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The Effect of the (Team - Pair - Solo) Strategy in Learning the Accuracy of the Spiking Skill in Volleyball

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Abstract

This study aims to prepare educational sessions for the strategy (team-pair-solo) in practical volleyball lessons for female students and identifying its effect on learning the accuracy of the spiking skill in volleyball. An experimental design with experimental and control groups was employed on a purposive sample of (30) female students who were to constitute (42.254%) from their community represented by the sophomores at the College of Physical Education and Sports Sciences for Girls / University of Baghdad who are in good standing in the morning study for the academic year (2022-2023), whose total number is (71) students.

According to the determinants of the experimental design, participants were divided into two equal groups, and the accuracy test of the skill under research was determined, and four educational sessions were prepared that were applied experimentally to the students of the experimental group over four consecutive weeks. One session per unit was presented to participants in the experimental group. Participants in the control group received the conventional learning of the accuracy of this skill.

After the completion of the experimentation, the scores of the pre- and post-tests of the students of these two groups were collected and statistically processed with the statistical

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package for social sciences. The researchers concluded and recommended that a strategy (team-pair-solo) can be applied in practical physical education lessons to learn the accuracy of the skill performance in volleyball for sophomores at the College of Physical Education and Sports Sciences for Girls. This application helps in learning the accuracy of the spiking skill in volleyball among students and outperforms its learning among students who learn without such a strategy.

It is necessary to pay attention to provide a learning environment that suits the application of a strategy (team-pair-solo) in practical physical education lessons in volleyball, and it is necessary to pay attention to diversifying the combination between cooperative and individual self-learning within one lesson when learning the accuracy of the spiking skill in volleyball among sophomores at the College of Physical Education and Sports Sciences for girls.

Keywords: (team-pair-solo) Strategy, Accuracy of Spiking Skill, Volleyball

Research Problem

The scientific advancement that we see today in various fields of life is the result of experiences and research through which many results have been inferred and obtained to serve humanity as a whole. This development has been reflected in the field of physical education and its various means and has opened new horizons for researchers and students in the field of teaching methods to learn about the new in the processes of writing information (Safa Abdel Karim Sadiq, 2022), where many strategies have emerged, including the (Team-Pair-Solo) strategy, which is defined as "an educational strategy designed to motivate students to deal with problems that exceed the limits of their cognitive ability."

Students face problems first (as a team, then with the partner, and finally on their own)." (Chotimah 2017, 75). Sahab Ismail (2022) believes that the teaching process is the cornerstone of the desired behavior of individuals to acquire knowledge, values, habits, and other behavior patterns. Haneen Maysam (2023) believes that building the learners' personality is done through a set of successful strategies that lead to achieving the required goals that require regular and elaborate planning.

The nature of teaching the accuracy of volleyball skills is characterized by the interaction between the elements of the teaching process, as is the teaching of the skills of the rest of the team football games. Also, the specificity of the accuracy of volleyball skills requires collective harmony among students, and it must end up learning it to the individual for each of them by relying on itself in the accuracy of skillful performance. In other words,

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the process of exchanging and evaluating knowledge between them collectively and then among female students, and it must result in a cognitive regulation that supports the perceptions of each student to rely on herself in skillful performance after investing this interaction and deriving from it what supports her performance for skillful accuracy.

The choice of strategy (team-pair-solo) is determined by what is appropriate for the effective educational process of education objectives, type of content, learners' needs and privacy, and achieving inclusion. All this depends on the positive role the teacher plays because of his effectiveness in the success of educational and teaching work. This is what Sahab Ismail (2022) sees that the role played by the faculty member in education in general is a very important role because it is one of the pillars of the educational process and is the key to knowledge and science for the student. Jinan Ghazi Saqr (2021) also believes that teaching methods need to diversify the mechanisms of directing them in lessons, whether it is a practical or theoretical lesson, to make the learner more capable of increasing information, more effective and involved in the lesson, as this strategy includes the following teaching strategies: (Ramsden, 2022, 14)

