Learning Basketball Skills Styles Preferences of Physical Education Students with Respect to Gender and Academic Achievement

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Abstract

The purpose of this study was to define the students of physical education preferences of four learning basketball skills styles (command, practice, reciprocal, and guided discovery styles) with respect to their gender and academic achievement. The participants in this study were 39 students (22 females and 17 males) from the Faculty of Physical Education at The University of Jordan. They enrolled in a required undergraduate course of basketball level (1) classes during the second semester of 2002/2003. Frequency, percentage and Chi Square were used as the appropriate statistical tools to test the research questions of this study. The results of data analysis indicated that most students preferred learning basketball skills by using the guided discovery style to learn dribbling and jump shot skills and the reciprocal style to learn lay up, chest pass, and overhead pass; furthermore, students preferred both styles to learn bounce pass. The results also indicated that there were no significant differences between the female and the male students' preference in five out of the six skills. There were also significant differences among the three achievement groups. The low GPA group preferred the command and then the guided discovery styles, students with middle GPA group preferred the reciprocal and then the guided discovery styles, and the high GPA group preferred the guided discovery and then the reciprocal style to learn basketball skills. The researcher recommends that physical education teachers should use more than style of teaching and consider students’ learning style preference when selecting teaching style.

1. Introduction

Teaching and learning are two different educational processes, but they are processes that interact. Teaching consists of goals and methodology, learning acquires goals and skills. Between teaching and learning there is an

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interaction that can be viewed from the positions of the teachers and the learners (Veugelers, 2000). Teachers can help students to enjoy and feel more comfortable during the class and thus students participate effectively, teachers select the most appropriate teaching style in which meets students' needs and preferences. In other words, students prefer teachers who imply different styles of teaching to learn different skills. Therefore, students' preference of learning style is one of the most important factors related to learning effectiveness.

In the field of physical education teaching styles, the researcher considered Muska Mosston as one of the famous leaders of modern physical education teaching styles. Mosston introduced the Spectrum of Teaching Styles in his book (Teaching Physical Education, 1966). The spectrum describes a number of alternative teaching styles, these styles range on a continuum from those designated as non-discovery styles or teacher–centred (direct instruction) to the discovery styles or student–centered (indirect instruction). In the non discovery styles, all of the decisions are made by the teacher, these style are: command style (A), practice style (B), reciprocal style (C), self check style (D), and inclusion style (E). In the other hand, in the discovery styles, students are allowed degrees of freedom in the choice of an activity, and how it should be performed or practiced. These styles are: guided discovery (F), divergent (G), individual designed program (H), learner initiated (I), and self-teaching (J).

Mosston’s and Ashworth’s (2002) teaching styles are known in many countries in variance disciplines. Large number of educators of physical education and education have included the spectrum of teaching styles as it was established in the 1970s and conceptually refined in the 1980s and 1990s. (Kamel, 1986, Franks, 1992, Mosston and Ashworth, 2002, and Byra and Jenkins, 1998). These forms of teaching provide the physical educators with knowledge of the roles of teacher and learner and the educational objectives that can be achieved with each style. They provide them with dynamic opportunities to deliver teaching more effectively to meet the changing needs of students, environments, and subject matters (Harrison and Blackmore, 1992).

These styles (from A to J) are differentiated based on the behavioral elements included in the three decision-making sets. First, pre-impact set, which includes all the decisions that must be made prior to the face-to-face transaction, like setting objective, selecting teaching subject matter and methods. Second, impact set, which includes decisions related to the actual transaction and the performance of the tasks. Third, post-impact set, which includes decisions concerning the evaluation of the performance during the impact set and the congruity between the pre-impact and the impact sets (Cai, 1998).
Definitions of Terms

- Students' preference of learning style refers to how students prefer to learn.

- Learning style refers to the ways individuals concentrate, process, internalize, and remember new and difficult academic information or skills (Collinson and Eric, 2000).

- Academic Achievement refers to student’s (grade point average) GPA. It is distributed into three levels (The University of Jordan Distribution):

  1- High level (above good) and it corresponds to 3.00 points and above (14 students).

  2- Middle level (good) and it corresponds to 2.50 - 2.99 points (15 students).

  3- Low level (acceptable and below) and it corresponds to 2.49 points and below (10 students).

Related Literatures

A number of studies had investigated the effects of various Mosston's and Ashworths' teaching styles on different areas such as: physical education students' learning, performance, achievement, and knowledge. None of them was conducted to examine students’ preferences of Mosston and Ashworth's teaching styles.

Alkatib and Aljenabi (2002) conducted a study to examine the effects of guided discovery style in teaching swimming skills on students' performance. The subjects were 20 female students (10 experimental and 10 control groups) who enrolled in a swimming class at Bagdad University in Iraq. The results indicated that no significant differences were found between the experimental and the control groups.

Johnson, Chalisa and Price (2000) conducted a study to compare the learning style differences of students that prefer a tactile learning environment with those who do not prefer this environment. A total of 25,104 students in grades five through twelve completed the learning styles inventory. The results indicated that the mean score on the tactile scale decreased as the students grade level increased. There were a total of eight variables that significantly discriminated between the high and low tactile groups. The results also suggested that students with high preference for tactile learning could be further distinguished from those with low preference based on eight other variables.
Byra and Jenkins (1998) investigated the thoughts and behaviors of participants in the inclusion style of teaching. Forty-two 5th graders received instruction in striking with a bat for two 30-minute lessons. The results showed that 5th grader selected different levels of task difficulty when provided the opportunity, and they made task decisions based on perceived success and challenge.

