

The self-learning in Basketball at adult beginners

Slim Khiari¹ and Habib Ghedira²

¹ Permanent Teacher-Researcher (Assistant of High Teaching) specialized in Sciences of Education, Didactics and Basket-Ball. Ex-Player of Tunisian National Team of Basket-Ball / Trainer Third Degree of Basket-Ball. High Institute of Sports and Physical Education / Department of Didactics / University of Sfax, Tunisia.

² Professor of Medicine / Department of Pulmonology / University of Tunis. Head of Service of Pulmonology and Head of Laboratory of Breathing Exploration / Hospital Abderrahman MAMI / Ariana / Tunis / Tunisia.

Abstract: Our research is made in Morocco, with the students of the Institute of Sports, specialised in Volley-Ball, Handball, Foot-Ball, Boxing, Gymnastics, Athletics and Sailing, from the 17th January 1994 (date of initial test) to the 18th of April 1994 (date of final test); so for three months, twice or three times a week, let a total be 37,5 hours, as average time. We had 24 students, shared in two groups of 12: the experimental group and the control group. During these courses of learning, we have seen that it is advisable to make acquire the students: **In defence:** stances, mark, pressing, block, rebound, interception and against. **In attack:** dribble, shoot, pass, revolve, dummy, rebound, mark down, playing without ball and some simple attack systems. After the acquisition of these initiatives with the help of "one against one", we have chosen to observe in matches the following variables: defensive rebound, offensive rebound, pass, interception, against, free-throw, running-shoot, shoot from a middle distance, repeat and running with the ball. Although, we have evaluated the defensive rebound for the pivot, the shoot from a middle distance for the winger and the decisive pass for the quizmaster. Our purpose is finding the most flexible and interesting method, which gives importance to the personality of learner in its acquisition of technical skilfulnesses in Basketball. So we have based our research on: ✓ The psychological factor of player in general, studying the most significant characteristics: motivation, willingness, character, responsibility, stability and moral. ✓ The mental factor, particularly of Basketball player, which consists of spatio-temporal perceptions, attention, cleverness and the tactic thoughtful to see its treatment of informations with the Feed-Back, motor diagram during the different mental operations (identification, selectivity and codage). As a statistical test, we have used the Student Test (and percentage). We have deducted that the self-learning is the final phase of learning (first hypothesis). So, learner must begin by cognitive phase, passing by the associative phase –necessary for fixing and diversification of motor-skills– to finish with the autonomous phase. About the most efficient method, it is effectively which combine the two methods: the analytical and the overall; the analytical with its two characteristics: progression and repetition; the overall with the intensive participation of subject, leaning on the help which can bring the modern method with its audio-visual techniques and its "programmed teaching" (third hypothesis). About second hypothesis, we have invalidated it, because we have verified that the self-learning can not be conceived as a process for a collective and sportive activity like Basketball. Learning and teaching of technico-tactical gesture have to lean on lows of physics, the principles of biomechanics and on psychology, which make the relationship between trainer and players a relationship of comprehension and cohesion. This kind of relationship is taken over from the following factors: The balance (physical, social, psychological and mental) of players and trainer. The technique, which is a matter for the sciences of sportive motions. The timing, proportional of financial and pedagogical conditions, on the one hand, and of the use of suitable gestures during the match in the appropriate moments, on the other hand.

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1.Introduction:

For sports and teaching, countries choose the contract with trainers and the foreign teachers to achieve the record or titles in a minimum of time. Others form the young players and pupils endowed of particular cognitive and motor qualities for the future. In these two perspectives, that rise of the Physical and Sporty Activity domain, to the school or the club, the educational relation between trainer and player became very mechanized; so, absence of an

appropriate methodology of training especially, by confusion between "technique" that uses the technological progress and "method" that have recourse to a human pedagogy, giving importance to the personality of the individual. Research have been led in this domain, trying to disclose a discriminating method: The one of Baccouch Khadija (memory elaborated in 1983 to the ISSEP of Tunis, titling "Two theories of training in Basketball,: Analytic and Sructuralistic" that detected advantages and

inconveniences of each of these two methods and the one of Jean-Marc Gabaude that, in his work "the contemporary pedagogy" puts the main features of the modern method.

Identification of the problem:

The old methods of motor training showed evidence of limit and even often of inability to detect or to form the confirmed players as well that of good pupils of physical training and sports. It is owed ineluctably to the fact that the player or the pupil has been considered like an object or a passive being, deprived of language. He was only present to hear or to observe. Nowadays, authoritarianism and the directivity are replaced by permissiveness and coolness, what generated a high degree of anarchy and mess within institutions. Our purpose is to find the least authoritative method of learning, but most profitable to acquire the technical gestures of basis in Basketball and to determine the necessary conditions that encourage this acquirement.

Hypotheses:

H1: The self-learning can be considered like final phase of the learning.

H2: It can also be conceived like fully-fledged process of the following way: it must be motor, but preceded or going in parallel with the cognitive self-learning.

H3: The most efficient learning method is the one that combines the two methods: The analytic and the global (in the path analytic global), while leaning on help that can bring the modern method.

