

Decision and Planning Style of Spanish Handball Coaches

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Abstract: The aim of present study was to analyse how decision and planning styles of a coach are influenced by intrinsic variables: age, gender and experience of the coach, and by extrinsic variables: gender, age and competitive level of the teams trained. The investigation carried out focuses on the analysis of the characteristics of the coach and a number of actions linked to coaching, specifically decision making and planning in coaching. The study was developed through the use of a questionnaire applied to a sample of 334 Spanish Handball coaches. The results allowed identifying relations between decision and planning styles, given that the coach must take multiple decisions during the coaching session. The attitude of the coach towards taking decisions can have an influence on planning style. Gender, age and level of experience of coaches and competitive level of the teams affect the decision and planning styles adopted by coaches.

Keywords: Decision style, planning style, handball, coaches.

DECISION AND PLANNING STYLE OF SPANISH HANDBALL COACHES

There are various studies based on the subject of sport coaches and have focused on various aspects: i) the analysis of coaching behaviour, ii) analysis of thoughts and reflexions of the coach, iii) analysis of the coach's characteristics and, iv) the analysis of his/her professional development [1].

The coaching of players and the success of coaching are conditioned by good planning. Planning is one of the most important functions for the coach to develop an effective project. Coach variation in planning could arise due to a situation brought about by the players, by a situation that arises due to the nature of the exercise, or by a situation brought about by the coach [2]. It could even be caused by contextual aspects that affect coaching sessions or competitions. Faced with these variations, the coach can adopt diverse attitudes in planning: a rigid attitude with little flexibility to carry out changes; another, more flexible, to carry out changes according to how the coaching session develops; and lastly, an attitude of continual improvisation in coaching sessions [3]. Previous studies in this field indicate that a flexible planning style is the most appropriate so that the coach is able to adapt himself/herself to changes that are produced in coaching sessions and in competitions [4, 5].

The multitude of factors that affect the coaching process and competition require correct leadership from the coach in decision-making. For Abraham, Collins and Martindale [6]

one of the functions that stands out in experienced coaches is the development of leadership in a work team and in a group of players. Arising from the attitude of the coach we can establish three coaching styles according to a coach's leadership: authoritarian, democratic and permissive [7]. The authoritarian coach is one who imposes his criteria in an excessively direct way. The democratic coach is the one who, without giving up his role as leader of the group, encourages and allows opinions from helpers, players, etc. The permissive coach is the one who delegates the direction that coaching takes, allowing players to control the events that take place.

The leadership relations between coaches and athletes have been studied from various perspectives [8, 9]. Cheladurai and Riemer [10], following an analysis of existing literature, considered that in the study of coach leadership three models exist: the mediational model, the normative model of decision style in coaching, and the multidimensional model.

The mediational leadership model focused on studying the reactions of athletes during coaching to the behaviour of the coach and the coach's perception of players' attitudes [11]. The Coaching Behaviour Assessment System, CBAS, a tool devised by Smith, Smoll and Hunt [12], is an observation tool that is used to assess the influence of coaching behaviour through the use of 12 categories. For Lyle [13] this model is that it does not consider learning content and the context of athletes' coaching in training stages. Despite this the model continues to be used today [14].

The normative model of decision style identifies the decision styles of coaches according to the role that athletes take in the decision-making process in relation to the following coaching problems: time pressure, quality requirement,

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problem complexity, coach's information, criticalness of group acceptance, coach's power base, and group integration [15]. Initially, these authors considered various decision styles: autocratic, consultative, participative and delegative. The authors themselves find conceptual and psychometric limitations in this model, which to this day have not been resolved [10, 16].

