A blended workforce does not automatically mean success

The effect of a blended workforce on team effort and team performance in professional sport

Understanding Society

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Abstract

This study examines the effect of nonstandard soccer players on team effort and team performance. The role and actions of permanent and temporary (nonstandard) employees are explored in depth multiple times. However, most previous studies looked at the consequences of standard and nonstandard employees on individual level. This report looks at the effects on team level. It is of strategic relevance that organizations know whether and under which conditions a blended workforce will positively influence team effort and the total team performance. In this thesis, various European soccer leagues were analyzed (e.g. the English Premier League, the Dutch Eredivisie, and the Spanish La Liga) over four seasons to trace the effect of the nonstandard soccer players on team effort, team cooperation, and team performance. Building on argumentations about employee precariousness and selfishness, this study reveals that nonstandard employees do predict differences in team effort and in team coordination.

Table of content

0. Important concepts

The following terms are frequently used in this thesis. In this chapter these terms are explained, as these are important for this specific research.

Terms	Explanation
Blended workforce	A workplace where employees can have both standard and nonstandard employment arrangements. The employees have the same job and are integrated into teams (Olsten corporation, 1997; Pearce, 1993; Smith, 2001).
Coordination	Coordination is the synchronization and integration of activities and responsibilities in order to work properly together as a team ("coordination", n.d.).
Effort	Effort is defined as the physical activity needed to achieve something ("effort", n.d.). In this research team effort is the sum of the produced physical activities that is needed to score a goal or to win (or lose) a match.
Nonstandard employment arrangements	Temporary contracts, and/or part-time labor contracts (Kalleberg, 2000; Kalleberg et al., 2000). Nonstandard employment arrangements refer in this research to soccer players who have lease contracts with other soccer teams.
Professional soccer	Soccer played for pay (professional football, n.d.).
Social Cognitive Theory	Theoretical perspective in which individual behavior is best understood in terms of his/her perceptions on the social environment (Conner & Norman, 2005)
Social Comparison Theory	Social comparison theory states that people define their own social and personal worth based on people they consider as their peers. People are constantly reflecting and evaluating across a variety of domains (for example, attractiveness, intelligence, and success) (psychologytoday, n.d.)
Standard employment arrangements	Standard employment arrangements are characterized by "work done on a fixed schedule – usually fulltime - at the employer's place of business, under the employer's control, and with the mutual expectation of continued employment" (Kalleberg et al., 2000).

	Standard employment arrangements refer in this research to soccer players who have a contract for approximately three years.
Team Performance	The performance of soccer teams is explained by the average amount of goals soccer teams score during a season.

1. Introduction

Chapter one describes the research problem, research question, its relevance towards the field, and the research context. Finally, this chapter explains what the differences are between standard and nonstandard players, and why this distinction is relevant for this study.

1.1 Research problem

The use of nonstandard employment arrangements, such as temporary contracts, and part-time contracts, are increasingly becoming common in today's organizations (Kalleberg, 2000; Kalleberg et al., 2000). Organizations provide these contracts to cope, for example, with environmental turbulence (Belous, 1989). Standard employment arrangements are characterized by "work done on a fixed schedule – usually fulltime - at the employer's place of business, under the employer's control, and with the mutual expectation of continued employment" (Kalleberg et al., 2000). Combining the two employment arrangements will result in a blended workforce where standard and nonstandard employees are integrated into teams and work side-by-side in similar jobs (Olsten corporation, 1997; Pearce, 1993; Smith, 2001). Researchers and practitioners argue that blended workforces are essential to effective human resource management (Lepak & Snell, 1999; Matusik & Hill, 1998; Olsten cooperation, 1997). Although nonstandard employees are typically in the minority in most work groups, the proportion of nonstandard individuals vary widely between organizations. Some organizations do not make use of nonstandard arrangements at all. Prior research examines how different employment arrangements affect individual employees. Davis- Blake et al. (2003) observed for example how a blended workforce affected exit, voice, and loyalty among standard

employees. They found that blended workforces aggravated relations between managers and employees. Furthermore, a blended workforce decreased standard employees' loyalty, increased standard employees' interest in leaving the organization, and increased exercising voice through unionization (Davis- Blake et al., 2003).

Researchers know relatively little about whether and how heterogeneity in employment arrangements affects members of workgroups and the workgroup as a whole. Hence, the aim of this research is exploring the relationship between a blended workforce, team effort, and team performance. I hypothesize that precariousness causes a positive relationship between nonstandard employees and team effort, what under certain circumstances possibly lead to higher team performance. Therefore the following research question is formulated.

1.2 Research question:

To what extent does the amount of individuals in standard and nonstandard employment arrangements within a workplace team affect the total team effort and to what extent does this influence team performance?

1.3 Relevance of the research

In previous studies researchers looked at the consequences of a blended workforce on individual level. Little is known about the outcome on team level. This research focuses on the dynamics between standard and nonstandard employees to understand what the consequences of a blended workforce are on group level instead of individual level. Organizations use nonstandard employment arrangements commonly in today's workforce and use it as a strategic tool. It is of strategic relevance that organizations understand whether and to what extent a blended workforce will positively influences team effort and the total team performance.

1.4 Research context

The organizational phenomenon explained above is studied in the field of professional soccer as professional sports offer an operative context to overcome the challenges people find when studying teams in organizational contexts. Examples of challenging aspects are; the information flow, the performance of organizations, and

the impact that environmental contingencies have on any phenomena in an organization (Swanson, 2005). Organizational issues, stress, leadership, high-performing teams, and team effectiveness are identified as five major areas that links business and sport (Jones, 2012). Furthermore, professional teams that play soccer can be compared to workplace teams in 'traditional' organizations with regards to the following features: (1) soccer teams consist of individuals who have to work together to attain a certain goal; (2) the team goal may be clearly defined but how to attain it, is to a large extent decided by the team members; and (3) the team will try to respond to changing conditions in the organizational environment (Koster, 2005). However, not all organizational teams are identical (Hollenbeck et al., 2012). Research on teams reveals an enormous variety of different types of teams. Thus, when comparing a professional soccer team with a workplace teams the question 'what kind of team is this?' needs to be answered. 'Ad hoc project teams' for example, can hardly be compared to 'long-term teams' (Holllenbeck et al., 2012). The latter better can be compared to professional soccer teams as they form a stable and partly permanent unit in an organization, and also because the distribution of their tasks and roles are clearly defined (Joshi & Roh, 2009).

1.5 Standard vs. nonstandard players

Individual soccer players who have a contract with a club, but do not have the possibility to play, are often leased to other clubs. In this research the so-called nonstandard employees. The new club usually pays a rental fee for the player and is paying a part of or the entire salary of the rented player. Some clubs put players at 'partner clubs' without asking a rental fee, such as Feyenoord often does with Excelsior. In some cases the new club enforces an option to buy the player in advance. Though, in most cases, a player returns to the old club after the rental period. Rental periods are in almost all cases a whole or half of a season. As permanent contracts are not common in this research field, standard employees are used as an equivalent for players who have a contract for approximately three years. Hence, the distinction between standard and nonstandard players is based on the period a team member plays at a certain club, and not on the specific type of contract.

The remainder of this research is structured as follows;
Section 2 discusses the theoretical considerations, hypotheses and conceptual model. Section 3 describes the methodological framework, including the used data reduction method. Thereafter, empirical analyses are conducted in section 4, and section 5 concludes and discusses the results on team performance and shows suggestions for future research.

2. Theoretical background and hypotheses

This chapter explains the theoretical mechanisms that are related to the four hypotheses that are tested. It includes direct effects, a meditating effect and a moderating effect. This part ends with the conceptual model.

