of development

To establish the process of developing talent internally in the context of professional football, we first need to identify the steps through which potential academy players go on their way to professional football. In their paper "Talent management: two pathways to glory? Lessons from the sports arena", Maqueira et al. (2019) identify two different approaches to talent management in football by comparing the Spanish football clubs Real Madrid Club de Fútbol and Football Club Barcelona. Based on an extensive case study, they classify FC Barcelona as a club focussed on internal development, while Real Madrid CF is classified as a club focussing on acquiring outside talent. To compare the two established methods, they propose four stages of talent management: Talent attraction, Talent identification and capture, talent development and talent retention. Within these stages, they identify several factors that influence talent management, as can be seen in figure 2. By approaching the development of talent in an organisation wide context, rather than focusing on individual football players, these stages of talent management can be used to form a process that fits internal development of talent into a product-like pipeline, in which talented individuals are the input and professional football players are the output.

To further clarify the stages of development within a football academy, this paper combines the earlier identified stages with the development stages identified by Adam Cooper (2020). Cooper

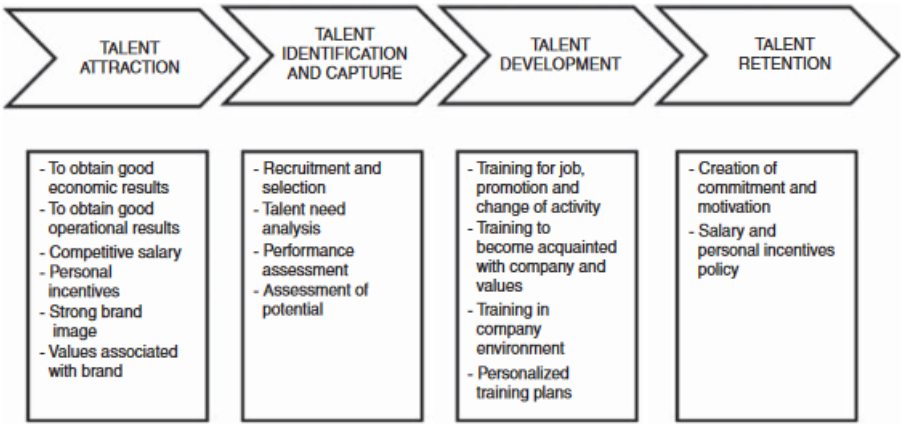


Figure 2

The four stages of talent management in football (Maqueira et al., 2019)

identifies three main stages within the academy pathway of talent in English professional football, linking them to a specific age-group within academy football. In youth football, players are grouped into teams based on their year of birth. In the Netherlands, these age groups range from the Under-7's up until the Under-19's. (KNVB, n.d.) In the context of English academy football, Cooper splits development into three categories as identified in the Elite Player Performance Plan (EPPP) (Premier League, n.d.): The Foundation Phase, ranging from Under-5's till Under-11's, the Development Phase, ranging from Under-12's till Under-16's and the Professional Development Phase, ranging from Under-17's till Under-21's. In the Foundation Phase, talented players are to be identified and brought into the academy system. At this age range, players are usually active at their local amateur football club. The identification process can work in two main lines: In some cases, the amateur club itself alerts a professional football organisation to the existence of a talented young player. In other cases, a scout from the professional organisation identifies a talented player when observing games at the amateur level.

As such, the Foundation Phase can be seen as the phase in which the stages “Talent Attraction” and “Talent Identification and Capture” take place. Existing research in the field of talent identification and scouting is often qualitative in nature, offering limited opportunities for measurable variables to be constructed. Additionally, existing research often finds that the process of talent identification and development is rather unclear and often based on intuition rather than observable metrics (Bergkamp et al., 2022). In the Development Phase, the earlier identified talents receive further training and coaching, specifically aimed at specialisation of their skillset towards professional football. During this phase, further talent identification takes place, as players will be re-evaluated through the years. In this process, players deemed to not be talented enough, or otherwise unsuitable for professional football, are released from the academy program. In the Development Phase, the earlier identified stages “Talent Identification and Capture” and “Talent Development” can be found. In the last phase, the “Professional Development Phase”, academy players are prepared for the step from academy football to professional football. This phase marks the end of the development phase and signals the start of a career as a professional football player. During this phase, players will be looking to make their debut and eventual breakthrough into first team professional football. They may do this at the club where they went through the academy, but they may also end up moving to a different club to take their chance, be it on a permanent basis or on a short term loan.

2.3 The process of talent development

To approach the development of talent in a quantifiable way, this paper will combine the findings in the earlier discussed papers to develop a process in which quantitative variables can

be established and measured. Building upon the phases discussed by Cooper, this process will include three steps. Within each step quantitative variables will be introduced based on earlier research.

2.3.1 Acquisition

The first step in the process combines the findings by Maqueira et al. and Cooper to identify the variables that influence the acquisition and identification of talented young players. These variables will be captured in the step “Acquisition”. As we can see in the stages of Talent Attraction and Talent Identification and Capture, there are several variables that fit within this step. For the purposes of this paper, the focus will be on the variables that relate to identifying talent and convincing the identified players to choose your academy.

Firstly, to identify the talented players, clubs will employ scouts. These scouts will attend the training sessions and matches of (local) amateur youth teams and assess the current level as well as the perceived potential of the players within these teams. In some cases, these scouts may be made aware of the presence of a potential academy player by the amateur club. By building a network with local amateur clubs, professional clubs can increase their scouting reach without having to employ more scouts, as part of the scouting process, and thus the identification process, will be handled by the amateur club. For the amateur club, these partnerships often come with several benefits in various areas such as organisational support, financial support and the opportunity to have their coaches attend coaching courses at the professional academy. Additionally, young players spend a major part of the Foundation Phase at an amateur club before entering the academy of their choice. By sharing knowledge and resources with amateur

clubs, professional clubs try to ensure a higher level of coaching during these important early stages of a players' development. As such, a partnership between an amateur club and a professional club is often mutually beneficial.

