#### **Motor Learning Review for DEN/CEV**









FIVB Instructor Level IV John Kessel, USAV Dir. of Sport Development CAP Level V World ParaVolley Dir. of Development, NORCECA Development Secretary



#### Say What You Mean, Mean What You Say, Don't be Mean When You Say it







#### **Most Coaches Practice for Practice** and **NOT for Performance**





## Culture – Jante Law – The 10 Rules The Tall Poppy Syndrome of the Commonwealth



- \* You're not to think you are anything special.
- You're not to think you are as good as we are.
- You're not to think you are smarter than we are.
- You're not to convince yourself that you are better than we are.
- You're not to think you know more than we do.
- You're not to think you are more important than we are.
- You're not to think you are good at anything.
- You're not to laugh at us.
- You're not to think anyone cares about you.
- You're not to think you can teach us anything.

"Jante Law operates everywhere in Denmark on some level or another."

#### Core Links to Follow up On



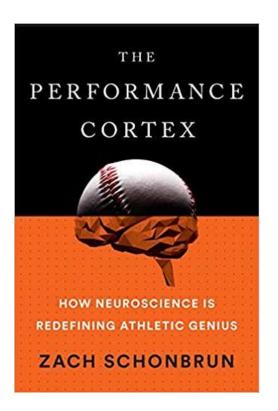
- www.trainugly.com
- www.thetalentcode.com
- www.perceptionaction.com
- www.changingthegameproject.com
- www.thetalentequation.co.uk
- http://www.ministry-of-football.com/research-measuring-learning/
- <a href="http://www.teamusa.org/USA-Volleyball/Video/2014/04/02/USAVFIVB-TVA-U12-National-School-Championships?channel=AxaDRnazoIZ1U8fo-4cLMzn4EDvtFICe">http://www.teamusa.org/USA-Volleyball/Video/2014/04/02/USAVFIVB-TVA-U12-National-School-Championships?channel=AxaDRnazoIZ1U8fo-4cLMzn4EDvtFICe</a>



#### **Fooled by Randomness - Taleb**



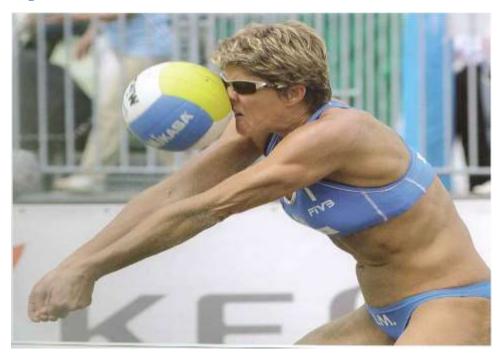
- Breaks of the Game Halberstam
- <u>The Man Watching</u> Tim Cruthers
- <u>The Performance Cortex</u> Zach Schonbrun
- Mindsets Carol Dweck
- They Call Me Coach John Wooden
  - read ANY/EVERYTHING on/about Wooden
- How We Know What Isn't So- Gilovich
- <u>The Drunkards Walk</u> LM
- <u>Thinking Fast and Slow</u> Khaneman
- Sports Gene Epstien
- Thinking Big
- <u>David & Goliath</u> Malcom Gladwell
- Decisions, Decisions Discover mag 1984
- The Tea Leaves of Sports Talk
- No More Mistakes & You are Through Cleese
- Stats before Algebra and Calculus...
- Play Sitting VB when you lose the gym/1 court=3 courts





#### What are the 2 most Important Skills?







How Many Kids Run in vs Walk? How many kids run in when you ask for a Setter? How many kids Squeeze the Balls in the Cart?



