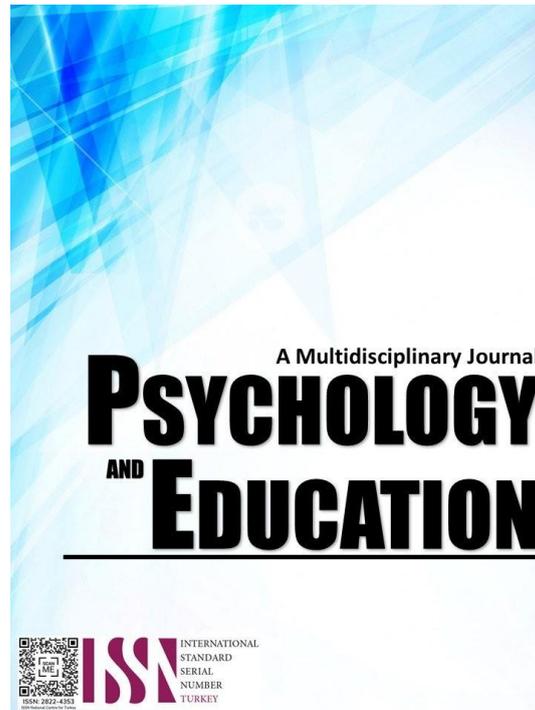


**LEVEL OF VOLLEYBALL SKILLS AND FACTORS
AFFECTING STUDENTS' SKILL ACQUISITION:
TOWARDS THE DEVELOPMENT OF AN
INSTRUCTIONAL MATERIAL**



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Level of Volleyball Skills and Factors Affecting Students' Skill Acquisition: Towards the Development of an Instructional Material

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Abstract

Volleyball, a popular activity with both leisure and competitive aspects, plays an important role in physical education. In today's educational context, the paradigm shift toward online learning has created new challenges for facilitating effective skill acquisition in sports. This study aimed to investigate and understand the various factors influencing students' volleyball skill acquisition in online learning, with the ultimate goal of developing Volleyball instructional materials customized to this unique situation. The researchers used random sampling through the lottery method to select the Holy Name University college students in the Bachelor of Physical Education program. This study utilized mixed-method research, specifically exploratory design. The quantitative method was employed to identify the factors influencing the students' skill acquisition, followed by the development of instructional material using a qualitative approach. Data was gathered through a researcher-made survey questionnaire and a modified rubric for assessing volleyball skills. Results show that most students performed serving, receiving, and setting the ball satisfactorily, but they struggled in spiking and blocking. The study also revealed that students' attitude is the factor that highly affects the students' skill acquisition in volleyball, followed by teaching strategies and parental support.

Keywords: *volleyball skills, factors affecting students, skill acquisition, instructional material*

Introduction

There are six basic skills in Volleyball namely: serving, passing, setting, spiking, digging, and blocking. It is important to acquire and develop these basic skills because it will lead to a team's success. The best teams are always the most highly skilled teams. These highly skilled players have the ability to focus better than anyone else. However, acquiring the necessary skills for playing volleyball can be challenging, especially for students who have limited access to training facilities.

When it comes to skill acquisition, there are many factors that can affect its process. Some of these factors are student's attitude, teaching techniques, and parental support. While some of these underlying factors act as enhancers, some also act as regressors. Singh (2018), states that skill acquisition, also known as motor learning and control, is the multidisciplinary study of intention, perception, action, and calibration of the performer-environment interaction. In its most basic form, skill acquisition refers to the voluntary regulation of joint and body segment motions in order to solve a motor skill problem and achieve a task goal.

In the school where the researchers are studying, it has been observed that the students have difficulty in performing the volleyball skills. In a class of students

taking up a Bachelor of Physical Education course, not all students are into sports, specifically in volleyball, or in other areas of physical education. Thus, the researchers are motivated to study about factors affecting students' skill acquisition in volleyball so that they can develop instructional material that would fit the needs of the students and for effective skill acquisition to happen.

