

Practice structures from motor learning



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1. Skill acquisition is partially dependent on the amount of practice and the structure of practice for the learner. Choose an activity and using the principles of practice and practice structures from Motor Learning answer the following questions.

A. Identify and describe the skill with detail along with the characteristics of the learner (age, athletic ability, etc.).

The learner is a high school freshman baseball player still in growth development and attempting to improve his fielding mechanics. Although the learner has played baseball in the past, the player's fielding skills are average. The player also has average athleticism, is right hand dominant, but requires specific attention to details to improve fielding ground balls that are hit directly towards the learner. The learner is also attempting to play shortstop for the high school team. Fielding a ground ball that is hit in a straight line in front of the player using a glove is the skill that will be taught. When fielding a ground ball, the learner should approach the ball with the palm of the glove facing the baseball as the arm is straight and descending like an "airplane" and not like a "helicopter." As the learner is approaching the ball with the glove and arm positioned as previously mentioned, the learner should take a "banana" like curve towards the ball to read the location of the ball skipping off the ground. After the "banana" curve and descending the glove like an airplane, the learner should then field the ball way beyond his toes as his back is bent forward in a squat-like position. The learner should come to the connecting point between the glove and the ball with a right to left step pattern as the learner gets into a squat position. As the learner is getting into the squat position to field the ball, the right hand

should extend with the palm facing down while the palm of the right hand is on the bottom of the glove resembling an alligator's open mouth. Once the learner is in a squat position with both the glove hand and right hand covering the baseball, the learner is then instructed to close the ball in the glove while controlling the ball with the throwing hand. During this period of controlling the ball, the learner should "funnel" the ball to the stomach while maintaining eye contact all the way until the ball is in the learner's throwing hand entirely. As the ball is in the throwing hand, the fielder should cross the left foot over the right leg, continue to follow the left leg through to assume a throwing position, and finally use the learner's throwing abilities to throw at a target once the ground ball has been fielded.

B. Describe the different types of practice appropriate for an advanced performer and one who is just learning the activity.

Blocked practice is a repetitive sequence which allows the individual to practice the same skill (Schmidt & Wrisberg, 2008, p. 257). This type of practice is for both advanced and unskilled learners to utilize. Random practice is when an individual performs numerous skills in a random order to limit consecutive repetitions (Schmidt & Wrisberg, 2008, p. 257). Practice that is randomized is useful for advanced learners. Constant practice is when an individual practices while performing only one variation of a set of skills (Schmidt & Wrisberg, 2008, p. 271). A developing learner could field the same type of ground balls and throw to first while an advanced learner could field the same type of ground ball and throw to first, then field the same type of ground ball and throw to second base. Both types of constant practice are beneficial for both learners. Varied practice involves different versions of a

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skill to be rehearsed (Schmidt & Wrisberg, 2008, p. 271). For the purposed skill being practiced, an example of varied practice would be having the learner field a variety of ground balls from different distances and throwing to different positions on the baseball field. Varied practice is more beneficial for advanced learners due to the degree of difficulty that would be carried out. For example, fielding a ground ball from multiple angles and switching between throwing to first and second after fielding.

C. Discuss why the practice structure you select is appropriate using motor learning principles of practice schedules.

Since the learner is a freshman baseball player who is trying to develop a consistent movement pattern to field a ground ball, the best practice structure to use is blocked practice. Blocked practice allows the individual to practice the characteristics of the skill using repetition. Through blocked practice, the developing individual can improve in fielding during the motor stage of learning. While progressing through the motor stage of learning, the coach can provide some precise feedback, but the individual can modify self-movement patterns to accomplish goals of fielding ground balls correctly.

Since the freshman baseball player already has a general idea of how to field a ground ball hit towards the fielder's direction, blocked practice would allow the learner to reach a high skill potential of fielding a ground ball towards the learner due to repetitive movement patterns.

2. Learners advance through various stages of learning, when developing a skill. Whether a beginner or an expert. Use the stages of learning principles to answer the following questions.