Delimitation of the study:

We noted that the verification of hypotheses previously formulated is very appropriate with students not specialized in Basketball of our Institute, since we preferred to work with adults, having a good physical condition. Our essential task is to provide them the necessary information to execute a technical gesture correctly, while intervening to demonstrate them the gesture when it is necessary, in order to discover a profitable human method in Basketball. We will value tasks done by students, by the analysis and the interpretation of test results that they will have ourselves undergone in the beginning and at the end of the experimentation to invalidate or to confirm our hypotheses.

Limitation of the study:

For the good progress of our research, we noted that the player's confrontation to another provides us a real aspect of the game (problem-situation) to the course of which, we observe the kind of resolution. It will permit to know if the treatment of the received information before or in efficient game has been made well or no. The task being double:

- The one of the attacker that has like goal to pass the defender and to grant a basket.

- The one of the defender that must understand what the attacker is going to make in time (and to act according to his attitude). It is in this meaning that the player learns alone. The trainer watches over the respect of the regulation of the game and on the correction of the gesture if the player learning doesn't manage to correct himself. This one treats information all alone and order his motor sequences by his own mechanisms. We could reveal since the first sittings of the experimentation the two following remarks:

1 - Effect of the practiced discipline (positive for the Handballer and negative for the Footballer).

2 - Inaptitude of the defender to treat information in time especially against a clever attacker.

Interest and importance of the study:

Our purpose is to make trainers and teachers of sports more conscious of the necessity to take in consideration the personality of the individual (and of the group) to the psychic term, but especially mental one -Base training of the performance-. It is possible by a rigorous, flexible method that allows players to evaluate themselves alone in order to develop their technico-tactical capacities. The trainer helps them, correct, demonstrate, propose and orients them.

Trainer-Player relation:

Conception:

We must signal that the relation between the trainer and his players is a finality and not a convenience of work. This relation passes a spontaneous attitude to an organizational attitude, of development, before finishing to an attitude of assessment. The trainer "must delegate progressively to the group the choice for different possibilities, decisions and gives to this one the capacity to elaborate its own structures" (Raymond *et al.*, 1986). He chooses his objectives in the beginning and gives all orders and direct the sitting entirely. In an intermediate period, he accepts to exchange ideas of his players that can be constructive. Then, he helps them. He encourages their autonomy. He "must fade away in part, to die a little, in order to permit symbolically to exist an autonomous manner. While amputating themselves of a part of his authority, he will give simultaneously more initiative of responsibility" (MUCCHIELLI, 1990). However, the relative autonomy of players that doesn't explain not a directive aspect of the attitude of the trainer excludes on no account "the maintenance of the attention (of the trainer) on the theme, the regulation of exchanges, the protection of the situation of relation opposite the external and internal disruptions, the safeguard of the right equality to the expression of opinions, efforts of clarification or synthesis" (same reference). The trainer must intervene at the appropriate moments, when some tactical, technical or physical tasks prove to be very difficult to understand or to achieve.

Rules:

In the mind of the permissiveness of the trainer, we reveal 6 rules that must be respected.

- Not to intervene egocentrically.
- Not to question, to judge to interpret, to give instructions or ideas of "solution".
- To listen with the exclusive centration on his player (s), that is to say the intention to understand that he says with significances that it has for him.
- To rephrase (that is to say to express the result of the understanding effort) in order to get the player's agreement on what he meant to say.
- To clarify in cooperation on the basis of a relation of confidence and authenticity.
- Observation-participation.

The trainer must be therefore attentive, understanding, just. Players must respect him, but the trainer or the teacher of sports must respect them also.

The individualization:**Definition:**

It "Allows pupils to acquire, to their rhythm and according to their means a common fund of knowledge, while developing, at the same time or in the same way faculties" (GABAUDE, 1986). We must signal that the principle of individualization is not a conception, a scheduling or programming a procedure or mode of work. The trainer must take account of age, of the sex, of the psychic and physical capacities of his players and objectives pursued.

Rules:

To pass from the simple to the complex, to go from the easy to the difficult, to go from the known to the unknown, to pass the analytic to the global and the global to the analytic and to take account of the discipline.

Personality:**Definition:**

It is "The dynamic organization of psychophysical systems that determines the particular adaptation of every individual to his environment" (ALDERMAN, 1987). To explore and to discover the personality, inventories the more used are the "Cattell 16 PF", the "Edward Personal Preference Schedule". Features the more frequently valued for all inventories are "the autonomy, introversion-extraversion, the ancestry submissiveness, the emotional stability, the dominance, the confidence in one, self-dependence and aggressiveness" (Nadeau *et al.*, 1980). We can deduct of all these features, that the personality is located between 2 limits: the dependence with everything that it can generate like obedience and submissiveness and the independence with its qualities of autonomy and development. For the 1st type, Miller, Dollard and Skinner, the conception that they adopt is based on the notion "of habit or familiarization". According to them, the personality in

training depends "on diagrams of stereotypy reaction" signs. The educator must orient his learning toward the way that invites to him. This way is determined, according to Allport since the childhood of learning. It is "the functional", dynamic autonomy that is the fundamental structure of behaviour development, detected by the individual tendencies toward a very determined discipline, and again toward a very determined station. For the good development of the personality, Cattell underlines that there are some profitable training types: The classic conditioning to the origin of the link between the emotional reactions and stimuli, the instrumental training that founds some types of behaviour oriented toward the accession to a goal and the training by integration that supposes the necessary faculty of acquirement.