While early talent identification takes place mostly at amateur level, professional clubs will also look to acquire talented young players who either are already part of a different youth academy program, or were released from another club's academy. The act of luring players away from a rival academy is commonly referred to as poaching. In the Netherlands however, top clubs have a gentleman's agreement in place to refrain from poaching players from each other's academy programs since 2018 (Eredivisie, 2018). Additionally, if players do get poached from another club's academy, a compensation has to be paid based on the years that said player was part of his initial club's academy. This ensures that clubs have an incentive to try to identify players before they join another academy, as well as a financial incentive for smaller clubs to invest in their academy program, as they will be compensated for invested resources in case a talented young player decides to switch academies.

After identifying suitable players for their academy, clubs will have to convince these players that their academy is the best option for their development and possible future career in professional football. To do so, clubs will try to provide a fitting package for each player. Clubs will often promote the availability of several services, specialised staff members and their overall facilities to encourage young players that their academy is the best option. As an example, we can look at the academy of AZ Alkmaar. On their website (AZ, n.d.), AZ provides nine pillars of their football academy program. These pillars will be further elaborated on in sub-chapter 2.3.2. Additionally, clubs may also choose to offer financial incentives to their academy players. In the

Netherlands however, academy players may only be offered professional contracts from age 15 and older. As such, the opportunity to utilise financial prowess to attract academy players is limited. However, financial resources do allow a club to attract and employ higher quality staff.

A football club can also use their brand image as a way to convince potential players to choose for their academy. One example of this is the brand image of Ajax as a club that has a big focus on developing young players and giving them a chance in their first team. With a history filled with successful academy products such as Johan Cruijff, Marco van Basten, Dennis Bergkamp and Rafael van der Vaart, Ajax has a reputation as a good club for young players to develop. The successful careers of these academy players can be used as an example for prospective talents. To add to that, Ajax is the most successful club in the country when it comes to historic performance in competitions, both at a national level as well as internationally. As a result, they have a large fanbase, averaging the highest attendance numbers in the Netherlands. Young players who are already fans of the club may be more easily convinced to join Ajax's academy over, for example, their rival's at Feyenoord in an attempt to represent their favourite team.

Having identified these factors regarding the acquisition of talented young players, we can move on to the next step in the process.

2.3.2 Nurture

After young talents have been identified and acquired by an academy program, they will start receiving professional training and guidance on their way to a career in professional football. For the purpose of this thesis, this step will be classified as the “Nurture” step. During this step, acquired talents are developed and filtered by means of professional coaching and guidance.

As mentioned in sub-chapter 2.3.1, this paper will utilise the nine pillars as mentioned by AZ Alkmaar. Each of these pillars is in line with the extensive qualitative research already conducted with regards to internal academy management, which will also be included in this section.

The first pillar of the AZ academy is a consistent playing style throughout the entire academy. They aim to play attractive and attacking football, focussed on entertaining the attending fans. In doing so, AZ accomplishes two things. Firstly, they ensure that players will not have to adapt their playing style during their developing years, offering consistency and allowing players to develop a specialised set of skills that will allow them to excel within the existing playing style. Secondly, by keeping a consistent playing style throughout the academy that matches that of the first team, they close the gap between youth academy football and the eventual goal of professional football. Players coming from the academy will not have to adapt to a new way of coaching when they enter the first team and as such will be able to fit in more easily. The second pillar is the focus on individual development programs. By offering a training program that focuses on identifying strengths and weaknesses and adapting the coaching to work on skills that will either enhance the natural strengths of a player, or help to eliminate a weakness, players will be able to specialise their skills in a way that is best suited to their natural talents. The third pillar is the usage of the SMART-principle. The SMART-principle (Doran,

1981) can be used to set personal goals and to track progress in achieving them. In the context of the AZ Academy (AZ, n.d.), the acronym stands for “Specific”, “Measurable”, “Action-oriented”, “Realistic” and “Time Bound”. By setting specific goals which fulfil the SMART-Principle, AZ can clearly communicate to their academy players what progression and development is expected of them in order to achieve their goal of making professional football their career. The fourth pillar is physical ability. AZ Academy players are expected to be agile, strong, have plenty of stamina and move in a smooth manner. To achieve this, AZ employs fitness coaches and sport scientists to measure physical ability and maintain fitness. By identifying the physical strengths and weaknesses of a player and providing personalised programs, AZ ensures their players reach the required level of physical fitness alongside the more technical footballing skills. The fifth pillar established by AZ is the medical pillar. With an extensive medical department and regular fitness check ups, players can prevent injuries, which can hamper development at a physical and mental level. By monitoring physical fitness and providing a personalised training load, academy players can get the most out of their training sessions while preventing physical overload that may result in short or long term injury issues. Academy players are further guided by the academy’s medical staff with regards to nutrition and lifestyle to ensure optimal recovery between training sessions and matches. The sixth pillar is called “Top-sport behaviour” and is aimed at preparing academy players for their career as a professional football player. Specifically, this pillar is aimed at the aspects of a professional football career that are not related to footballing skills and physical fitness. According to AZ, players should also grow as human beings and be able to live independently, making their own decisions and discovering their own identity. Other important attributes include mental resilience, learning ability and general health. To guide academy players in this area, the

