What Skills and Tactics Are Needed to Play Adult Pick-Up Basketball Games?

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Abstract

The purpose of this study was to examine skill levels and performance patterns of regular players of pick-up basketball games. By a survey, 65 participants were identified as regular players and participated in the study. An observational instrument used to analyze game performance of the participants was developed and both content and construct validity of the instrument were established. Results indicated that the chest pass, overhead pass, bounce pass, and one-hand pass were frequently used passing skills; forward dribble, crossover dribble, and change-of-pace dribble were frequently used dribbling skills; and the jump shot, set shot, and layup were frequently used shooting skills. Hands up, jump and reach, two-hand catch, and box out were frequently observed in the games. The offensive tactics frequently observed were straight cut, straight drive and layup, and set screen, and the defensive tactics were steal intent, pressuring the dribbler, block intent, hand up, and defensive slide. The findings may help physical education teachers decide what skills and tactics should be taught in a basketball unit so that students can enjoy playing pick-up games.

Keywords: regular player, tactics, performance

Sport-skill acquisition has long been one of the most important foci of school physical education in the United States. Traditionally, sport-skill acquisition has been advocated by physical educators who hold the value orientation of discipline mastery, which focuses on the mastery of sport skills, as well as sport-related knowledge (Ennis, 1992; Schrag, 1992). As obesity is increasingly becoming a national concern, sport-skill acquisition is considered an important factor contributing to children's physical activity participation (Welk, 1999). It is also generally assumed that the mastery of some sports skills by children will contribute to their physical activity participation in the future, as adults (Rink, 2010). As a result, helping students develop movement competency in sports and activities has become an important outcome of quality physical education programs (National Association for Sport and Physical Education [NASPE], 2004; Rink, 2010; Silverman, 2005).

While it is widely accepted that developing students' 'movement competency' in sports and activities will contribute to students' physical activity participation, it remains ambiguous and uninvestigated to what extent that 'movement competency' should reach, in order to facilitate students' physical activity participation as children now, and most importantly, as adults in the future. This is especially true for high school students, whose level of 'movement competency' at graduation could well be associated with their physical activity level after graduation. Also, ambiguity in 'movement competency' can make physical education teachers uncertain when they try to decide what should be taught in physical education programs. When addressing this problem, Rink (2010) stated:

> The national standards for physical education use the term *competency* to describe the expected level of performance in movement activities. Because this term is generally described but not specifically applied in the materials, teachers or individual states or districts would have to determine what exactly competency means applied to a specific activity. (p. 243)

In fact, some physical educators in the United States experienced difficulties applying these national standards to their teaching practices. The teachers felt "the standards were too general in nature… did not provide teachers with practical assistance in developing actual lessons to help students reach benchmarks." (Chen, 2006, p.137)

Consequently, uncertainty in 'movement competency' may compromise the implementation of the national standards. To follow the national standards, physical education scholars have suggested that teachers may develop program curricula by using the standards-based approach (Lambert, 2003; Lund & Tannehill, 2005) or achievement-based approach (Kelly & Melograno, 2004). The standards-based approach requires teachers to first identify ultimate learning outcomes that reflect what students should achieve at the graduation of high school, and then use the 'planning-down' design process to determine what students should achieve at each grade from grade 12 to kindergarten. While this approach is intended to implement the national standards, and sounds more meaningful for students to master sports skills (Lambert, 2003), it is difficult to operate due to the lack of knowledge of the ultimate learning outcomes. We have to ask this question: Will high school students be competent enough in skills to regularly participate in sports and physical activities after graduation? Apparently, performance standards, with clearly defined competence levels in specific sports and activities, in addition to NASPE content standards, are needed for teachers to develop the program curricula, and to decide what should be taught.

Basketball is one of the most popular sports in the society and public schools of the United States. Based on the most recent *School Health Policies and Programs Study* conducted by The Centers for Disease Control and Prevention (Lee, Burgeson, Fulton, & Spain, 2006), basketball ranked first in public schools as a physical education content area (95.6% of all public schools), an intramural activity (42.2% of all middle schools and 37.2% of all high schools that offered intramural activities), and an interscholastic sport as well (76.4% of all middle schools and 90.9% of all high schools that offered interscholastic sports). Basketball is also considered a lifetime physical activity due to its leisure nature and flexibility of play (NASPE, 2004).