2.Methodology**Introduction:**

In spite of the individual differences of players, by their disciplines, and by their morphologies, we could adapt these to situations of game to their range, while taking account of the following points:

- The mental side: concentration or attention and treatment of information by the insistence on one against one during the game.
- The socio-psychological side: a dynamic of the group based on cooperation and helps him, the confidence in one, the feeling of responsibility and the egocentric tendency desertion.
- The motor side: to dedicate some minutes of individual warming-up so that players can solicit their muscles; then, to their manners, according to their disciplines, to make work muscles and the most suitable joints to the Basket: of the forearm, of the arm and legs, joints, in particular the wrist, the elbow and the ankle.

- The technical side: insistence on the technical gestures of basis: the dribble, the pass, shooting, the rebound and the interception.

- The tactical side: the most elementary systems:

In defence: The man to Man, the defensive fold and the pressing.

In attack: the "pass and go", the "pass and follows", and the "pass-screen and go".

Choice of the sample:

Our experimentation took place in the National Institute of the Sport Moulay Rachid, during three months, between the 17th of January (date of the Initial Test) and the 18th of April (date of the Final Test), with the frequency of two or three sittings per week. Therefore of ten sittings on average per month, of thirty sittings during the three months, without meetings out court to watch matches on TV or to the video or the explanation of the code of the arbitration

and the correct execution of the technical gesture. The efficient sitting lasted between one hour and one hour and half, during which we dedicated 20 minutes for a match. To the total, of 37 hours and half of practice on average. We saw that the experimentation is very appropriate with students of our Institute, because we preferred to work with adults and because all students are physically ready to undergo the specific effort to the Basketball, without big difficulties. Students who form the experimental group are of the third year and are to the number of 12, of different specialties that are: the Volleyball, the Handball, Soccer-Ball, athletics and the Boxing. Those that form the witness group, not benefiting themselves of the technical help of the trainer are of the fourth year and are also to the number of 12 and of different specialties that are: the Volleyball, the Handball, Soccer-Ball and athletics. We note that we chose other students with specialties the Sail, the Gymnastics and Judo to compensate the absence of some students. Finally, they are all men, Moroccan and foreigners.

Types of effort:

Students have a good physical condition. They can undergo a practice that asks for an effort of type alactic anaerobic or lactic anaerobic for a long moment. But we saw that it is advisable to take in consideration two elements:

1 - That the Basketball requires types of particular efforts, specific that defer some other disciplines, especially of the collective disciplines.

2 - That every type of effort uses itself at the appropriate moment of the following manner: The aerobic process in the beginning and at the end of the sitting, since there is a balance between the muscular effort and the contribution of oxygen. It is a collective work; it is an active warming-up shape, after the free and individual warming-up. We worked this process at the end of the sitting, after the match for a goal of active recuperation, so that the organism returns gradually to its initial state, of rest. The process alactic anaerobic by exercises of shooting in abeyance with defence or one against one. Concerning the lactic anaerobic process, it is remarkable during the match or during exercises of defensive or offensive rebound.

Level of groups:

Groups didn't have any big difficulties in general to acquire the technical gestures of basis correctly. On the physical plan, they had the well developed motor qualities (staying, resistance, strength and speed). Exercises or the efficient game time during the match are according to types of effort that they solicit. On the socio-psychological plane, since students live together, an understanding and cohesion characterized their behaviours. They showed evidence of a good mind of incentive, of courage of desire to learn and of responsibility in the game. We notice well that these

socio-psychological characteristics characterize these learning before even the experimentation.

Used material:

3 balls of Basketball compliant to the senior players, 7 Plotses of orange colour, 6 Bags of clothes, dossardses or the over of uniform colours, chalk, a whistle, forms of observations, documents of arbitration and faces explaining the technique, the explanatory pictures on white paper, television, video (exercises, tournaments and matches recorded of the television).

Met difficulties:

Lack of presence:

We found difficulties to gather all the groups (s), particularly at the end of the week, during exams, vacations where most students leave the institute. Therefore, we were obliged to work with those that were present. We took this factor in consideration, therefore, we chose most possible to work with the foreign students who are more available.

Change of timetables:

We could not have some stationary sittings, but we held to constantly have 2 or 3 sittings of initiation and practice in the changing timetables, often during the week where all students can be present. With foreigners, sittings are programmed Saturdays and Sundays generally. In the same way, we could work regularly during vacations.

Lack of material:

We didn't have the opportunity to work frequently in the ballroom. We worked on courts in full air; what is bothersome in case of bad weather. Besides, we could not program sittings during afternoons at a belated hour where everybody can be present, mistake of lighting.