Using a blended workforce may allow an organization to balance the demands placed on standard employees while also gaining access to skills and capabilities that nonstandard employees have (Lepak et al., 2003). As stated before, organizations increase their ability to cope with environmental turbulence (Belous, 1989; Bishop et al., 2002). In addition, using nonstandard employees can cause direct cost savings. Nonstandard employees can reduce an organization' recruitment and severance package expenses (Matusik & Hill, 1998). Nevertheless, while a blended workforce enhances the organizations' overall flexibility, it is essential to constantly be aware of how standard employees respond to the use of a blended workforce (Connelly & Gallagher, 2004). The hypotheses stated below can be organized under the heading of employee precariousness, selfishness, social comparison theory, and team collaboration.

2.1 Precariousness and effort

As the incentive effect of nonstandard contracts has not been investigated much before, this part of the theoretical framework is based on the findings of empirical literature on the role of employee precariousness. The approach of 'job satisfaction economics' emphasizes the importance of job security among the working conditions weighing overall job satisfaction (Freeman, 2006). The existence of a blended workforce may change job satisfaction and, as a consequence, may alter the effort of nonstandard employees who experience precariousness. Rodgers (1989) showed

that precariousness is measured through four dimensions: (1) security (continuity of employment – in this light, short/fixed time work is considered precarious); (2) working conditions (such as income and working time); (3) protection (such as protection against discrimination and unfair dismissal, but also in the sense of social protection connected to social security benefits); and (4) economic vulnerability due to low income jobs. Because of the uncertainties of a temporary employment arrangement, nonstandard contracts are less attractive than standard employment arrangements. Researches on precarious employment suggest that nonstandard employees show higher effort to transforming nonstandard employment contracts into standard (permanent) employment contracts (OECD, 2002). As long nonstandard arrangements stay less attractive than standard ones, nonstandard workers have an incentive to provide a higher level of effort. Additionally, organizations tend to use nonstandard contracts to screen potential permanent employees. Booth et al. (2002) stated that nonstandard employees' effort depends on the probability of career advancement, measured by the probability of moving into a permanent contract. If nonstandard employees want to obtain a standard contract they need to pass the screening of the organization. Empirical studies find strong increases in absenteeism among employees when probation period's end and employment protection (e.g. legislations in dismissing employees) sets in (Ichino and Riphahn, 2001; Riphahn and Thalmaier, 2001). Employers without employment protection provide significantly higher levels of effort compared to workers in secure permanent contracts (Jimeno and Cortes, 1996).

In soccer, professional soccer players do want to have the possibility to play and advance their careers. When they do not have the possibility to play, continuity of employment becomes precarious and developing their skills becomes less easy. When soccer players are leased to others clubs, their employment arrangement becomes nonstandard. To continue their standard contract with their old club or to pass the screening of the new club, leased players might provide a higher level of effort compared to players in secure permanent arrangements.

2.1.1 Social Comparison Theory and Social Cognitive Theory

The arrival of nonstandard workers will influence the behavior of standard employees. According to the Social Comparison Theory individuals tend to compare themselves and their abilities with individuals who are close to oneself (Festinger, 1954). So,

comparison is most likely to occur when team members are similar to each other. Nonstandard players will compare themselves with standard players, as they believe they have the same credentials. This comparison will conceivably result in a change of behavior.

Use of nonstandard employment arrangements can be seen as beneficial, when for example nonstandard workers are hired during peak times and subsequently released when demand slows down. On the other hand, standard employees may also attribute the use of nonstandard employees to management intentions to change internal structures (Davis-Blake & Uzzi, 1993). Organizations may hire nonstandard employees as a way to identify qualified candidates for future standard employment arrangements (Bauer & Truxillo, 2000). This makes nonstandard employees potential rivals for standard employees, and standard employees will view nonstandard employees as a threat to their own jobs. When nonstandard players show a higher level of effort, the possibility to play decreases for standard players. The possibility of job replacement by a nonstandard employee exacerbates the apprehensiveness of standard employees (Chen & Brudney, 2009). In other words, the continuity of their (permanent) contract becomes in danger, and the standard employees will experience precariousness as well (Booth et al., 2002). Because of this, it is likely that standard employees also provide a higher level of effort. Therefore, teams with a higher amount of nonstandard employees will provide a higher level of team effort. The situation of the standard employees will become even more uncertain when more people with nonstandard employments enter the team. Therefore, I hypothesize that the amount of nonstandard players has a positive effect on team effort.

H1a: The amount of nonstandard employees positively affects team effort.

H1b: The level of team effort mediates the effect of nonstandard players on team performance.

2.2 Nonstandard employees and level of coordination

In line with the argumentation about precariousness and the amount of effort, the provided amount of effort could be seen as a result of selfishness and uncertainty. Empirical evidence shows that workers' preferences are heterogeneous and that a significant portion of employees reveal purely selfish behavior (Frey and Meier, 2004;

Gächter, 2007). However, soccer teams consist of individuals who have to work together to attain a certain goal (Koster, 2005), and have skills that are all needed for a positive outcome. Coordination, the synchronization and integration of activities and responsibilities in order to work properly together as a team, is therefore an essential element for team performance ("coordination", 2010). When employees act out of precariousness, they show higher level of individual effort and less cooperative effort. While cooperative effort is needed for high levels of coordination (Kosfield and von Siemens, 2011). Consequently, nonstandard players will negatively influence the level of coordination as they provide higher levels of individual effort.

H2: The amount of nonstandard employees negatively influences the level of coordination.

2.3 Team effort and team performance

In the first section of this chapter, I hypothesized that nonstandard employees have a positive effect on team effort. One could expect that when a team shows a higher level of effort, it is more likely that the performance of the team increases. However, this does not automatically guarantee that teams composed of individuals with nonstandard employment arrangements will perform better than teams without individuals who have nonstandard employment arrangements. The effect of team effort and team performance can be nullified by lack of coordination (Schneider, Smith, and Sipe 2000). When individuals show a high level of individual effort but show no cooperative effort, the level of performance will not be as high as when the team works together to reach the goal. Hence, I expect that the level of coordination will moderate the relationship between team effort and team performance.

H3: The positive effect of team effort on team performance is positively moderated by team coordination, in a way that lower levels of coordination decrease the positive impact of team effort on team performance and higher levels of coordination increase the positive impact of team effort on team performance.

The skills of a player are in this study not seen as an important aspect that influences team performance. The hiring club wants to add someone who will be valuable for their team, and whom has the right set of skills. They will not hire a player who does

not function. Additionally, the renting club wants to stimulate the learning process of the rented player. Thirdly, the rented player does not want to play below his level, so normally he will end up in a team that meets his level of skills and performance. This is why the skills of the players are not taken into account in this study.

2.4 Conceptual model

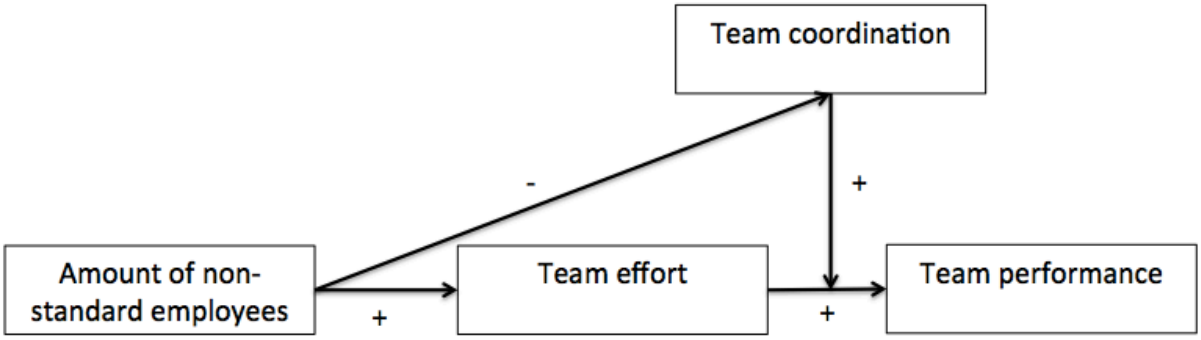

Figure 1: Conceptual model

3. Methodological framework

In this section, the methodological framework will be explained. This part pays attention to the design of this research, the way the data is collected and the sample strategy. Finally, the last part presents the measurements of the variables, including the results of the factor analyses.

