FACTORIAL APPROACH IN THE DEVELOPMENT OF A SOCCER RATING SCALE TO EVALUATE PLAYERS IN A GAME SITUATION

Mrs. Anshu Rani, Assist. Prof.,
Institute of Professional Studies, Gwalior (M.P.)
Prof. (Dr.) S. K. Yadav, Professor
Dept. of Physical Education
DAVV Indore (M.P.)

Abstract

The intent of this study was to develop a valid and reliable rating scale to evaluate soccer players in game situation. In this study, the subjects were selected in two phases. In first phase, forty (40) subjects were selected for the administration of initially developed Scale which contained large numbers of items. Subjects were selected from six teams which took part in All India Inter University Championship held at Gwalior (M.P.) And in the second phase, twenty (20) subjects were selected from two team of Gwalior District LNIPE and Jiwaji University which had participated in West Zone Inter University Championship. The players' age ranged between 19-26, with a mean age of 22.1 years. Goalkeepers and the full backs were not included in study and this study was delimited to performance in game situation only. To accomplish that purpose Fifty One (51) items Rating Scale was designed which purportedly represented the eight categories Dribbling and Ball control, Passing, Kicking, Receiving, Heading, Feinting, Tackling and General Playing Ability. After applying Factorial Analysis initially developed rating was reduced to only 28 items. The total single scores of two judges were calculated for twenty players. The Coefficient of Concordance is 0.947, which is highly significant. Rank Order Correlation Method was employed to obtain valid of newly constructed Soccer Rating Scale which was 0.81. It indicates that newly constructed Rating Scale is significantly valid for the purpose it is meant. To obtain objectivity of newly developed rating scale, scores awarded by two judges were correlated with the help of Spearmen's Rank Order Correlation. Newly develop Soccer Rating Scale found suitable in case of its objectivity which is satisfactory at required parameters i.e., 0.89.

Introduction

In order to give the best possible performance at any of the competition the assistance of scientific disciplines is sought. Induction of the basic principle of science has become a subject of scientific research in the field of physical education. Now, various special branches of science such as biomechanics, physiology of exercise, psychology of sports, sociology of sports, test and measurement etc, have been established which are connected with the physical education and sports.

The process of grading and selecting the best in physical education often leads to some dissatisfaction for the variables which

comprises elite performance are not only numerous but varied too. No doubt selection is a critical process and involves lot of observation, testing and analysis. In India this process is yet to pick up. That is perhaps where there is a great disappointment in the country over the poor performance of our sportsmen in the international sports competition, as winning laurels at international sports arena has become a prestigious issue. There are so many reasons for the decline of Indian soccer. One of the main reasons is unscientific evaluation of soccer players. In India, the arena of measurement in sports has not developed as yet and while selecting teams, there is lack of will on the part of teachers, coaches, and selectors in applying the scientific procedures. Even the All India Football Federation which is apex body of soccer in India has not paid any attention towards the guiding of Soccer on scientific lines. In the absence of full-proof scientific criteria, the selection of players, particularly in soccer, has become a problem. This shows either the area in the testing in soccer has not developed enough to provide fairly good procedure of measuring the amount of playing ability developed in a player or there is lack of application of scientific procedure prescribed in literature on measurement and evaluation.

Methodology

The purpose of this study was to develop a valid and reliable rating scale to evaluate soccer players in game situation. In this study, the subjects were selected in two phases. In first phase, forty (40) subjects were selected for the administration of initially developed Scale which contained large numbers of items. Subjects were selected from six took part in All India Inter University Championship held at

Gwalior (M.P.) And in the second phase, twenty (20) subjects were selected from two team of Gwalior District LNIPE and Jiwaji University which had participated in West Zone Inter University Championship. The players' age ranged between 19-26, with a mean age of 22.1 years. Goalkeepers and the full backs were not included in study and this study was delimited to performance in game situation only. t was found that specific soccer playing behaviour fell into eight general categories: Dribbling, Hitting and Shooting, Passing, Receiving, Positional play, General playing ability, Offensive ability and Defensive ability. For the construction of ideal Rating Scale five standard steps were carried out as suggested by Barrow and Mcgee i.e., determination of the purpose of rating, determination of traits and definitions, selection of categories, use of number values for points on the scale and preparation of the rating sheet.

After selecting categories, the descriptions were developed and inserted in the appropriate categories. The items were phrased both in a positive and negative way to prevent judges developing a set type of responses when evaluating individual soccer playing performance.

Fifty one (51) items were retained for this Rating Scale. A five point Likert type responses scale was developed. Responses ranged from "always" to "never." If the player exhibited the behaviour most of the time, the rater would check "often", if the player did not exhibit, the rater would check "never" and if the rater could not agree or disagree that the statement was descriptive of the player, the selection was made from the middle categories.

Initially developed rating with 51 items was reduced to smaller number of items with the

help of three judges. Points awarded by these three judges on each item of all the eight categories (i.e., seventy four) were added for all the thirty five players and average score of each item was computed. Data was analysed by using descriptive analysis, correlation matrix and factor analysis for each category of Rating Scale separately. Factor analysis was done with help of principal components method. All categories were rotated utilizing the varimax rotations, the items chosen to represent each of the factor within each category had a factor loading of 0.73 or higher. Therefore eight separate factors analysis were calculated and interpreted. The purpose of the factor analysis was to explore the possible patterning of variables to determine if items could be eliminated and reduced from the original scale. Each category of Rating Scale had undergone three steps of factor analysis separately i.e., correlation matrix, eigenvalues and percentage of variances and cumulative percentage of variances varimax factor loading.