Ernst and Byra, (1998) examined the effects of pairing learners (reciprocal style) by skill ability on student's motor skills performance. The low-skilled learners showed significant improvement from pretest to posttest for both skill technique and skill outcome, also the high-skilled learners who were paired with low-skilled learners improved significantly from pretest to posttest only for skill outcome.

Johnston and Bower (1997) conducted a study to investigate the learning style preferences of physical education majors enrolled at a university in the southeast of USA. Also gender differences in learning styles were analyzed. The subjects were 82 physical education majors who were enrolled during the fall semester, 1994. The majors included 64 males and 18 females. The Canfield Learning Styles Inventory (LSI) (1988) was utilized in the study. The results of this study indicate that male and female physical education majors vary from the norm on several learning style variables. As a group they strongly preferred classroom discipline, maintenance of order, and having knowledgeable instructors (authority). They also preferred hands-on or performance situations (direct experience) and working with people—interviewing, counseling, helping (people). Together, men and women least favored a setting where they work alone, determine their own study plan, and do things independently (independence).

Harrison and Fellingham (1995) examined the effects of practice and command styles on volleyball students' performance. The participants were 58 male and female university students enrolled in volleyball classes. The results revealed that the low-skilled students did better with command style on the set skill, and the practice style was best for the low-skilled students on the spike skill.

Dodeen (1994) compared the effects of three styles: practice, reciprocal and traditional styles on handball skills performance of eighth grade students. The results indicated that there were significant differences among the three groups of study in some skills tests.

Another study was conducted by Beckett (1990) to examine the effects of practice and inclusion styles on college students' soccer juggling achievement. The researcher found that there were no significant differences in skill learning between the experimental and the control groups.

Aldari (1987) examined the effects of practice and traditional styles in teaching basketball skills on students' performance. The researcher used two
physical education students groups who enrolled in basketball classes, the experimental group was taught by practice style (25 students) while the control group was taught by traditional style (25 students). The results showed that practice style of teaching is more effective than traditional style on students’ performance.

Johnson (1982) (as sited in Johnston and Bower, 1997) conducted a study to determine the learning styles of 96 physical education majors. Kolb's Learning Style Inventory (1976) was used to identify four learning styles; converger, diverger, assimilator, and accommodator. More physical education majors were identified as accommodators than the other learning styles. This means they prefer learning by concrete experience and active experimentation rather than through passive and/or reflective situations.

Goldberger et. al. (1982) examined the effects of using practice, reciprocal, and inclusion styles of teaching on fifth grade students’ psychomotor performance. The results showed that no significant differences were found in performance improvement among the three groups. These results are similar to the results of the study of Kamel (1986) who used the same three styles of teaching (mentioned above).

On the other hand, Russmi (1989) compared the effects of reciprocal style and traditional style of teaching on students’ swimming performance. The researcher found that there were significant differences between the experimental group and the control group, the experimental group scored significantly higher.

On studying students’ enjoyment, Cai (1998) conducted a study to examine physical education student’s enjoyment in three Mosston’s teaching style environments (command, reciprocal, and inclusion styles). The subjects were 98 (67 males and 31 females) enrolled in karate and racquetball classes. The results indicated that a significant difference of enjoyment existed in the karate groups but not in the racquetball groups. The karate groups indicated that the command group had a significantly higher enjoyment level than both the inclusion and the reciprocal groups. In addition, the reciprocal group had a significantly higher enjoyment level than the inclusion group.

Cai (1997) also conducted another study to examine physical education student’s attitudes toward three Mosston’s teaching styles in physical activity classes: command, reciprocal, and inclusion styles. The subjects were 121 college students (79 males and 42 females) enrolled in physical activity classes. The three teaching styles were used in three karate and three racquetball classes. The results indicated that attitudes toward the command style seemed to be higher than the reciprocal and the inclusion styles. For the command style, the students preferred it to be used in the karate class; but the inclusion style was preferred in the racquetball class. While the reciprocal
and inclusion styles are valuable alternatives for teachers, the command style seemed to be the most favorable for the students.

As a result of the related reviewed literature, it is clear that studies focused on the following:

different styles command, practice, guided discovery, inclusion, and traditional styles of teaching.

- different age levels elementary students and university students.
- different gender, male and female students.
- different physical education activities.
- different students' preferences, tactile and none tactile learning environment.

None of these literature study students' basketball Mosston and Ashworth's learning styles preferences. This means that this study is going to be the first study examines the students' preferences of different Mosston and Ashworth's styles.

In the present study, four different Mosston and Ashworth's (2002) styles of teaching were used: the command style (A), practice style (B), the reciprocal style (C) and guided discovery style (F). when researcher taught these styles, he used the following Mosston and Ashworth (2002) steps:

- Before starting teaching these styles, the researcher introduced the purposes of each style to the students.

- He described the responsibilities of the teacher and the students in each style.

- In the command, practice, and reciprocal styles, he demonstrated and explained the skills.