Research Questions

The study aimed to develop an instructional material in volleyball skill acquisition. It also determined the level of volleyball skills and factors affecting the students' skill acquisition in volleyball among the fourth year BPEd students at Holy Name University during the school year 2022-2023. Specifically, it answered the following questions:

1. What is the level of volleyball skills of the student in terms of:
 - 1.1 Serving;
 - 1.2 Receiving;
 - 1.3 Setting;
 - 1.4 Spiking; and
 - 1.5 Blocking?
2. What factor highly affects the students' skill acquisition in volleyball?
 - 2.1 Student's Attitude;
 - 2.2 Teaching Techniques; and



2.3 Parental Support?

3. What instructional material could be developed in aid of teaching the skills in volleyball?

Literature Review

This research is anchored on two models and a theory which serves as a pillar in this study. These include the Robert Gagne's Model of Instructional Design, Newell's Model of Factors, and Fitts and Posner's Stages of Motor Learning Theory.

Robert Gagne's Model of Instructional Design is based on the information processing model of the mental processes that take place when humans are exposed to different stimuli, and it focuses on the learning objectives and how certain instructional activities can be set up to meet those objectives. By giving the lesson plans structure and a comprehensive perspective, Gagne's model is a great approach to guarantee an efficient and organized learning program (Khadjooi et al., 2011).

Newell's Model of Factors illustrates how the many elements affect an individual's motions in a reciprocal manner, is another model that supports the study. Individual restrictions, or conditions that are found within the subject such as the person's height, weight, experience, and self-perceptions are tackled in this model. External environmental restrictions include both natural (such as temperature, gravity, and surface) and sociocultural ones (e.g., the family structure, social values). Similar restrictions apply to the task; thus, any movement or activity has objectives or guidelines that must be fulfilled. When a child learns to toss a ball, for example, variables in the environment and the person themselves determine what skills and how quickly the motor development/learning occurs as well as how proficient the child is in this ability (such as stimuli, muscle power, and motivation). As a result, action is produced by the interaction of different limitations that may be present in the person, the environment, or the individual movement job. The interaction between the person, the environment, and the task, according to Newell, is what alters movement, and how this relationship plays out over time will affect changes in motor growth and learning.

Fitts and Posner's Stages of Motor Learning Theory take into account the attentional demands of learning a new skill as well as the amount of practice time necessary to progress through each level. Although we frequently divide the model into three

different stages, in practice, performers change up the continuum in real-time. It is also possible for a learner to regress through the levels (Shaw, 2021).

Methodology

This study utilized descriptive qualitative research design, to describe a phenomenon in detail using the perspectives and experiences of people who have firsthand knowledge of it. Descriptive qualitative research can be used to explore the experiences of students learning to swim in the context of preparation and self-assessment on basic swimming skills. The study was conducted at Holy Name University in the College of Education, Tagbilaran City Bohol.

This study utilized mixed-method, specifically, exploratory design. In this design, researchers first used a quantitative method to discover the factors affecting the student's skill acquisition. Next, the researchers sought to develop instructional material using qualitative method. This type of design is often used in the construction of questionnaires or rating scales designed to measure various topics of interest. In the exploratory design, the results of the quantitative phase give direction to the qualitative method.

Participants

Fifteen fourth-year BPED students at Holy Name University were chosen as respondents. The researchers had a complete enumeration wherein they sent a letter of informed consent form to the population of the proposed respondents. The students then decided whether or not to be part of the study. Students who responded and gave their consent were included. Since there were more than 15 students who confirmed their participation, random sampling was utilized through the lottery method. Inclusion criteria include the

following:

1. The student is currently enrolled at HNU (AY 2022-2023).
2. The student must have engaged in online learning over the preceding two semesters (AY 2021-2022).
3. The learner uses an asynchronous online platform as a mode of instruction.
4. The student must have completed the courses PEED 102 and PEED 111.

The respondents' names were strictly protected and



kept completely anonymous. Participants who declined to answer the questions were replaced based on the inclusion criteria mentioned.

Instruments of the Study

The study made use of a researcher-made survey questionnaire and a modified rubric for assessing volleyball skills as research tools. The survey questionnaire and the modified rubric for assessing volleyball skills were validated by experts.

