

LEARNING PROGRESSIONS IN VOLLEYBALL OFFENSIVE SYSTEMS AND ITS IMPLICATIONS ON PLAYER DEVELOPMENT AND POSITION SPECIALIZATION

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In the education field, current conceptualization of learning progressions states them as visual and conceptual maps that explain how students might move from simpler to more sophisticated understanding within a subject area. Learning progressions describe conceptual milestones in student learning and are sometimes considered the “grey area” between what a student currently understands and where they are expected to end up (Achieve, 2015).

Progressions have helped teachers better understand how students develop and demonstrate knowledge and skills, opening what might otherwise feel like a black box as they teach and reteach. Learning progressions also have helped teachers see nuance in student work to recognize whether students are exhibiting novice understanding or if they have truly mastered new content and are able to apply it to unique situations (Achieve, 2015).

As teachers use learning progressions research to better understand student *needs*, they also take into account *differences* among students ***in knowledge and understanding currently held, motivation for acquiring new knowledge and skills, and strengths and challenges brought to bear in learning tasks*** (Achieve, 2015).

Student learning within each content area consists of a balance of content knowledge and skills. For example, the development of literacy is a balance of learning new and more sophisticated concepts, such as “evidence” and “argumentation,” and the ability to apply these concepts in increasingly more complex textual contexts. For mathematics, an understanding of place value and decimals will progress to working with decimal numbers, integer exponents, and scientific notation. (Achieve, 2015).

Learning progressions experts also describe learning progressions emphasizing sequence and recognition of progress:

- a. *“A description of skills, understanding and knowledge in the sequence in which they typically develop: a picture of what it means to ‘improve’ in an area of learning”* (Masters & Forster, 1997);
- b. *“Descriptions of successively more sophisticated ways of thinking about an idea that follow one another as students learn: they lay out in words and examples what it means to move toward more expert understanding”* (Wilson & Bertenthal, 2005);
- c. *“Carefully sequenced a set of building blocks that students must master en route to a more distant curricular aim. The building blocks consist of sub skills and bodies of enabling knowledge”* (Popham, 2007);
- d. *“Descriptions of children’s thinking and learning in a specific mathematical domain, and a related conjectured route through a set of instructional tasks designed to move children through a developmental progression of thinking, created with the intent of supporting*

children's achievement of specific goals in that mathematical domain" (Clements & Sarama, 2004).

Other experts focus their definitions on the changes to knowledge over time:

- a. *"Reasonably coherent networks of ideas and practices ... that contribute to building a more mature understanding"* (Duschl, Schweingruber, & Shouse, 2007);
- b. *"Descriptions of the successively more sophisticated ways of thinking about a topic that can follow one another as children learn about and investigate a topic over a broad span of time"* (Duschl, Schweingruber, & Shouse, 2007);
- c. *"Based on research syntheses and conceptual analyses and describe successively more sophisticated ways of reasoning in a content domain that follow one another as students learn"* (Smith et al., 2006);

Some note a predictive quality:

- a. *"Represent not only how knowledge and understanding develops, but also predict how knowledge builds over time"* (Stevens et al., 2007);
- b. *"Identify key waypoints along the path in which students' knowledge and skills are likely to grow and develop in school subjects"* (Corcoran, Mosher, & Rogat, 2009);

In 2008, Karin Hess reviewed existing definitions to outline four guiding principles, explaining that learning progressions:

1. Are developed (and refined) using available research and evidence;
2. Have clear binding threads that articulate the essential core concepts and processes of a discipline (sometimes called the "big ideas" of a discipline);
3. Articulate movement toward increased understanding (meaning deeper, broader, more sophisticated understanding); and
4. Go hand in hand with well-designed and aligned assessments.

Learning progressions are a precious tool used not only in the formal educational system, inside classrooms, but also sports have used them to teach sport-specific skills, and in the case of volleyball, there are several philosophies and methods well established to teach fundamentals. However, it is difficult to find both in the literature and in the *praxis* learning progressions that involve the complexity of each offensive system: 6x0 (also known as 6x6), 3x3, 4x2, 5x1 and the numerous variations of each of those systems. The reason the offensive systems come to the spotlight is that offensive systems are directly involved in position specialization, which are directly involved in the long term development of athletes.

A beginner athlete is presented to the sport with no understanding of both the sport-specific skills and the different levels of complexity of the understanding of the game. The sport of volleyball will progress from the common "bump-set-hit" to highly elaborate strategies which, in the highest levels, will demand a number of coaches and experts to succeed. In other words, there must be a well thought progression that enables the athlete both to specialize in a position in

which they have greater chances of success and to understand all the nuances of the most complex offensive systems and its implications in the way one plays the whole game.

Volleyball starts with generalists playing a 6x0 offensive system and culminates in position experts playing a 5x1. Successful volleyball, however, progresses from position generalization to position specialization, from 6x0 to 5x1, over many years, not one season. A beginner that is trained to master only the fundamentals and/or the court locals that are critical for an expert will have great difficulty both in adjusting to unexpected situations and to reach and develop a higher “volleyball IQ”. This is particularly true and will be more easily noticed when such a player is on the court playing against an opponent that has been exposed to a thorough progression over the years. Such an opponent will probably have better control of all fundamentals (a.k.a. a better rounded player) and also will have a better understanding of a wider variety of nuances of the game, which might be the difference between first and second place in a competition.