Specificity of the discipline:

Although players are well skilled in their disciplines of specialty, we found difficulties to make undergo them the specific efforts to the Basket (change of rhythm, rebound, and interception). On the psychological plane, although they are motivated and courageous, they proved to be hesitant during the 1st sitting. Technically, the fact to be specialist in individual sports and opposition was a brake to the training. Topics that didn't exercise a collective sport (the Boxer, the Judoka, the one that convenient the Sail and Athletes) had some difficulties of gesture acquirement in time. However, their level in their sports allowed them to surmount and to pass the other topics. Their handling of the ball improved distinctly. Tactically, what was most difficult, players could not trigger of counter them for example attacks. In the same way, the system Man to Man didn't go well.

Big difficulty to treat information in time:

In spite of the progression with time, players could not guess in time especially on behalf of

defenders what the attacker had the intention to achieve. The attacker's task was at a time as laborious in presence of 2 defenders or more. This one didn't have the suitable reflex to disrupt the defender mentally while making him for example a make-believe or while doing pass signs. During the free-throws, players were hurried to play; players who tempted the free-throws were not concentrated well.

Very multiple infringements of rules during the game:

Mistakes committed by players were exclusively very multiple during the 1st sitting: Resumption of the dribble, to walk with the ball, bad passes, Return in zone, some rules were forgotten (3s, 5s, 10s, 30s) and direct mistake Abundance on adversaries.

The content of sittings:

Introductory Part:

Warming-up: Free during some minutes and controlled without balls, then with (controlled to avoid injuries).

Fundamental part:

It was composed of one or 2 exercises of defence: Blockage, marking of a player having or not having the ball, the fundamental of attack,: dribble, pass and shooting, insistence on the fundamental that stimulate the mental capacities: make-believe and screen in attack, interception and against in defence and exercise having a specific effort to the Basket: Of lactic anaerobic: game of legs or rebound and recuperation by the free-throws and walking.

Final part:

A Match of 20mn to the course of which, we intervene to give indications of regulation, to execute the technical gestures correctly and to play collectively: defensive fold, man to man in defence, against attack and application of some simple individual tactics as the "pass and go", the "pass-screen and go" or blockage between the 2 pivots in attack and exercises of softening and stretching.

Description of tests:

During the efficient game, during a match of 20mn and with the help of forms of observation, we reveal to every player and every team for the two groups the number of successful trials that it is in defence or in attack.

In defence:

On the individual plane: the defensive rebound, the interception and the against.

On the collective plane: orientation, the hold of risks and help.

In attack:

On the individual plane: shootings (in race, in suspension to mid-distance and the free-throws), the pass and the offensive rebound.

On the collective plane: the fast rise of the ball, the fixing of the adversary, the dangerous zone occupation and the game without ball.

Our purpose is to interpret the technical gestures; therefore we will only value the individual elements of defence and the attack.

Tasks and applied procedures:

The goal of our survey is to detect the degree of self-learning of the technical gestures of basis in Basketball, between a group that benefits itself of help, explanation and correction (experimental group) and between a group that trains only and cheeks only without intervention, taking a personal effort as a basis (witness group). In defence, we value to every group, during the initial test and the final test: the defensive rebound, the interception and the against, then, the defensive rebound only for the Pivot player. In attack, we observe -before to value- shootings (in race, to mid-distance in abeyance and the free-throws), the pass and the offensive rebound for all the groups. In the same way, we will value shooting to mid-distance for the winger player and the pass for the quizmaster of game.

Form of observation:

	0'	5'	5'	10'	10'	15'	15'	20'
Shootings								
Observations								
Winnings of the ball								
Def. R								
Off. R								
Decisive passes								
Losses of the ball								
Errors								
Mistakes								
F-Throws								

Example of assessment form: Name and First name Date

Pivot / (Defensive rebound)	Value	Initial Test	Final Test
Displacement only for an investment	0		
Impulse, unbalanced body,	2		
Impulse, balance, closed arm,	4		
Impulse, balance rebound to a hand	6		
Impulse, balance rebound to 2 hands	8		
+ Open arms + perfect Timing	10		
Winger / (shooting to mid-distance)			
Unbalanced player.	0		
Balance, facing the basket,	2		
(2) + look extract on the circle	4		
(3) + right elbow, incomplete extension,	6		
Complete extension of the elbow	8		
(5) + whipped final of the wrist	10		
Quizmaster / (decisive passes)			
Bad / unbalanced	0		
In bell	2		
Extended, but very strong	4		
To the rebound (against a defender)	6		
To the back	8		
In dribble, in time	10		

General mark (I Test)**General mark (F Test)**

During the match, when the player acquires a technical gesture, we put a cross on the corresponding slot. If he shows the same gesture, a second cross is put on the same slot, and so on. For a precious component, we count the number of cross and the corresponding mark, then we divide the number of points by the number of cross; we find the "success of preparation". The approach is the same for the other components. We get a mark then for each of the 3 components. The 3 marks are added and are divided by 3, what finally gives a general mark of the corresponding player. Thereafter, this general mark is converted in percentage. Every player is valued by a percentage of specific technical gesture success in his station. We are going to present an example of form of technical gesture assessment. This form, we used it for players: the Pivot, the winger and the quizmaster of the 2 groups. The form being rised to evaluate 2 components. The first component is the defensive rebound, specific to the Pivot:

- The player's displacement to have a good investment (0/10).
- Impulse (jump), unbalanced body (2/10).