For such a popular sport and lifetime physical activity, however, it is unclear what skill levels students should achieve

in order to enjoy playing basketball as a lifetime physical activity in adulthood. Although physical education teachers can refer to a variety of resources to determine what students should master in basketball units, these resources are either irrelevant, or seldom provide consistent suggestions.

Most studies on basketball performance have focused on performance of elite basketball players. Research has shown that the variables of two-point-field goal percentage, three-point-field goal percentage, rebounds, steals, turnovers, and personal fouls in basketball games often significantly affect game results (Akers, Wolff, & Buttross, 1991; Leicht, Spinks, & Lukins, 2005). However, the results on elite basketball players may provide teachers with little help for preparing regular, leisure-time basketball players.

Activity resource books that include basketball sections are available in the United States, and these books are popular and authoritative resources for physical educators to use when teaching specific activities and games (e.g., Fronske, 2005; Mood, Musker, & Rink, 2007; Schmottlach & McManama, 2006; Wissel, 1994). However foci on basketball skills and tactics in these books are different. With regard to passing skills, for example, overhead pass and one-hand pass were discussed in one book (Mood et al., 2007), but not mentioned in another (Fronske, 2005). As for basketball dribbling, Schmottlach and McManama (2006) included speed dribbling, crossover dribbling, and reverse dribbling, whereas Mood et al. (2007) did not cover any types of dribbling. Similar discrepancies occurred when addressing other basketball skills and tactics in these resource books. Detailed information of inconsistent foci among these resource books is presented in Table 1.

Table 1. ***Skills and tactics of offense and defense addressed by resource books***

	Basketball Steps to Success (Wissel, 1994)	Teaching Cues for Sport Skills for Secondary (Fronske, 2005)	Sports and Recreational Activity (Mood, etc. 2007)	Physical Education Activity Handbook (Schmottlach & McManama, 2006)
Skill				
Dribbling				
Speed dribble	x	x	--	x
Crossover dribble	x	x	--	x
Between-leg dribble	--	x	--	--
Reverse dribble	x	x	--	x
Change-of-pace dribble	x	--	--	--
Retreat dribble	x	--	--	--
Behind-the-back dribble	x	--	--	--
Inside-out dribble	x	--	--	--
Passing				
Chest pass	x	x	x	x
Bounce pass	x	x	x	x
Baseball pass	x	x	x	x
Overhead pass	x	--	x	x
One-hand pass	--	--	x	--
Behind-the-back pass	x	x	--	--
Sidearm pass	x	--	--	--
Shooting				
Set shot	x	x	x	x
Jump shot	x	x	x	x
Layup	x	x	x	x
Dunk	--	x	--	--
Hook shot	x	--	x	--
Free throw	x	x	--	--
Rebounding				
Box out	x	x	--	--
Hands up	x	--	--	--
Two-hand catch	x	--	--	--
Jump and reach	x	--	--	--
Tactics				
Offensive tactics				
Pick-and-roll	x	x	x	--
Set screen	x	--	--	x
Step back shot	x	--	--	--
Drop-baseline shot	x	x	--	--
Drive	x	--	--	x
Cut	x	--	--	x
Fake-and-go	x	--	--	--
Give-and-go	x	--	x	x
Defensive tactics				
Man-to-man	--	x	--	--

Note: "x" = Skills or tactics addressed in resource books; "--" = skills or tactics not addressed.

In addition to basketball resource books, states and school districts in the United States sometimes provide their own physical education curriculum guidelines. Teachers in these states or in these school districts can use the guidelines to select teaching content. These resources, however, share the same problem of inconsistency regarding what should be taught in basketball units, and there is little evidence that any ultimate learning outcomes, resulting from empirical studies, have been used to develop these guidelines (e.g., California Department of Education, 2009; Madison Public Schools District, 2008; South Carolina Department of Education, 1989).