- Collaborative Learning: "Students are divided into small teams in this strategy, and they collaborate together to solve problems or accomplish educational tasks, and this type of teaching aims to enhance interaction among students, exchange knowledge, develop communication skills and teamwork, and a variety of activities such as discussions and problem solving, can be used to achieve educational objectives." (Johnson & Johnson 2019, 233-247)

- Jigsaw Classroom: "The subjects are divided into different parts in this strategy, then each student has to become an expert in a specific part, then groups are formed that include members of different groups where they share the knowledge and skills they have acquired, this approach aims to promote collaborative peer learning and promote responsibility in achieving learning." (Biggs & Tang 2017, 11)

- Individual Learning: It focuses on individually providing educational content to each student in this strategy, where lectures or tasks are individually presented to each student, and each of them receives individually, and a variety of teaching methods and individual exercises can be used (Aronson & Patnoe, 2020, 171). Thus, the Team-Pair-Solo strategy is a combination of the three teaching strategies in one lesson according to the tasks assigned to the learners.

Ketchum (2018) stated that "Kagan stated that this strategy allows students to work on problem solving first as a team, then with a partner, and later they will easily solve problems themselves. This means that before solving problems on their own, students first do them as a team and as a pair in this strategy, which means that the teacher is required to

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stimulate the students' mind to share their ideas independently because the Team Pair Solo strategy involves students doing the task in that they meet first before they do the task themselves." (Ketchum, 2018, 9)

It is necessary that the strategies in the methods of teaching physical education be characterized by the possibility of their practical application, and that their selection should be improved in light of the determinants of their compatibility among each of the students, the school, and the curriculum, with the availability of various capabilities in the physical education lesson, considering the level of students, their chronological age, and stage of study, and considering the level of their skillful performance and previous experiences, and the availability of material and human resources for the application of these strategies. As well as the necessity and importance of determining the roles of both the student and the teacher in the lesson, and by adopting an appropriate technique to activate the students' role and help them to bring out the skillful performance to appear in a way that is free from common mistakes, in line with the directions of the modern school, and by adopting the clarity of the communication message between students and the school.

Among the most important advantages of teaching with this strategy are the following: (Train 2019)

1. Make the classroom environment interactive.
2. Students are actively involved in the teaching and learning process.
3. Helps develop students' social skills as they communicate, help, and learn from each other.
4. Students learn to think from different perspectives, listen to others' perspectives, and confidently put forward their views.

"One of the advantages of the Team-Pair-Solo strategy is to build a positive feeling in learners through interdependence in order for everyone to succeed, as they must work together and help each other. Kagan states that in this strategy, the team can accumulate the knowledge and skills needed to try the new procedure.

It can be concluded that this strategy can give students the confidence to overcome problems because they see the success of their peers and learn from them" (Sanjaya & Sumarsih, 2019,142).

The influence of teaching with this strategy on learning motor skills in the physical education lesson can reflect the positivity required for its application through the benefit of teaching through it, because of the support provided by this strategy, according to the following: (Apio & Other, 2019, 1-9):

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- Increased focus and attention: All learners must coordinate their efforts in a team or pair to achieve a common goal. This enhances the concentration and attention of each other, especially in collective games, when implementing skills accurately and effectively.

- Diversity of experiments and feedback: Through (team - pair - solo), learners can experience different aspects of skill movements, which allows providing diverse feedback and identifying points that can be improved, when testing their implementation or application.

- Stimulate positive competition: Positive competition can arise among members in a pair-team, which motivates learners to improve their personal performance and achieve their goals when applied later in the solo.

- Developing learning and adaptive skills: By experiencing working with different partners or working individually, learners can develop learning skills and adapt to diverse contexts and different circumstances.

- Boost self-confidence: When learners can achieve successes and develop skills in a (team-pair-solo), this will increase their self-confidence and ability to successfully implement skills.

Also, the teaching, whose results lead to improve the skillful performance, depends on the continuity of updating its strategies by delving into the experimentation of its modernity, to seek to achieve more than one purpose in one work by investing its overall advantages in supporting the student's role to determine the tasks required of her in knowing the details of the applied performance of the accuracy of the spike skill in volleyball.