# Positive Error to Perfection Training







#### The MOST Important Skills in VB?





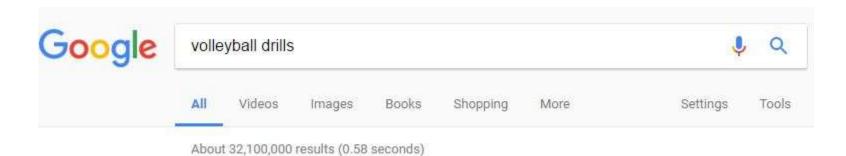
WHAT WE SEE DETERMINES HOW WE MOVE & LEARN



#### Critical Thinking on "Drills"



#### **USA Volleyball National Team Coaches estimate they do about a dozen grills**



We do have over 100 scoring variations however...

But no boxes, spike machines, tennis or table tennis balls, or other Gimmicks...



#### **Drills are the Drugs of Coaches**



Drills and lead-up activities take considerable practice time and do not produce much transfer, so use them sparingly in later practice stages." AND "It is fruitless to try to train fundamental abilities, (e.g. guickness, balance) so concentrate on the fundamental skills instead." ~ Dr. Richard Schmidt, Prof. of Motor Skill Research ~



#### The First Coach is THE GAME



#### Developing Game Intelligence & Empowerment Coaching







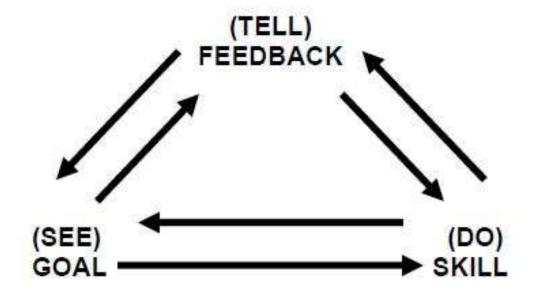
- ➤ Mauricio Lima (1990s) ➤ Ronaldo Pacheco (1990s)
- Cilene (1990₅)
   Serginho (2000₅)

All played some volleyball without adult supervision (The coach was the GAME)









Specific – Immediate – Guided Discovery vs Extrinsic



#### **How Did You Learn to Ride a Bike**





TTGFU - Teaching Games 4 Understanding How many Tag DRILLS did you do?



#### **Never Take the Pencil from the Student**







# Yes I Focus on WINS What's Important Now Silly







#### **Motor Learning**



HOW MONY GREAT	MITTER IS CHING MILKEROUGH BOWN IN DOLLAN INTEGRAL SCALEGION	-
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#### **Karch @ 2016 High Performance Clinic**



- Critical mission to always improve
- Celebrating the success of those around us more than our own
- Player decisions and new solutions better decision?
- Embrace adversity OTI Opportunity To Improve
- Your performance in the moment is not an indicator of DURABLE learning
- Interrupting and forgetting strengthens neural pathways
- Things I know and things I have to read
- Being good at something is about mistakes and retention



#### **Question Bursts**

https://phys.org/news/2018-06-brainstorms.html = Thanks 2 Loren Anderson Al

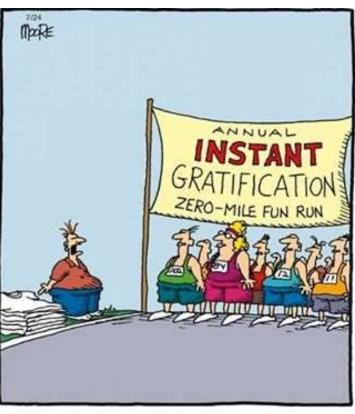






#### **Pattern Interruption**





"Runners to your mark. Get set. Go! ... OK, come get your T-shirts."