As is now known, the traditional physical education programs that are 'athlete-oriented' no longer meet our students' needs (Corbin, 2002). An alternative approach to teaching physical education, which targets the preparation of regular participants for physical activities, has been advocated. From the perspective of public health, it is desirable to investigate the competence levels (motor skills) our high school graduates possess, to ascertain if they are ready to regularly participate in physical activities in the future. For this reason, physical education scholars have called for more studies on competence levels (motor skills) in specific activities. As Rink and Stewart (2003) pointed out:

> What our profession most needs is a study of the skill level of the participant. We need to know what level of skill is related to continuous participation in an activity. We need to determine the level of skill people have, who participate in an activity regularly. (p. 582)

Thus, an appropriate approach, to scientifically determine skill levels of regular participants of basketball, is to investigate skill levels demonstrated by regular participants in real leisure time pick-up basketball games. Therefore, the purpose of this study was to identify skill levels and performance patterns of regular players of pick-up basketball games. Specifically, the study was designed to answer the following questions: (a) What basic skills of basketball are most frequently used by regular players in pick-up games? (b) What defensive and offensive tactics are most frequently used by regular players in basketball pick-up games? The intention of this study was to help understand the level of competency for regular participation in leisure-time basketball games, thus providing references for physical education teachers to decide what to teach, in order to prepare lifetime participants for basketball.

Method

Participants

One hundred and twelve adults, who were 18 years old or older and played pick-up basketball games in public facilities, were initially recruited to participate in the study. Attempts were made to recruit participants from different places and times, in order to have the best representatives of regular players of pick-up games. The participants were recruited from basketball courts located in two parks, two universities, one church, and one large enterprise in three different cities in central California in the United States at different periods of daytime (from 5:30 a.m. to 9:30 p.m.), during both weekdays and weekends.

Sixty-five players from the initial 112 participants were identified by survey as regular players. For the purpose of this study, the regular players were defined as those who played pick-up games

for at least 40 cumulative minutes per week for a minimum of one year, and these regular players were the final participants of the study. The remaining 47 initially recruited participants were excluded from the study because they failed to meet the time requirement as a 'regular player' defined above. The participants (N = 65) ranged in age from 18 to 64 years, with a mean age of 33.1 years (SD = 12.2). Of the 65 regular players, approximately 50% played in pick-up games for ten years or more; 73.8% played in basketball intramural programs and/or basketball teams at secondary school and/or college levels; and 97.4% rated their skill level in basketball as fair, good, or excellent. The detailed demographic and background information of the participants is presented in Table 2.

Table 2. ***The Demographic Information of the Participants in the Pick-Up Basketball Games***

Variables	Percent
Gender	
Male	93.6
Female	6.4
Age	
18-29	52.6
30-39	15.6
40-49	20.7
50-65	11.1
Race	
Asian or Pacific	7.7
Black	34.6
Latino	21.8
White	33.3
Other	2.6
Prior Experience in Basketball	
Basketball intramural program and/or school team in secondary school	38.5
Basketball intramural program and/or school team in college/university	35.3
No participation in any programs in basketball	26.2
Years of Playing Pick-Up Basketball Games	
1-3	28.2
4-6	16.7
7-9	6.4
10 or more	48.7
Self-Perception of Skill Levels in Basketball	
Poor	2.6
Fair	38.5
Good	48.7
Excellent	10.2
Place of Learning Basketball Skills	
Sport camp	11.5
Physical education class	11.5
School athletic program	28.2
Self-learning	33.3
Friends and or family members	15.5

Observational Instrument

A conceptual model was developed to help understand virtually all possible skills, tactics, and relevant components used in a pick-up basketball game and to analyze game performance of the participants (see Figure 1). The indicators and sub-indicators of skills and offensive/ defensive tactics presented in the model were selected from the popular basketball textbooks such as *Basketball: Steps to Success* (Wissel, 1994). There were four indicators used to describe basic skills (passing, dribbling, shooting, and rebounding), and two indicators for tactics (offensive and defensive tactics). Relevant sub-indicators were included under each indicator. The free throw and three-point shot were not included as sub-indictors under 'shooting', because not all groups of the participants used such shots in their games. For the sub-indicators under 'offensive tactics', only those most commonly used in one vs. one, or two vs. two conditions were included, such as drive, cut, give-and-go, pick-and-roll, set screen, and fake-and-go (Wissel, 1994). Defensive tactics, such as zone defense and player-to-player defense, were not included due to the complex nature of pick-up games.