Through the researchers' academic orientation in the methods of teaching physical education, and from their direct knowledge of the methods used in teaching the performance of volleyball skills to female students in the College of Physical Education and Sports Sciences for Girls, they noticed a clear weakness in the level of skillful accuracy of the spike, which calls for attempting the strategy of (team - pair - solo), as an attempt to contribute to the teaching process in physical education in a way that helps students to improve the accuracy of their spike skill in volleyball, and then overcome this weakness they have, considering participants' particularity and level of spike skill. Thus, this study aims to:

1. Preparing educational sessions for the strategy of (team - pair - silo) in practical volleyball lessons for female students.

2. Identify the influence of the strategy of (team - pair - silo) in learning the accuracy of the spike skill in volleyball for students.

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Research Hypothesis:

There are statistically significant differences between the results of the accuracy tests of the spike skill in volleyball after between the experimental and control research groups.

Methods

In light of what the researchers mentioned in the problem of the current research, the experimental research methodology was adopted, which is defined as "the method in which we treat and control an independent variable to see its ieffect on a dependent variable, while observing the resulting changes and interpreting them, whether the experiment includes an independent variable and a dependent variable or more than one independent variable or more than one independent variable" (Al-Mahdi 2019, 214). The experimental design with experimental and equivalent control groups with tight control was also adopted in the pre- and post-tests.

Sample and Sampling

The boundaries of the community of the current research are represented by the sophomores in the College of Physical Education and Sports Sciences for Girls at the University of Baghdad who are in good standing for the academic year (2022-2023), whose total number is (71) students distributed into two classes. The researchers sought to studying them they rrepresent the current research problem community, (15) female students were purposively selected from each class to reach the total research sample (30) students representing (42.254%) of this community, Then, the students of class (A) were selected to be the experimental group, while the students of class (B) were the control group, and the rest of them were selected for the pilot study (n = 8) students representing (11.268%) of their original community.

Measurement and Procedures

The researchers adopted the accuracy test of the spike skill in volleyball under investigation (Al-Samarrai, 2002, 56) (Appendix 1). Thereafter, the preparation of educational sessions for the strategy of (team - pair - solo) in practical volleyball lessons by focusing on the application of its contents in the main section of these educational sessions, as most of the steps of such a strategy can be consistent with the nature of the accuracy of the spike skill in volleyball in the physical education course in terms of receiving knowledge and applying performance with the help of peers or colleagues and then individual performance on self-reliance only. This strategy combines cooperative, bilateral (pair), and individual learning according to sequential steps according to the nature of that skillful duty, and the

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strategy is implemented in the physical education course for skillful learning for the accuracy of the spike skill in volleyball according to the following steps:

1. Team: The teacher explains to the students the idea of the strategy and she explains to them the spike skill in volleyball and presents a detailed model for it in the applied part of the main section of the lesson. Thereafter, she asks the students from each group to perform a specific student after asking her to analyze the teacher's explanation to her, and manage a seminar among members of the group about the skill, and help the student in enabling her to perform the specified skill.

2. Pair (dual): After completing the management of the seminar among the members of the group about the spike skill in volleyball and helping the student to enable her to perform the accuracy of this skill, as each two students perform the same skill bilaterally and help each other with cognitive support for the skill and in correcting its performance errors.

3. Solo: After completion, each student performs the accuracy of the spike skill in volleyball on her own and corrects her mistakes through internal feedback and self-reliance in completing her task, to apply it by investing the knowledge and assistance she received in the application.

The teacher’s role is guidance and close follow-up for educational situations, encouraging teams of students to have positive behaviors, and she changes between groups and between students by following up the improvements in the lesson. After the completion of this preparation, the researchers applied the pilot study on (8) students, who are the determinants of the procedures for this experiment. The purpose of pilot study was to know the obstacles that the researchers may face when they conduct the main experiment, including the requirements for verifying the time of implementation of the test and the educational sessions in the lessons, and they did not face any significant difficulty. According to the determinants of the experimental design of the current research, the pre-tests for the accuracy tests of the spike skill in volleyball were applied on the students of the experimental and control groups in order to ensure the line of initiation of their equivalence in the results of the accuracy tests of the spike skill in volleyball. Thereafter, the contents of (team – pair – solo) strategy was applied on the students of the experimental group, while the students of the control group received the conventional teaching methods, and the lesson included the following time plan:

- The total time of the lesson: (90) minutes divided into the preparatory section (20) minutes, the main section (60) minutes, the educational side (20) minutes, the applied (40) minutes, and the final part of the lesson (10) minutes.