- Impulse, balanced body, but closed arm (4/10).
- Impulse, very balanced body but rebound to a hand (6/10).
- Impulse, tremendously balanced body, rebound to 2 hands (8/10).

Impulse + open Arms to have enough area + perfect Timing (10/10) (the ideal). The same procedure is followed for the composing number 2 (shooting) and the composing number 3 (passes). So that the assessment is meaningful, we will compare the final test of the experimental group to the final test of the witness group. There is accumulation of points. We begin the bad toward the ideal.

Used statistical methods:**The percentage:****The Student test:**

The percentage, we calculate it by the rule of 3.

The Student test requires:

1 - The arithmetic average: It is an indication to central tendency, it has as a rule:

X_i : The value of the basis.

N_i : The number correspondent to this class.

The gap-type:

It is the middle distance between the different classes n_i and the average m ; it is expressed by the

N : Total numbers.
V : Variance.

$$S = \sqrt{\frac{N_1V_1 + N_2V_2}{N_1 + N_2 - 2}}$$

The gap-type permits to measure degrees of homogeneity of the statistical set. For the analysis of the significance, we will proceed through the intermediary of the Student test. The 2 possible cases are:

- 1) m_1 and m_2 are not meaningfully different (IT).
 - 2) m_1 and m_2 are meaningfully different (FT).
- {t: quantity that expresses the test.

$$m = \frac{\sum_{i=1}^n i = 1x_i}{n}$$

Once the quantity (t) is calculated, we do the reading of 0.05 in the table of the distribution of Student for a value: $V = (N_1 + N_2) - 2$ degree of liberty. The found value is added on the one hand to zero and on the other hand it is entrenched of this one, we get an interval which is under shape of $\{-a, a\}$ having for center 0. Then, we verify so {t} belongs to this interval or no. So (t) belongs to this interval, we deduct the first case. So (t) doesn't belong to this interval (second case) and we deduct that m_1 and m_2 are meaningfully different.

Analysis and Interpretation of Results

Results and Analyses of the Defensive Rebound:

Initial Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 / m_1 = 0.58$ and $X_2 = 0.75$ ($V = 22$). $S = 1.18$; $\langle t \rangle = 0.35$.

The value found in the picture of distribution student for $t = 0.05$ are 2.074; therefore the interval of confidence = $[-2.074; 2.074]$. The value "calculated t" that is 0.35 is included in I, therefore the X_1 and X_2 averages of the 2 groups of T_i are not meaningfully different, because distribution was uncertain and we didn't introduce our independent variable again (orders).

Final Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 1.5$ and $X_2 = 0.41$. $S = 1.09$; $\langle t \rangle = 2.47$. The value "calculated t" that is 2,47 is not included in I. there is a meaningful statistical difference therefore at the level between the 2 groups of the test of the defensive rebound. We can bind this improvement

following rule:

$$\delta = \sqrt{\frac{\sum_{i=1}^m i = 1x_{i1}^2 n_i}{N} - m^2}$$

$$t = \frac{m_1 - m_2}{S \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}}$$

then to the introduction of our independent variable (necessary orders and demonstration of the gesture during the training). Before introducing our variable, X_1 and X_2 were not meaningfully different and it is only after the introduction of our variable that X_1 and X_2 became meaningfully different, from where the effect positive and indispensable of this variable in the improvement of the defensive rebound. (The control of the ball and the adversary, the balance, the anticipation and the timing are the main orders).

Results and analyses of the Offensive Rebound:

Initial Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 0.41$ and $X_2 = 0.50$. $S = 1.09$; $\langle t \rangle = 0.20$. The value "calculated t" that is 0.20 is included therefore in the interval, the X_1 and X_2 averages of the 2 groups of the IT are not meaningfully different, because, distribution has been made uncertainly and we didn't introduce our independent variable again (the necessary help by the explanation and the demonstration).

Final Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 1.08$ and $X_2 = 0.25$. $S = 1.04$; $\langle t \rangle = 4.88$. The value "calculated t" that is 4.88 is not included in the interval of confidence; there is a meaningful difference therefore at the level between the 2 groups of the test of the offensive rebound. We can bind this improvement then to the introduction of our independent variable (orders and demonstration). It is well clear by to the Student test. Before introducing our variable, X_1 and X_2 were not meaningfully

different and it is only after the introduction of our variable that X1 and X2 became meaningfully different; from where the effect indispensable of our variable in the improvement of the offensive rebound; players of the experimental group could avoid blockages and could have a suitable timing. In the same way, they could determine the area of the ball.

3.Results and Analyses of "the decisive" pass:

Initial Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 0.5$ and $X_2 = 0.58$. $S = 1.04$; « t » = 0.19. The value "calculated t" that is equal to 0.19 is included therefore in the interval of confidence, the X1 and X2 averages of the 2 groups of the initial test are not meaningfully different, because distribution has been established uncertainly, and we didn't introduce our independent variable again (orders).