Based on the conceptual model, an observational instrument, containing a coding sheet and definitions of the indicators and sub-indicators in basketball, was also developed. Three steps were used to validate the observational instrument. The first step was to achieve the content validity of the instrument. Two college basketball coaches and one high school coach were invited to review the indicators and sub-indicators. The intention of the review was to help the researchers include the most critical skills and defensive and offensive tactics that might be frequently used by regular players during pick-up games.

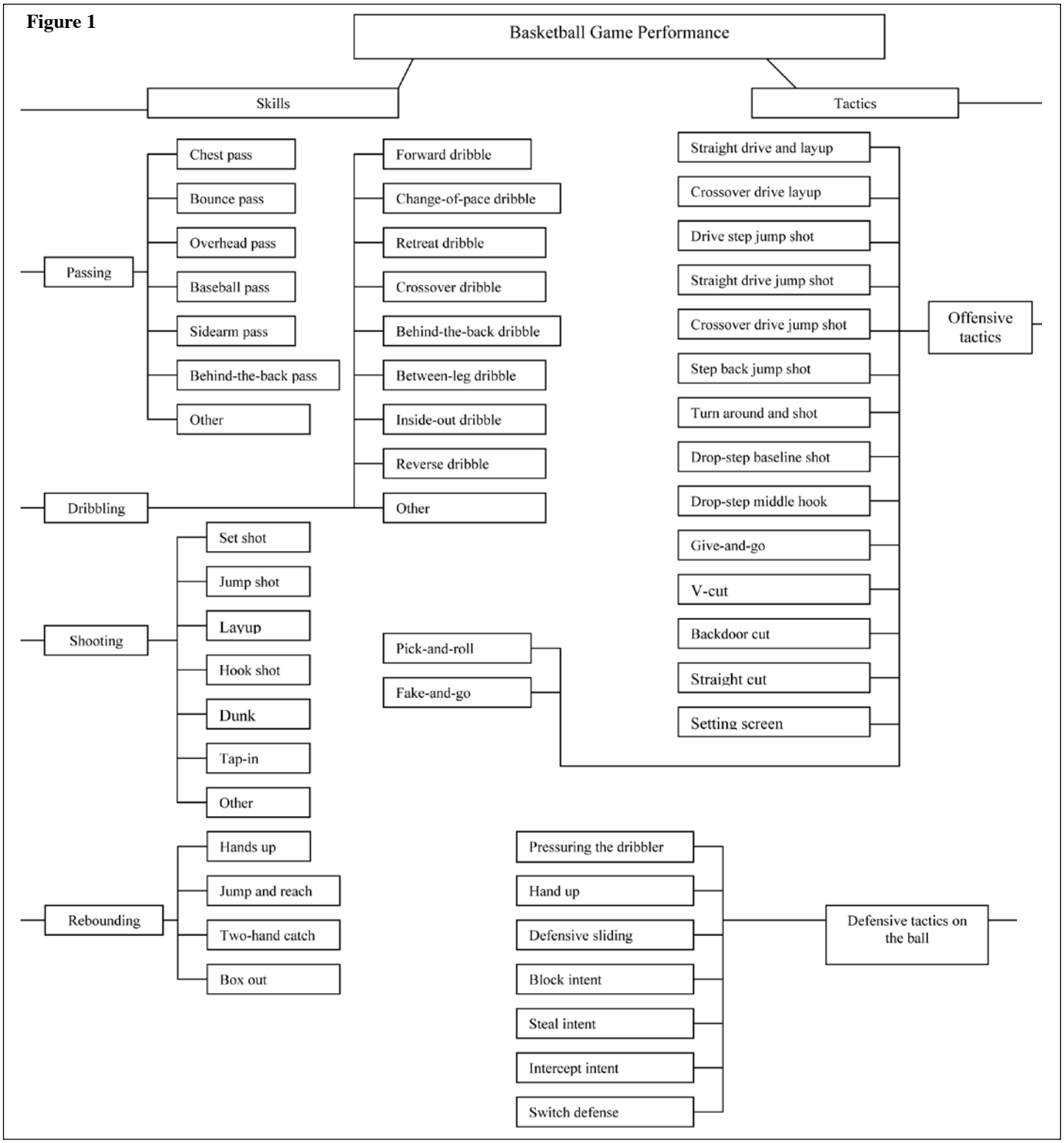
The second step to validate the instrument was to examine the construct validity of the instrument. A pilot study was conducted in which the instrument was used to assess videotaped game performance of basketball among college intramural players and high school players. The results of the pilot study indicated that the observational instrument was able to discriminate the performance levels of the two groups of players. A similar procedure had been used to validate an observational instrument in badminton (Blomqvist, Lutanen, Laakso, & Keskinen, 2000). In the last step, both intra-observer and inter-observer agreement were used to validate the instrument during the pilot study. Both the intra-observer and inter-observer agreements in basic skills, offensive tactics, and defensive tactics were greater than 85 %.