A. Name the different stages of learning as well as explain the characteristics of the different stages of learning.

In the beginning of learning a skill, the goal of the learner is to get a general idea of what the body needs to do to produce the movement (Schmidt & Wrisberg, 2008, p. 200). This is the verbal-cognitive stage. Learners going through this stage when developing a skill often do a lot of thinking while they talk to them self about how they will accomplish the task (Schmidt & Wrisberg, 2008, p. 200). There is much improvement throughout the verbal-cognitive stage even though the movements tend to be unathletic and not the best quality (Schmidt & Wrisberg, 2008, p. 201). During this stage of learning, it is important for the instructor to demonstrate with visual cues as the learner attempts to mimic the movements demonstrated (Schmidt & Wrisberg, 2008, p. 201). After a certain time of repetitive, decent, quality movements, the learner will then progress into the motor stage where the movement is much more effective (Schmidt & Wrisberg, 2008, p. 201). While the motor stage does not involve the most skill potential, it is the stage of motor learning when the learner discovers the most effective and consistent ways to refine the movement (Schmidt & Wrisberg, 2008, p. 202).

Progression through the motor stage is often the longest stage a learner completes (Schmidt & Wrisberg, 2008, p. 202). Once the learner has corrected the movement pattern after receiving feedback and improving the skill, the autonomous stage is when the learner needs to give limited attention to how they produce the movements to the skill and focus on how the movement can be modified to be more effective (Schmidt & Wrisberg, 2008, p. 202). Self-confidence improves in the autonomous stage because

errors are less likely to occur as the learner is close to the highest potential of the skill. Even though the autonomous stage is the final stage of learning, it is a never-ending phase as it takes years of practice for the learner to produce the skill flawless (Schmidt & Wrisberg, 2008, p. 203).

B. Use a scenario where an individual would go through the different stages and items that would take place during each of those stages. Explain the scenario fully. (sport or skill – all information must be accounted for in explaining what is going on.)

When learning how to throw a baseball, the learner begins by being instructed by the baseball coach. The learner is a six-year old tee-ball player who is right handed while having no prior experience with throwing a baseball. The individual is an average height and weight for a six-year old male. Throwing a baseball was taught from the very beginning stages and the process begins as the verbal-cognitive stage begins for the learner. The learner's coach explains that the grip of the fingers should be placed over the laces as he shows with a visual demonstration. The youth baseball player then attempts to copy the exact same grip learned from his coach by telling himself, " place the fingers over these red marks on the ball." After a decent grip of the ball has been performed, the coach then instructs the youth baseball player to face the hand (as the grip of the ball remains the same way) away from the face. The coach informs the learner to " pretend the hand is a cobra snake." Using this cue, the learner understands that the " cobra snake" needs to be facing away from the face so the snake doesn't bite the face. As the learner is gripping the baseball, the start of the throwing motion begins when the learner takes the ball out of the glove. The learner is

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then instructed to grip the ball as previously learned, face the ball towards the ground, then keep the ball facing the ground and away from the face while bringing the ball up directly behind the head with the arm in an angled position. This motion is demonstrated repeatedly to the learner so the learner can mimic the exact movement several times. The learner is constantly talking out loud about the directions to throw a baseball. The learner says, “ grip the laces, face the “ cobra” away from the head during the wind up, and release the ball in front of the head towards the target.” As the learner is attempting the initial phase of throwing a baseball, the learner forgets to “ face the cobra” away from the face and starts to develop bad habits. The coach quickly corrects the bad movement pattern providing extrinsic feedback by explaining, “ don’t forget to face the cobra away from the face while bringing the baseball down and up.” Once the ball is gripped correctly, the ball is behind the head after the wind up, and the ball is facing away from the face so the “ cobra” doesn’t bite, the learner is then instructed to throw over-head to a target. The throwing motion was demonstrated so the learner again has a visual demonstration of what the skill should look like. The ball isn’t close to the target because the ball was released at an inappropriate time. The coach tells the learner to release the ball in front of the head and have the ball roll off the fingers so the ball has backspin. This is also demonstrated visually. Over a period throughout the practice day, the learner eventually gathers the general movement of throwing a baseball. Although the learner understands the general movement, the throw is not accurate and still requires much improvement and attention. At this point of motor learning, verbal-cognitive stage is still occurring. However, once the learner has developed a general throwing