academy offers workshops for players to attend. The seventh pillar of academy development is the usage of video analysis. AZ employs staff to record training sessions, matches and tournaments in which academy teams take part. Using this footage allows coaches to further analyse the performance of players during sessions and helps identify strengths and weaknesses. Additionally, recorded video footage can be used to visually show players moments in the session in which they may have made a mistake, while also capturing the context clearly. This allows players and coaches to extensively analyse their habits. One such example of an observation made with the help of video analysis is the scanning ability of a player in match scenarios. Scanning is the ability of a player to observe their surroundings while playing football and accurately identify open spaces and the positioning of both their teammates as well as opposing players. Research has shown a positive correlation between scanning frequency and passing success (Aksum et al., 2021). The eight pillar is related to education. Similar to the pillar "Top-sport behaviour", AZ promotes personal growth outside of just the context of football. Young players are encouraged to focus on their education outside of football and are offered opportunities for education counselling and AZ establishes strong relationships with schools to ensure that players can follow their extensive training schedule without compromising on their formal schooling. By ensuring that players can focus on their education, AZ can take away possible resistance from young players' parents, who might want their children to focus on formal education rather than chase their dream of becoming a professional football player. This also helps players that end up not making professional football their career to have an easier path back into more traditional education, as they are not missing out on required early education. The ninth and last pillar of the AZ academy is the relationship between the club and the parents of academy players. AZ recognizes the importance of working together with parents to create an

environment in which academy players can flourish, both on and off the pitch. To do so, they keep in contact with the parents and schedule regular meetings to monitor how an academy player is doing off the pitch. During these meetings, parents are also updated on their child's development within the academy and advised on potential problems that may be identified in a player's behaviour or wellbeing.

These pillars fit into the earlier discussed K&P Performance Program, and as a result AZ Alkmaar got the highest possible certification, with their academy program being one of the six academies in the Netherlands to be classified as an "International Level Academy".

2.3.3 Integration

After successfully completing the nurture step in the process of academy development, the third and final step is the transition from academy youth football to professional football on a long term basis. This step will be classified as the "Integration" step in the process. Where academy football is all about development and specialisation, professional football is about results. An aspiring professional football player coming from an academy program is very likely to possess the football skills and physical fitness to compete in professional football with regards to quality. However, the step into professional football is one that comes with uncertainty, additional responsibilities and added pressure. As discussed in sub-chapter 2.3.2, professional football academies try to prepare their young players to successfully deal with life as a professional football player. This step fits in line with the Professional Development Phase as identified by Cooper. Players in the Professional Development Stage of their career report a

lower score in the categories related to pressure (Cooper, 2020). Precisely, the Professional Development Stage is the stage during which players feel the most pressure to perform, both from coaches as well as family members.

To offer academy players the best possible opportunity to make the transition into professional a smooth one, clubs can offer guidance and support from the coaching staff. When young players first join the first team in training, they may encounter a culture shock (Røynesdal, Toering & Gustafsson, 2018). Suddenly they are faced with an environment that is highly competitive and demands instant results rather than steady progressive development. Additionally, they may find that established first team players are not always welcoming to new players joining the team, as they are used to seeing teammates as competition for their spot in the starting line-up. A first team manager may think in a similar fashion and prefer using his older, more experienced players as he knows the level of performance he can expect from them after having observed them for a longer period of time. An academy player however still has to convince a manager of his quality. In their paper on the impact of organisational culture, Champ et al. (2020) observe the experience of a player called Nathan, who got a sudden and unexpected opportunity to play in the first team. Being underprepared the player makes a mistake that leads his team to concede, and as a consequence the player is subbed off at half time. After the game, the player did not receive another opportunity to show himself during a senior level game and Nathan transitioned back to playing for the under-18 squad full time. The coaching staff, having only observed the player briefly in a competitive match, concluded that Nathan did not have what it takes to play at a senior level. To combat situations like this, clubs may look to have (coaching) staff tasked with facilitating a pathway from the second team to the first team by

being present at both academy as well as first team training sessions and matches. This way, the coaching staff can be made aware of the quality level of the academy graduates before they arrive at the first team, making it easier for managers to assess the level of a new, young player. The other way around is also an option: Clubs may choose to let academy players join in on training sessions with the first team on a somewhat regular basis, allowing them to ease the transition into the first team and making it less of an abrupt change in environment. A different opportunity is presented by Prendergast and Gibson (2022) who study the effect of a loan spell on a player's development. During a loan spell, a player will be loaned out from the club he is currently contracted with to a different club. Oftentimes, the club which chooses to loan the player plays at a lower level, or has a lower quality squad than the player's parent club. As a result, the loaned player might find themselves in an environment where they are not one of the new, unproven players, but in which they are seen as a talented youngster that can provide a much needed quality injection into the squad. During their loan spell, young players can acclimate to the differences between academy football and so-called "Men's" football, which is often more physically demanding and higher paced. The difference between the academy matches, in which performance is more important than results and senior competitive games can be summarized nicely by a quote from a top level manager as cited by Prendergast and Gibson: "... In the end, academy football is a bit 'tippy tappy,

nicey nicey', but, when you get into League (EFL) football it's blood,

snot, fight, and grit. You have to put your body on the line." (2022). In the Netherlands, clubs playing at the highest level of professional football (The Eredivisie) may look to form a (sometimes unofficial) partnership with a club playing at the secondary level of professional football (The Keuken Kampioen Divisie, or first division). One example of this is the official

partnership between Feyenoord Rotterdam and FC Dordrecht, in which Feyenoord sends over an experience assistant-manager and a first team performance coach on secondment to assist the coaching staff at FC Dordrecht and loans out their young players to the lower division side to give them the much needed experience of first team football.

While most clubs will have to look at loaning out their players to a different club to get competitive playing experience at a lower league level, there are instances in which the pathway between academy football and first team football is more clear and structured within a professional football organisation. In the Netherlands, there are four clubs that have their "Jong" teams, which are their reserve squads, playing at a competitive level in the first division. These are AFC Ajax, FC Utrecht, AZ Alkmaar and PSV Eindhoven. As a result of several bankruptcies in the Dutch professional football pyramid, the KNVB decided to add four reserve teams to the second level of Dutch professional football to make up numbers and offer a pathway for talented young players to get playing experience at a competitive level. As a result, these four clubs are able to offer a competitive senior level playing experience to their academy players without the players having to leave the environment in which they grew up and developed their football skills. While these reserve teams are limited as to which players are allowed to play for them (players have to be under 23 years of age and can't be involved in the first team as well as the reserve team within one gameweek), they offer significant advantages for player development, especially during the Professional Development Phase of their careers. The inclusion of reserve teams in the professional football pyramid is not something that is unique to the Netherlands. Similar constructions exist in Germany, Spain and France. The inclusion of reserve teams in the professional football pyramid has shown to increase the amount of players produced within a

country when compared to countries in which reserve teams do not play at a senior level (Bullough & Coleman, 2019), supporting the theory that having a reserve team playing at a competitive level provides advantages for the development of talented players in an academy program.