- In the practice and reciprocal styles, the researcher provided and explained the task sheet that included a description of the task (the guideline for students practice) to ensure students' understanding of how to apply it (for task Sheets examples of basketball skills see Appendix 1).

- In the command, practice, and reciprocal styles, students had the opportunities to practice the skills and ask questions.

- In the command, practice, and reciprocal styles, the researcher observed the students and provided feedback while they practiced the skills; he also referred them to their task sheets when skill performance errors were noticed.

We should note here that regarding skill performing time, students in the practice group had more time to practice skill individually, while students in
the reciprocal group had less time to practice skill because they were paired in the gym, and the performing time was distributed among the pairs. This is because one student (doer) performed the task and asked questions, and the second student (observer) compared the performance of the doer with the task sheet and provided feedback based on the information provided in the form of a task sheet, followed by a reversal of roles.

- In the command style, the teacher is the sole decision maker; he makes all decisions and the learners follow these decisions. He/she decides what to do, how to do, and the quality of the performance that is acceptable.

- In the practice style, this style is the most frequently used style in physical education, the teacher is the principal decision maker, determining what information is needed by the learner to perform the task and setting up the practice session to provide optimum practice.

- In the reciprocal style, students assume more responsibility for observing the performance of their peers and providing immediate feedback from the task sheet when skill performance error is occurred.

- In the guided discovery, which is the first Mosston's style (1994) that engages the learners in a discovery process. It defines the teacher-learner interaction as an on-going process of questioning and answering that leads the learner who uses high level of thinking skills to the object. In this style of teaching the researcher determines the task and then arranges sequential series of questions or problems building on each other to guide students who use thinking skills to discover the correct technique of the skill. Students respond cognitively to the questions, they improve their motor performances through discovering the correct technique of the skill by using higher level of thinking skills.

The researcher used Ernst and Byra, (1998) modified version of Sherman's (1982) Styles Analysis Checklist in which the instructor (the researcher) and learners make the decisions during the style of teaching. The researcher of this study utilized this checklist to verify the fidelity between the instructor and learner behaviors and teaching style. (See Appendix 2).

**Statement of the Problem**

An interest in learning styles has been evident in educational literature for almost two decades. This focus has provided educators with an increased awareness of the most favorable conditions to effective learning (Johnston & Bower, 1997).

After the process of reviewing related studies, the researcher find that teachers in Arab world use some Mosston's styles in teaching physical education, but he couldn't find any published Arabic studies conducted to
define students’ learning physical education styles preferences, and a few English studies were found in this field. In this regard, Johnson, Chalisa and Price (2000) stated that there are few studies that have examined the differential preferences of students beyond their primary learning style category. In other words, this means that little is known about students’ preference of learning basketball skills styles, also this topic has not been given enough attention by researchers. Additional researches are needed in this important field of learning physical education styles. Therefore, the present study may help fill part of the lack exists in current researches by providing fundamental information and useful knowledge about students’ learning basketball skills styles preferences for physical education teachers and interested professionals in Mosston and Ashworth’s styles and students’ preference s.

As a result of the related reviewed literature the following research question were formulated regarding the main purpose of this study:

First: what were the students' learning styles preferences with respect to the basketball skills?

Second: were there significant differences in students' learning styles preferences between male and female students?

Third: were there significant differences in students' learning styles preferences among high, middle, and low academic achievement students?

The Purpose of the Study

The purpose of the current study was to define the physical education students’ preferences of four learning basketball skills styles (command, practice, reciprocal, and guided discovery styles) with respect to their gender and academic achievement.

Method

The Subjects

The participants in this study were 39 students (22 females and 17 males) from the Faculty of Physical Education at The University of Jordan. They enrolled in two sections of a required undergraduate course of basketball level (1) class during the second semester of 2002/2003. Participants met for three hours per week.

Procedures

- From the content of basketball curriculum taught at Faculty of Physical Education, the researcher selected the following skills from the curriculum of Basketball level (1): chest pass, bounce pass, two hands overhead pass, dribbling, lay up shot, and jump shot, as the most commonly basketball skills used in basketball game.
The researcher implied four Moss's style of teaching to teach the students the above skills, these styles were: command style, practice style, reciprocal style, and guided discovery style.

The researcher applied the following procedures:

A- He introduced the purposes of each style to the students and described the roles of the students and the researcher in every style.

B- In the command, practice, and reciprocal styles, the researcher demonstrated and explained the each skill in the beginning of the class.

C- In the practice and reciprocal styles, the researcher provided and explained the task sheet that included a description of the task for the students.

D- In the command, practice, and reciprocal styles, the students had opportunities to practice the skills and ask questions.

E- In the command, practice, and reciprocal styles, the researcher observed the students and provided feedback while they practice skills.

F- In guided discovery style, the researcher prepared sequence of questions that lead students to the correct technique.

G- In guided discovery style, students respond cognitively to the questions.

All subjects had been never taught by any of these four styles of teaching.

Students learned each skill by the four learning styles in two class periods, two styles were used in every class period; for instance, in the first period, dribbling skill was taught by using reciprocal and guided discovery styles, while in the second period, dribbling skill was taught by using command and practice styles.

Students' preference of four learning styles was measured (in Arabic) at the end of the second-class period of each skill.