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The educational aspect, which has a time of (20) minutes, will be done by applying a strategy of (team - pair - solo) and according to the aforementioned parameters.

The applied side, which has a time of (40) minutes, will include practical exercises on the accuracy of the spike skill in volleyball at the same level for all students in the two groups. These exercises will be sequentially augmented from easy to difficult, as the skill sections will be presented according to tasks, deliberations, and exchange of feedback among students to determine the role of each student at each stage of the strategy (as a team, then with her partner, and finally on her own).

The practical lessons were applied by one session per week for a period of four consecutive weeks and a total of four educational sessions, in order to reach mastery of the accuracy of the spike skill in volleyball. After the completion of this experiment, the post-tests were applied, and the results of the study were processed with the statistical package for social sciences (SPSS) version (28), to calculate the values of percentage, arithmetic mean, standard deviation, independent-sample T-Test, and paired-sample T-Test.

Results

Table 1. Pretest results for the study and control groups

Test and easurement unit	Group and number		Arithmetic mean	Stand Deviation	Levene test	Sig.	t	Sig.	Significance of the ifference
Accuracy of spike skill (Degree)	Experimental	15	13.07	3.218	0.384	0.541	0.961	0.345	Non-gnificant
	Control	15	14.13	2.85					

Non-significant: p-value ≥ 0.05 and degree of freedom (n1 + n2)-2 = 28

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Table 2. Pretest and posttest results for the study and control groups

Test asureme nit	Group	Comp on	Arith ic mean	Sta rd viation	M erence	St Error an	t	Si	Signif ce of the erence
Acc cy of ke skill gree)	Experi ntal	Pretes	13.0	3.2	13 7	3.	15 3	0.	Signif nt
		Postte	26.1	0.9					
	Contr	Pretes	14.1	2.8	66	4.	6.	0.	Signif nt
		Postte	20.7	1.8					

15 for each group; Significant if p-value ≤ 0.05 and degree of freedom (n-1); Std. Error Mean: Standard Error Mean

Table 3. Posttest results for the study and control groups

Test asurement	Group and nber		Arithme mean	Standa Deviation	t	Sig.	Significa of the erence
Accura of spike l (Degree)	Experime	1	26.13	0.99	9.8	0.0	Significa
	Control	1	20.73	1.87			

Non-significant: p-value ≥ 0.05 and degree of freedom (n1 + n2)-2 = 28

Referring to the results in Table (2), it is clear that the levels of accuracy in the spike skill have increased for students of both the experimental and control groups in the post-tests than these of the pretests.

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Referring to the posttest results in Table (3), it is clear that the level of spike skill accuracy has increased for students of the experimental group compared to students of the control group. The researchers attribute these results among the students of the experimental group to the positive effect achieved by the strategy of (team - pair - solo) in practical physical education lessons in volleyball, through which each learner derived knowledge of skill performance to achieve spatial accuracy of the spike skill. The diversification among roles and the transition among them in the lesson helped the learners to delve into the details of skillful performance and how the sound applied practice with repetitions accompanied by feedback to prune the movements of this skill of common mistakes, which was helped by the strategy of (team - pair - solo) by encouraging learners to question and inquire, and allowing movement and group interaction in managing a seminar among members of the group about the spike skill in volleyball and helping the student to monitor her colleague and correct her mistakes, as well as benefiting herself from that correction in the reshaping the appropriate kinetic program to achieve the best accuracy, according to the specificity of the quick spike skill by nature, to create a classroom environment in the volleyball court in which self-confidence and mutual trust prevail, and openness to the opinions of colleagues and acceptance of their views, which further activates their roles in each task of the strategy of (team - pair - solo). This is consistent with the opinion of Haneen Maysam (2023) who believes that the use of such strategies ensures that students are not passive learners rather productive learners within their groups by actively participating in learning with their peers and encouraging each other. These requirements in their entirety with the actual application of educational exercises and the frequency of its performance in each lesson helped in the emergence of the results of spatial skill accuracy at this level, considering that accuracy is affected by increasing repetitions and knowledge of accurate movements of the performance necessary to achieve them to the fullest. "Most of fine movements are very necessary for humans, and how to practice or perform them is an important step that lies in learning them well by correct repetition. Therefore, it is noted that there is a great difference between beginners and skilled when performing any apparent behavior, as the beginner needs to organize the appropriate nerve stimulus. It must be known that repetition (the number of times of performance) alone is not enough for the required learning process to occur, because the process depends on observation, follow-up of performance, and a sense of performance.