2.4 Internal and external factors

When looking at the steps that have been identified in the earlier parts of this chapter, a clear distinction can be made between factors on which a club can have a direct influence by manner of strategic choices and factors which are harder to influence directly. For the purpose of this thesis, this distinction will be referred to as “Internal” versus “External” factors. Internal factors are those that can be influenced by decision makers within the organisation on a relatively short term basis. Examples of internal factors are the amount of partnerships that a club has with amateur clubs to build their network, the amount of players that a club loans out to other clubs and the level of the academy. External factors on the other hand are those that are harder to influence and change in the short term. Examples of external factors include the inclusion of a club’s reserve team in the professional football pyramid, for which only limited places are available, and the brand image and resources available to an organisation.

2.5 Model development

By combining the factors identified in this chapter, a proposed model can be developed to measure the influence of these factors on the development of talented players through a club's academy program. Existing literature observes a clear process with identified development phases, offering a foundation for the creation of a three step process consisting of the steps "Acquisition", "Nurture" and "Integration". However, as mentioned before, talent identification and talent attraction are a continuous process within a professional football academy. Not every player will stay in the same academy program from the beginning of the Development Phase of his career. Similarly, not every talented player develops at the same pace, and some players have a harder time adapting to the changes needed to make the step into professional football. Thus, a process can be identified with three steps that are continuous, yet in a clear order. In line with the classified steps, this model can be described as a production process as shown in figure 3 below, together with quantifiable factors that can be used in a statistical analysis.

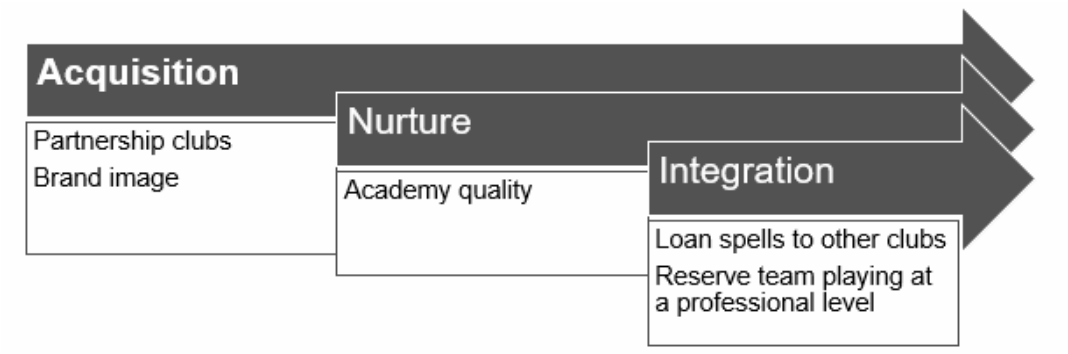


Figure 3

The process of producing professional football players through an academy program

By building upon this modelled process, a regression analysis can be constructed to measure the impact of the identified factors on the development of professional football players through the academy. This statistical model will be further expanded upon in chapter 3.

3. Methods and research design

This chapter will explain the sample that was used to conduct the statistical analysis, the variables employed and that statistical model that was used to perform the analysis.

3.1 Research Method

The aim of the empirical analysis in this study is to provide a quantitative analysis of the variables established in earlier qualitative research literature. As a result, the analysis will be deductive in nature. By doing so, a more extensive analysis of the factors influencing football academies can be conducted and theories established in qualitative research can be put to the test.

3.2 Context and sample

For this study, the sample consists of professional football organisations in the Netherlands during the period 2015 till 2020. This time period has been established to underline the fact that an academy program is a long term investment, while also making sure to keep the focus on present, modern day professional football. To ensure that only players are measured that were part of the academy during this period, the database will contain players that were at one point in during the established timeframe at the age of 16. As players in youth football are grouped by birth year, the database will thus include players born between 1999 and 2004. These

boundaries are chosen as they provide accurate and reliable information, as the established age range excludes players that got released from their respective academies very early on. The gathered player data is checked to make sure the player was part of the academy program of the professional football organisation to avoid inclusion of players that only joined the academy program during the Professional Development Stage of their career. If a player was part of multiple professional academies during their career, a decision has been made on the basis of author's insight after observing which academy period aligns better with the defined development stages. Additionally, the chosen timeframe leaves four years between the last included year and the present, leaving enough time for players to go through the Professional Development Stage. This gives a clear picture whether a player has managed to build a career in professional football after their academy period. To ensure the availability of data for the entire time period, the sample consists only of clubs that are still in existence and operating at a professional level. This excludes organisations such as RBC Roosendaal, who as of 2011 are no longer a professional football organisation as a result of bankruptcy. Additionally, several "Jong" teams (reserve teams) are currently active in the second tier of Dutch professional football. For the purpose of this study, these teams are included as part of their club's overall data. Clubs for which there is no available information regarding established variables will be excluded. This means the clubs FC Eindhoven, AZ Alkmaar, SC Heerenveen, Roda JC Kerkrade, MVV Maastricht and PSV are excluded, as there is no reliable source for the amount of partnerships they have established with amateur teams. SC Telstar had no active youth academy program during the established timeframe and has thus been excluded. Furthermore, clubs that received no status indication for their academy program from NMC Bright are excluded, as there is no objective manner to measure the internal quality of their academy program. This is the case for

RKC Waalwijk, Helmond Sport, TOP Oss and SC Telstar. Lastly, professional football clubs that shared their academy programs with other clubs are excluded, as there is no clear distinction to be made in the identified variables used in the empirical analysis. This is the case for FC Twente, who share their academy program with Heracles Almelo, and TOP Oss, who until recently shared their academy program with N.E.C. Nijmegen. Additionally, FC Den Bosch had a shared academy program with RKC Waalwijk and is excluded This leaves a sample including 21 Dutch professional football organisations over a period of 5 years, making for 105 year-date data points. In this timeframe, a total of 296 academy players are observed to have successfully made professional football their career.