The survey questionnaire was validated through pilot testing which was conducted by the researchers on 15 students from third-year BPEd students. It included items that elicited the factors that the students face while in the process of acquiring the skills in volleyball. The students rated using the following scale of: "Always" with a range of 4.50-5.00, "Often" with a range of 3.50-4.49, "Sometimes" with a range of 2.50-3.49, "Rarely" with a range of 1.50-2.49, and "Never" with a range of 1.00- 1.49.

Meanwhile, a modified rubric for assessing volleyball skills was used to assess the levels of the volleyball skills of the students. The students were rated using the following scale of: 3 for well performed, 2 for satisfactorily performed, and 1 for poorly performed.

Procedure

This study followed the procedures to get in touch with the participants and collect the required data. The researchers processed the form for the Holy Name University Ethical Review Board (ERB) to ensure that the study followed all the protocols before the gathering of data. A letter was sent to the Dean of the College of Education to ask permission to conduct the study for the fourth-year BPEd students of Holy Name University of the A.Y. 2022-2023. Respondents were emailed an informed consent form before answering the interview and they were requested to give their full consent. The respondents were notified about the voluntary nature of participation and the confidentiality of all data that were gathered throughout the study. This is to ensure that respondents were completely informed of the researchers' obligations and that they have the opportunity to withdraw at any time from the study. The researchers allowed the respondents to seek for explanations if there are any terminology or questions in the survey questionnaire that they did not understand.

The survey questionnaire was distributed to the confirmed respondents through Google Forms while

the observation of the students' demonstration of volleyball skills was done onsite during the students' agreed free time. There are five volleyball skills namely: Serving, Receiving, Setting, Spiking, and Blocking. Only five of the six skills were executed by the students since one of the skills (Digging) was too risky for them to perform. During the observation, the respondents performed the five volleyball skills and were rated by the raters using the modified rubric. To ensure impartiality in rating, the three raters were separated by a large distance when rating the respondents. The ratings were kept until the study was finished and was disposed of properly.

After the data gathering, the information was examined and tabulated using weighted mean with the assistance of a statistician.

Ethical Considerations

Throughout the analysis process, researchers keep ethical issues in mind at all times. The privacy and identity of respondents who participated in this study are protected, and the data collected was treated with the utmost confidentiality and respect. Data collected from this study were properly disposed of after the fulfillment of the said study. Respondents can rest certain that they will not face any vulnerabilities or risks as a result of this activity.

Results and Discussion

The purpose of this study was to establish the level of volleyball skills and the factors affecting students' volleyball skill acquisition. The study's results and findings are presented and discussed below, based on participant responses to the survey questionnaire and demonstration of volleyball skills assessed using a modified rubric:

Table 1. *Students' Level of Volleyball Skills*

<i>Skills</i>	<i>Mean</i>	<i>Interpretation</i>
1. Serving	2.62	Satisfactorily Performed
2. Receiving	2.20	Satisfactorily Performed
3. Setting	1.40	Satisfactorily Performed
4. Spiking	1.24	Poorly Performed
5. Blocking	1.13	Poorly Performed
Composite Mean	1.72	Satisfactorily Performed

Table 1 illustrates the ratings given by the three volleyball experts who were assigned to determine the level of volleyball skills of the students in terms of



Serving, Receiving, Setting, Spiking, and Blocking. Out of the five volleyball skills that students should learn, they satisfactorily performed the serving, receiving, and setting. However, the majority of the students had a poor performance in spiking and blocking. This is because the majority of the students had incorrect footwork, though they were still able to have contact with the ball. Students violate the rules of the game by touching the net or crossing the line as a result of improper balance and incorrect footwork. Students who lack good footwork usually struggle with executing some skills such as spiking and blocking.

The students' skills in terms of serving has an average of 2.62 which means that the students had a satisfactory performance in serving the ball. With this, it is very evident that the majority of the fourth-year BPEd students know how to serve the ball. The students can execute the correct arm position in serving and most of them have proper control of the ball.

The students' skills in terms of receiving has an average of 2.20. This means that the majority of the students had a satisfactory performance in receiving the volleyball. The raters had seen the students receive the ball in a low athletic stance with their knees bent and arms together. The raters also had seen that the students had their wrists extended as they received the ball and that most of them had control of the ball. Also, the researchers had observed that the majority of the students were able to make good judgment on whom to pass the ball.