The Instrument of Learning Style Preferences

The Instrument of Learning Style Preferences was created by the researcher in a way that students checked the most preference learning style for each skill that he/she learned. The purpose of this measure was to define each student's learning style preference after he/she learned by the four learning styles in the actual classes., (See Appendix 3).

The researcher of this study established the validity and the reliability of this measure before conducting this study. The content validity was established by having five experts from Faculty of Physical Education at
Jordan University and one from Faculty of Educational Science at Al-Balquaa University reviewing and approving the measure. The panel of experts examined the measure and agreed that it did assess what it was supposed to assess. The reliability of the measure was established by using Cronbach's Alpha, as a measure of consistency coefficient. The reliability coefficients was .95, which means that the measure was reliable.

**Variables of the Study**

The independent variables were the four learning styles, academic achievement, and gender, while the dependent variable was the students' preferences.

**Data Analysis**

Frequency, percentage and Chi Square were used as the appropriate statistical tools to test the research questions. Based on the research questions, data was analyzed using the Statistical Packages for Social Sciences (SPSS) version 10.0. The .05 level of significance was selected to determine if any differences between the groups were statistically significant.

**Results Description**

**First**: the results of data analysis for students' learning styles preferences with respect to the basketball skills showed the following (Table 1):

<table>
<thead>
<tr>
<th>Styles</th>
<th>Skills</th>
<th>Command</th>
<th>Practice</th>
<th>Reciprocal</th>
<th>Guided Discovery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Freq</td>
<td>%</td>
<td>Freq</td>
<td>%</td>
</tr>
<tr>
<td>Dribbling</td>
<td></td>
<td>3</td>
<td>7.7</td>
<td>3</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lay up</td>
<td></td>
<td>3</td>
<td>7.7</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jump Shot</td>
<td></td>
<td>4</td>
<td>10.3</td>
<td>1</td>
<td>43.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest Pass</td>
<td></td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bounce Pass</td>
<td></td>
<td>7</td>
<td>5.1</td>
<td>2</td>
<td>43.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over Head Pass</td>
<td></td>
<td>9</td>
<td>18</td>
<td>4</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.1</td>
<td>10.4</td>
<td>35.9</td>
<td>30.8</td>
</tr>
</tbody>
</table>
First: Dribbling Skill:

The majority of students (20 out of 39 which represents 51.3 %) had a strong preference to learn this skill by the guided discovery style, while 13 out of 39 which represents 33.3 % preferred the reciprocal style. Only three out of 39 which represents 7.7 % preferred the practice and three out of 39 which represents 7.7 % preferred the command styles.

Second: Lay Up Skill:

The highest number of students (17 out of 39 which represents 43.6 %) preferred to learn this skill by the reciprocal style, while 16 out of 39 which represents 41 % students preferred the guided discovery style. Only three out of 39 which represents 7.7 % preferred the practice and three out of 39 which represents 7.7 % preferred the command styles.

Third: Jump Shot Skill:

The highest number of students 18 out of 39 which represents 46.2 % preferred to learn this skill by the guided discovery style, while 16 out of 39 which represents 41 % preferred the reciprocal style. Only one out of 39 which represents 2.6 % preferred the practice style, and 4 out of 39 which represents 10.3 % preferred the command style.

Fourth: Chest Pass Skill:

The highest number of students (17 out of 39 which represents 43.6 %) preferred to learn this skill by the reciprocal style, while 15 out of 39 which represents 38.5 % students preferred the guided discovery style. Some students five out of 39 which represents 12.8 % preferred the practice style, while two out of 39 which represent 5 % preferred the command style.

Fifth: Bounce Pass:

More than one third of the students (15 out of 39 each which represents 38.5 %) preferred to learn this skill by the guided discovery style and the reciprocal styles. Few students (7 out of 39 which represents 18 %) preferred the command style. Only 2 out of 39 which represents 5.1 % preferred the practice style.

Sixth: Over Head Pass:

The highest number of students (14 out of 39 which represents 35.9 %) preferred to learn this skill by the reciprocal style, while 12 out of 39 which represents 30.8 % students preferred the guided discovery style. More than one fifth of the students 9 out of 39 which represents 23.1 % preferred the command style. While 4 out of 39 which represents 10.3 % preferred the practice style.
Second: frequency, percentage, and Chi-square were used to compare the female and male students' learning styles preferences. As can be seen in Table (2), the results indicated the following:

Table (2)
Frequency, Percentage and Chi Square of Male and Female Students’
Learning Styles Preferences for Each Skill.

<table>
<thead>
<tr>
<th>Skills</th>
<th>Command</th>
<th>Practice</th>
<th>Reciprocal</th>
<th>Guided Discovery</th>
<th>Chi Sq</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Dribbling</td>
<td>F</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>0</td>
<td>17.6</td>
<td>9.1</td>
<td>5.9</td>
<td>31.8</td>
</tr>
<tr>
<td>Lay up</td>
<td>F</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>0</td>
<td>17.6</td>
<td>9.1</td>
<td>5.9</td>
<td>50</td>
</tr>
<tr>
<td>Jump Shot</td>
<td>F</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>4.5</td>
<td>17.6</td>
<td>4.5</td>
<td>0</td>
<td>36.4</td>
</tr>
<tr>
<td>Chest Pass</td>
<td>F</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>0</td>
<td>11.8</td>
<td>9.1</td>
<td>17.6</td>
<td>50</td>
</tr>
<tr>
<td>Bounce Pass</td>
<td>F</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>13.6</td>
<td>23.5</td>
<td>0</td>
<td>11.8</td>
<td>40.1</td>
</tr>
<tr>
<td>Over Head pass</td>
<td>F</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9</td>
<td>41.1</td>
<td>13.6</td>
<td>5.9</td>
<td>31.8</td>
</tr>
</tbody>
</table>

First: Dribbling Skill

The majority of the female students (13 out of 22 which represents 59.1 %) preferred the guided discovery style to learn this skill; also the highest number of the male students (7 out of 17 which represents 41.1 %) preferred the same style. The second female and male students’ preferences were the reciprocal style (7 females; 31.8 % and 6 males; 35.3 %).