3.3 Measures

For this study, an original database has been created. A description of the variables can be found in the following sections. Data used regarding club statistics and player information is sourced from the online open-source Transfermarkt.nl. Additionally, various sources such as club websites and news articles are used to measure the amount of partnerships a club has with amateur clubs. Lastly, the measure for academy quality is taken from NMC Bright.

3.3.1 Dependent variable

To define what constitutes “success” in youth development, there are various options available. One could utilise “Player value created”, for which data is readily available in the open-source football database Transfermarkt, which has been used in academic research as an indicator for player (Peeters, 2018)(Felipe et al., 2020), and thus human capital value. However, as player value is often related to club reputation , this thesis will look at the absolute number of players that have managed to break through into professional football and have played at least 20

games at a professional level of football rather than created player value. This decision has been made to accurately represent the fact that only a small percentage of academy players go on to make professional football their career, and as such, any player that does manage to reach their goal should be seen as a success, regardless of eventual financial value. The dependent variable is thus established as the absolute number of players that have come through a club's academy program between 2015 and 2020 and that have managed to have a successful career in professional football after completing the academy program. This dependent variable will be coded as "Players".

3.3.2 Independent variables

Partnerships with amateur clubs

The variable for the amount of partnerships with amateur clubs a club has is constructed as the sum of the partnerships mentioned through reputable sources such as a club's website. While there are different types of partnerships, this thesis includes every form of partnership as each partnership adds to the network of a club's scouting and as such is expected to have an effect on the identification and attraction of talented young players. This variable is coded as "Partnerships".

Club size and brand image

The variable for club size, representing available funds and resources and the brand image of a club, representing the popularity and fanbase of a club, are constructed as a combined variable through the proxy of the average attendance for a club's home matches. As identified earlier, a club can generate funds through their fanbase, making average attendance a viable proxy for the funds available to a club. Likewise, the average attendance of a club can be used as a proxy for the popularity of the club. This proxy variable is thus constructed as the average

attendance (in thousands) over the course of the 5 years included in the dataset and coded as the variable “Attendance”.

Academy level

To measure the internal quality of the academy program, this thesis uses the classifications as rewarded by NMC Bright as an objective observation of the level of coaching, guidance, facilities and other factors that influence the level of an academy, as this classification involves a wide area of requirements and is audited by a reputable firm in cooperation with the KNVB. This variable is coded as a categorical variable with a value of “1” for Regional Level Academies, “2” for National Level Academies and “3” for International Level Academies under the variable name “Academy Level”.

Players loaned out

As a measure for the tendency of a club to send their players out on loan to a different club, the variable “Loaned” is coded as the total number of players loaned out to other clubs during the timeframe of the dataset.

Reserve team playing at a competitive level

As the inclusion of a reserve team playing at a senior competitive level has been found to increase the amount of players produced within a country and the dataset contains two clubs with reserve teams playing in the First Division, the variable “Reserve team” is coded as a categorical variable with a value of “0” for teams without a reserve team in the First Division and a value of “1” for FC Utrecht and AFC Ajax, who are represented by Jong Utrecht and Jong Ajax respectively.

3.4 Empirical Analysis

The statistical analysis performed is a Multiple Linear Regression Analysis with the dependent variable “Players” as a function of the independent variables “Partnerships”, “Attendance”, “Academy Level” and “Loaned”.

4. Results

4.1 Descriptive Statistics

The descriptive statistics and the correlations can be found in table 1 below. During the timeframe of 5 years, we see that the mean for successful players produced is 14.10. The best performance in this measure is from Ajax, who have produced 55 players from their academy during this period. The worst performing academy program was that of Go Ahead Eagles, which only produced one player from their academy. Other remarkable values are observed when it comes to the amount of partnerships. With an observed mean of 24.43 partnership clubs within the sample, only Willem II is observed to have no established partnerships. FC Utrecht on the other hand have 88 observed partnerships. As academy level is a categorical variable, we find no new information: Within the sample, there are four clubs with the highest level certification for their academy. A high and significant level of correlation is found for several variables within the sample. This fits well within the proposed model: Academy development is a continuous process in which each step has overlap with other steps. Additionally, the proxy variable “Attendance” seems to be correlated with the dependent variable, the level of the academy, the players loaned out and the existence of a reserve team playing at a competitive level. As the variable Attendance serves as a proxy for available funds and resources, it makes sense that this

variable influences multiple variables within the sample. For example, a club with more available funds is able to put more funds into their academy program, thereby increasing the quality of coaching staff and facilities available to academy players. Additionally, a club with more resources can afford to keep more players under contract and as such can be expected to have more players available to loan out to other clubs. Lastly, we find that clubs with more funds are more likely to have their second team play in the First Division. This is expected, as they can afford to fund a competitive second team and provide them with the required facilities to play at the competitive level, such as a small stadium or playing ground.