Data collection

Data in the study were collected from various contexts in which the participants played pick-up basketball games with different rules, formats and intensity levels. After all participants signed the consent forms, they were requested to play a 4-on-4 half-court game, or 5-on-5 full-court game for 15 minutes, depending on the availability of the players. One camera located at the outside of the court near the middle line was used to film the 4-on-4 games. Two cameras, placed at the outside of the court near the middle line, were used to film the 5-on-5 games; each camera faced a basket, and covered a half-court with a large angle. A total of seven games, two 4-on-4 games, and five 5-on-5 games, were filmed. There were no substitutes involved during the game play that was videotaped. All participants played the game once for filming and coding except one participant, who played the game twice due to the need of players, but only one of his games was used for coding and analysis.

All of the videotaped game performances were coded by two research assistants, who had coaching basketball experience at the secondary school level. The assistants attended a 16-hour training workshop, in which they learned the coding procedures and practiced the coding before they actually coded the videotaped performances. The behaviors of the players in the games were

Figure 1



coded based on the occurrence of the basic skills and tactical attempts. The original videotapes of each basketball game lasted 15 minutes. To standardize the coding procedure, each 4-on-4 videotaped game was coded for 10 minutes of active game play only, excluding any off-game activities, such as picking up the ball beyond the boundary lines. For the 5-on-5 games, the videotapes, from each camera covering one side of the court, were coded for five minutes of active play, resulting in a total of ten-minute coded performances for each game. Thirty percent of the participants' performances were randomly selected and re-coded separately to examine the reliability of the coded performances. The results indicated that the inter-observer agreement was 87.8% for the basic skills, 90.2% for the offensive tactics, and 96.5% for the defensive tactics.

Data analysis

Descriptive statistics (mean and standard deviation) were used to indicate frequencies of skills and tactics observed in the videotaped pick-up games. To obtain the mean values, the total numbers of observed skills or tactics were divided by the total number of participants. The observed skills and tactics used by the participants were ranked to identify those most frequently used. A level of 0.5 per skill and tactic was used to determine a satisfactory frequency.

Results

Skills Used in the Games

Means and standard deviations of basic skills observed in the games are presented in Table 3. While a variety of different skills occurred in each of the four indicators (passing, dribbling, shooting, and rebounding), the types of skills that were frequently used in each skill indicator were few. In passing, three types of passing skills with mean values larger than 0.5 were chest pass (M = 2.77), overhead pass (M = 1.20), and bounce pass (M = 1.00). In dribbling, three types of dribbling skills with mean values larger than 0.5 were forward dribble (M = 2.65), crossover dribble (M = .92), and change-of-pace dribble (M = .62). The remaining types of dribbling (retreat dribble, between-leg dribble, reverse dribble, inside-out dribble, behind-the-back dribble, and other) were used less frequently. A similar pattern was found in shooting. Of the seven types of shooting observed, only three of them were used more than 0.5 times per player on average: jump shot (M = 1.71), set shot (M = 1.54), and layup (M = .66). The other types of shooting less frequently used were hook shot, dunk, and tip-in. Rebounding appeared to be the only exception, as all of the four observed rebounding skills (hands up, jump and reach, two-hand catch, and box out) were used at a relatively high frequency, ranging from 1.88 -1.46 in mean values.