TABLE No. 01
NUMBER OF ITEMS IN INITIALLY AND FINALLY
DEVELOPED RATING SCALE

S. No	Category	Number of Items	
		Initial Rating Scale	Final Rating Scale
1	Dribbling and Ball Control	8	4
2	Passing	8	4
3	Kicking	5	3
4	Receiving	7	4
5	Heading	4	2
6	Feinting	5	3
7	Tackling	7	4
8	General Playing ability	7	4
	Total	51 items	28 items

TABLE No. 02
FINALLY DEVELOPED RATING SCALE

S. NO	ITEMS
	1.Dribbling and Ball Control
1	While dribbling head is up.
2	When dribbling the ball, quickly changes direction and pace.
3	When closely guarded, dribbles the ball keeping body between the defender and the ball.
4	Uses the dribble to draw the opponents out of a good defensive position.
	2. Passing
1	Passes are to a space away from the opponents.
2	Passes are to the best positioned player (teammate).
3	When passing the ball, uses fakes to change direction quickly.
4	Makes the aerial passes when required.
	3. Kicking
1	Kicks the ball with good speed.
2	Kicks the ball with smooth and balanced body movement.
3	Able to kick on either foot.
	4. Receiving
1	When receiving the ball keeps his eyes on ball as well as on players (both offensive and defensive).
2	Moves forward to meet the ball for a pass reception.
3	Able to receive ball in the running position.
4	Uses fakes moves when receiving the ball.
	5. Heading
1.	Uses heading as effective mean of play.
2.	Heading the ball with easy.
	6. Feinting
1	Use evasive (fakes, cuts) manoeuvres to free from an opponent's reach.
2 N	Reaches for the ball instead of getting into a good position.
3	Remains in effective moving position.
	7. Tackling
1	Establishes initial position quickly for tackling.
2	Tackle opponent by any mean.
3 N	Commits unnecessarily foul while tackling.
4	Alert for possible interceptions of the ball
	8. General Playing Ability
1	Helps teammates in attacking by constantly giving verbal and non-verbal clues like finger & eye indications, phrases.
2	Penetrates quickly through the defensive wall when get opportunity.
3	Changes from attacking to defensive position quickly and wise versa.
4	Constantly on the move to receive the pass.

Establishment of Scientific Authenticity
Reliability
Points awarded by each judge on all eight categories separately were summed together to make a single score of an individual separately. To determine the degree of agreement among the judges Kendall's Coefficient of Concordance was employed. The total single scores of two judges were calculated for twenty players. The Coefficient of Concordance is 0.947, which is highly significant.

Validity
To determine the criterion related validity, a coefficient of correlation was calculated by finding the degree of relationship between the average score of single score awarded by two judges and average score of subjective grading of subjects which was taken at the time of rating on finally developed Rating Scale just after completion of game of seventy minutes. Spearmen's Rank Order Correlation Method was employed to obtained validity, which was 0.81; it shows that this Rating Scale is significantly valid for the purpose it is meant.

Objectivity
To establish objectivity of finally developed Rating Scale single scores awarded by two judges are correlated with the help of Spearmen's Rank Order Correlation Method, which is 0.89.

Conclusion
The purpose of this study was to develop a valid and reliable Rating Scale for evaluating the performance of soccer players participating in a competitive situation. This was accomplished by showing that the reduced scale did have substantial inter-judge reliability, criterion related validity and objectivity. Finally developed rating scale with 24 items representing eight different categories can be considered as standard tool for measuring performance in actual playing condition.

Reference
Barrow, Harold M and Mcgee, Rosemary (1979). A Practical Approach to Education and Recreation, Philadelphia: Lea and Febiger,.

Barry, Alan J. and Thomas, Cureton K., (1961). "Factorial Analysis of Physique and Performance in Prepubescent Boys". Research Quarterly, 32:2.

Baumgartner and Jackson (1991). Measurement for Evaluation in Physical Education Exercise Science, Dubugue: Wm. C. Brown Publisher.

Boetel, Smith, M., (1977). "A Factorial in the Development of a Basketball Rating Scale to Evaluate players in Game Situation", Dissertation International Abstract, Vol. 35, No. 4.

Clarke, Harrison H., (1967). Application of Measurement in Health, Physical Evaluation in Teaching, Englewood Cliffs, N.J. Prentice Hall Inc.

Cumbee, Frances Z., and Harris, Cheste W., (1953). "The Composite Criterion and Its Relation to factor Analysis", Research Quarterly, Vol. 24 No 2.

Edmund, F. Enos, Jr., (1973). "The Development and Evaluation of a Battery of Hockey Skill Test". Dissertation Abstract International 34:4.

Edwards, Janet (1966). "A Study of Three Measures of the Tennis Serve", Completed Research in Health, Physical Education and Recreation, 08.

Field, Andy (2000). Discovering Statistics Using SPSS for Windows, London: SAGE Publications,.

Gronlund, Norman E., and Linn, Robert L., Measurement and Evaluation in Teaching, London: Macmillan Publishing Company, 1985.

Kerlinger, F. N., (1985). Foundation of Behavioral Research, New York; Cliffs, N.J.

Mcgraw, L. W., (1949). "A Factor Analysis of Motor Learning", Research Quarterly, 20, No 3.

Myers H. Frank (1958). "A Safety Attitude Scale for the Seventh Grade", Research Quarterly, 29 No 03.