# USA Women are Out of System 48% of the time







### Simple > Complex



"Simple, clear purpose & principles give rise to complex, intelligent behaviors. Complex rules and regulations give rise to simple, stupid behaviours"

Dee Hock, founder of Visa



# STOP Coaching Start Guiding Discovery





# How they play and learn



# Developing Angiogenesis or Synaptogenesis?



- **OPTIMAL Learning Theory** Optimizing Performance Through Intrinsic Motivation and Attention for Learning
- OTI Opportunities to Improve
- Let's get better Always Improve
- Holding ourselves to higher standards
- We become what we learn to be
- What we SEE determines how we move
- Challenge Point Theory & Desirable Difficulties
- Forgetting through Random Training promotes retention
- Thin margins



#### The IMPACT of PLAY



Not many years ago I began to play the cello. Most people would say that what I am doing is "learning to play" the cello. But these words carry into our mind the strange idea that there exists two very different processes: (1) learning to play the cello; and (2) playing the cello. They imply that I will do the first until I have completed it, at which point I will stop the first process and begin the second. In short, I will go on "learning to play" until I have "learned to play" and then I will begin to play. Of course, this is nonsense. There are not two processes, but one. We learn to do something by doing it. There is no other way...

-- John Holt

MOST COACHES PRACTICE FOR PRACTICE & NOT FOR PERFORMANCE...



# It's About SHOWING the Answer, not Telling you the Answer







#### What is Unique about Volleyball?







## We Treat Players like Soldiers all Week then Expect them to be Artists on the Weekend – Stuart Armstrong



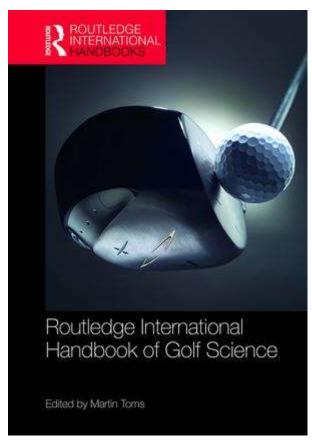






#### What Would Bubba Watson Think?





Golf is one of the world's major sports and consequently the focus of world-class scientific research. This landmark publication is the most comprehensive book ever published on the science of golf, covering every sub-discipline from physiology, biomechanics and psychology to strength and conditioning, youth development and equipment design. Showcasing original research from leading golf scientists across the globe, it examines the fundamental science underpinning the game and demonstrates how it can be applied in practice to improve and develop players. Each chapter provides a definitive account of the current state of knowledge in a particular area of golf science, addressing the limitations of existing research, presenting new areas for development and discussing the implications for coaches, players, scientists and the wider golfing public. Truly international in scope, the variety of topics explored include:

biomechanics and equipment skill learning and technology performance development psychological techniques for success the golfing body.

This is an essential reference for any student or researcher with an interest in the game, or any coach or professional looking to improve their knowledge.



# The Margins are Thin Caca Occurs - Decisions, Decisions



Threatened by a superior enemy force, the general faces a dilemma. His intelligence officers say his soldiers will be caught in an ambush in which 600 of them will die unless he leads them to safety by one of two available routes. If he takes the first route, 200 soldiers will be saved. If he takes the second, there's a one-third chance that 600 soldiers will be saved and a two-thirds chance that none will be saved.

Which route should he take?

Most people urge the general to take the first route, reasoning that it's better to save the lives that can be saved than to gamble when the odds favor even higher losses. But what about this situation:

The general again has to choose between two escape routes. But this time his aides tell him that if he takes the first, 400 soldiers will die. If he takes the second, there's a one-third chance that no soldiers will die, and a two-thirds chance that 600 soldiers will die. Which route should he take?

In this case, most people urge the general to take the second route.

The first, after all, involves the certain death of 400 men. At least with the second there's a one-third chance that no one with be killed. And even if the general loses this gamble, his casualties will only be 50 per cent higher.