movement from demonstrations, verbal cues, and thinking, the learner begins to make effective adjustments. The learner then begins the motor stage with more confidence. In this stage, the learner is adjusting the entire body. The learner understands that foot placement improves throwing accuracy, the release of the ball is more consistent, and trunk rotation control is more consistent. Since throwing a baseball is a closed skill, the learner focuses more on repeating high quality throwing motions and making the throw consistently smoother and controlled (Schmidt & Wrisberg, 2008, p. 202). After the motor stage produces a more efficient throwing skill, the autonomous stage occurs where the player starts throwing to different targets (i. e. throwing to the first baseman, throwing to the second baseman, throwing to the catcher, or throwing long distances). Performing in the final stage, the learner has developed a crow-hop giving the player more power with throws. The learner also developed quicker and more specific ways to throw the ball to different targets such as developing skills during a relay throw to the catcher from the outfielder. Throughout improvements in throwing a baseball while the learner was completing the autonomous stage, the learner also developed throwing skills to throw different types of pitches such as the curveball and knuckleball.

C. Explain what happens to the learner in each the stages of learning for the scenario.

As previously mentioned, the learner started throwing at six-years old. In the verbal-cognitive stage, the learner utilizes demonstrations, visual cues, and verbal cues to provide self-talk and thinking when producing the movement. In the scenario discussed above, the learner thinks of directions such as, “
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grip the laces, face the “ cobra” away during the wind up, and release the ball in front of the head towards the target.” Self-talk and thinking while attempting the skill is common during the verbal-cognitive stage. The goal of the learner while progressing through the verbal-cognitive stage is to understand the general movement. The motor stage is different than the verbal-cognitive stage when explaining what happens during each stage of the throwing movement. Recently stated, the motor stage begins when the learner already has a general pattern to move. Therefore, the learner seldom uses self-talk or thinking to produce movements in the motor stage. Instead, the improvements are made quickly and the throwing motion performance is more effective. Like what was stated recently, the learner realizes how to use the entire body to produce a better throw which eventually becomes consistent. For example, the learner learned in this stage that correcting foot placement would allow more throwing accuracy. When the learner progresses through the motor stage, the learner is developing as a human being. The individual has much more control over the body and is much older. The learner has become so aware of the environment that the learner understands the closed skill of throwing a baseball and can adjust without much feedback. In the final stage of learning, the learner shows great potential in throwing a baseball. The learner is fully developed as a human-being which means he does not have to adjust based on how his body grew. At this point, the learner is mastering a craft and knows where to place the body and arm to provide the most efficient throw. This is the autonomous stage of learning where the individual may have to use a crow-hop throughout the throwing motion to hit the target successfully as mentioned

above. Either way, the learner has the confidence to produce an effective motion that is near the maximum skill potential.

3. You are teaching someone how to perform a motor skill, such as catching a ball, performing a squat or dribbling a ball (hand or foot).

Using various motor learning principles answer the questions below.

A. Identify and describe the skill with detail along with the characteristics of the learner.

The learner is a ten-year-old little league baseball player who is left handed and not fully developed. The learner is unathletic, average height compared to teammates, and in healthy condition. The motor skill being taught is catching a baseball thrown directly at the body using a glove.

B. Using effective instructional techniques (instructions, demonstrations, learning cues) outline the process in which each would be used to teach someone the skill that has been selected.