3.1 Research Design

This deductive quantitative research is, as explained in the introduction, conducted in the context of professional soccer. Sports offer an interesting and relevant context for organizational studies, since organizational contexts deal with organizational boundaries, environmental contingencies and difficulties with measuring performance. On the other hand, the goals, structures and environment can be quite similar to professional sport organizations (Jones, 2002; Day, Gordon, and Fink, 2012).

The main aim was to test the hypotheses that were derived from the literature regarding the research topic. The units of analysis were soccer teams that play soccer as a profession. Professional teams that play soccer are comparable to teams

within organizations (Koster, 2005). However, the amount of effort and performance are more objectively observable within soccer teams. It is very clear who is the winner and who is the loser (Goff & Tollison, 1990; Weinberg & McDermott, 2002). Additionally, data of individual and team performance are meticulously kept (Day, Gordon, and Fink, 2012).

3.2 Data collection & sample strategy

Already available records were collected, because a lot of data of professional soccer teams are accurately kept. The website www.squawka.com was used to collect a lot of useful data. The website shows statistics on team level and on player level and covers different European leagues including (e.g.) the English Premier League, Ligue 1, La Liga and Bundesliga. To see whether a player has a nonstandard or standard contract the website www.transfermarkt.nl was used. This website collects records of the same European leagues.

The data set was gathered via subjective sampling. Data from season 2012/2013, 2013/2014, 2014/2015 and 2015/2016 were used to create an extensive dataset. Squawka.com did not provide parallel data for all European Leagues. For example, some leagues only showed results from the last three seasons as others showed a longer performance history. Therefore, only leagues that showed similar data were included in the dataset. After the European leagues were chosen, the individual leagues were investigated in depth. Soccer teams that were promoted or degraded were excluded from the dataset, as their levels of performance are incomparable with the teams within that specific league/division. Eventually, empirical analyses were conducted including six European leagues (consisting of approximately sixteen teams each), namely; Dutch Eredivisie, European Premier League, French Ligue 1, German Bundesliga, Italian Serie A, and Spanish La Liga.

3.3 Measurements of the variables

3.3.1. Dependent variable - Performance

Team performance was measured by the amount of goals scored by a team during a season (Squawka., n.d.). The scores of the clubs were compared with their own historical mean. This choice was made because clubs can differ considerably. A

common difference for example, is the budget of a club. Subtracting the season's score from the average performance scores over the last five or six years created a new variable, named performance. This variable was used in the analyses. By comparing the performance scores with a historical mean, the amount of games won (or lost) became correlated to the amount of goals a club makes during a season.

3.3.2. Independent variable – Amount of nonstandard players

The degree of nonstandard players was measured by looking at the composition of a team. The type of contract divided teams into two groups. The first group consisted of nonstandard players who had a lease contract with a certain club although the actual contract was with another club. The second group consisted of standard players who were bought by a club and were included in the selection of that specific club (Transfermarkt, n.d.). After each season the composition of a team changes, some teams are being promoted and others are being relegated. Teams that were promoted and relegated were not included in the data set as the performance levels of the different competitions differ too much.

3.3.3 Mediating and moderating variable – Effort and coordination

Since effort and coordination cannot easily be measured directly (so-called latent variables), multiple measurements were used to measure the mediating and moderating variables. The statistics, shot accuracy, pass accuracy, defense actions, defense errors, key passes, average assists, successful passes, and total change created, all found on the webpage Squawka.com, were used to construct the mediating and moderating variables. The exact definitions of these statistics can be found in the Framework of operationalization (see appendix 1).

Factor analysis was executed to test whether the above statistics measure the same concept and to test whether the used data can be summarized using a smaller set of components. Because all statistics had a dissimilar range, the collected statistics were standardized before factor analysis was performed. All items were subjected to principal components analysis (PCA) using SPSS version 24. Prior to performing PCA, the suitability of data for factor analysis was assessed. When including the item average assists into the analysis, the principal components analysis did not show any results on the Kaiser- Meyer- Olkin (KMO) and Barlett's test. Although all included data was standardized, this item showed smaller numbers compared to all other

items. When removing this item from the data set, the analysis did show results on the KMO and Barlett's test. To continue the factor analysis, item average assists was retained from the data set. Without this item the KMO measure of sampling adequacy exceeded the recommended value of .6 as it was .733 (Kaiser 1970, 1974). The Barlett's Test of Sphericity (Bartlett, 1954) reached statistical significance (p= .000). This supports the factorability of the correlation matrix (see table 1).

KMO and Barlett's Test

Kaiser – Meyer-Olkin Measure of Sampling Adequacy		,733
Barlett's Test of Sphericity	Approx. Chi- Square	2119,903
	Df	21
	Sig.	,000

Table 1: PCA KMO and Barlett's test

The principal analysis revealed the presence of two components with eigenvalues exceeding 1, explaining 51,6 percent, and 18,3 percent of the variance respectively (see appendix 2, table 1). An inspection of the scree plot revealed a clear break after the first component (see appendix 2, figure 1). However, five items loaded on the first component and two items load on the second component. Based on these results, it was decided to retain a two-component solution for further investigation. The correlation matrix showed that pass accuracy did not correlate with any other item, and the component matrix showed that that this item did not load on any of the two components (see appendix 2, table 2 & 3). Therefore, item pass accuracy was retained from this factor analysis. This resulted in only a small difference in the KMO and Barlett's test (see table 2). Without pass accuracy the two-component solution explained a total of 81,3 percent of the variance, with component 1 contributing 60,1 percent and component 2 contributing 21,2 percent (see table 3).

Component 1 consists of the items: total changes created, shot accuracy, key passes and successful passes. This component is in this study interpreted as offensive (team) actions, and are seen as actions that cannot successfully be executed without teammates. As coordination is the synchronization and integration of activities and responsibilities in order to work properly together as a team ("coordination", 2010), component 1 is seen as the coordination of the team. Component 2 consists of the items: defensive errors and defensive actions (see table 4). The second component can be interpreted as defensive (individual) actions, and

are actions that can individually be executed. Both physical activities are needed to prevent the other team from scoring a goal. In this study, component 2 is seen as the (defensive) effort a player shows. All the effort together is seen as the total amount of team effort. SPSS was used to calculate the factors scores, the new variables were named ‘coordi’ and ‘effort’.