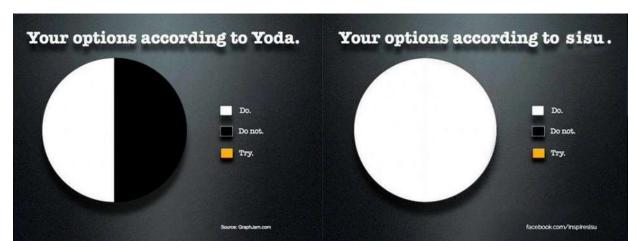
The fact that most people come to opposite conclusions about these two problems somewhat surprising because, as a cursory inspection reveals, they're identical. The only difference is that the first problem is stated in terms of lives saved, the second in lives lost. When faced with problems like these, people split three to one in favor of the first choice when the question is stated in terms of lives saved, but four to one for the second choice when it's presented as a matter of lives lost. Even when they recognize the contradiction, some people still give conflicting answers. ---- SO READ THE UNDOING PROJECT and THINKNG FAST AND SLOW and request this whole article from me



#### **Gym Words to Consider**

CEV

- Citius, Altius, Fortius
- Ancora Imparo
- Primum Non Noncocere
- Try
- Don't
- But
- Just
- Never, Always, Worst, Best
- Can't
- YET!





#### Try is a Failure Strategy





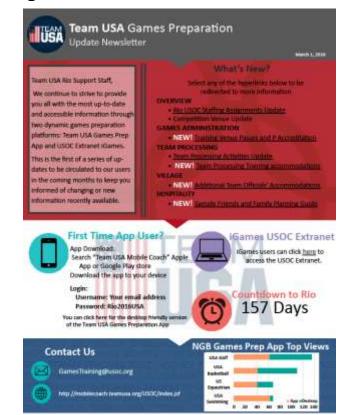
Not a Success Methodology



# Repetitive without being Repetitious









# Specificity Matters Donor Sports Transfer? – PA Podcast



Highly Similar Variations of Skill Training
Gymnastics vs Parkour Donor sport to soccer open
not as closed – self organized
Lower levels of Skill training overlap

versatile and adaptive movement
 Free throw 15 foot line vs movment
 NFL Combine of speed vs success
 Finch Puljos pitching



#### Net is Gold, Ball is Silver







#### He Tries Stuff...







#### **Specificity in Motor Learning**



"Training is specific. The maximum benefits of a training stimulus can only be obtained when it replicates the movements and energy systems involved in the activities of a sport. This principle may suggest that there is no better training than actually performing in the sport. This text maintains that the principle of specificity is the single most pervading factor that influences the improvement of performance from a physiological perspective. Training effects are, in the main, so specific that even minor departures from movement forms, velocities, and intensities result in undesirable training effects. This means that incorrectly designed training activities will have no carry-over value for a particular movement form, and may even have the potential to negatively influence activities."

Like we all have learned how to bike ride by riding a bike, playing the game of volleyball teaches players how to play the game of volleyball. There is a program in another team sport, women's soccer, where at the collegiate level one coach and school has won about two-thirds of all championships in history. The head coach, Anson Dorrance, has some great books out, including the classic, Training Soccer Champions. In two chapters, Anson's core statements are: "In the Entire Off-Season, All we do is Play..." and "Conditioning is Homework."

A reference back to motor learning science that relates to the importance of both specificity and developing fundamental abilities is found in the IMPACT manual over the last two decades with the following quote by Dr. Richard Schmidt. "Drills and lead-up activities take considerable practice time and do not produce much transfer, so use them sparingly in later practice stages." AND "It is fruitless to try to train fundamental abilities (e.g. quickness, balance) so concentrate on the fundamental skills instead."



### **BE SPECIFIC**



- That's IT!
- Way to Go!
- Good Job!
- I Like That!
- That's NOT it!

My coach calls it "Americano..."