To begin instructing the skill, a description of the skill is necessary. Step one is getting into an appropriate position to catch the ball. Before the ball is released from the hand of the individual throwing the ball to the learner, the right hand wearing the glove should be up with the same arm extended on an angle directly in front of the chest while assuming the “ ready position.” Meanwhile, the left hand is next to the glove prepared to cover the glove after catching the ball using the palm and webbing area of the glove. The learning cue for the arm positioning to catch the baseball is to teach the “ ready position.” Step two is keeping the eyes on the ball. As the ball approaches the glove, the learner is to maintain eye contact with the ball as

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it hits the spot of the glove and squeezes the thumb and fingers together to keep the ball in the glove which then turns into step three in the instructional process. The learning cue for this direction is “ squeeze.” Meanwhile, the left hand is covering the glove so the ball does not drop out of the glove. After the description of the skill, a demonstration of catching a ball was the final step before observing the learner attempt the skill of catching a baseball.

C. Using the memory process, explain how the learning takes the information presented to them and puts it into memory.

The memory process is made up of three distinct memory systems (Schmidt & Wrisberg, 2008, p. 54). Memory plays an important role in movement patterns. With the appropriate amount of practice, any skill or movement pattern can be memorized (Schmidt & Wrisberg, 2008, p. 54). Short-term sensory storage (STSS) is the initial phase of memory. In this phase, information is constantly being segmented in the brain and is only maintained as a stimulus for only a few hundred milliseconds (Schmidt & Wrisberg, 2008, p. 54). The STSS phase processes these short bouts of information in such a simultaneous manner that learners use very little focus on the processing (Schmidt & Wrisberg, 2008, p. 54). Once the information is processed in STSS, short-term memory (STM) assesses the processed information as it pertains to the skill being learned. In the STM phase, the pertinent information of the skill remains in the memory shortly while the irrelevant information does not get processed (Schmidt & Wrisberg, 2008, p. 54). When practicing a skill such as catching a ball, every time the skill is experienced, information learned throughout each experience is only maintained if focus is on that information (Schmidt & Wrisberg, 2008, p. 54).

Since STM has a limited capacity, it is up to the learners to utilize this phase of memory as effectively and efficiently as possible while being instructed. In the third and final phase of the memory process, information is mostly stored much longer than the first two stages. Long-term memory (LTM) stores an endless amount of information from experiences for an excessive duration (Schmidt & Wrisberg, 2008, p. 55). LTM has more control and effort to process information so that actions can be retrieved, modified, and performed continuously so those actions can be utilized for other skills no matter the difficulty (Schmidt & Wrisberg, 2008, p. 56).

D. While the learner is performing the skill, feedback is used for various things. Provide example feedback statements as well as what those statement address.

Intrinsic feedback is the information that is sensed from produced movements either outside the body or within (Schmidt & Wrisberg, 2008, p. 285). While learning the skill of catching a ball, examples of intrinsic feedback would be how hard the ball is, what the ball sounds like when hitting the glove, how much more does the glove need to open to catch the ball in the web space, or where does the arm need to move to catch an overthrown ball. Another form of feedback is extrinsic. Extrinsic feedback is information sensed by an outside source such as a coach, teacher, or another teammate (Schmidt & Wrisberg, 2008, p. 286). Examples of extrinsic feedback would be comments from a coach such as, “ Great job keeping your eye on the ball,” or “ Next time, move your entire body where the ball is going.” Knowledge of performance is considered a type of extrinsic feedback (Schmidt & Wrisberg, 2008, p. 289). This type of extrinsic feedback

addresses the action. Something like “ you did not keep your eye on the ball,” is an example of knowledge of performance. Knowledge of results, on the other hand, is also extrinsic feedback but addresses the success of the skill rather than the action (Schmidt & Wrisberg, 2008, p. 286). “ You didn’t catch that ball using two hands,” is an example of knowledge of results.

References

Schmidt, R. A., & Wrisberg, C. A. (2008). *Motor learning and performance: A situation-based learning approach*. Champaign, IL: Human Kinetics.