Final Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 0.5$ and $X_2 = 0.41$. $S = 1.04$; « t » = 2.59. The value "calculated t" that is 2.59 is not included in the interval of confidence; there is a meaningful statistical difference therefore at the level between the 2 groups of the test of the decisive pass. We can bind this improvement then to the introduction of our independent variable (Intervention of the trainer). This deduction is made from the test of Student. Before introducing our variable, X1 and X2 were not meaningfully different and it is only after the introduction of our variable that X1 and X2 became meaningfully different from where the effect positive of the variable in the increase of the decisive passes. (Factors: correct technique, mind of group and timing).

Results and Analyses of the interception and the against (Winnings of the ball):

Initial Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 0.75$ and $X_2 = 0.41$. $S = 1.04$; « t » = 0.80. The value "calculated t" that is equal to 0.80 is included therefore in the interval of confidence; the X1 and X2 averages of the 2 groups of the initial test are not meaningfully different, because distribution has been established uncertainly and we didn't introduce our Independent variable again (orders).

Final Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 1.41$ and $X_2 = 0.41$. $S = 1.04$; « t » = 2.38. The value "calculated t" that is 2.38 is not included in the interval. There is a meaningful statistical difference therefore at the level between the 2 groups of the interception and the against. We can bind this

improvement then to the introduction of our independent variable (orders). Before introducing our variable, X1 and X2 were not meaningfully different and it is only after the introduction of our variable that X1 and X2 became meaningfully different; from where the effect positive of the variable in the training of the interception and the against. These 2 gestures put players in a problem-situation, what requires some mental qualities in particular (the defender must discover an attacker's action that gives a pass in time, or an attacker that shoots, without committing mistakes).

Results and Analyses of the resumption and to walk with the ball (Errors):

Initial Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 1.08$ and $X_2 = 1$. $S = 1.04$; « t » = 0.19. The value "calculated t" that is equal to 0.19 is included therefore in the interval of confidence, the X1 and X2 averages of the 2 groups of the initial test are not meaningfully different, because the distribution of players has been made uncertainly and we didn't introduce our independent variable again (interventions in the training).

Final Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 0.33$ and $X_2 = 1$. $S = 1.04$; « t » = 1.59. The value "calculated t" that is 1.59 is not included therefore in I., the 2 X1 and X2 averages of the 2 groups of the final test are not meaningfully different, because we insisted during sittings of training and practice on the respect of the regulation notably to walk with the ball (only 2 steps are allowed for example in a shooting in race) and the resumption of the dribble (the attacker, if he stops dribbling, he must shoot or gives a pass). The concentration in the game is an indispensable factor.

Results and Analyses of shooting in race (successful):

Initial Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 37.5\%$ and $X_2 = 28.5\%$. Percentages of shooting success in race of the 2 groups are not meaningfully different, because the distribution of topics is uncertain and the Independent variable (orders) is not introduced yet.

Final Test:

Comparison of results of the experimental group to results of the witness group.

$X_1 = 77.7\%$ and $X_2 = 42.8\%$. Percentages of shooting success in race of the 2 groups of the final test are meaningfully different. We can bind this difference to our variable (orders and demonstration

during the training concerning the experimental group). The result of the witness group although it is improved a little, it is not satisfactory. During sittings of training, players learned shooting in race that must be done without hesitation, without, then with adversary with the help of one against one and with the help of the match.

Results and Analyses of shooting to mid-distance (successful):

Initial Test:

Comparison of results of the experimental group to results of the witness group.

X1 = 55.1% and X2 = 50%. The difference between the 2 percentages is not meaningful because the distribution of topics is uncertain and because the independent variable (our intervention in the correction and the demonstration of the gesture) is not introduced yet.

Final Test:

Comparison of results of the experimental group to results of the witness group.

X1 = 86.3% and X2 = 59.2%. The percentage of success of the shooting of the witness group is middle. As for the experimental group, the percentage of shooting success to mid-distance is equal to 86.3% what proves that the players of the witness group don't manage to correct themselves. According to these figures, we can bind the difference between the 2 groups to orders, only assigned to the experimental group: balance, decision making, extension of the

elbow, whipped of the wrist and to the demonstration of the gesture during sittings of training and practice.

Results and Analyses of the free-throws (succeeded):

Initial Test:

Comparison of results of the experimental group to results of the witness group.

X1 = 31.2% and X2 = 36.3%. Percentages success of 2 groups are not meaningfully different, because the distribution of topics is uncertain and the Independent variable (orders and correction of the gesture) is not introduced yet.

Final Test:

Comparison of results of the experimental group to results of the witness group.

X1 = 83.3% and X2 = 43.7%. The percentage of success is distinctly different between the 2 groups. The improvement is distinctly meaningful at the experimental group. As for the witness group, although it knew an increase of success of 7% in relation to the initial test, its technical level remained stagnated. The difference comes back therefore to our independent variable (learning of the gesture). Since the beginning of the experimentation, we insisted first of all on the concentration, the good trajectory of the ball, the adequate position of the elbow, the complete extension of the elbow, whipped it of the wrist and the impulse of legs at the time of the execution of the free-throws.