Table 1

Descriptives and Correlations

Variable	N	M	SD	Min	Max	1.	2.	3.	4.	5.
1. Players	21	14.10	13.14	1	55	1				
2. Partnerships	21	24.43	22.01	0	88	.21	1			
3. Attendance	21	13.15	12.80	1.70	51.03	.94*	.25	1		
4. Academy level	21	1.86	0.73	1	3	.79*	.43	.74*	1	
5. Loaned Out	21	9.57	6.96	1	24	.63*	.22	.75*	.58*	1
6. Reserve Team	21	0.10	0.30	0	1	.62*	.62*	.56*	.52	.40

Note. **Correlation is significant at the 0.01 level (2-tailed).*

4.2 Multiple Linear Regression Analysis

Table 2 provides the results of the Multiple Regression Analysis. The independent variables statistically predicted the dependent variable "Players" with $R^2 = .960$, $F(6, 14) = 54.89$, $p < .001$. However, the continuous variable "Loaned out" is not statistically significant with $p > 0.05$. Surprisingly, the classification as a "National Level Academy" does not provide a statistically significant difference when compared to the base level of that of a "Regional Level

Academy" with $p > 0.05$. The model as a whole serves as a strong predictor of successful developed academy players, with an R^2 of 0.96. Additionally, the amount of partnerships was found to have a statistically significant and negative correlation with the amount of players developed by a club.

Table 2

Results of Multiple Regression Analysis of independent variables on players

Variable	*Beta*	*SE*	*95% CI*	*p*
Constant	7.12	1.89	[3.07, 11.18]	.002
Partnerships	-0.19	0.05	[-0.30, -0.08]	.002
Attendance	0.64	0.12	[0.37, 0.90]	< .001
Loaned Out	-0.27	0.16	[-0.60, 0.07]	.108
Academy Level				
2	3.43	1.68	[-0.16, 7.02]	.060
3	17.23	4.16	[8.32, 26.15]	.001
Reserve Team	9.24	3.60	[1.53, 16.96]	.022

Note. $R^2 = .960, F(6, 14) = 54.89, p < .001$.

4.3 Findings

The Multiple Regression Analysis performed finds a statistically significant relationship between the amount of partnerships, club size, academy level and the existence of a reserve team playing at a competitive level. However, partnerships are found to have a negative relationship with the amount of players produced. This may indicate that there is such a thing as "too many" partnerships with amateur clubs. One explanation for this could be that a club can only manage a certain number of relationships without exceeding their capacity for scouting. It could also be the case that clubs are better off committing to fewer partners while focussing on partners that have a

higher level of standards at their academy program.

Average attendance, being a proxy for club funds and brand image, has a significant and positive effect on the amount of players produced by a club's academy program. This is in line with the expectations that a club with more available funds will be able to better identify and attract talented young players and can offer more resources to their academy to maximise the development of the young academy players. Players loaned out are not found to be a statistically significant predictor of the players coming through the academy of a club. However, this could be explained by the existence of the Jong Ajax and Jong Utrecht reserve teams. Had AFC Ajax and FC Utrecht not had the opportunity to use their reserve teams to give their young players experience at a competitive level, they may have chosen to loan out players to lower league clubs rather than keep them in their reserve teams. Additionally, not every player that was loaned out by a club is necessarily an academy player. The level of the academy is a statistically significant predictor of the amount of players developed only at the level of an "International Level Academy". At this level however, it is not only statistically significant, but also a very strong predictor of the amount of players produced. When compared to a club with a "Regional Level Academy", clubs with an "International Level Academy" produce on average 17.23 more players over the course of a five year period. The classification of a "National Level Academy" is not a statistically significant predictor at the 0.05 level. Lastly, the existence of a reserve team playing at a competitive level is statistically significant and a strong predictor of the amount of players produced at a club, with 9.24 more players produced over a five year period compared to clubs without a reserve team. An important note however, is that players that spend multiple seasons at the reserve teams of FC Utrecht and AFC Ajax might reach the required amount of games on a

professional level to be classified as having had a successful career, even if they were to be released after their stint in the reserve team.

5. **Discussion and Conclusion**

5.1 Discussion

The aim of this thesis was to identify the quantifiable factors that influence the success of a professional football academy program based on the existing qualitative literature. Through a statistical analysis that shows to be statistically significant, this thesis finds that the majority of factors indicated by qualitative research have a positive impact on the success of an academy program. By using these reliable statistics and relationships, this thesis can further try to answer the research questions as proposed in sub-chapter 1.3.

The first research question, "What is the effect of set variables, such as club size and the amount of amateur club partnerships, on the success of a youth academy?" is mostly answered with the help of statistical analysis. The statistical analysis finds a significant and positive relationship between the highest level of academy quality and the amount of players produced by the club, highlighting the importance of quality coaching and guidance as well as the availability of high level facilities during the nurture step of academy development. However, it does not find a significant difference between Regional and National Level academies, which indicates that academy quality may only be measurably different when a certain point is reached. It could also be the case that the classification as provided by MNC Bright is not thorough enough to observe the differences between a Regional and National level academy, or that the requirements for either classification is not strict enough. A surprising outcome from the statistical analysis is the negative correlation between partnerships and the amount of players developed, which goes against the qualitative findings. However, this does not per se mean that partnerships can not

help a club identify talented players. Rather it might imply that clubs can overstretch themselves in an effort to grow their network as far as they can, leading to adverse effects on the knowledge transfer between a professional club and their amateur partners. The statistical analysis also shows a clear influence of club size and brand image on every part of player development within the academy, as well as on the amount of players developed by the academy as a whole.

The second research question, “Which stage of development is most influential on academy success?” seems to be answered with the strong and statistically significant correlation between the “International Level Academy” quality and the amount of players produced. Coaching and guidance during the Development Phase is shown to be very important on the likelihood of a player becoming a professional football player after going through a club’s academy. This is also in line with the findings in prior qualitative research.

The third research question, “Are the identified external factors more influential than the internal factors?”, might seem to fall in line with the observation that the nurture step is the most important within the academy process. However, as there is a high correlation between external factors such as club size and academy level, it is hard to answer this question definitively based on the findings in this thesis.

The fourth research question, “How do internal and external factors influence each other?”, can be answered with more certainty. There is a strong correlation between the external factors and internal factors as identified by the Multiple Regression Analysis. This means that external factors such as the funds and resources available put a limitation on the influence that decision makers can have on the quality of internal factors such as the level of the academy.