Second: Lay Up Skill

Half of the female students (11 out of 22 which represents 50 %) preferred the reciprocal style to learn this skill, while the highest number of male student (7 out of 17 which represents 41.1 %) preferred the guided discovery style. The second females’ style preference was the guided discovery style, while it was the reciprocal style for the male students.
Third: Jump Shot Skill

More than half of the female students (12 out of 22 which represents 54.6 %) preferred the guided discovery style to learn this skill, while the highest number of male student (8 out of 17 which represents 47.1 %) preferred the reciprocal style. More than one third of the females (8 out of 22 which represents 36.4 %) selected the reciprocal style as the second preference style; also, the males (6 out of 22 which represents 35.3 %) selected the guided discovery style as the second preference style.

Fourth: Chest Pass Skill

Half of the female students (11 out of 22 which represent 50 %) preferred the reciprocal style and 9 out of 22 which represent 40.1 % of them preferred the guided discovery style to learn this skill. On the other hand, equal number of males selected both the guided discovery and reciprocal styles as the first preference style to learn chest pass skill (6 out of 17 which represents 35.3 %)

Fifth: Bounce Pass

The highest number of the female students (10 out of 22 which represents 45.5 %) preferred the guided discovery style to learn this skill, while the highest number of male students (6 out of 17 which represents 35.3 %) preferred the reciprocal style. Less than half the females (9 out of 22 which represents 40.1 %) selected the reciprocal style as the second preference style; also, almost one third of the males (5 out of 22 which represents 29.4 %) selected the guided discovery style as the second preference style.

Sixth: Over Head Pass

The highest number of the female students (10 out of 22 which represents 45.5 %) preferred the guided discovery style to learn this skill, more than one third of the females (7 out of 22 which represents 31.8 %) selected the reciprocal style as the second learning style preference. On the other hand, the male students (7 and 7 out of 17 which represents 41.1 %) selected both the command and the reciprocal styles.

The analysis of chi square also indicated that there were no significant differences between female and male students in five out of the six skills, but there was a significant difference in the over head pass skill (As can be seen in Table 2).

Third: frequency, percentage, and Chi-square were used to compare the three GPA groups’ learning styles preferences. As can be seen in Table (3), the results indicated the following:
Table (3)
Frequency Percentage and Chi Square of Low, Middle, and High GPA Students’ Learning Styles Preferences for Each Skill.

<table>
<thead>
<tr>
<th>Skills</th>
<th>GPA Groups</th>
<th>Dribble</th>
<th>Lay up</th>
<th>Jump Shot</th>
<th>Chest Pass</th>
<th>Bounce Pass</th>
<th>Over H pass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>Cmd. Style</td>
<td>Low</td>
<td>3</td>
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<td>3</td>
<td>21</td>
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<td>28</td>
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<tr>
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<td>Midd</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<tr>
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<td>Midd</td>
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<td>10</td>
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<tr>
<td></td>
<td>Low</td>
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<td>7.1</td>
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<td>14</td>
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<td></td>
<td>Midd</td>
<td>1</td>
<td>73.3</td>
<td>8</td>
<td>53.3</td>
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<td>High</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>20</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>8</td>
<td>59</td>
<td>3</td>
<td>21</td>
<td>7</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Midd</td>
<td>4</td>
<td>26.7</td>
<td>6</td>
<td>40</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>8</td>
<td>80</td>
<td>7</td>
<td>70</td>
<td>8</td>
<td>80</td>
</tr>
<tr>
<td>Chi Square</td>
<td></td>
<td>22.56</td>
<td>10.54</td>
<td>22.75</td>
<td>11.67</td>
<td>23.84</td>
<td>26.81</td>
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<td>0.229</td>
<td>0.001</td>
<td>0.07</td>
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<td>0.001</td>
</tr>
</tbody>
</table>

First: Dribbling Skill

The low GPA group (8 out of 14 which represents 59 %) and the high GPA group (8 out of 10 which represents 80 %) selected the guided discovery as the first preference style to learn this skill. The middle GPA group (11 out of 15 which represents 73.3 %) preferred the reciprocal style.

Second: Lay Up Skill

The low GPA group (7 out of 14 which represents 50 %) and the middle GPA group (8 out of 15 which represents 53.3 %) preferred the reciprocal style to learn this skill, while the high GPA group (7 out of 10 which represents 70 %) preferred the guided discovery style.
Third: Jump Shot Skill

The low GPA group (7 out of 14 which represents 50 %) and the high GPA group (8 out of 10 which represents 80 %) selected the guided discovery as the first preference style to learn this skill. The middle GPA group (12 out of 15 which represents 80 %) preferred the reciprocal style.