According to the form of assessment:

Value	FT (W.G)	FT (E.G)	% of success	
0	xx	X	FT (W.G)	FT (E.G)
2	xxxxx	xx	36	63
4		xxxx	Pivot	
6	xxx	xxx	% of success	
8	xx	xxxxxxxxx	FT (W.G)	FT (E.G)
		xxxxxxx	46	78
10			Winger	
0	XXX		% of success	
2	XX		FT (W.G)	FT (E.G)
4	XXXX		35	63
6	XXXXXXXX XXXXXX	XXXX	Quizmaster	
8	X	XXXXXXXX XXXXXXXX	% of success	
10		XX	FT (W.G)	FT (E.G)
0	XXXX	X	35	63
2			Quizmaster	

Pivot 7 and 11 : (t) (e)
Defensive rebound.
General mark
7 = 3.6/10
11 = 6.3/10

Winger 8 and 12
«Shooting to mid-distance»
General mark
8 = 4.6 /10
12 = 7.8/10

Quizmasters
10 and 15:
« Decisive Passes»
General mark
10 = 3.5/10
15 = 6.3/10

Analysis and Interpretation of the assessment form:

We note that we didn't evaluate the initial test of the 3 players (Pivot, Winger and Quizmaster) because the difference of the 2 groups' level is not meaningful, view that the distribution of players is uncertain and the independent variable (orders) is not introduced yet.

The Pivot (FT):

We observed his defensive rebound. The one of the player 7 of the witness group, the percentage of success at the time of the execution of this gesture is equal to 36%, what is very low in relation to the percentage of the player 11 of the experimental group that is equal to 63%. During sittings of training, we insisted on the blockage of the adversary player, the balance, the timing and the clearance of the pass after the recuperation of the ball.

The winger:

We observed his shooting to mid-distance. The percentage of success of the one of the witness group is equal to 46%, what is very lower to the percentage of the player 12 of the experimental group (78%). During sittings of learning, we insisted on the complete execution of the elbow, whipped it of the wrist, the balance and the determination; the player must not hesitate at the appropriate moment.

The quizmaster:

We observed his decisive passes. At the 10, the percentage of success is equal to 35%, what is very low in relation to the one of the 15 (63%). The pass must be short, tense and at the appropriate moment.

General interpretation:

According to the analysis of results of the different variables observed of the two groups, we recorded a clear progression of topics forming the experimental group; it proves that we succeeded in teaching them these variables while taking continually in consideration their psychological side and their mental side. Concerning the Rebound (defensive here, but offensive also), the player who tempted this gesture could have the anticipatory mind and of initiative, a spatial sensation of the ball and the adversary and an acceptable timing. He could even neutralize the player of large size, while making him a blockage. Concerning the pass, it represents as the lonely attack variable among the chosen variables. It reveals a social character, because it requires a team mate at least. The mind of group proved to be primordial for a collective game as the Basketball. From the experimentation, topics had an egocentric and selfish tendency in the beginning, even in a bad position of shooting. Instead of giving a pass the shooter; what is not noticed at the end of the experimentation. With regard to the interception and the against, we noticed that they present the alone

variable that puts the defender in direct relation of confrontation with the attacker. This relation of confrontation called on treatments of information (learned before and discovered in efficient game during the match), on behalf of the attacker that had to free himself to shoot or to give a pass and of the defender who was in recalcitrant period, trying to neutralize the attacker and to recover the ball. For shootings, there is the shooting of the free-throws, which asks for a big precision and concentration only, what is achieved but in a moderate manner. As for shooting in race, the player who tempted him could have a mind of initiative, therefore, he doesn't have the hesitation more to overflow an adversary. For shooting in suspension, we worked only on shooting to mid-distance that is essentially for the correct technique (jump to the vertical with impulse of legs, extension of the elbow and whipped of the wrist). For the resumption and to walk with the ball, by the respect of the regulation, players could avoid them. During sittings of training of all quoted variables, we insisted on the support, the investment, the displacement, the balance, the coordination, kinaesthetic sensations and spatio-temporal, one against one, that requires the work to revolve it in particular, of the make-believe, the interception and the against and the application of some simple tactics as the "pass and go", the "pass and follow" and the "pass-screen and go", while always insisting on the physical balance, psycho-mental and the timing for all defensive or offensive action.

4. Discussion:

From the analysis and the interpretation of results of the experimentation, we could deduct that all observed technical variables are acquired well by topics forming the experimental group. According to the initial test and with the help of the test of Student, all found figures are included in the interval of confidence [-2.074; 2.074]. On the other hand, the final test permitted us to note that all statistical variables are all excluded of the interval (case of the defensive rebound, the offensive rebound, the decisive pass, the interception and the against). Concerning the resumption of the dribble and to walk with the ball, these variables appear to the final test in the interval of confidence because it is about "fouls" that must be necessarily more and more taught. It is the case of losses of the ball and mistakes. According to the final test shooting in succeeded race knew a substantial percentage in addition, at the experimental group (77.7%); as for the witness group, it remained stagnated (42.8%). In the same way, for succeeded shoots from mid-distance, the final test showed us that the percentage of success is the order of 86.3% at the experimental group; at the witness group, it is