#### Be Specific, Not Relative



When giving feedback, like in every other aspect of coaching, it is important to be specific. And with technical and tactical feedback the goal must be to create a model of the activity that can be used all the time, even when the coach is not standing next to the player. So instead of relative terms, the coach should always be using the specific terms for the model he wants to create. Instead of 'higher', say 'make the setter jump' or 'set through the target' or 'jump maximally' or 'swing early' or whatever the case may be. - Mark Lebedew

#### **Developing IMPLICT Behaviors and Vision**

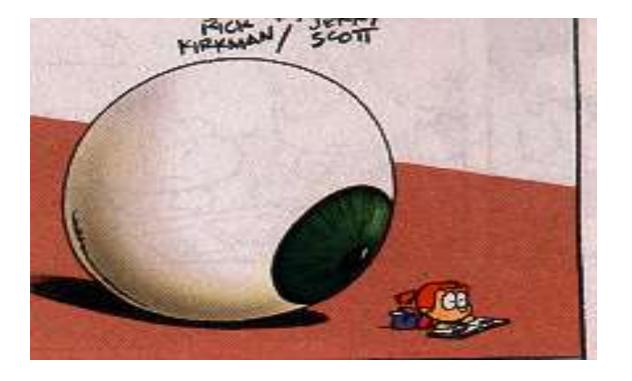


The neuronal explanation for these effects are perhaps best exemplified by our own observations (Bain and McGown), of inexperienced coaches training novice players where the instructor(s) become frustrated by the performance variability and lack of successful repetitions of new learners. As a consequence, these inexperienced coaches limit or abandon whole teaching methods for part, and random practice for blocked. Unfortunately, this course of action deprives the learner of the environmental variability and sensory inputs that are essential for the formation of motor maps and implicit behaviors, which are ultimately reflected in the acquisition of functional skills and expert performance [13, 18, 19, 29, 65]. In total, the evidence on this topic is clear; drawing distinctions between training methods based on age or ability is a coaching practice that has no foundation in either motor learning science or in the application of motor learning principles.



# Feedback is seen as Criticism vs. Feedforward

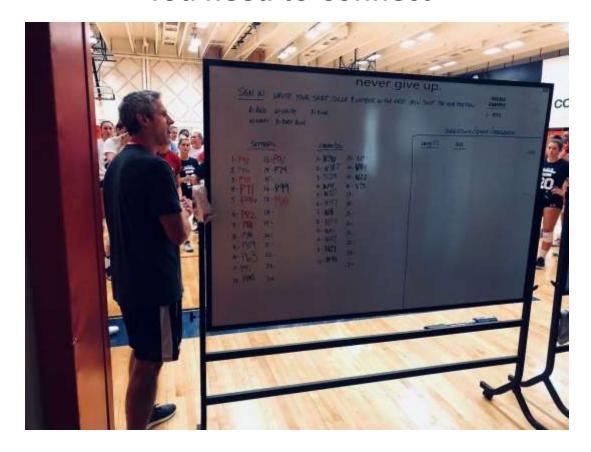






# **Before you Correct You need to Connect**







# Again, Where is your Whiteboard







### The Evolution of Warm Up



- 1. Running & Stretching 326 studies by CDC Results
- 2. Choreographed Dance to Train in Reality Chaos, Monarch of the Court to Speedball
- 3. Butterfly Drill Coach to Player, 1 ball to 2 ball, 1 passer to 2 passers, catch to set to cover, zone 4 to 2
- 4. Pair Pepper to Salt & Pepper to Alternating Pepper to 2 vs. 0
- 5. Russian Pepper to Loser is Net to Weave Pepper
- 6. 1 v 1 pairs to 2 hit 1 v 1 to 3 hit 1 v 1 to 1v1 plus 1
- 7. Wall Spiking into net to Hitting then games over line



## What is Truer than Truth?



- Empowering Nicknames CMHS LAX story
- These aren't your normal 14's" OTC HP Story
- 7.5 weeks 2 v 2 then a nite of 6 v 6 Rotation Rise Story
- 60 Manhattan & Hermosa Beach Jr Lifeguards AVP Story
- Kids teaching Kids 2v2 50% of time FIVB Thai project
- "What about hitting lines" Story from SC 17 1
- "Hey Tim you do realize your team will not succeed with these warm ups" – Story from SC 14 – 1 (ended 37-6)
- "The girls are not ready to compete" Story from SC 17 1



### What do Gym Rats do when the Net is Open?







# It is Less about Reaction and More about Prediction







### Random.org





You want everyone to have a good experience, Everybody to be able to win...or learn.