KMO and Barlett’s Test

Kaiser – Meyer-Olkin Measure of Sampling Adequacy		,732
Barlett’s Test of Sphericity	Approx. Chi- Square	2118,284
	Df	15
	Sig.	,000

Table 2: PCA KMO and Barlett’s test

Total Variance Explained

		Initial Eigenvalues		Extracted sums of squared loadings		
Component	**Total**	**% of variance**	**Cumulative %**	**Total**	**% of variance**	**Cumulative %**
1	3,605	60,085	60,085	3,605	60,085	60,085
2	1,271	21,181	81,266	1,271	21,181	81,266
3	,619	10,322	91,588			
4	,362	6,031	97,619			
5	,127	2,120	99,739			
6	0,16	,261	100,00			

Table 3: Total Variance Explained

Component Matrix

	Component	
	1	2
Zscore (Total_changes_created	,967	
Zscore (Shot_accurcy)	,947	
Zscore (Key_passes)	,934	
Zscore (Succesful_passing)	,827	
Zscore (Defensive_errors)		,849
Zsore (Defensive_actions)	-,428	,727

Table 4: PCA Component Matrix

3.3.4. Control variables – New players & average age of team.

New Players with standard contract – besides hired players, new players with a standard contract could also enter the team at the beginning of the season. These players could possibly also change team effort and team coordination. This study looked at the differences between nonstandard and standard players and not at the amount of new players. Therefore, the variable new players with a standard contract should be controlled for.

Average age of the team - it might have been case that players who are at the end of their career showed a lower level of effort because they experienced less uncertainty and were less motivated to develop their set of skills. This could also be relevant for workplace teams, when employees are close to their retirement. Hence, this variable should also be controlled for.

3.4 Methodology - Data analysis

In order to see whether a specific variable predicts team performance and to criticize the hypotheses, the data analyses were conducted in the software program SPSS Version 24. After factor analyses were used to summarize the data in a smaller set of components, linear regression analyses were used to tell how well the set of variables are able to predict the dependent variable team performance. This method was also used to statistically control for the amount of new standard players and the average age of a team. Process macro was used to measure the effect of the mediation and moderation variables (Hays, 2013).

3.5 Research quality indicators

The construct validity in this research can suffer because the measurements of the different variables can vary in other researches. For example, team effort was measured by two different statistics. It could be the case that the new generated factor score was not entirely measuring team effort. The external validity might also suffer because data was collected within one industry. By including control variables, the internal validity could be better guaranteed.

Websites that collect statistical data about soccer teams use different definitions for their metrics. To collect reliable quantitative data, records of only one website were gathered. When different websites were used, the definitions of the metrics were

checked before including records in the dataset. The reliability of the study could partly be ensured because other researchers, doing the same research, can use the same available data.

4. Results

Chapter four discusses the results of this research, and shows the relevant output of the analyses. Supporting output is included in appendix 3.

Descriptive statistics describe the characteristics of the sample, and are shown in table 5. These statistics show 346 cases, and show that the average age of the team is 24,8 years old, with a minimum average age of 21,1 and with a maximum of 30,60. An average team consists of 33 players, with 30 standard players (min 15, max 59), and 3 nonstandard players (min 0 and max 12). On average a team scores 54 goals (st.dev= 16,55, and Md= 49 (IQR: 43, 62)) during a season.

Descriptive Statistics

	Minimum	Maximum	Mean
Performance	-25,80	35,50	-,0010
Goals	25	118	53,91
Standard players	15	59	30,19
Nonstandard players	0	12	2,46
Squad	22	69	32,65
Coordination	-2,34818	2,93874	,0000
Effort	-2,43820	4,15670	,0000
New players in team	0	28	6,9711
Average age	21,10	30,60	24,8014

Table 5: Descriptive Statistics

The relationship between nonstandard players and team effort was investigated using Pearson product-moment correlation coefficient. The analysis shows no significant correlation between the two variables. The independent variable (nonstandard players) correlates significantly with the moderator variable ‘coordination’, r = -,204, n = 346, p <,001. There is a medium positive correlation between ‘coordination’ and the dependent variable ‘performance’, r =,306, n = 346, p

<,001. Table 5 also shows that there exists a negative correlation between coordination and the amount of new players, r = -,189, n = 346, p <,001. No significant correlation was found between the independent variable, amount of nonstandard players, and the mediating variable, team effort. This is also the case for the mediating variable and the outcome variable. This result should be kept in mind when testing hypothesis 1.

Correlations						
Variable	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**
1.Non standard	-					
2.Coordination	-,204**	-				
3. Effort	,103	-,057	-			
4. Average age	,156**	-,047	,013	-		
5. New players	,019	-,189**	-,083	-,217**	-	
6. Performance	,020	,306**	,042	-,032	-,102	-

Table 5: Correlations **p <.001 (2-tailed)

Table 6 shows the results of the regression analysis. A linear regression analysis was conducted to see if nonstandard players influence team effort and if the same independent variable affects the level of coordination. To test the mediation and moderation effect of team effort and team coordination, the process macro of Hays (2013) was used. Model 1 is the baseline model, where only the control variables are present. The independent variable, amount of nonstandard players is introduced in the second model. Both control variables are insignificant in the first two models. To test if nonstandard players affect the level of effort, a simple linear regression was performed (see model 2). The model shows an insignificant equation (F (3, 342) = 2.133, p = ,096, R^2 = ,018). However, when the predicting variable was included in model 2, the R square doubled compared to model 1. This change is significant (sig F. Change = ,047). Furthermore, the output shows that the amount of nonstandard players has a positive significant effect on team effort (b= ,045, t(342) =1,997, p = ,047). Although the effect of the amount of nonstandard players on team effort is small, hypothesis 1a can be supported.

To test whether team effort changes the relationship between the predicting variable and the outcome variable, model 4 of Andrew F. Hays was used (see figure 2). The first step, path A (x variable predicts m variable), was already tested for hypothesis

1a. Subsequently, the direct relationship between the amount of nonstandard players and team performance (path c) was investigated. No significant results were found for this model (F (3, 342) = 1,669, p = ,173, R^2 = ,014). The direct effect between the amount of nonstandard players and team performance did also not give a significant result (b= ,109 t(342) =,589, p = ,557). Thirdly, path b, the effect of team effort on team performance was investigated. This path did not resulted in a significant relationship (b= ,294, t(341) = , 564, p = ,573). Path a and b look if the amount nonstandard players and team effort together predict team performance. The evaluated model was not significant, F (4,341) = 1,3, p = ,259, R2 = ,015. However, the first time path c – the direct effect between amount of nonstandard players and team performance - showed a coefficient of ,106 (b= ,106, t(342) =,589 p= >,01). Subsequently, path c' showed a coefficient of ,097 (b= ,097, t(342) = ,524, p= >,01). Meaning that the effect of the amount of nonstandard players on team performance is lessened by the mediating variable, team effort. Still, this change is not significant. Hence, the amount of nonstandard players and the level of team effort cannot explain a significant percentage of the variance of change in performance. Concluding, hypothesis 1b cannot be supported. The complete output of model 4 can be found in appendix 4. This output also shows the Sobel test. However, the test is not taking into account, as all the other outcomes were insignificant.

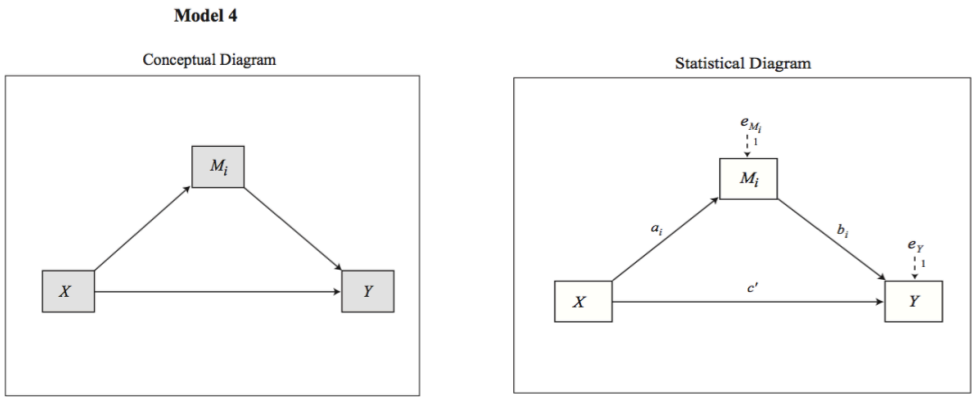

Figure 2: Andrew F. Hays model 4.