The fifth and final research question, “Can failures within the process be identified using available KPI such as, for example, academy level or loaned out players? “ is another one that

can not be answered with full certainty based on the findings of this thesis. While the classification of the academy is a strong predictor of the amount of players that break through into professional football, the identified variables in this thesis on their own should not be seen as providing a conclusive answer. However, the statistical significance of variables such as the presence of a competitive reserve team does imply that KPI's can be identified to monitor the success of the academy process.

5.2 Limitations

This thesis comes with limitations in a few areas, which leave open questions for further research. The first limitation is the usage of proxy variables such as average attendance to measure club size and club resources. Additionally, the overall amount of resources a club has available is by itself a proxy of the funds they divert to their academy program. As such, it is a proxy of a proxy, limiting reliability and leaving room for improvement by obtaining more specific and reliable data from a more direct source, such as a professional football club. Additionally, the scope of this thesis is rather limited through resource and time constraints. As youth development is a long term process, the statistical analysis might benefit from expanding the timeframe used in this thesis. The sample is also limited to clubs in the Netherlands, which is only one country out of many in which professional football is practised.

5.3 Recommendations

5.3.1 Recommendations for academic research

While this thesis provides a contribution to the field of strategic management in the context of professional football, there are multiple areas in which future academic research could

further contribute by building upon the findings of this thesis. With enough resources, a similar study could be conducted in England, where there are significantly more professional football clubs and more opportunities for players to stay at a professional level, as there are five full-time professional football leagues in England compared to two in the Netherlands. Additionally, future academics with more resources, less time constraint and more existing relationships with decision makers in professional football could work together with professional football clubs to acquire more precise data for their dataset. One such example could be a more precise indication of the funds allocated to a club's academy program.

Further academic research can also be done with regards to identifying more quantifiable factors within the steps as identified in this thesis. For example, by zooming in on the step of acquisition, the relationship between the employment of professional scouts for an academy program and the identification of talented players. This could be compared to clubs where this is done on a volunteer basis due to limited resources, or compared to clubs that work closely with outside firms in the identification process.

5.3.2 Recommendations for managers

Managers and decision makers within a professional football club should be aware of possible quantitative ways to identify weaknesses in their academy process and look to implement those in their decision making. Additionally, managers should focus on spreading awareness throughout not just the academy but also the first team to help the process of integrating academy players into the first team squad.

Findings also imply that the ability to provide a high level of academy coaching and facilities is heavily dependent on the overall resources available to the club. One interesting observation from the statistical analysis is the statistically insignificant difference between the output of

"Regional Level Academies" and "National Level Academies". This implies that further investment made into the quality of an academy may only be worth it if they are able to increase the level of the academy to that of an "International Level Academy". Additionally, the findings of the effectiveness of a second team playing at a competitive level may encourage managers to foster partnerships with clubs playing at a lower level to substitute for their lack of having a second team at a competitive level. Some clubs such as Feyenoord Rotterdam have already made efforts to do so by forming partnerships with, in their case, FC Dordrecht.

Lastly, managers should be aware that every step of the process influences the success of the other steps. As such, it might be deemed necessary to aim to improve on weaknesses within their process before trying to improve in stronger areas.

5.4 Conclusion

The development of professional football players through an academy is a process in which many factors have to be taken into consideration when making a decision. By providing a quantifiable way to measure these factors, managers and decision makers can be guided in making a "Build or buy" decision with regards to talent management within professional football. The findings further show that the few top level academies produce by far the most players that go on to play professional football. Additionally, while many qualitative theories were confirmed, it does seem to be important for further quantifying research as a way to provide reliable and useful recommendations to managers.

6. References

Unnithan, V., White, J., Georgiou, A., Iga, J., & Drust, B. (2012). Talent identification in youth soccer. *Journal of Sports Sciences*, *30*(15), 1719–1726. https://doi-org.tilburguniversity.idm.oclc.org/10.1080/02640414.2012.731515

Carlsson-Wall, M., Kraus, K., & Messner, M. (2016). Performance measurement systems and the enactment of different institutional logics: Insights from a football organization. *Management Accounting Research, 32,* 45–61. https://doi.org/10.1016/j.mar.2016.01.006

Toma, P., & Campobasso, F. (2023). Using data analytics to capture the strategic and financial decision-making of Europe's top football club. *Technological Forecasting and Social Change, 186(PA).*

Scafarto, V., & Dimitropoulos, P. (2018). Human capital and financial performance in professional football: the role of governance mechanisms. *Corporate Governance: The international journal of business in society*, *18*(2), 289-316.

Fifka, M.S., & Jaeger, J. (2020) CSR in professional European football: an integrative framework, *Soccer & Society*, 21:1, 61-78, DOI: 10.1080/14660970.2018.1487840

Breitbarth, T., Hovemann, G. & Walzel, S. (2011), Scoring strategy goals: Measuring corporate social responsibility in professional European football. *Thunderbird Int'l Bus Rev*, 53: 721-737. https://doi.org/10.1002/tie.20448

Trequattrini, R., Lombardi, R., & Nappo, F. (2012). The evaluation of the economic value of long lasting professional football player performance rights. *Wseas Transactions on Business and Economics*, *9*(4), 199–218.