# No Lines, No Laps, No Lectures





Time ON Task



### A Major Change in my Feedback



Jamie Morrison May 19 at 1:25am

Hi all. I've been called out enough times, I figured I should write and say hello. We are on a flight from Helsinki, Finland to Nagoya, Japan. We went 3-0 over the past week and I've been reflecting on the past 3 weeks with this Team. Thank you to those who wrote to say congratulations. I figured I would fill you in on those 3 weeks.

The first thing on my mind is what are the essentials for your team? The FIVB decided that it was best to avoid playing any volleyball while the FIFA Soccer World Cup is going on. As a result, our team had a maximum of 2 weeks of practice and in some cases, 3 days of practice. It forced myself and our staff to look at the essentials that fit into three categories:

- 1. What do you actually need in order to win?
- 2. What is your team's identity? What are the core skills that make your team different from others?
- 3. What are the long term learning goals that you HAVE to introduce early?

When you start a new season, there is a temptation to install new bells and whistles that you have been thinking of during the off-season. These two questions helped guide my practice planning and centered our team in regards to what we needed to be good at.

The second thing on my mind is you don't know what you don't know. I have spent my entire coaching career with the mindset of the game teaches the game. That the randomness of the game is the randomness we are looking to create. We brought a motor learning expert to observe our practice and our feedback. As we met after our first practice, her first comment to me was, "your practice is very blocked and explicit." The next hour left me sitting before our second practice, staring off into the gym, with a crack in my coaching philosophy and over the last two weeks, we have played as coaches and it has been fun doing some different things - playing with external focus and differential learning. Having passers pass to all parts of the gym, setters mix up their locations and using external cues all over the gym. Our coaching staff is looking to invest in a court tape company if anyone has one.:)

That's it for now. We'll see how we do against Japan, Belgium and USA (still weird to say) this week.

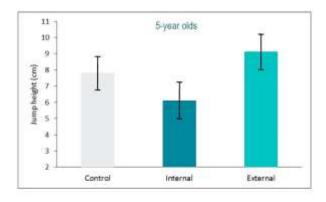


# Non-Age Specific Learning





This kid's got game .... and this game's got kid!



5-year old

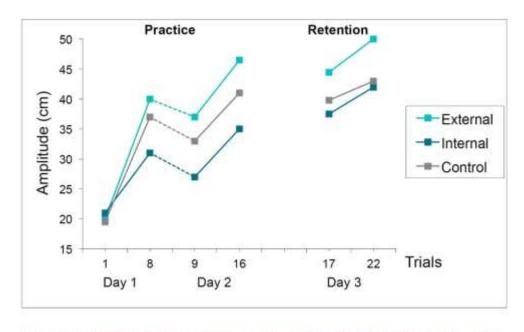






### **External vs Internal Focus**



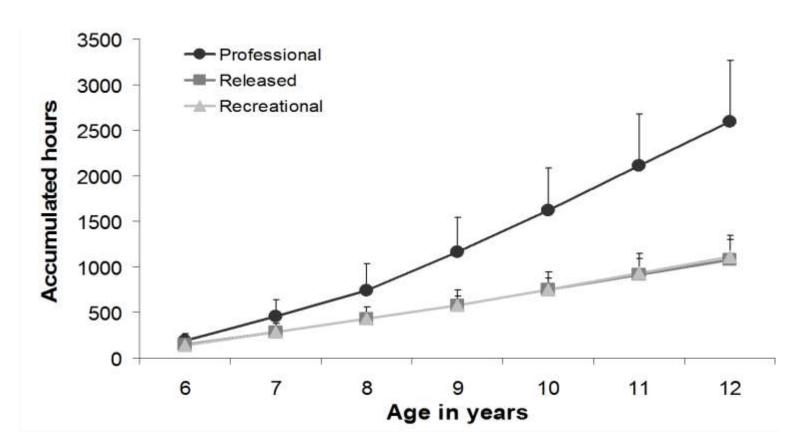


Wulf, G., Höß, M., & Prinz, W. (1998). Instructions for motor learning: Differential effects of internal versus external focus of attention. Journal of Motor Behavior, 30, 169-179 (Experiment 1).