To test the negative relationship of the amount of nonstandard players on the level of coordination (h2), again linear terms were used in the regression analysis. Model 3 shows that a significant regression equation is found (F(3, 342) = 9.849, p < ,000), with an R^2 ,080. Including team coordination into the model significantly doubled the

R square (R^2 = ,080, Sig F Change =,000).The model also shows that the control variable, new standard players (c2), becomes significant when testing the effect of nonstandard players on team coordination. This was not the case in model 1 and 2. A closer look at the variables shows that the amount of nonstandard players has a significant negative effect on coordination (b= -,079, t(342) =-3,636 p= <,001). Hypothesis 2 can be supported.

Hypothesis 3 suggests that the positive effect of team effort on team performance is positively moderated by team coordination in way that lower levels of coordination decrease the positive impact of team effort on team performance and vice versa. To test this hypothesis, model 14 of Andrew F. Hays was used (see figure 3).

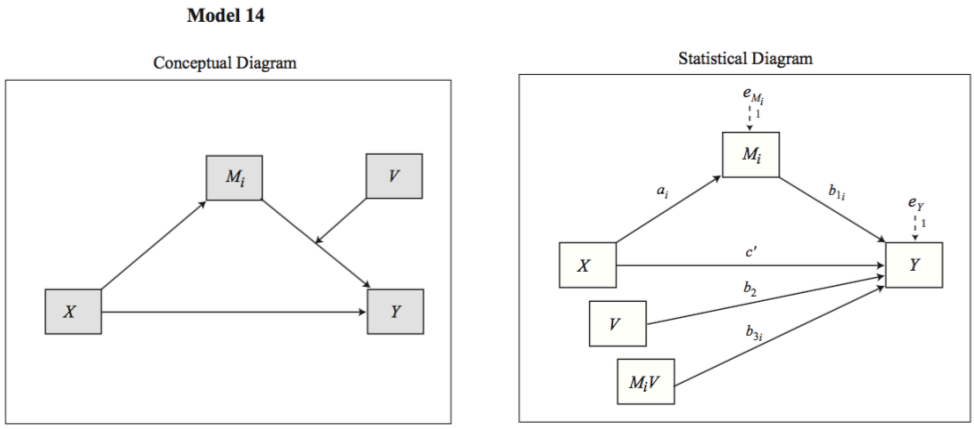

Figure 3: Andrew F. Hays model 14

The model is significant (R^2 = ,107, p<,001), 10,71 percent of the variance in team performance can be explained by the amount of effort and the interaction between effort and coordination. The coefficients show that the direct effect of coordination on team performance is significant (B= 2,602, p<,001), but the interaction effect is not significant (B= ,218, p = ,574). Though, the interaction effect is positive, saying that higher levels of coordination increase the positive effect of team effort on team performance. On the other hand, lower levels of coordination decrease the positive effect of team effort on team performance. As there is no significant interaction effect found, hypothesis 3 cannot be confirmed.

Regression analysis				
	Coeff.	SE	t	p
Model 1 (base model) **R2 = ,007, MSE =.999, p = ,304**				
Intercept (effort)	,292	,903	,324	,746
Average age (c1)	-,004	,035	-,101	,919
New players (c2)	-,029	,019	-1,528	,127
Model 2 **R2 = ,018, MSE = ,990, p = ,096**				
Intercept (effort)	,482	,904	,533	,595
Average age (c1)	-,015	,035	-,428	,669
New players (c2)	-,031	,019	-1,641	,102
Non standard players (X)	,045	,023	1,977	,047
Model 3 **R2 = ,080, MSE = ,929 p = ,000**				
Intercept (coordination)	1,623	,875	1,854	,065
Average age (c1)	-,038	,034	-1,120	,264
New players (c2)	-,069	,019	-3,733	,000
Non standard players (X)	-,079	,022	-3,636	,000
Model 4 (mediation –model 4)) **R2 = ,0153, MSE = 66,1539 p = ,2588**				
Intercept (performance)	9,880	7,392	1,337	,182
Average age (c1)	-,318	,287	-1,107	,269
New players (c2)	-,321	,157	-2,041	,042
Non standard players (X)	,097	,186	,524	,600
Effort (M)	,249	,442	,564	,573
Model 5(mediation (m) + moderator (v) model 14) **R2 = ,107, MSE = 60,332 p = ,000**				
Intercept (performance)	5,247	7,131	,736	,462
Average age (c1)	-,202	,276	-,731	,465
New players (c2)	-,138	,153	-,902	,368
Non standard players (X)	,299	,181	1,656	,099
Effort (M)	,306	,447	,685	,494
Coordination (V)	2,602	,441	5,902	,000
Int_1 (M * V)	,218	,387	,563	,574

Table 6: results of regression analysis **p <.001 (2-tailed)

5. Discussion and Conclusion

Given the proliferation of organizations using blended workforces (Kalleberg, 2000; Kalleberg et al., 2000), the importance of understanding the effects of nonstandard employment arrangements on team effort, team coordination and team performance should not be understated. This study sought to test how the proportion of individuals in standard and nonstandard employment arrangements affects team effort and to what extent this influences team performance. In previous studies researchers looked at the consequences of a blended workforce on individual level. This study looked at the outcomes on team level, as the incentive effect of nonstandard employees on team level has not been investigated much before. The study was conducted in the field of professional soccer, as professional sports can be a very interesting and relevant context for organizational studies (Day, Gordon, and Fink, 2012; Goff & Tollison, 1990; Jones, 2002; Weinberg & McDermott, 2002).

The main aim of this study was to enhance the understanding of how teams cope with blended workforces, since the existence of a blended workforce changes job satisfaction, and as a consequence, alter the effort of nonstandard employees who experience precariousness. Studies on precarious employment suggest that nonstandard employees show higher effort to transforming nonstandard employment contracts into standard (permanent) employment contracts (OECD, 2002; Booth et al., 2002). Building on argumentations about employee precariousness and selfishness, this study showed, in line with the expectations, a positive significant relationship between the amount of nonstandard players and team effort (h1a). This corroborates with previous findings. A closer look showed that team effort indeed changed the relationship between the amount of nonstandard employees and team performance (h1b). Although the latter finding was not significant, it shows that adding the mediating variable lessens the direct relationship between the predicting and outcome variable. In line with the same argumentation about precariousness and the amount of effort, analyses showed that the amount of nonstandard players negatively influences the level of team coordination. When employees act out of precariousness, they show higher level of individual effort and less cooperative effort. While cooperative effort is exactly needed for high levels of coordination (Kosfield and von Siemens, 2011). Corresponding to these argumentations, hypothesis 2 is

supported. Important to mention is the level of significance of the control variables. In model 1 and 2, both controls variables were not significant. Interestingly, the second control variable, amount of new players with a standard contract, became significant in the third model, meaning that it does influence the level of team coordination. It is likely that new players in general, with or without a nonstandard contract, need to get used to the way a team plays. This could possible influences team coordination in a negative way. Although this does not build on the argumentation about individual and cooperative effort, it might be interesting for future research.