In the older age groups and in the higher levels of play (professional and collegiate volleyball) there is a highly complex and advanced level of position specialization, in which even players that play the same position might feature different characteristics that contribute to widen the variety of tactical possibilities, in what it seems to be the most advanced and specialized offensive system - hence the system that brings the greatest variety of tactical possibilities for the game - in current volleyball, the 5x1.

The current state of learning progressions research indicates that learning does not happen in a linear progression, as it was thought in the past, but it happens more like a skill map with multiple possible paths. However, even though there are no perfect progressions, no path to follow is “set in stone”, any and all strategies in learning progressions show clear increasing levels of complexity.

The suggestion of this article is to present a progression in the offensive systems in volleyball; not step by step, because that wouldn't be possible (there is no perfect path), but a direction, milestones that would enable an athlete to progress from generalist to specialist, from a 6x0 to a highly specialized 5x1.

A proposed progression for offensive systems (the milestones):

6x0 into 3x3 into 4x2 into 5x1

This progression would be easily taught and coached if learning progressions happened in a linear pattern, which they do not. The offensive systems above could be considered the milestones athletes should be exposed to throughout their development. Within these milestones there are numerous aspects involving each action of the game (service, serve reception, setting, attack, block, defense, counter attack and its variations) and how they will progress from a generalist basis into a more specialized scope of playing.

The figure 1 brings what we consider to be an illustration of the offensive systems learning progression. The figure shows examples of skills within each offensive system and how there is not a linear path and furthermore, there is not an established sequence from one skill to the next; there are no arrows connecting skills, there is not such a thing as one correct path to follow. The reason for that is that Sports Teaching and Sports Sciences in general are not in the field of exact sciences. Human beings will be exposed to these progressions and many variables will influence the path each athlete (hence each team) will take in their development from the most elementary to the most advanced levels. This is the beauty, in this case, of human sciences: the starting point, the end point and general milestones are established but there is not one single “set in stone” path. Each coach is to consider a number of variables before connecting the skills so that the athlete/team learns and progresses on to the next milestone.

Some of those variables include previous experiences, genetic predisposition, previous exposure and development of fundamental motor skills, environmental variables, such as support from the surrounding community (coaches, club, school, family, etc.), social expectations, expected versus real rate of development, commitment to the process, coaching knowledge, body type, athleticism, injuries, etc.

The following progression is an example of how a program may “place the arrows” to develop one set of skills into the next in order to achieve the next milestone, the next offensive system. It is based on an increasing level of position specialization with high exposure to a wide variety of experiences in different possibilities, and it also includes variations within each offensive system in order to progressively make them look like the next. As mentioned before, there is no perfect progression, but one must logically progress from one domain or group of domains into the next in a logical way.

- A. 6x0 with no position swap: all players will play in the position they currently are according to the rotation rule. Setter will be the player in P3 and front row attacks will only happen from P4 and P2. Possible variations that will allow players to easily progress onto the next system: setter is the player in P4 (attacks from P3 and P2); setter is the player in P2 (attacks from P3 and P4).
- B. 3x3 with no position swap: each team will have 3 setters and 3 hitter on the court positioned in two intersected triangles: option 1 - setters start in P1, P3 and P5, and hitters in P2, P4, and P6; option 2 - setters start in P2, P4 and P6 and hitters start in P1, P3 and P5. In three rotations attacks front row come from P3 (sets from P2 or P4) and in the other three rotations attacks front row come from P4 and P2 (sets coming from P3). Note: by having hitters and setters in the back row at all times, players will manage better to play out of system;
- C. 4x2 with no position swap in the back row, no infiltrations: in front row there will be horizontal swaps with sets coming always from P3 (attacks front row come from P4 and P2);

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- specialized player
- 5x1
- 4x2
- 3x3
- 6x0
- generalist player
- TIME
- Age Groups, Seasons, Years, Level of Play
- Skills represented in the diagram include:
- Setter in all positions
 - Back Row Setter in FBSO
 - Back Row Setter on CA
 - Front Row Position Swaps in FBSO
 - In System vs Out of System Plays
 - Double Block
 - Simple Block
 - Attack from Back Row
 - Attack from P3
 - Attack from P4
 - Attack from P2
 - Offensive Plays
 - Setter in P3
 - Setter in P2 on FBSO
 - Setter in P2
 - Front Row Position Swaps in CA
 - Back Row Position Swaps in Defense
 - In System vs Out of System Plays
 - Simple Block
 - Attack from P4
 - Front Row Position Swaps
 - Setter in P2
 - Double Block
 - In System vs Out of System Plays
 - Simple Block
 - Attack from P3
 - Attack from P2
 - Setter in P3
 - Underhand Service
 - Back Row Position Swaps
 - Attack from P3
 - Setter in P4
 - Underhand Service
 - Setter in P2
 - Double Block
 - Back Row Position Swaps
 - Simple Block
 - In System vs Out of System Plays
 - Attack from P2
 - No Block
 - Underhand Service
 - Attack from P4
 - Attack from P2
 - Simple Block
 - In System vs Out of System Plays

Achieve (2015). The Role of Learning Progressions in Competency-Based Pathways. CC BY-NC 4.0 Achieve. This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 United States License. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc/4.0/>. Accessed on August 21, 2020: <https://www.achieve.org/files/Achieve-LearningProgressionsinCBP.pdf>.

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