The multidimensional model of leadership is directed at analysing the conduct and satisfaction of athletes according to preferences and behaviour of the coach, of the athletes and of the contextual characteristics [17]. Chelladurai and Saleh [18] created the *Leadership scale for sport*, LSS. This scale is made up of 40 items that cover five dimensions: training and instruction, democratic behaviour, autocratic behaviour, social support, and positive feedback. The scale has been used extensively to measure athletes' preferences and perceptions towards management styles of coaches [14, 19-22] as well as to measure coaches' perceptions towards their own leadership style [23-28]. Notwithstanding the extensive use of LSS and of the multidimensional model some flaws are acknowledged, even by their own creator [10], pointing for the need of a more comprehensive view of relevant coaching behaviours along with some measurement improvements.

Given that in the context of sports coaching, planning involves decision making, we consider that there must be a link between both behaviour styles in coaches. For this reason, it is necessary to identify what type of relation is produced between planning styles and decision styles. However, the relation between these two variables is not foreign to the influence of others that could affect the decision making and planning styles of each coach. It is possible to structure these variables on two levels: i) variables intrinsic to the coach, derived from traits, behaviour and attitudes observable from their actions, ii) extrinsic variables that affect behaviour and attitudes of the coach in the development of his/her role. The studies analysed coincide in highlighting that planning styles and, above all, decision styles are conditioned by variables intrinsic and extrinsic to the coach.

The aim of present study was to analyse how decision and planning styles of a coach are influenced by intrinsic variables: age, gender and experience of the coach, and by extrinsic variables: gender, age and competitive level of the teams trained. The investigation carried out focuses on the analysis of the characteristics of the coach and a number of actions linked to coaching, specifically decision making and planning in coaching.

METHOD

Procedure

The study was developed through the use of a questionnaire applied to a sample of Spanish coaches. The variables that have been taken into account are grouped into four categories: i) decision styles of the coach: authoritarian, democratic and permissive; ii) planning styles of the coach: rigid, flexible and improviser; iii) characteristics of the coach: age, gender and years of experience as a coach; iv) team characteristics: gender, category in terms of age, and competitive level.

Participants

334 handball coaches with an average age of 32.30 ± 8.9 took part in the study, of which 86.5% were men and 13.2% were women. Sampling error was less than 0.05 ($e = 0.049$). 65% of coaches trained male teams, 27.2% female and 6.6% trained mixed teams. The teams belonged to different categories in terms of age and competitive level, (Table 1).

Table 1. Level of Team Characteristics

Variables	Levels	N
Gender of teams	Male	217
	Female	91
	Mixed	22
Age of teams	10 – 11 years	34
	12 – 13 years	54
	14 – 15 years	67
	16 – 17 years	66
	18 or older	109
Competitive level of teams	Amateur Regional / Local Leagues	119
	Regional Leagues	122
	2 nd National Division	39
	1 st National Division Professional	26
	Professional Division B	12
	Professional Division	12

Instrument

In the literature review carried out it is not possible to find studies that analyse the effectiveness of a coach's planning style. This fact, along with further limitations found in the studies of coach leadership and the tools used in them [10, 13, 16] suggest that a specific scale to determine decision and planning styles of coaches be developed.

To carry out this study it was necessary to design two self-report scales. *Style Decision of Sport Questionnaire* (SDSQ), with 12 items, evaluates attitudes in decision making. *Planning Style of Sport Questionnaire* (PSSQ), with 15 items, measures attitudes in planning [29]. In order to validate these scales previous studies were carried out with groups of team coaches with the aim of adjusting the psychometric properties [30]. Through the use of closed questions, the sex and age of the coaches and the characteristics of the teams trained were determined.

Statistical Analysis

An exploratory factorial analysis was carried out to test the underlying variables in the scale and the relations between the items [31-33]. A varimax rotation method was used to facilitate the conceptual simplicity and the identification of emergent factors [34]. The analysis of internal consistency of the scale was determined through Cronbach's Alpha Coefficient, .70 being considered an adequate score [35]. Both procedures allowed us to check the psychometric properties of the instrument.

Subsequently, relations that exist between planning and decision styles and the rest of the variables were analysed.

Finally, an analysis of differences (*T-test and Anova*) was carried out on decision and planning styles according to the rest of the variables.