only equal to 59.2%. The free-throws at the experimental group presented a percentage of 83.3%, on the other hand, 43.7% at the witness group. With regard to the technical gesture assessment, we observed at the Pivot the defensive rebound and we found 63% of success at the time of the final test. At the winger, we observed shooting to mid-distance while finding 78% of success. At the Quizmaster (organizer) of the experimental group, the decisive pass knew a percentage of success of the order of 63%. In defence, the different topics of the experimental group learned easily on the individual plane supports, the investment, the displacement and the rebound, but with difficulty the against, the interception, the marking and the pressing because of a big difficulty to treat information in time and because in their unconsciousness think that they are not liveliness to face adversaries. On the collective plane, help is remarkable during the game (positive dynamic of the group), but the hold of risks was not always existing, because their game doesn't have a very competitive character and for lack of tactical thought. In attack and on the individual plane, the dribble, the pass, shooting, the mark-down, the make-believe is assimilated very well, in opposition to revolve it, of the screen and switching that prove to be difficult during the match and for topics little advanced in the discipline. On the collective plane, the fixing of the adversary is not always assured, but the game without ball revealed a big profitability in the different simple tactics of attack.

Conclusion:

So that a survey is generally very meaningful, some intervening variables must be held in account. If we want to have a valid survey indeed, we must make topics of the experimental group undergo and those of the witness group the same conditions of work; what asks for a permanent control. Effectively, students of the two groups are interns, they live in group, therefore, they undergo largely the same conditions of life, notably studies, since they are the same promotion. The only distinction to signal turns up to the theoretical and convenient sittings of the experimentation; it is that only the experimental group underwent intervention in the different technical gesture training. With regard to the theoretical setting of the survey, we could verify that the self-learning is the final phase of the learning (first hypothesis). Indeed, topics of the experimental group passed by a cognitive phase, during which they could know rules of the game, the correct technique of the gesture, the regulation and some simple collective tactics. Then, they passed by an associative phase, that proved to be indispensable for the fixing and the diversification of gestures in the memory, to

succeed to an autonomous phase. As for the most efficient training method, we could note that it is the method that combines the two methods: the analytic and the global (in the global analytic path), for a methodical goal. The training takes the progression and the repetition to acquire gestures of easiest to most difficult as a basis and to automate them, then to finish with the global method that assures to the topic an intensive involvement, while leaning on help that can bring the modern method, by its audiovisual techniques and its teaching programmed, planned (second hypothesis). The intellectual features prove to be indispensable in the cognitive formation of the topic, notably the spatio-temporal perceptions and the tactical thought, since the Basketball is a collective game of attention and concentration, primordial, especially in the beginning of the training. These respected features, could assure to topics a suitable treatment of information, allowing the learning a permanent motor control with the help of the feedback, of them or of the trainer. Thus, the psychological recalcitrant period is minimized considerably between defenders and attackers during matches. However, the absolute self-learning doesn't exist, because learning it often has need of a trainer that watches over his cleverness, cognitively by the rational and systematic explanation of the multiple technical gestures and physically by the concrete demonstration. The self-learning proves to be a finality or an objective and no a mode or a procedure of work.

Propositions:

Proposition 1:

According to our survey we could verify that in fact the self-learning is the final phase of learning. Players must remain for a long period (during some sporty seasons) under the tutelage of their trainer so that they can follow a cognitive phase imperatively, an associative phase and to finish with the autonomous phase. During this last phase, topics can learn and can perfect their cleverness, without being very dependent of the trainer. Thus, the self-learning is conceived like a finality and no like a procedure of work.

Proposition 2:

We could note that it is necessary to avoid the old components of the learning mechanism: the imitation, the application of rewards and punishments, tests and mistakes. The first, we can replace it by the demonstration to learn it as a model to understand and to assimilate, but not to trace it. The second, we can replace it by a financial assignment to all learning to be sufficient their different expenses, but to motivate those that proclaim a big desire to teach. The third component contrasts itself with the

scientific foundation of the technical gesture. The groping is not anymore very useful.

Proposition 3:

During the development of the motor diagram, we must not occupy the learner by new tasks, if he didn't assimilate again that we assigned to him.

Proposition 4:

The correct technique of the technical gesture rises from sciences notably the biomechanics and psychology and no at random. If there is an alert in the United States, percentages of address are in fall, and there are less good shooters, it is because trainers and players don't grant importance to the technique or the style of shooting. Persons responsible of the Basketball to the highest level are even glad with a player who grants 10 baskets or in succession and spleen 10 other baskets in succession (for lack of practice).

Proposition 5:

Within every sporty institution, the trainer or the professor of sports must not be only "a talker". He must be inevitably demonstrator, to give the example, or the model of the correct technique, because "the knowledge is an active assimilation of the real. The thought finds its origin in the sensory-motor activity and no in the perception. Some works seem to show that the language is not so a transmission mean of certain shapes of reasoning, but that it is rather these shapes of reasoning that are a previous to the acquirement of the language" (Renchlin & Huteau, 1980). Therefore, the "alone verbalization" is quite insufficient. All sports have two inseparable sides: the cognitive and the motor.

Proposition 6:

If we want to form some future Basketball players, we must have some enormous and permanent or less sufficient budgets thanks to investments (Subsidies, grants, sponsoring...). Schools and universities specialized in sport, clubs and societies are cells that form the big cloth: THE SPORT...

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