Fourth: Chest Pass Skill

The low GPA group (5 out of 14 which represents 35.7 %) and the middle GPA group (10 out of 15 which represents 66.7 %) preferred the reciprocal style to learn this skill, while the high GPA group (7 out of 10 which represents 70 %) preferred the guided discovery style.

Fifth: Bounce Pass

The low GPA group (7 out of 14 which represents 50 %) preferred the command style to learn this skill, while the middle GPA group (9 out of 15 which represents 60 %) preferred the reciprocal style, and the high GPA group (7 out of 10 which represents 70 %) preferred the guided discovery style.

Sixth: Over Head Pass

The low GPA group (8 out of 14 which represents 59 %) preferred the command style to learn this skill, while the middle GPA group (8 out of 15 which represents 53.3 %) preferred the reciprocal style, and the high GPA group (8 out of 10 which represents 80 %) preferred the guided discovery style.

The analysis of chi square also indicated that there were significant differences among the three groups in four out of the six skills (dribbling, jump shot, bounce pass, and over head pass), but there were no significant differences among the three groups in the lay up and chest pass skills (As can be seen in Table3).

Discussion

The results of this study indicated that most students preferred learning basketball skills by using the guided discovery and the reciprocal styles. They preferred the guided discovery style to learn dribbling and jump shot skills, while they preferred both the reciprocal and the guided discovery styles to learn bounce pass. These results were consistent with the result of Alhayek (2003, a) who found that students preferred learning basketball skills by the reciprocal style more than practice style of teaching. For the remaining skills, students preferred the reciprocal style. The researcher thinks that the reasons behind these results are that the students in guided discovery style started using high level of thinking skills and engaging in a discovery process, while students in reciprocal style started having more responsibility in learning
process. Those experiences were new learning experiences for participants who have never taught by using these styles. In other hands, parts of the command and the practice styles were similar to the traditional style of teaching in which students watched the instructor's demonstration, listened to the skill explanation, practiced the skills and then followed the instructor's feedback. The researcher also found that students highly valued the action of receiving and providing feedback from and to each other and from and to the instructor when they learned by using guided discovery and reciprocal styles. These results were consistent with the studies of; Johnson, 1982 (As sited in Johnston and Bower 1997), Pettigrew and Zakrajsek 1984, and Alhayek, 2003, a; who found that physical education students preferred an active learning environment rather than the traditional lecture method of instruction.

The results in Table (2) indicated that there were no significant differences between the female and the male students' preference in five out of the six skills (dribbling, lay up, jump shot, chest pass, bounce pass). The female and the male students were more alike than different in their learning styles preferences. However, the females had higher frequency and percentage of style preference in learning all basketball skills than males did. In general, both groups preferred learning skills by using the reciprocal and the guided discovery styles of teaching. The researcher thinks that the reason behind these results is that the female and male students passed through same academic experiences with respect to courses, teaching methods, facilities (Alhayek, 3003, b). This result was consistent with the study of Johnston and Bower (1997) who found that there were no significant differences between male and female students in learning styles preferences. In contrast with this result, Pettigrew and Zakrajsek (1984) found that there are significant gender differences in learning styles preference.

As can be seen in Table (3), there were significant differences among the three groups: in four out of the six skills; also, the frequency and the percentage of style preference suggested that students with middle GPA group preferred the reciprocal style (learning with another partner) as the first learning style preference to learn all skills and then the guided discovery style as the second. This result was consistent with the study of Collinson and Eric (2000) who found that students in the middle achieving group preferred learning in groups rather than independently. In addition, the high GPA group preferred the guided discovery style as the first learning style preference to learn all skills and then the reciprocal style as the second. From the researcher's experience in teaching basketball, the explanation for this result can be that the high GPA students preferred the guided discovery because this style required high level of thinking to reach the object (Mosston and Ashworth, 1994). On other hand, the researcher thinks that the low GPA group preferred the command style to learn bounce and over head pass skills, and the guided discovery style to learn dribbling and jump shot skills. These results are in contrast with the results of Collinson and Eric (2000) who
found that students in the low achieving group indicated a higher preference to learn with one or more peers, while students from the high achieving group seemed to favor learning alone. Dunn and Price (1980) also found that the high achieving students preferred a formal classroom design. While other results of Dunn and Price consistent with the above results in which they found that the low achieving group preferred the formal design of a traditional classroom environment.

In conclusions, based on the results of this study, the students would prefer more the new and the enjoyable learning styles; therefore, the researcher agrees that it is quite important that physical education teachers should consider students’ learning styles preferences that enhance their learning and meet their needs and interests when they structure the learning environment. In this regards, Alhayek (2003, a) stated that to achieve the effective teaching and learning physical education, teachers should use more than one style of teaching to make the learning environment more enjoyable and more productive for students.

**Recommendations**

- Further researches are needed to examine other learning styles preferences to discover the similarities and the differences among them.

- Teachers should use more than one style of teaching to meet students’ needs and interests.

- Further researches are needed to investigate the learning styles preferences in this study for other students’ activities.

- Further researches are needed to investigate the learning styles preferences in this study for other students’ age levels.