## **No Coach Led Practice**

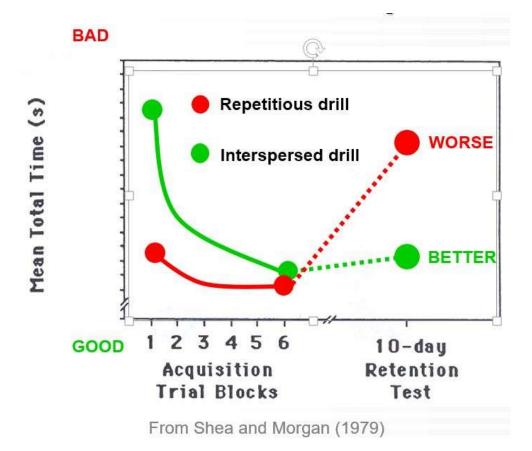






## **Blocked vs. Random**

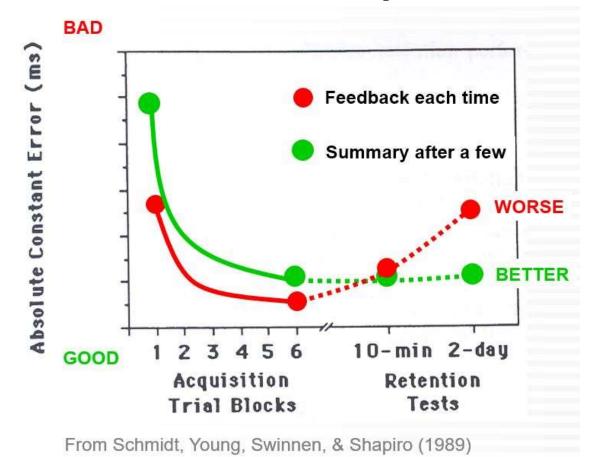






## **Benefits of Summary Feedback**







#### **External vs Internal Focus**



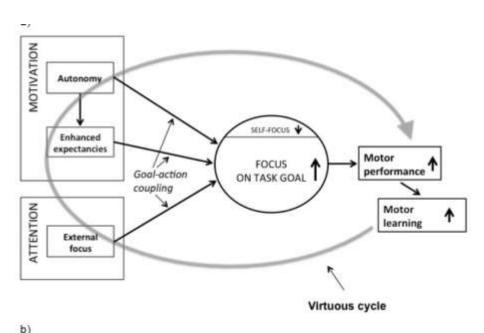


Figure 8. Conditions that fail to enhance learners' expectancies and support their need for autonomy, and promote an internal focus of attention result in a vicious cycle of non-optimal learning (a), whereas conditions that enhance expectancies, provide autonomy support, and promote an external focus result in a virtuous cycle of enhanced motor learning (b).

Implications of the OPTIMAL theory for optimizing motor performance and learning in applied and clinical contexts involve finding the right approaches to boosting or supporting positive motivation and directing attention to effective external foci – Wulf & Lewthwaite (Optimal Performance through Intrinsic Motivation and Attention for Learning: The OPTIMAL Theory of Motor Learning, 2016)



# Kids Learn to Make Decisions By Making Decisions Not by Being Told What do Do









### It's About SOLVING Things, not Judging Things







# Athletes Don't Need You You Need Athletes.





**Your Influence is Never Neutral** 



### **Constraints Based Learning**



"I'm glad you ask me about Iniesta because I think he's the best footballer in the world.