Table 3. ***Mean and Standard Deviation of the Basic Skills Used in Pick-Up Basketball Games***

Type of Skills	*M*	*SD*
Passing		
Chest pass	2.77	2.51
Overhead pass	1.20	1.25
Bounce pass	1.00	1.35
Side arm pass	0.40	0.63
Behind-the-back pass	0.14	0.43
Baseball pass	0.12	0.42
Other	0.40	1.04
Dribbling		
Forward dribble	2.65	2.31
Crossover dribble	0.92	1.50
Change-of-pace dribble	0.62	0.90
Retreat dribble	0.37	0.80
Between-leg dribble	0.29	0.70
Reverse dribble	0.15	0.36
Inside-out dribble	0.11	0.44
Behind-the-back dribble	0.09	0.34
Other	0.48	1.32
Shooting		
Jump shot	1.71	1.69
Set shot	1.54	1.86
Layup	0.66	0.99
Hook shot	0.17	0.42
Tip-in	0.11	0.31
Dunk	0.03	0.25
Other	0.09	0.42
Rebounding		
Hands up	1.88	2.00
Jump and reach	1.75	1.80
Two-hand catch	1.71	1.63
Box out	1.46	1.99

Offensive and Defensive Tactics Used in the Games

The corresponding descriptive statistics for observed offensive and defensive tactics are listed in Table 4 and Table 5, respectively. As indicated in Table 4, there were 16 different offensive tactics observed, but again few of them were used more than 0.5 times per player on average (straight cut, M = 1.31; straight drive and layup, M = 1.18; and set screen, M = .71).

Table 4. ***Mean and Standard Deviation of Observed Offensive Tactics Used in Pick-Up Basketball Games***

Type of Tactics	*M*	*SD*
Straight cut	1.31	1.39
Straight drive and layup	1.18	1.94
Set screen	0.71	1.21
Straight drive and jump shot	0.40	0.66
Step back and jump shot	0.38	0.96
Backdoor cut	0.29	0.63
Drive step and jump shot	0.26	0.62
Turn around and shot	0.23	0.55
V-cut	0.23	0.55
Give-and-go	0.22	0.57
Crossover drive jump shot	0.12	0.38
Drop-step middle hook	0.12	0.45
Pick-and-roll	0.09	0.34
Cross drive layup	0.08	0.41
Drop-baseline shot	0.08	0.27
Fake-and-go	0.08	0.32

With respect to observed defensive tactics (Table 5), all of the defensive tactics mentioned were more frequently used as compared to the observed offensive tactics. Specifically, seven defensive tactics were observed, and five (steal intent, pressuring the dribble, block intent, hand up, and defensive slide) were used from 2.43 to 1.37 times on average.

Table 5. ***Mean and Standard Deviation of Observed Defensive Tactics Used in Pick-Up Basketball Games***

Type of Tactics	*M*	*SD*
Steal intent	2.43	2.26
Pressuring the dribbler	2.38	2.32
Block intent	2.29	2.48
Hand up	2.23	2.66
Defensive slide	1.37	1.59
Intercept intent	0.49	0.87
Switch defense	0.32	0.64

Discussion

This study has identified the skills and tactics frequently used among regular participants of pick-up basketball games. The results reveal that some basketball skills and tactics were used more frequently than others by regular participants, and almost all the frequently used skills and tactics are basic. If $M > .50$ is used as the criterion of frequently used skills, as discussed previously, chest pass, overhead pass, and bounce pass are frequently used passing skills; forward dribble, crossover dribble, and change-of-pace dribble are frequently used dribbling skills; and jump shot, set shoot, and layup are frequently used shooting skills. Among these three skill indicators (passing, dribbling, and shooting), there were other types of skills observed in the games, but used with less

frequency, and many of these less frequently used skills are usually considered more advanced basketball skills, such as behind-the-back pass in passing skills, between-leg dribble, and behind-the-back dribble in dribbling skills, and tip-in and dunk, in shooting skills. As for rebounding skills, hands up, jump and reach, two-hand catch, and box out were observed, and all of them were used with relatively high frequency.