RESULTS

The exploratory factorial analysis of the questionnaire on decision styles SDSQ showed three factors, with adequate loads in all items. Following the elimination of items 6 and 12 the *alpha* of the democratic and permissive factors improves. The *authoritarian* factor obtained an alpha of .79, *democratic* a score of .73 and lastly, the *permissive* factor a score of .71.

The exploratory factorial analysis of the scale on planning styles in sport PSSQ, showed three factors with adequate loads in all items. The *rigid* factor obtained an alpha of .83. The *flexible* as well as the *improviser in planning* factor obtained scores of .78.

The items of both scales show an adequate validity, with items loaded above .40 and an optimum reliability above .70 [35]. These results enable us to judge the psychometric properties of both questionnaires as adequate.

The descriptive statistics indicate that the highest scores of the SDSQ scale can be seen in the *democratic* ($M = 66.70 \pm 19.29$) and *authoritarian* ($M = 64.55 \pm 20.72$) factors, while the lowest were obtained in the *permissive* factor ($M = 32.49 \pm 19.53$). In the PSSQ scale the highest score was for the *flexible* factor ($M = 77.53 \pm 14.75$), well above the averages of the *rigid* ($M = 35.41 \pm 20.85$) and *improviser* ($M = 23.74 \pm 18.23$) factors. Coaches are more in agreement with the affirmations obtained in the “authoritarian” and “democratic” factors than in the affirmations of the “permissive” factor. Similarly, coaches coincide more in the “flexible” planning style.

Decision and Planning Styles According to Gender of the Coach

The results of the *T-student* test confirm that there are no significant differences in any of the decision styles according to gender of the coach: *authoritarian* ($t = .801$; $p > .05$), *democratic* ($t = -1.279$; $p > .05$) and *permissive* ($t = -1.506$; $p > .05$). Gender is not a variable that influences the positioning of coaches in decision making profiles. The differences in planning styles according to gender of coaches were also studied. The results showed that there were no significant differences in the *rigid* ($t = .719$; $p > .05$) or *improviser* style in planning ($t = -1.043$; $p > .05$). Significant differences were found in the *flexible* planning style ($t = -2.247$; $p < .05$). Women obtained higher scores in planning flexibility than men (Table 2).

Decision and Planning Styles According to Age of the Coach

Significant positive relations were found between the age of the coach and the *authoritarian* decision style ($r = .209$; $p < .01$) and negative relations with the *permissive* decision style ($r = -.155$; $p < .01$). The results indicate that coaches are more authoritarian and less permissive the older they are. We also found positive significant relations with the *rigid* planning style ($r = .117$; $p < .05$) and negative ones with *improviser* planning style ($r = -.163$; $p < .01$). As coaches

get older they display greater inflexibility in their planning and a lesser tendency to improvise. No significant relations were found with the *democratic* or *flexible* planning style, (Table 3).

Table 2. Descriptions of the PSSQ Scale According to Gender

	Gender	N	M	SD
Rigid	Male	284	173.17	104.86
	Female	43	160.93	98.70
Flexible	Male	288	383.82	74.40
	Female	44	410.45	64.80
Improviser	Male	288	116.63	89.94
	Female	44	132.04	99.78

Differences in decision and planning styles according to age of the coach were analysed. The ANOVA one way showed that in decision styles there were significant differences in *authoritarian* style ($F_{(9,329)} = 2.978$; $p < .01$), while in planning styles significant differences were only found in the *improviser* planning style ($F_{(9,331)} = 2.429$; $p < .05$). In order to pinpoint between what age ranges differences were found in *authoritarian* decision style and *improviser* planning style, multiple *post hoc* comparisons were carried out, (Table 4). The results show a tendency of coaches between the ages of 21 and 25 to have lower scores in authoritarian style than those over 26. It can also be observed that coaches between the ages of 16 and 20 improvise more in planning than those older than 21.