In terms of setting the volleyball, the students had a satisfactory performance, with an average of 1.40. This means that the majority of the students know how to execute a set in volleyball. The raters had observed the students set the ball in an athletic position with their weight forward, and have good control of the ball to the target. But then, attacking plays were not made from their sets.

In spiking and blocking skills, the students had a poor performance with an average of 1.24 and 1.13, respectively. This means that the majority of the students are not good in terms of spiking and blocking the ball. It is very evident in their performance that only few students were knowledgeable about the proper execution in spiking and blocking the ball. As for the rest of the students, contact is still made with the ball but footwork is incorrect in spiking. Meanwhile in blocking, the majority of the students had no contact with the ball and most of them were

either too early or too late to block the ball.

Overall, the students' level of volleyball skills has a composite mean of 1.72. This means that the students had a satisfactory performance in executing the different skills in volleyball. The raters' expectations to the respondents was accurately met as they were able to perform the minimum level of performance expected of them in serving, receiving, and setting the ball. Prior to their actual performance, the raters had already agreed that spiking and blocking are two volleyball skills that are difficult for the students to perform. The raters explained that spiking requires highly coordinated movement patterns in the approach, the swing, and the landing. Meanwhile, there's more to blocking than just jumping up and keeping your hands up in the air.

The results of the study are also true in the study of Patsiaouras et al. (2011). The researchers surmise that the block is the most challenging technique due to the cerebral component that it requires, acting as both a defensive and offensive movement to stop the opponent's attack. Indeed, timing is everything in blocking. You need to understand when the setter will set the ball for the hitter, when and where the attacker will strike the ball and in what direction they may hit it. You need to time your jump and your arm/hand placement to intercept that strike. You need to know when to start moving your feet, when to jump and when to stretch out your hands. If you are too early or too late, your block will not be effective and may leave a hole in your defense. Meanwhile, it is also true that serving is one of the easiest skills to learn in volleyball. When executing a serve, the player tosses the ball to themselves. Since a server has complete control over everything involved (the toss, getting in position, etc), these factors make the skill of serving a lot easier to learn than other volleyball skills.

Table 2. *Students' Attitude as a Factor in Students' Skill Acquisition in Volleyball*

<i>Items on Students' Attitude</i>	<i>Mean</i>	<i>Interpretation</i>
1. I am willing to learn the Volleyball skills.	4.47	Always
2. I find sports, specifically Volleyball, as an interesting course in the BPEd program.	4.33	Always
3. I am highly motivated to learn the skill in Volleyball.	4.13	Often
4. I actively participate in every practicum in Volleyball.	3.93	Often
5. I feel good whenever I play Volleyball.	3.87	Often
Composite Mean	4.15	Often

Table 2 shows the students' attitude as a factor in students' skill acquisition in volleyball. The item "I am

willing to learn volleyball skills.” got the highest weighted mean of 4.47 with ‘always’ as its qualitative description. This means that students always have the willingness to learn volleyball skills. It is followed by the item “I find sports, specifically volleyball, as an interesting course in the BPED program.” with a weighted mean of 4.33. This means that students always regard sports, specifically volleyball, as an interesting course in the BPED program. The respondents claimed to be interested in developing their volleyball skills. For them, playing the game of volleyball not only equips them with a variety of skills, but also improves their disposition and social interaction. Meanwhile, the item “I feel good whenever I play volleyball.” got the lowest weighted mean which is 3.87. This means that most of the time, students consider “having a good feeling in playing volleyball” as an important factor in acquiring the skills of the said sport. If a person does not enjoy playing volleyball, one will find it difficult to learn the skills. Having a good feeling, on the other hand, will influence skill acquisition favorably.

In general, the composite mean is 4.15 which means that students often regard their attitude as an important factor in acquiring the different volleyball skills. The students’ attitude plays an important role in their skill acquisition in volleyball. The students’ attitude affects their feelings, values, appreciation, and motivation towards something. This suggests that students’ attitude towards learning the different skills in volleyball influences their performance. The results of the study are also true to the study of Little and McCullagh (2012).