The findings, in terms of frequently used basketball skills by regular participants of pick-up games, are not quite consistent with general recommendations. For example, of the four most popular basketball resource books listed in Table 1, only the book by Wissel (1994) mentions *change-of-pace-dribble*, a frequently observed skill in the study. On the other hand, *baseball* pass has been discussed in all of the four resource books, but was the least frequently observed passing skill in the study.

The results of *offensive tactics* reflected a similar performance pattern to that of the skills discussed above. That is, many offensive tactics were observed, but few of them were used more than 0.50 times on average by regular participants of pick-up games. Straight cut, straight drive and layup, and set screen were frequently ($M >$ .50) used offensive tactics, and they are generally considered as basic offensive tactics. Interestingly, only two of the four resource books discuss the three most observed offensive tactics (Table 1), and it seems that they are just 'too' simple to be included in the resource books. Conversely, some offensive tactics that have traditionally been highlighted in some basketball books (e.g., Mood, et al., 2007; Wissel, 1994), such as fake-and-go, give-and-go, and pick-and-roll, were not frequently observed in this study. The possible reason for these 'important' offensive tactics not being extensively used in the pick-up games may reflect the fact that most of the participants playing pick-up games in the study, had not reached an advanced level. An alternative explanation could be, regular participants of pick-up games are able to enjoy, or are 'competent' enough to regularly participate in pick-up games without having to master more advanced offensive tactics, which are more frequently observed in NBA or NCAA basketball games.

The results of *defensive tactics* also indicated that the most frequently used tactics were basic, and less advanced. Five of the seven observed *defensive tactics* were used with relatively high frequencies, and all of them are very basic (steal intent, pressuring the dribbler, block intent, hand up, and defensive slide). Again, most of the resource books (Table 1) do not cover these defensive tactics.

This study was conducted in response to the lack of criteria for competence levels in sport skills in general, and the lack of consensus in what skills and tactics are needed to play pick-up basketball games in particular. The results of the study indicate that the skills and tactics frequently used among regular pick-up basketball players are generally basic, and relatively few in number, and more advanced skills and tactics are used much less frequently. Also, the frequently used skills and tactics identified in this study are inconsistent, to a large degree, with those recommended in popular basketball resource books, which in most cases are not written for regular participants of pick-up games.

Ward and O'Sullivan (1998) suggested that the primary purpose of a basketball unit is to help school students "get in a pick-up game" (p. 203) in the future, and the notion pointed out the direction for basketball instruction in school physical education. As a step forward from Ward and O'Sullivan's notion, this study has provided specific and important information regarding what skills and tactics are needed for regular participants of pick-up basketball games, and, more importantly, what skills and tactics should be taught in basketball units in physical education programs in order to develop lifetime participants of basketball games. Given the limited instruction time in physical education classes nationwide, and the ultimate goal of school physical education, for instance, developing lifetime physical activity participants (McKenzie, 2003; Rink, 2010; Siedentop, 2009), it is suggested that physical education teachers focus on the basic skills and tactics that may contribute to developing regular participants of basketball pick-up games.

This study has some limitations due to the fact that it is an initial attempt to examine skills and tactics used among regular participants of basketball pick-up games. The sample was relatively small, biased in gender, and came from central California in the United States only, thus may not appropriately represent the population of regular participants of basketball pick-up players. Further, only limited, short (10 minutes) videotaped pick-up games were examined, resulting in relatively low frequencies, even for 'frequently' used skills and tactics. Finally, the videotaped games contain 4-on-4 half-court and 5-on-5 full-court games only, and no examination was made for 2-on-2 and 3-on-3 half-court games, which are also common formats of basketball pick-up games. These limitations suggest caution when interpreting the results of the study and call for further study in the future.

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