- Students’ learning style preference should be considered when selecting teaching style by teachers.
الأساليب المفضلة لتعليم مهارات كرة السلة لدى طلبة كلية التربية الرياضية وعلاقتها بالجنس والتحصيل الأكاديمي

MANDALLAH AL-MULLAQ
قسم الدراسات والتدريب، الجامعة الأردنية، عمان، الأردن

ملخص
تهدف هذه الدراسة إلى التعرف على الأساليب المفضلة (الأسلوب الأمريكي، الأسلوب التدريبي، الأسلوب التبادلي، وأسلوب الاكتشاف الموجه) لدى طلبة كلية التربية الرياضية لتعلم مهارات كرة السلة ودراسة علاقتها بالجنس والتحصيل الأكاديمي. تكونت العينة من الطلاب المسجلين لمماس كرة سلة (1) شعبة 1 + 2 في الفصل الدراسي الثاني 2002/2003 في كلية التربية الرياضية في الجامعة الأردنية وعددهم 39 طالبًا وطالبة (22 طالبًا و17 طالبة). تم تدريس كل مهارة من مهارات كرة السلة في الفصل الدراسي باستخدام الأساليب الأربعة السابقة الذكر. أشارت النتائج إلى أن معظم الطلاب يفضلون استخدام أساليب الاكتشاف الموجه في تعلم مهارة التنظيم والتتصوب من الوسط. يفضلون استخدام الأسلوب التبادلي في تعلم مهارات التصوب السلبية والتمديده الصورية والتهليلة من فوق الرأس، كما يفضلون استخدام الأسلوبين السابقين في تعلم مهارة التصوب المرتبتة، كما توصلت الدراسة إلى عدم وجود فروق ذات دلالة إحصائية بين الطالبات والإثاث والطلبة الذكور. وأشارت النتائج أيضاً إلى وجود فروق ذات دلالة إحصائية بين مجموعات التحصيل الأكاديمي الثلاثة، فمجموعة التحصيل المنتظم تفضل تعلم مهارات كرة السلة باستخدام الأسلوب الأمريكي ومن ثم أساليب الاكتشاف الموجه، أما مجموعة التحصيل المتوسط ففضلت تعلم مهارات كرة السلة باستخدام الأساليب التبادلي ومن ثم أساليب الاكتشاف الموجه، وأخيراً مجموعة التحصيل المرتفع ففضلت استخدام أساليب الاكتشاف الموجه ومن ثم الأساليب التبادلي في تعلم مهارات كرة السلة. ويوصي الباحث بأن يستخدم مدرس التربية الرياضية أكثر من أساليب تدريس ويراعي تفضيل الطلبة لهذه الأساليب.
The paper was received on July 21, 2003 and accepted for publication on March 1, 2003

References


Appendix 1

Task Example of Basketball – Dribbling

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Skill</th>
<th>Cue</th>
<th>Common Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm up, balance</td>
<td>Set-Up</td>
<td>Spread fingers</td>
<td>Ball held in palm</td>
</tr>
<tr>
<td>A waiter’s tray</td>
<td>shooting hand</td>
<td>Palm up, balance a waiter’s tray</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nonshooting hand</td>
<td>Hand faces side wall, fingers only touch ball</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alignment</td>
<td>Focus on back edge of rim, basket looks like a big bit</td>
<td>Arm at 45 angle, elbow points to side</td>
</tr>
<tr>
<td></td>
<td>Sight</td>
<td>Slightly bend knees and buttocks out</td>
<td></td>
</tr>
<tr>
<td>Elbow points at basket, like throwing a dart</td>
<td>Body square to basket</td>
<td>Insufficient force from no use of legs</td>
<td></td>
</tr>
<tr>
<td>Legs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set Shot – Set-Up</td>
<td>Balance</td>
<td>Spin ball off middle and index finger, fat spin, lines on ball not visible</td>
<td>Ball is thrown</td>
</tr>
<tr>
<td></td>
<td>shooting action</td>
<td>Flip wrist, wave good – bye to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fingers</td>
<td></td>
<td>Inadequate wrist action</td>
</tr>
</tbody>
</table>

Task

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Results completed</th>
<th>Dates</th>
<th>Teacher’s feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shooting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Set shots-foul line</td>
<td>25 shots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Set shots-45 angle right of basket</td>
<td>25 shots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Set shots-45 angle left of basket</td>
<td>25 shots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. One-hand shot-foul line</td>
<td>25 shots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. One-hand shot-right side of basket</td>
<td>15 shots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. One-hand shot-left side of basket</td>
<td>15 shots</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Mosston and Ashworth, 2002)
Task example of Basketball - Dribbling

<table>
<thead>
<tr>
<th>Eyes Up</th>
<th>Hand placement - more complex dribble</th>
<th>Move hand in different angles of ball</th>
<th>Palming the ball (carrying the ball)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger spread</td>
<td>Eyes</td>
<td>&quot;Keep eyes up&quot;</td>
<td>Below waist</td>
</tr>
<tr>
<td></td>
<td>Height of dribble</td>
<td>Below waist</td>
<td>Knee to waist</td>
</tr>
<tr>
<td></td>
<td>Range of dribble</td>
<td>Knee to waist</td>
<td>Dribble to hear yourself dribble</td>
</tr>
<tr>
<td>Range of dribble: knee to waist</td>
<td>Over Rule-</td>
<td>higher dribble for higher speed</td>
<td>Lower dribble for lower speeds and tight situations</td>
</tr>
<tr>
<td></td>
<td>More complex dribble</td>
<td></td>
<td>Protect ball with body but see basket</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Protect/protects ball if guarded</td>
</tr>
<tr>
<td>Absorb ball back into pads of fingers</td>
<td>Body protection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task