At the same time, the level of coordination did not show a significant moderating effect on the relationship between team effort and team performance. Meaning that this study cannot confirm that the positive effect of team effort on team performance is positively moderated by team coordination in a way that lower levels of coordination decrease the positive impact of team effort on team performance and higher levels of coordination increase the positive impact of team effort on team performance (h3). The current study only shows that team coordination is negatively affected by the amount of nonstandard players, and that team coordination positively affects team performance. So, the more nonstandard players, the less coordination a team demonstrates. On the other hand, the more coordination a team shows, the higher the performance of a team. Future research can investigate if coordination nullifies other aspects that influences team performance. While the findings on this research are specific to the context of soccer, future research should take place in order to check if the argumentations and methods used can find broader applicability to other, non-sport, workplaces and organizational contexts.

As mentioned above, this study shows that nonstandard players do have a significant effect on team effort and team coordination. The findings implicate that employees with a nonstandard employment agreement do influence the team. However, it is important to realize that not all workplace teams are identical, and not all workplace teams, e.g. ah hoc project teams, react on precariousness. (Hollenbeck et al., 2012; Joshi & Roh, 2009). Although, nonstandard employment arrangements are becoming common in today's organizations, hiring managers should be aware of the results, as it is of strategic relevance that organizations understand whether and to what extent a blended workforce will positively influence team effort and negatively affects team coordination. Furthermore, the effects on individual level should also be kept in mind.

Davis- Blake et al. (2003) found for example, that a blended workforce decreases standard employees' loyalty, increases standard employees' interest in leaving the organization, and increases exercising voice through unionization.

Finally, a number of limitations, which restraining the generalizability of the findings, should be acknowledged. Although this study argues that professional sport is an interesting and relevant context for organizational studies, the generalizability of this study is still limited. While sport teams and workplace teams show multiple similarities, fundamental differences still remain between the two fields. For example, and as mentioned earlier, a sports team and a workplace team are not always identical (Holllenbeck et al., 2012; Joshi & Roh, 2009). Another reason is that not all organizational theories are applicable to professional sport teams. The principal agent theory for example suggests that shirking is likely to occur within business organizations (Waterman & Meier, 1998). It is hard to constantly control and monitor workplace teams, what makes it difficult to identify shirking. A professional soccer player, on the other hand, is being observed by the training staff, his team members, and by the media and supporters. Hence, the opportunity to shirk is not likely to occur. This organizational theory should be kept in mind when looking at the results of team effort, as it lessened the generalizability towards workplace teams.
Secondly, despite the effort to select the correct statistics to measure the variable team effort, this latent variable did not measure team effort directly, what raise questions regarding the construct validity. Because of data availability, the created factor score provided a limited reproduction of effort. This study only looked at defensive effort, while offensive effort was not included in the study. Future research might look at different and more effective ways to measure team effort. One could also argue if the construct validity of the moderating variable, team coordination is sufficient. At last, hypothesis 3 could not be tested perfectly as the templates used by Andrew F. Hays did not provide the whole conceptual model as showed in paragraph 2.4.

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Appendix 1: Framework of operationalization

Concept	Definition	Indicator	Calculation
Amount of nonstandard employees	The amount of players who have a nonstandard employment arrangement, player who have a lease contract.	Statistics provide information about a player' club history and their contract.	At the beginning of the season I counted how many players were rented and how many players had a standard contract. Transfermarkt.nl provides this information.
Team effort	Effort is defined as the physical activity needed to achieve something ("effort", n.d.). It is the sum of the produced physical activities that is needed to score a goal or to win or lose a match.	Statistics provide information about the amount of defensive actions and defensive errors. Defensive actions are defined as defensive action when a player cuts out an opposition pass (interception), but also when is shot is blocked, and when a player clears a ball from defensive zone when he is under pressure (clearance).	Factor analysis was used to calculate a factor score for the second component, team effort.
Team coordination	Coordination is the synchronization and integration of activities and responsibilities in order to work properly together as a team ("coordination", 2010).	Statistics provide information about the amount of total changed created, shot accuracy, amount of key passes, and the amount of successful passes.	Factor analysis was used to calculate a factor score for the first component, team coordination.
Chances created	Pass that leads to a shot on goal	Statistics provide information about the amount of total changed created	Chances created = assists + key passes
Shot accuracy	All shots excluding blocked shots	Statistics provide information about the amount of shots.	Shot accuracy = shots on target / all shots.
Key passes	A pass that leads to a shot on goal that is	Statistics provide information about the	Sum of passes that leads to a shot on

	not converted	amount of passes.	goal.
Assists	A pass that leads directly to a goal	Statistics provide information about the amount of assists.	Sum of passes that leads directly to a goal.
Team performance	The average amount of goals a team scores.	Statistics provide information about the amount of assists.	Performance = Sum of goals during a season / average amount of goals during 5/6 seasons Outcome can be positive or negative what indicates that a team preforms better of worse.
New standard players	Players who enter a squad with a standard contract – players who are bought by the club	Statistics provide information about a player' club history and their contract.	At the beginning of the season I counted how many players were bought and had a standard contract. Transfermarkt.nl provides this information.
Average age of the team	The average age of a team during a season	Statistics provide information about the team mean age during a season.	Transfermarkt.nl provides information about the average age.

Appendix 2: SPSS output Factor Analyses

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3,614	51,622	51,622	3,614	51,622	51,622	3,613
2	1,282	18,313	69,936	1,282	18,313	69,936	1,298
3	,982	14,022	83,958				
4	,619	8,841	92,798				
5	,361	5,162	97,961				
6	,127	1,815	99,776				
7	,016	,224	100,000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 1: Factor analysis - Total Variance explained