In addition to optimally practicing it at the appropriate angle, to note some complex movements that need mastery to perform, such as how to transfer the momentum of movement of body parts, body weight distribution, speed and accuracy control with purposeful compatibility, agility and aesthetic movement, so that the performance process after automatically completing the learning process or the so-called mastery of the skill completely (Bhanu, 2015,144-147).

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As well as what all learning processes need to link new information with stored memory, and this is what modern strategies provide, including the strategy under research. This is consistent with the opinion of Zeina Hassan Amer (2022), who believes that modern strategies help the learners to achieve the goal they aspire to, as it includes a set of activities that are represented in selecting and organizing information, repeating and relinking new learning with memory learning. Providing interactive models and applications that allow learners to simulate situations and make appropriate performance decisions, this helps them to apply the concepts they have learned in a safe environment and develop their abilities to make the right decisions at the right time." (Williams & Krane, 2019, 28). This is consistent with the opinion of Malaz Haider who believes that the decision-making process is a process of choosing from a set of alternatives to reach a certain result in a certain situation and time and that making the right decisions in volleyball is one of the most important aspects that player enjoys as "the teacher can assign some learners as coaches to their colleagues so that they train on how to solve the problem in the future on their own, and the teacher's role in this strategy is in guidance, careful follow-up, and encouraging teams and individuals on positive behaviors" (Al-Shammari, 2001, 81). Also, "notifying the learner of the results of his work, comparing him with his colleagues, and realizing the extent of his progress or delay is considered one of the strongest motives for learning, while it was found that neglecting the learner and not notifying him of his position or paying attention to the extent of his progress or delay would lead the learner to boredom and inaction" (Al-Azzawi & Al-Bayati, 2013, 62). It is also "necessary to consider the teachers' attitudes in effectively implementing this strategy, as it can be applied according to the learners' needs, level, and characteristics according to the achievement of practical points" (Smith & Others, 2017, 723-731).

"Modern teaching has shifted from the mechanism of transferring knowledge from an enlightened person to another person ignorant of it, to becoming the process of organizing the class as an effective educational environment, encourages thinking, and represents an environment for mental openness, freedom of expression, opinions, and decision-making. The successful teacher is flexible and uses stimulating teaching strategies, as the teacher becomes one of the sources of knowledge, not the only source of it, and his role moves from a carrier of knowledge to a participant for the learner in building his knowledge, encourages learners to question and inquire, and allowing with a degree of positive noise resulting from movement, interaction, and social negotiation." (Adas 2015, 31).

"The educational environment, including the elements affecting the learning outcomes, has a major role in the learner's activity and positive interaction with educational situations and its elements. One of the most prominent features of this environment is that it is rich in various sources of information, including opportunities for questioning and clarification, and the spirit of cooperation and positive participation prevails in the work, and

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self-confidence and mutual trust prevail, and openness to the opinions of others and accept other points of view, and saturated with vitality and activity, and the appropriateness of its physical elements to the requirements of active collective work It includes the necessary tools and equipment required for active learning, including opportunities for various options and alternatives of activities and tools" (Attia, 2016, 244). In addition to what teamwork gives of an increase in self-confidence that is reflected in the performance of the group, the pair, and the individual, and this is consistent with the opinion of (Sawsan Jawdat, 2021) who believes that there are many psychological factors that significantly contribute to the influence on students and there must be a level that they own in order to protect themselves from these psychological influences.