The researchers believe that internally driven children will focus their attention on how to do the skill, but externally motivated children would rely on other sources of knowledge to provide a foundation for comparison of their execution. Self-modeling may be more beneficial for people who are more driven and set on performing better, and who can therefore detect and remedy their flaws. A person’s thoughts drive his actions, and his actions impact performance. Thus, a positive attitude will help to motivate a person to give one’s best and try to maximize performance.

Table 3. *Teaching Techniques as a Factor in Students’ Skill Acquisition in Volleyball*

<i>Items on Teaching Techniques</i>	<i>Mean</i>	<i>Interpretation</i>
<i>In our PE class, the teacher:</i>		
1. gives constructive feedback on the students’ performance	3.73	Often
2. uses a group activity in the practice of Volleyball skills to correct each other’s mistake	3.73	Often
3. uploads videos as points of reference to improve Volleyball skills	3.67	Often
4. puts the welfare of the learners above other considerations	3.67	Often
5. utilizes the time to identify my strengths and weaknesses when playing Volleyball	3.47	Often
6. demonstrates the different Volleyball skills in a simple and understandable manner	3.37	Sometimes
7. is willing to give extra time to teach students further on the skills that I don’t understand well	3.33	Sometimes
8. strives to assist slow learners when it comes to Volleyball	3.27	Sometimes
Composite Mean	3.53	Often

Table 3 shows the teaching techniques as a factor in students’ skill acquisition in volleyball. The items “gives constructive feedback on the students’ performance” and “uses a group activity in the practice of volleyball skills to correct each other’s mistake” both got the highest weighted mean of 3.73. This means that students often consider their teachers’ “giving of constructive feedback on their performance” and “using group activity in the practice of volleyball skills to correct each other’s mistakes” as factors in their skill acquisition. Meanwhile, the item “strives to assist slow learners when it comes to volleyball” got the lowest weighted mean of 3.27 with ‘sometimes, as its qualitative description. This means that the teacher strives to assist slow learners when it comes to volleyball only at times.

In general, the composite mean is 3.53 which means that most of the time, students consider their teacher’s teaching techniques as an important factor in acquiring the different skills in volleyball. Teaching technique is vital, especially when it comes to skill acquisition in volleyball. Thus, the techniques used by the teacher in teaching the skills in volleyball can help the students acquire the different skills.

This is also true in the study of Sunay et al. (2004). The researchers surmise that the teaching techniques can be a factor to students’ skill acquisition in volleyball. The findings showed that command style had an effective role in teaching basic volleyball techniques, while the guided discovery style had a partially effective role. The command style is distinguished by encouraging students to respond predictably to a specific stimulus delivered by the teacher. For example, the teacher may show how to serve a volleyball while the students follow the

instructions. On the other hand, the guided discovery style is distinguished by the development of a logical and sequential series of questions that lead learners to a predetermined response. Simply put, the teacher employs questions to direct students toward a specific solution.

Table 4. *Parental Support as a Factor in Students' Skill Acquisition in Volleyball*

<i>Items on Parental Support</i>	<i>Mean</i>	<i>Interpretation</i>
I can acquire the skills in Volleyball because my parents:		
1. encourage me to learn the different skills for my personal gain	3.40	Sometimes
2. support me in every Volleyball activity in school	3.27	Sometimes
3. provide me with the necessary equipment to be used in Volleyball game	3.13	Sometimes
4. taught me the importance of joining sports activities and being physically active	3.00	Sometimes
5. will reward me if I have an excellent performance in Volleyball	2.60	Rarely
Composite Mean	3.08	Sometimes

Table 4 shows parental support as a factor in students' skill acquisition in volleyball. The item "encouraged me to learn the different skills for my personal gain." Got the highest weighted mean of 3.40 with 'sometimes' as its qualitative description. This means that the students consider "their parents' encouragement to them in learning the different skills" as a factor in their volleyball skill acquisition only at times. It is followed by the item "support me in every volleyball activity in school." With a weighted mean of 3.27. This means that students sometimes consider "their parents' support to them in every volleyball activity in school" as a factor in their skill acquisition of the said sport. Meanwhile, the item "will reward me if I have an excellent performance in volleyball." Got the lowest weighted mean which is 2.60. This means that students hardly consider "receiving rewards from their parents for an excellent performance in volleyball" as a factor in skill acquisition.