Rubio Martín, G., Manuel García, C. M., Rodríguez-López, Á., & Gonzalez Sanchez, F. J. (2022). Measuring football clubs' human capital: analytical and dynamic models based on footballers' life cycles. *Journal of Intellectual Capital*, *23*(5), 1107–1137. https://doi.org/10.1108/JIC-06-2020-0211

Lombardi, R., Trequattrini, R., Cuozzo, B., & Paoloni, P. (2020). Knowledge transfer in the football industry: a sectorial analysis of factors and determinants. *Management Decision*, *58*(9), 1909–1927. https://doi.org/10.1108/MD-08-2019-1100

Ployhart, R. E. (2021). Resources for What? Understanding Performance in the Resource-Based View and Strategic Human Capital Resource Literatures. *Journal of Management*, *47*(7), 1771-1786. https://doi-org.tilburguniversity.idm.oclc.org/10.1177/01492063211003137

Dehouche, N. (2019). The corporate narratives of global football clubs. *Corporate Reputation Review*, *22*(2), 61–74. https://doi.org/10.1057/s41299-018-0059-2

Balliauw, M., Bosmans, J. & Pauwels, D. (2022), Does the quality of a youth academy impact a football player's market value?, *Sport, Business and Management*, Vol. 12 No. 3, pp. 269-283. https://doi.org/10.1108/SBM-02-2021-0011

Mills, A., Butt, J. , Maynard, I. & Harwood, C. (2012), Identifying factors perceived to influence the development of elite youth football academy players, *Journal of Sports Sciences*, 30:15, 1593-1604, DOI: 10.1080/02640414.2012.710753

Relvas, H. , Littlewood, M. , Nesti, M. , Gilbourne, D.,& Richardson, D. (2010). Organizational Structures and Working Practices in Elite European Professional Football Clubs: Understanding the Relationship between Youth and Professional Domains, *European Sport Management Quarterly*, 10:2, 165-187, DOI:10.1080/16184740903559891

Shilbury, D. (2012). Competition: the heart and soul of sport management. Journal of Sport Management, 26(1), 1–10. https://doi.org/10.1123/jsm.26.1.1

Pester, B. (2012). The business environment of sport organisations: a review. African Journal of Business Management, 6(46), 11530–11535. https://doi.org/10.5897/AJBM12.1167

Smart, D. L., & Wolfe, R. A. (2003). The contribution of leadership and human resources to organizational success: an empirical assessment of performance in major league baseball. *European Sport Management Quarterly*, *3*(3), 165–188. https://doi.org/10.1080/16184740308721949

Reeves, Littlewood, McRobert, & Roberts. (2018). The nature and function of talent identification in junior-elite football in English category one academies. Soccer and Society, 19(8), 1122–1134. https://doi.org/10.1080/14660970.2018.1432385

Fortin-Guichard, D., Huberts, I., Sanders, J., van Elk, R., Mann, D. L., & Savelsbergh, G. J. P. (2022). Predictors of selection into an elite level youth football academy: A longitudinal study. Journal of Sports Sciences, 40(9), 984–999. https://doi.org/10.1080/02640414.2022.2044128

Cooper, A. (n.d.). An investigation into the factors affecting player development within each phase of the academy pathway in english football academies. Soccer & Society, 22(5), 429–441. https://doi.org/10.1080/14660970.2020.1822342

Bergkamp, T. L. G., Frencken, W. G. P., Niessen, A. S. M., Meijer, R. R., & den Hartigh, R. J. R. (2022). How soccer scouts identify talented players. European Journal of Sport Science, 22(7), 994–1004. https://doi.org/10.1080/17461391.2021.1916081

Prendergast, G., & Gibson, L. (2022). A qualitative exploration of the use of player loans to supplement the talent development process of professional footballers in the under 23 age group of English football academies. Journal of Sports Sciences, 40(4), 422–430. https://doi.org/10.1080/02640414.2021.1996985

Aksum, K. M., Pokolm, M., Bjørndal, C. T., Rein, R., Memmert, D., & Jordet, G. (2021). Scanning activity in elite youth football players. Journal of Sports Sciences, 39(21), 2401–2410. https://doi.org/10.1080/02640414.2021.1935115

Røynesdal, Ø., Toering, T., & Gustafsson, H. (2018). Understanding players' transition from youth to senior professional football environments: A coach perspective. International Journal of Sports Science & Coaching, 13(1), 26–37. https://doi.org/10.1177/1747954117746497

Bullough, S., & Coleman, R. (2019). Measuring player development outputs in European football clubs (2005-2006 to 2015-2016). Team Performance Management: An International Journal, 25(3-4), 192–211. https://doi.org/10.1108/TPM-03-2018-0023

Peeters, T. (2018). Testing the Wisdom of Crowds in the field: Transfermarkt valuations and international soccer results. *International Journal of Forecasting*, *34*(1), 17-29.

Felipe, J. L., Fernandez-Luna, A., Burillo, P., de la Riva, L. E., Sanchez-Sanchez, J., & Garcia-Unanue, J. (2020). Money talks: Team variables and player positions that most influence the market value of professional male footballers in Europe. *Sustainability*, *12*(9), 3709

KNVB (n.d.). *Kenmerken per leeftijdscategorie*. Retrieved June 12th, 2024, from https://www.knvb.nl/assist-trainersdashboard/kennisbank/begeleiden/kenmerken-per-leeftijdscategorie

Premier League (n.d.). *Long-term strategy designed to advance Premier League Youth Development.* Retrieved June 12th, 2024, from https://www.premierleague.com/youth/EPPP

Eredivisie (2018). *Eredivisie stel veranderagenda vast.* Retrieved June 12th, 2024, from https://eredivisie.nl/nieuws/eredivisie-stelt-veranderagenda-vast/

AZ (n.d.). *Over de AZ Jeugdopleiding*. Retrieved June 12th, 2024, from https://www.az.nl/jeugdopleiding

NMC Bright (n.d.). Deelnemers K&P Programma. Retrieved June 12th, 2024, from https://www.nmcbright.nl/kwaliteit-performance-programma/deelnemers-kwaliteit-en-performance-programma/

KNVB (2014). *Informatie Kwaliteit en Performance Programma voor Jeugdopleidingen*, Retrieved June 12th, 2024, from https://www.knvb.nl/downloads/bestand/28097/kp-brochure-2324

Voetbalacademie FCTwente/HeraclesAlmelo (n.d.), *Voetbalacademie FC Twente/Heracles Almelo*. Retrieved June 12th, 2024, from https://fctwenteheraclesacademie.nl/over-de-academie/historie/