Decision and Planning Styles According to Years of Experience of the Coach

Years of experience as a coach can have an influence on decision and planning styles. Significant positive relations were found between years of experience as a coach and the *authoritarian* decision style ($r = .279$; $p < .01$) and significant negative relations with *democratic* ($r = -.121$; $p < .05$) and *permissive* decision styles ($r = -.126$; $p < .05$). The coaches with experience displayed higher scores in authoritarian decision style and lower scores in democratic and permissive decision styles. Similarly, significant positive relations were found in the *rigid* planning style ($r = .154$; $p < .01$) and negative relations in the *improviser* planning style ($r = -.122$; $p < .05$), (Table 5). Coaches who had experience displayed higher scores in rigid planning style and lower scores in improviser planning style.

Decision and Planning Styles According to Gender of the Teams

The analysis of differences in the decision and planning styles in terms of gender of the teams did not show significant differences between those who coached male and female teams.

Decision and Planning Styles According to Age of the Players

In decision style no significant relations were found according to age of the athletes. In planning styles significant

Table 3. Relations Between Decision and Planning Style with Age of the Coach

		Decision Style (SDSQ)			Planning Style (PSSQ)		
		Authoritarian	Democratic	Permissive	Rigid	Flexible	Improviser
Age	Pearson correlation	.209**	-.092	-.155**	.117*	-.081	-.163**
	Sig. (bilateral)	.000	.094	.005	.034	.143	.003
	N	330	332	330	327	332	332

** $p < .01$; * $p < .05$.**Table 4. Post Hoc Comparisons in the Authoritarian and Improviser Variables According to Age of the Coach**

Variable	(I) Age	(J) Age	Mean Difference (I-J)	Typical Error	Sig.	95% Confidence Interval	
						Lower Limit	Upper Limit
Authoritarian	21 - 25	26 - 30	-37.340	13.842	.007*	-64.572	-10.109
		36 - 40	-48.162	15.325	.002*	-78.312	-18.011
		41 - 45	-51.029	17.075	.003*	-84.622	-17.437
		46 - 50	-58.754	21.095	.006*	-100.256	-17.252
		+ 50	-63.730	26.419	.016*	-115.706	-11.754
Improviser	16 - 20	21 - 25	50.987	21.985	.021*	7.735	94.239
		26 - 30	71.287	21.948	.001*	28.108	114.466
		31 - 35	68.480	22.523	.003*	24.170	112.788
		36 - 40	66.741	23.236	.004*	21.028	112.453
		41 - 45	89.920	24.612	.000*	41.501	138.339
		46 - 50	70.694	28.171	.013*	15.273	126.115
		+ 50	88.636	33.216	.008*	23.290	153.983
	21 - 25	41 - 45	38.933	18.803	.039*	1.941	75.924

* $p < .05$.**Table 5. Relations Between Decision and Planning Style with Experience of the Coach**

		Style Decision (SDSQ)			Planning Style (PSSQ)		
		Authoritarian	Democratic	Permissive	Rigid	Flexible	Improviser
Experience as coach	Pearson Correlation	.279**	-.121*	-.126*	.154**	.011	-.122*
	Sig. (bilateral)	.000	.028	.022	.005	.837	.026
	N	330	332	330	327	332	332

** $p < .01$; * $p < .05$.

relations were found only between the *improviser* style ($r = -.211$; $p < .01$) and the age of the players. The results indicate that as the age of the players increase coaches improvise less in planning. In the analysis of differences in planning style according to age of the teams significant differences were only found for the *improviser* style ($F_{(4,328)} = 4.64$, $p < .01$). The results of *post hoc* comparisons, (Table 6), show that coaches of teams with players who are 18 years old or older

present lower scores in planning improvisation than coaches of younger teams.

Decision and Planning Styles According to Competitive Level of the Teams

Lastly, the relations between decision and planning styles and the competitive level of the teams were analysed. The

results show that there are no relations to decision styles. In terms of planning styles, significant negative differences were only found in *improviser* planning style ($r = -.137; p < .05$). Coaches display lower improvisation scores the higher the competitive level.