- **Dribbling**
  1. Dribbling in place without stopping
  2. Dribbling while walking forward
  3. Dribbling while walking backward
  4. Dribbling while trotting

Observers follow doers and offer feedback

(Mosston and Ashworth, 2002)
### Task Example of Guided Discovery Style for Dribbling Skill

<table>
<thead>
<tr>
<th>Quest No.</th>
<th>Guided Discovery Questions</th>
<th>Anticipated response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>After you practicing the forward high dribbling attempt, Do you prefer using one hand or both hands simultaneously to push the ball to the floor?</td>
<td>One hand</td>
</tr>
<tr>
<td>2</td>
<td>After you practicing the forward high dribbling attempt, How do you imply your arm with respect to the fingers, wrist, and elbow?</td>
<td>The fingers are spread, the ball is pushed to the floor with the fingertips, a flip of the wrist, and the elbow is kept close to the body.</td>
</tr>
<tr>
<td>3</td>
<td>After you practicing the high dribbling attempt, Describe the correct body position.</td>
<td>The back straight so the body is in a crouched position.</td>
</tr>
<tr>
<td>4</td>
<td>After you practicing the high dribbling attempt, Describe the head position and vision location.</td>
<td>Head is always up providing wide vision to see other players.</td>
</tr>
<tr>
<td>5</td>
<td>After you practicing the high dribbling attempt, Describe the ball position with respect to your body.</td>
<td>The ball is pushed out to the side and slightly in front of the body.</td>
</tr>
<tr>
<td>6</td>
<td>When do you use low dribbling?</td>
<td>When defensive player is close to me.</td>
</tr>
<tr>
<td>7</td>
<td>After you practicing the low dribbling attempt, Describe the correct body position.</td>
<td>Same answer mentioned for question no. three but knees flexed; also, the body position is between the defender and the ball.</td>
</tr>
<tr>
<td>8</td>
<td>After you practicing the low dribbling attempt, Describe the head position and vision location.</td>
<td>Same answer mentioned for question no. four.</td>
</tr>
<tr>
<td>9</td>
<td>After you practicing the low dribbling attempt, how do you protect the ball from the defender?</td>
<td>By keeping the ball far from the defender and close to the body.</td>
</tr>
</tbody>
</table>
Appendix 2

Styles Analysis Checklist

**Phase One: Role Identification**
Teacher 1. Locates learners for introductory ceremony.
Teacher 2. Names the teaching style.
Teacher 3. States the purpose of the teaching style.
Teacher 4. Identifies the triad and describes its structure and function.
Teacher 5. Describes the roles of the doer, observer, and teacher.

**Phase Two: Subject Matter Identification**
Teacher 6. Announces the general subject matter (objectives).
Teacher 7. Announces the specific task(s).
Teacher 8. Delivers task to learners (show and tell).
Teacher 10. Establishes order of task performance.
Teacher 11. Delivers the criteria (explains what a criteria is and how to use it).
Teacher 12. Establishes parameters and logistics for the task.
Teacher 13. Provides and explains task sheet.
Teacher 14. Asks questions for task and/or role clarification.
Teacher 15. Announces: Select a partner; decide who will be doer/observer, then Begin(Reciprocal Style).

**Phase Three: Performance of the Task**
Learner 16. Selects a partner(Reciprocal Style).
Learner 17. Decides who is first doer and observer (Reciprocal Style).
Learner 18. Makes impact decisions with established parameter.
Learner 19. Performs the task.
Learner 20. Switches roles of doer and observer (Reciprocal Style).

**Phase Four: Evaluation and Feedback**
Learner 21. Has the task sheet.
Learner 22. Monitors the task performance.
Learner 23. Compares and contrasts task performance against criteria.
Learner 24. Draws conclusions about accuracy of task performance.
Learner 25. Offers task-related feedback to doer (Reciprocal Style).
Learner 26. Initiates communication with the teacher, if necessary.
Teacher 27. Moves around classroom.
Teacher 28. Responds to communication initiated by the learner.
Teacher 29. Reminds learners about details of task and roles, if necessary.
Teacher 30. Offers role-related feedback to observer and doer (Reciprocal Style).
Teacher 31. Makes episode adjustments when deemed necessary.

**Phase Five: Closure**

Teacher 32. Locates learners for closure.
Teacher 33. Summarizes main points of episode.
Teacher 34. Provides role-related feedback to learners based on objectives of the reciprocal style of teaching.
Appendix 3
The Instrument of Learning Style Preferences

Male:  Female:  GPA:

Please check the most preference style of learning basketball skill in front of each skill that you learned.

<table>
<thead>
<tr>
<th>Styles</th>
<th>Command</th>
<th>Practice</th>
<th>Reciprocal</th>
<th>Guided Discovery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Dribbling</strong></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>2 Chest Pass</strong></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3 Lay Up</strong></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>4 Jump Shot</strong></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>5 Bounce Pass</strong></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6 Overhead Pass</strong></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>