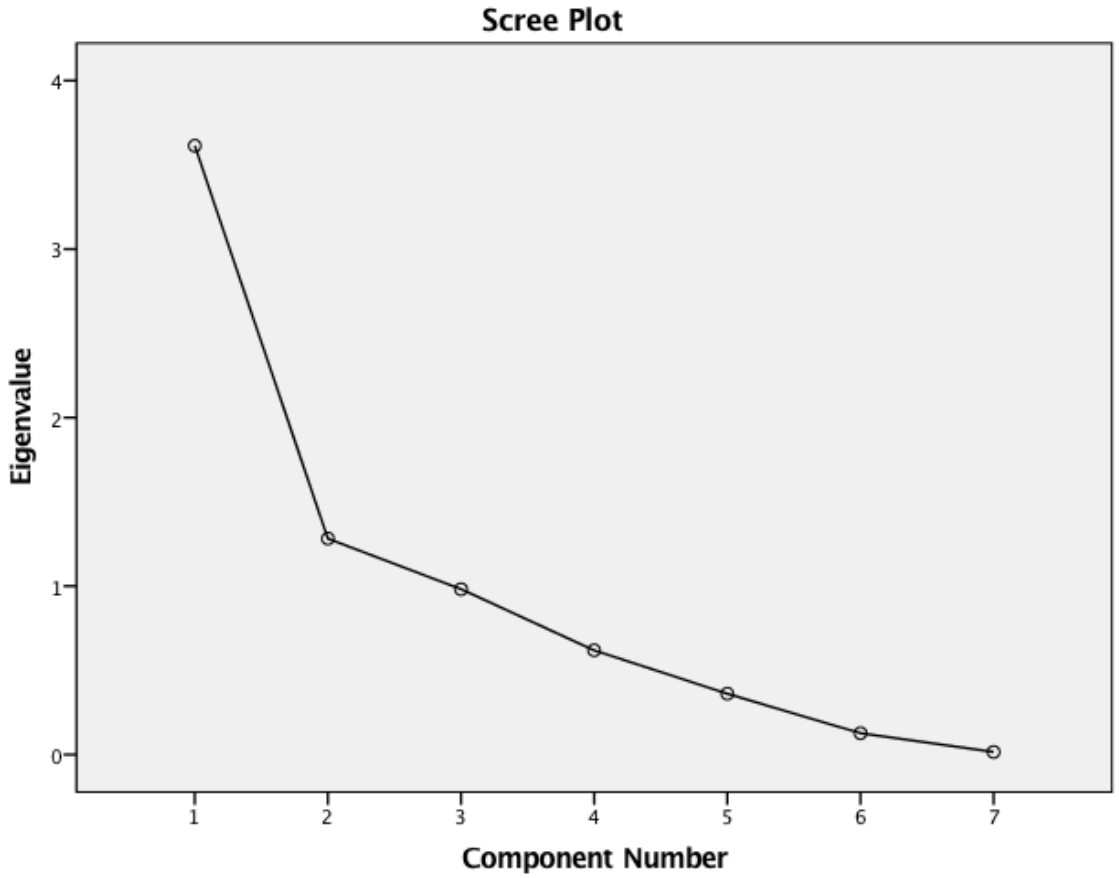

Figure 1: Factor Analysis - Scree plot

Correlation Matrix

		Zscore (Shot_accuracy)	Zscore (Pass_accuracy)	Zscore (Succesfull_passing)	Zscore (Total_changes_created)	Zscore (Key_passes)	Zscore (Defensive_errors)	Zscore (Defensive_actions)
Correlation	Zscore(Shot_accuracy)	1,000	,078	,710	,920	,863	,128	-,378
	Zscore(Pass_accuracy)	,078	1,000	,082	,070	,067	,061	,002
	Zscore (Succesfull_passing)	,710	,082	1,000	,706	,651	,178	-,372
	Zscore (Total_changes_created)	,920	,070	,706	1,000	,974	,162	-,292
	Zscore(Key_passes)	,863	,067	,651	,974	1,000	,187	-,232
	Zscore (Defensive_errors)	,128	,061	,178	,162	,187	1,000	,276
	Zscore (Defensive_actions)	-,378	,002	-,372	-,292	-,232	,276	1,000

Table 2: Factor Analysis – Correlation Matrix

Component Matrix[a]

	Component 1	Component 2
Zscore (Total_changes_created)	,966	
Zscore(Shot_accuracy)	,947	
Zscore(Key_passes)	,933	
Zscore (Succesfull_passing)	,827	
Zscore (Defensive_errors)		,837
Zscore (Defensive_actions)	-,426	,719
Zscore(Pass_accuracy)		

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Table 3: Factor Analysis – Component Matrix

Appendix 3: SPSS output Regression analyses

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	C1_Ave, C2_new[b]	.	Enter
2	Non_stan[b]	.	Enter

a. Dependent Variable: Effort

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,083[a]	,007	,001	,99943558	,007	1,195	2	343	,304
2	,136[b]	,018	,010	,99510837	,011	3,990	1	342	,047

a. Predictors: (Constant), C1_Ave, C2_new

b. Predictors: (Constant), C1_Ave, C2_new, Non_stan

c. Dependent Variable: Effort

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,387	2	1,194	1,195	,304[b]
	Residual	342,613	343	,999		
	Total	345,000	345			
2	Regression	6,338	3	2,113	2,133	,096[c]
	Residual	338,662	342	,990		
	Total	345,000	345			

a. Dependent Variable: Effort

b. Predictors: (Constant), C1_Ave, C2_new

c. Predictors: (Constant), C1_Ave, C2_new, Non_stan

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	,292	,903		,324	,746	-1,484	2,068			
	C2_new	-,029	,019	-,084	-1,528	,127	-,067	,008	-,083	-,082	-,082
	C1_Ave	-,004	,035	-,006	-,101	,919	-,072	,065	,013	-,005	-,005
2	(Constant)	,482	,904		,533	,595	-1,297	2,260			
	C2_new	-,031	,019	-,090	-1,641	,102	-,069	,006	-,083	-,088	-,088
	C1_Ave	-,015	,035	-,024	-,428	,669	-,084	,054	,013	-,023	-,023
	Non_stan	,045	,023	,109	1,997	,047	,001	,089	,103	,107	,107

a. Dependent Variable: Effort

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Non_stan	,109[b]	1,997	,047	,107	,973

a. Dependent Variable: Effort

b. Predictors in the Model: (Constant), C1_Ave, C2_new

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	C1_Ave, C2_new[b]	.	Enter
2	Effort[b]	.	Enter

a. Dependent Variable: Perform

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	,116[a]	,013	,008	8,11765	,013	2,335	2	343	,098
2	,121[b]	,015	,006	8,12488	,001	,391	1	342	,532

a. Predictors: (Constant), C1_Ave, C2_new

b. Predictors: (Constant), C1_Ave, C2_new, Effort

c. Dependent Variable: Perform

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	307,690	2	153,845	2,335	,098[b]
	Residual	22602,433	343	65,896		
	Total	22910,123	345			
2	Regression	333,472	3	111,157	1,684	,170[c]
	Residual	22576,650	342	66,014		
	Total	22910,123	345			

a. Dependent Variable: Perform

b. Predictors: (Constant), C1_Ave, C2_new

c. Predictors: (Constant), C1_Ave, C2_new, Effort

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	9,545	7,334		1,301	,194	-4,881	23,971			
	C2_new	-,324	,156	-,114	-2,075	,039	-,631	-,017	-,102	-,111	-,111
	C1_Ave	-,294	,283	-,057	-1,040	,299	-,850	,262	-,032	-,056	-,056
2	(Constant)	9,465	7,342		1,289	,198	-4,976	23,906			
	C2_new	-,316	,157	-,111	-2,014	,045	-,625	-,007	-,102	-,108	-,108
	C1_Ave	-,293	,283	-,057	-1,035	,301	-,849	,263	-,032	-,056	-,056
	Effort	,274	,439	,034	,625	,532	-,589	1,138	,042	,034	,034

a. Dependent Variable: Perform

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Effort	,034[b]	,625	,532	,034	,993

a. Dependent Variable: Perform

b. Predictors in the Model: (Constant), C1_Ave, C2_new

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	C1_Ave, C2_new[b]	.	Enter
2	Non_stan[b]	.	Enter

a. Dependent Variable: Coordi

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	,210[a]	,044	,038	,98062673	,044	7,883	2	343	,000
2	,282[b]	,080	,071	,96361330	,036	13,219	1	342	,000

a. Predictors: (Constant), C1_Ave, C2_new

b. Predictors: (Constant), C1_Ave, C2_new, Non_stan

c. Dependent Variable: Coordi

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15,161	2	7,581	7,883	,000[b]
	Residual	329,839	343	,962		
	Total	345,000	345			
2	Regression	27,436	3	9,145	9,849	,000[c]
	Residual	317,564	342	,929		
	Total	345,000	345			

a. Dependent Variable: Coordi

b. Predictors: (Constant), C1_Ave, C2_new

c. Predictors: (Constant), C1_Ave, C2_new, Non_stan

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	1,957	,886		2,209	,028	,214	3,699			
	C2_new	-,073	,019	-,209	-3,869	,000	-,110	-,036	-,189	-,204	-,204
	C1_Ave	-,058	,034	-,092	-1,710	,088	-,126	,009	-,047	-,092	-,090
2	(Constant)	1,623	,875		1,854	,065	-,099	3,345			
	C2_new	-,069	,019	-,199	-3,733	,000	-,106	-,033	-,189	-,198	-,194
	C1_Ave	-,038	,034	-,060	-1,120	,264	-,105	,029	-,047	-,060	-,058
	Non_stan	-,079	,022	-,191	-3,636	,000	-,122	-,036	-,204	-,193	-,189

a. Dependent Variable: Coordi

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Non_stan	-,191[b]	-3,636	,000	-,193	,973

a. Dependent Variable: Coordi

b. Predictors in the Model: (Constant), C1_Ave, C2_new

Appendix 4: SPSS output – Hays Model 4

Run MATRIX procedure:

********** PROCESS Procedure for SPSS Release 2.15 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2013). www.guilford.com/p/hayes3

****

****
Outcome: Effort M

Model Summary

R	R-sq	MSE	F	df1	df2	p
,1355	,0184	,9902	2,1334	3,0000	342,0000	,0958

Model

	coeff	se	t	p
constant	,4816	,9041	,5327	,5946
Non_stan X	,0451	,0226	1,9974	,0466
C2_new	-,0315	,0192	-1,6412	,1017
C1_Ave	-,0150	,0351	-,4284	,6686

****
Outcome: Perform Y

Model Summary

R	R-sq	MSE	F	df1	df2	p
,1239	,0153	66,1539	1,3289	4,0000	341,0000	,2588

Model

	coeff	se	t	p
constant	9,8802	7,3924	1,3365	,1823
Effort M	,2494	,4420	,5644	,5729

```
Non_stan X     ,0973      ,1856      ,5241      ,6005
C2_new       -,3213      ,1574    -2,0415      ,0420
C1_Ave       -,3178      ,2871    -1,1069      ,2691

************************** TOTAL EFFECT MODEL
****************************
Outcome: Perform

Model Summary
        R       R-sq        MSE          F        df1        df2          p
     ,1201      ,0144    66,0221     1,6690     3,0000   342,0000      ,1734

Model
             coeff         se          t          p
constant    10,0003     7,3819     1,3547      ,1764
Non_stan      ,1085      ,1843      ,5887      ,5565
C2_new       -,3291      ,1566    -2,1017      ,0363
C1_Ave       -,3215      ,2867    -1,1214      ,2629

****************** TOTAL, DIRECT, AND INDIRECT EFFECTS
********************

Total effect of X on Y
    Effect         SE          t          p
     ,1085      ,1843      ,5887      ,5565

Direct effect of X on Y
    Effect         SE          t          p
     ,0973      ,1856      ,5241      ,6005

Indirect effect of X on Y
         Effect    Boot SE   BootLLCI   BootULCI
Effort     ,0112      ,0255     -,0270      ,0763

Partially standardized indirect effect of X on Y
         Effect    Boot SE   BootLLCI   BootULCI
Effort     ,0014      ,0031     -,0034      ,0091

Completely standardized indirect effect of X on Y
         Effect    Boot SE   BootLLCI   BootULCI
Effort     ,0033      ,0073     -,0080      ,0221

Ratio of indirect to total effect of X on Y
```

```
          Effect    Boot SE   BootLLCI   BootULCI
Effort     ,1037     7,4456     -,1261    69,5583

Ratio of indirect to direct effect of X on Y
          Effect    Boot SE   BootLLCI   BootULCI
Effort     ,1156     2,5421     -,0860    45,9980

Normal theory tests for indirect effect
     Effect         se          Z          p
      ,0112      ,0230      ,4893      ,6246

******************** ANALYSIS NOTES AND WARNINGS
************************

Number of bootstrap samples for bias corrected bootstrap confidence
intervals:
     1000

Level of confidence for all confidence intervals in output:
    95,00

------ END MATRIX -----
```

Appendix 5: SPSS output – Hays Model 14

Run MATRIX procedure:

********** PROCESS Procedure for SPSS Release 2.15 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2013). www.guilford.com/p/hayes3

****
Model = 14
Y = Perform
X = Non_stan
M = Effort
V = Coordi

Statistical Controls:
CONTROL= C2_new C1_Ave

Sample size
346

****
Outcome: Effort

Model Summary

R	R-sq	MSE	F	df1	df2	p
,136	,018	,990	2,133	3,000	342,000	,096

Model

	coeff	se	t	p
constant	,482	,904	,533	,595
Non_stan	,045	,023	1,997	,047
C2_new	-,031	,019	-1,641	,102
C1_Ave	-,015	,035	-,428	,669

****
Outcome: Perform

Model Summary

R	R-sq	MSE	F	df1	df2	p
,328	,107	60,332	6,789	6,000	339,000	,000

Model

	coeff	se	t	p
constant	5,247	7,131	,736	,462

Effort	,306	,447	,685	,494
Non_stan	,299	,181	1,656	,099
Coordi	2,602	,441	5,902	,000
int_1	,218	,387	,563	,574
C2_new	-,138	,153	-,902	,368
C1_Ave	-,202	,276	-,731	,465

Product terms key:

int_1	Effort	X	Coordi

********** DIRECT AND INDIRECT EFFECTS **********

Direct effect of X on Y

Effect	SE	t	p
,299	,181	1,656	,099

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator

	Coordi	Effect	Boot SE	BootLLCI	BootULCI
Effort	-1,000	,004	,033	-,067	,074
Effort	,000	,014	,023	-,019	,073
Effort	1,000	,024	,037	-,022	,135

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

********** INDEX OF MODERATED MEDIATION **********

Mediator

	Index	SE(Boot)	BootLLCI	BootULCI
Effort	,010	,026	-,031	,078

********** ANALYSIS NOTES AND WARNINGS **********

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
1000

Level of confidence for all confidence intervals in output:
95,00

------ END MATRIX -----

Appendix 6: SPSS output – Hays Model 1

Run MATRIX procedure:

********** PROCESS Procedure for SPSS Release 2.15 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2013). www.guilford.com/p/hayes3

****
Model = 1
Y = Perform
X = Effort
M = Coordi

Statistical Controls:
CONTROL= C2_new C1_Ave

Sample size
346

****
Outcome: Perform

Model Summary

R	R-sq	MSE	F	df1	df2	p
,316	,100	60,641	7,560	5,000	340,000	,000

Model

	coeff	se	t	p	LLCI	ULCI
constant	4,282	7,126	,601	,548	-9,734	18,299
Coordi	2,463	,434	5,677	,000	1,610	3,317
Effort	,382	,446	,856	,393	-,495	1,259
int_1	,194	,388	,500	,618	-,569	,957
C2_new	-,132	,154	-,861	,390	-,435	,170
C1_Ave	-,135	,274	-,493	,622	-,674	,404

Product terms key:

int_1 Effort X Coordi

R-square increase due to interaction(s):

	R2-chng	F	df1	df2	p
int_1	,001	,250	1,000	340,000	,618

****

Conditional effect of X on Y at values of the moderator(s):

Coordi	Effect	se	t	p	LLCI	ULCI
-1,000	,188	,679	,276	,782	-1,148	1,524
,000	,382	,446	,856	,393	-,495	1,259
1,000	,576	,487	1,181	,238	-,383	1,534

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

****

Data for visualizing conditional effect of X on Y
Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/Effort Coordi Perform.
BEGIN DATA.

   -1,000    -1,000    -2,641
    ,000    -1,000    -2,453
   1,000    -1,000    -2,266
   -1,000     ,000     -,372
    ,000      ,000      ,010
   1,000      ,000      ,392
   -1,000    1,000     1,898
    ,000     1,000     2,474
   1,000     1,000     3,049

END DATA.
GRAPH/SCATTERPLOT=Effort WITH Perform BY Coordi.
```

* Estimates are based on setting covariates to their sample means.

********** ANALYSIS NOTES AND WARNINGS **********

Level of confidence for all confidence intervals in output:
95,00

------ END MATRIX -----