In the analysis of differences in decision and planning styles according to competitive level significant differences were only found in *flexible* ($F_{(5,328)} = 2,831, p < .05$) and *improviser* planning styles ($F_{(5,328)} = 3.859, p < .01$). The analysis of *post hoc* comparisons, (Table 7), indicated that there is no clear tendency in the differences for flexible planning according to competitive level of the teams.

The *post hoc* comparisons for improviser planning style, (Table 7), showed that teams of the 1st National League obtained lower improvisation scores than teams of inferior categories. The teams of the Professional Division obtained higher scores in improvisation than those of the 1st National League.

Relations between Decision and Planning Styles of the Coach

The relations between decision and planning styles of the handball coaches were studied. Initially, a bi-varied analysis of correlations was carried out. Then the relations were ana-

lysed, monitoring the possible effect of age of the coaches, years of experience and level of the team. The analysis of the partial correlations showed significant positive differences between the *authoritarian* decision style and *rigid* planning ($r = .382; p < .001$) and the *improviser* style in planning ($r = .128; p < .05$), between the *democratic* decision style and *flexible* planning ($r = .368; p < .001$) and *improviser* planning ($r = .122; p < .05$); and between the *permissive* decision style and *rigid* planning ($r = .254; p < .001$) and *improviser* planning ($r = .345; p < .001$). The authoritarian coaches displayed high scores in rigid planning. Coaches orientated towards the democratic profile obtained higher scores in flexible and improviser planning.

With the same procedure, the relations between decision making profiles were analysed. The results indicate that a significant negative relation exists between the authoritarian and the democratic style ($r = -.233; p < .001$) and a positive relation between the democratic and permissive styles ($r = .322; p < .001$). Coaches orientated towards the authoritarian style obtained lower values than the democratic coach. However, coaches orientated towards the democratic style have higher scores than the permissive coach. The analysis of the planning styles showed a significant negative relation between rigid and flexible planning styles ($r = -.286; p < .001$).

Table 6. Multiple Post Hoc Comparisons of the Improviser Variable in Planning According to Age of the Players

Variable	(I) Ages of the Team	(J) Ages of the Team	Mean Differences (I-J)	Typical Error	Sig.	95% Confidence Interval	
						Lower Limit	Upper Limit
Improviser	10 – 11 age	18 or more age	47.960	17.585	.007*	13.364	82.556
	12 – 13 age	18 or more age	43.428	14.898	.004*	14.120	72.737
	14 – 15 age	18 or more age	51.516	13.897	.000*	24.175	78.857
	16 – 17 age	18 or more age	29.725	14.029	.035*	2.125	57.325

* $p < .05$.

Table 7. Post Hoc Comparisons of the Flexible and Improviser Variables According to Competitive Level of the Teams

	(I) Competitive Level	(J) Competitive Level	Mean Differences (I-J)	Typical Error	Sig.	95% Confidence Interval	
						Lower Limit	Upper Limit
Flexible	Regional - Local	1st National Division	-43.148	15.620	.006*	-73.878	-12.418
	Regional	2nd National Division	29.922	13.286	.025*	3.784	56.059
	2nd National Division	1st National Division	-57.436	18.268	.002*	-93.375	-21.496
		Professional Division B	-47.628	23.819	.046*	-94.487	-.769
Improviser	Regional - Local	1st National Division	67.822	19.389	.001*	29.678	105.965
	Regional	1st National Division	80.013	19.360	.000*	41.925	118.100
	2nd National Division	1st National Division	56.923	22.676	.013*	12.312	101.534
	1st National Division	Professional Division	-62.885	31.256	.045*	1.393	124.376

* $p < .05$.

DISCUSSION

The literature review made clear the necessity of creating two specific scales in order to evaluate decision and planning styles during coaching. The scales used, SDSQ and PSSQ, have given adequate validity and reliability.

The coaches who took part in this study are orientated – almost equally – towards the democratic and authoritarian decision styles. However, other studies on sports leadership have shown a very different positioning of the coaches [17]. In some studies, the coaches were positioned towards an autocratic style [7, 36], while in others, towards a democratic style [27, 37]. For Chelladurai and Quek [38] as problems get more complex, coaches prefer a more autocratic decision style. The differences of context in which the coaching activity develops affect the attitude towards decision making.