Conclusions

1. The strategy of (team - pair - solo) can be applied in practical physical education lessons to learn the accuracy of the skillful performance in volleyball for sophomores in the College of Physical Education and Sports Sciences for Girls.

2. The application of the strategy of (team - pair - solo) in practical physical education lessons in volleyball helps in learning the accuracy of the spike skill in volleyball among students, and outperforms its learning among students who learn without it.

Recommendations

1. It is necessary to pay attention to providing an educational environment suitable for the application of a strategy of team - pair - solo) in practical physical education lessons in volleyball.

2. It is necessary to pay attention to diversifying the integration between cooperative and individual self-learning within one lesson when learning the accuracy of the spike skill in volleyball among sophomores at the College of Physical Education and Sports Sciences for Girls.

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Appendix (1) Spike test in both diagonal and straight directions (Samurai 2002, 56)

The objective of the test: To measure the spike skill in the diagonal and straight directions.

Tools: (10) volleyballs, volleyball court, two mattresses placed in a striped area measuring (3x3) as shown in Figure (1).

Performance specifications: Spike from center (4), preparation by the teacher from center (3) and the tested student has to perform (5 spikes toward the diagonal direction) (organized located in center (5)).

Five spikes toward the straight (organized in position 1) and taking a break between one attempt and another.

Recording

- (4) points for each correct spike in which the ball falls on the mattress
- (3) points for each correct spike in which the ball falls into the planned area
- (2) A point for each correct spike in one of the two zones (A) and (B).

Maximum degree: (40) degrees.

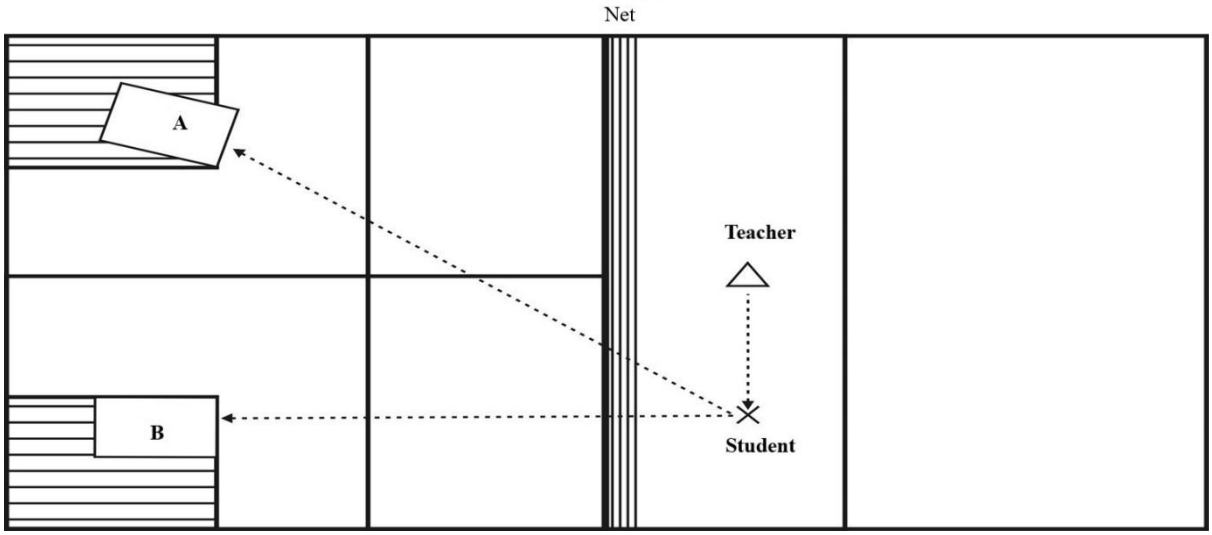

Figure (1) Test of Spike Skill in the Diagonal and Straight Directions

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