In general, the composite mean is 3.08 which means that parental support is considered by students as a factor in acquiring the skills in volleyball only at times. The results show that parental support is clearly not the main factor in students' skill acquisition in volleyball. This is because of the fact that some of the students can still acquire the skills in volleyball even without the supervision of their parents.

This is also true in the study of Coutinho et al. (2021) in their study entitled "The Influence of Parents, Coaches, and Peers in the Long-Term Development of Highly Skilled and Less Skilled Volleyball Players". Here, autonomy-supportive parents (i.e., parents who encourage their child's participation in

sports and give them a say in their decisions) have been linked to a favorable influence on children's athletic development (Lauer et al., 2010; Knight et al., 2011; Barreiros et al., 2013; Fraser-Thomas et al., 2013; Keegan et al., 2014; Knight and Holt, 2014). On the contrary, parents' over-involvement in their children's sport activity, as well as the provision of excessive sport-related feedback, can operate as sources of pressure, lowering motivation and enjoyment in sports (Gould et al., 2008; Lauer et al., 2010; Harwood et al., 2012).

Table 5. *Summary of the Factors Affecting Students' Skill Acquisition in Volleyball*

<i>Factors</i>	<i>Composite Mean</i>	<i>Interpretation</i>
Students' Attitude	4.15	Often
Teaching Techniques	3.53	Often
Parental Support	3.08	Sometimes

Table 5 shows the summary of factors affecting students' skill acquisition in volleyball. Students consider their attitude and 'teaching techniques' as the factors that highly affect their skill acquisition, having the same qualitative description. But then, "students' attitude" got a higher composite mean than teaching techniques. This means that students consider attitude as the most important factor in acquiring the skills in volleyball. Attitude is what determines the level of performance of students. This is because a person's level of motivation is controlled by their attitude. If the student has a positive attitude towards learning the skills in volleyball, he or she will likely be more driven and put more effort into learning those skills. On the contrary, if the student has a negative attitude, no matter how much knowledge or skill he/she possesses, he/she will not perform well. Parental support got the lowest composite mean of 3.08. The results indicate that parental support is obviously not the main factor in students' skill acquisition in volleyball. This is due to the fact that some of the students can still acquire the skills in volleyball even without the supervision of their parents.

Development of an Instructional Material

The researchers observed, researched references for volleyball, and sought advice from their professor in developing the instructional material. The respondents were asked to perform the volleyball skills and they were rated by the experts to determine their level of volleyball skills. After performing the skills, the raters gave their comments about the performance of the respondents. They stated the common faults committed during the execution of the skills. The researchers also have taken notes of their observations

during the performance of the respondents. The researchers adopted information from the internet that is relevant to the development of instructional material. They also received advices regarding the format or the organization of the content of the instructional material.

Warm-up and cool-down exercises, modified drills, and steps for proper volleyball skill execution are all part of the instructional material. Warm-up exercises are included in the instructional material because they are important for students to perform before engaging in any physical activity. Warming up is essential for better performance and injury prevention. It not only prepares the body, but it also mentally prepares students for the challenges of drills and activities ahead. Meanwhile, performing volleyball cool-down exercises will help restore the muscle to its resting length, reduce soreness, and improve recovery for the next volleyball session. If students are going to put in the effort to improve their athletic performance, they must also put in the effort to properly warm up and cool down their bodies.

Conclusion

The data indicate that the majority of the students adequately performed serving, receiving, and setting the ball, but they struggled in spiking and blocking. Students' attitudes are crucial to the development of volleyball skills. Teaching techniques are also crucial in assisting students in developing their volleyball abilities. Teachers must therefore employ efficient teaching techniques that can aid students in comprehending and honing the various volleyball skills. The least significant factor in the development of the students' volleyball skills was found to be their parents' support. Even though some students can pick up volleyball skills on their own, it's still important for parents to be involved in their children's education and support their interests.

Students should practice the spiking and blocking skills with a partner (buddy system) providing feedback on each other's performance. The created instructional material should also be utilized by teachers and students in the teaching of volleyball skills. Additionally, teachers are encouraged to employ individualized instruction for low-performing students.

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