The coaches who took part in this study displayed their rejection of a permissive leadership style. This style of decision making is undesirable and is thus rejected by the coach [5, 17] and by the athletes themselves [39]. The studies looked at confirm that a democratic style is preferable to an authoritarian one, with the need to avoid the permissive style.

The participants of this study define themselves for the most part as flexible in planning. This style is the most appropriate for team sports since it allows the coach to adapt himself/herself to the needs that arise during coaching and competition [4, 5, 40]. A flexible planning style is preferable to a rigid style. The improviser style is rejected in planning.

Gender, Age and Experience of Coaches and Decision Style

Gender, in the sample studied, is not a variable that affects the adoption of decision style. However, it was found that the age of the coach does affect decision style; as the age of the coach increases decision style is increasingly authoritarian and less permissive. The analysis of differences showed that coaches younger than 26 are less authoritarian.

One indicator that is clearer than age is the experience of the coach. As years of experience increase, coaches show a tendency towards more authoritarian and less democratic and permissive decision styles. In the studies reviewed we found contradictory results; while some indicate that with age coaches move more towards authority [38, 41], others indicate that they are positioned in more democratic decision styles [42]. In this study age as well as years of experience show a tendency of coaches to move towards a more authoritarian decision style.

Gender, Age and Experience of Coaches and Planning Style

Gender affects the processes of sports planning: women are more flexible than men. On the other hand, it has been found that the age of coaches also affects planning style; as coaches' age increase they display greater rigidity in planning and a lesser tendency towards improvisation. Coaches younger than 21 improvise more than those aged 21 and older. However, coaches with experience tend to define themselves as more rigid in planning with less improvisation.

Team Characteristics and Decision Styles

The results indicate that gender of the teams does not affect decision style or planning of the coach. These results do not coincide with the variations in coach leadership style according to gender of the team, found by Mondello and Janelle [21]. No relation has been found either between decision style of the coach and the age of the players coached. However, other studies [38, 43] find that in teams of lower categories coaches display a more authoritarian style. Some studies confirm that athletes with experience prefer a more autocratic decision style from their coaches [44, 45], while children prefer more democratic conduct from coaches [46]. We also found studies that show differences in the preferences of leadership style of the coach according to gender of the coaches [22]. The results obtained from Spanish handball coaches indicate that competitive level of teams does not affect the decision style adopted by the coach. Amorose & Horn [19] found that high level athletes perceived more democratic and less autocratic conduct in their coaches than athletes of lower competitive levels.

Team Characteristics and Planning Styles

In terms of planning, coaches of older teams displayed lower values in improvisation. In teams with players older than 18 there is a relation between success and quality of coaching. Those who coached teams of players older than 18 are more orientated towards performance and there is therefore less improvisation, being more noticeable by the players. It has also been found that the competitive level of teams affects planning styles. Coaches of teams of a higher competitive level (1st National League) improvise less than those of lower divisions. We should highlight that teams of the Professional Division display higher scores in improvisation than those of the 1st National League. The greater number of competitions in which professional teams play (League, Cup, Internationals) to which they must re-adapt themselves each week, forces the coach to undertake changes in coach planning.

CONCLUSION

There is a relation in the positioning of coaches in the styles of decision making. Authoritarian coaches are opposed to democratic decision making. However, coaches orientated towards the democratic style associated themselves with a more permissive decision style. Coaches who are more rigid in their planning tend to take authoritarian decisions and those who are more flexible in their planning tend to position themselves in a more democratic decision style. Coaches who have a permissive decision style display a tendency to improvise in planning. These relations indicate an association between decision and planning styles, given that the coach must take multiple decisions during the coaching session. The attitude of the coach towards taking decisions can have an influence on planning style. Gender, age and level of experience of coaches and competitive level of the teams affect the decision and planning styles adopted by coaches.

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