Since he was 12 years old he was here in the La Masia and until the last year he has not done anything of conditional structure ("fitness"). His own biology and specific practice has given him the possibility of reaching where he has arrived without doing anything of strength, speed, resistance, or flexibility... and you will say: is that a lie? It is true!

What does it mean? That being very weak and very little resistant, but fast and little of everything, in the sense of little that you have, has "hypertrophied", for us optimized, his cognitive, coordinative, emotional structures. He enjoys much more giving a good pass or keeping the game with the pass, than not making a goal. These values that he has been using throughout his life, when now we demand one more step so that he can apply and face any opponent and situation, he needs to simply understand how his adversary is, what he is able to propose in his game together with the other teammates (interactions). Because in the adversary's sports, the big problem of the competition is in the one in front, his evaluation gives us the reference of what to do to overcome it and creating unknown situations for him/them, to be able to show high competence in the development of the game as Iniesta makes this "apparent" ease in overcoming opponents and build the game that at each moment requires the game.

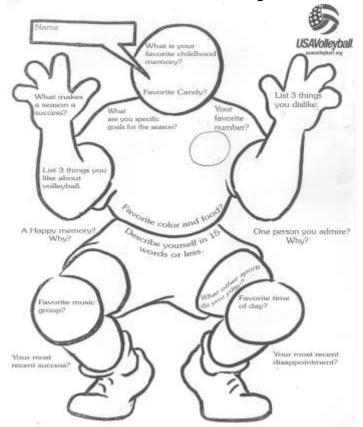
In the ages that we have mentioned before (U8-16), the competent one can seem good in everything if his talent has settled in the conditional structure and if we only focus on it in our practice, because the one that is strong, fast, resistant, does any task of the game. Well, but do not let yourself be deceived by an early performance based on the fitness/physicality level. We have many examples of players who have become strong, big and tall, and that at young ages and at prime ages of motor practice were talents, they were very competent, because they scored goals or dominated the midfield, or ran many distances during a lot of time, or they were very fast, or they were very good in the aerial balls, or they jumped fast, and when they reach 20 years old they are equal with the others in the physicality and bioenergetics, they disappear, because they have not done more than this, and they have not optimized in tune with the conditional, the rest of their structures, as Andres did."

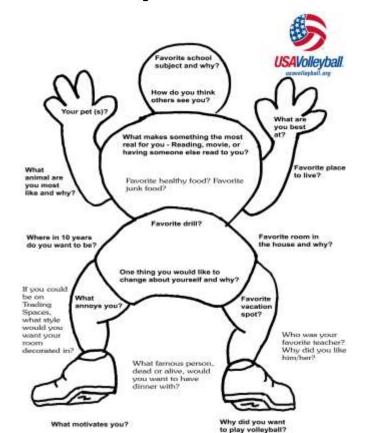
@Tenllado7



# Athletes don't care how much you know, until they know how much you care









### Things I Have Discovered the Hard Way

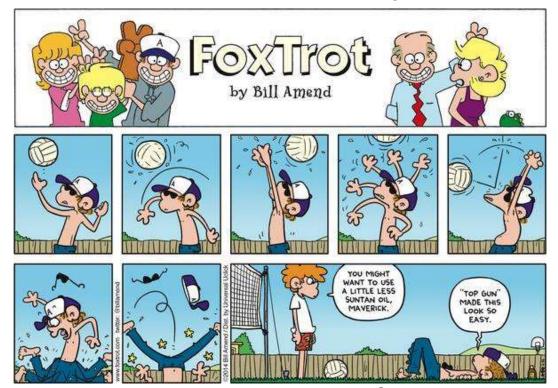


- Learning it is a skill, enhanced by coaching
- Reading what we see determines how we move
- Compete/Learn in Reality
- Total Contact Time in a match >5s. Total spike contact time .008-.01s
- You can never Serve and Serve Receive enough...
- Change from Teaching Negative to Perfection to Positive
- Process focus let's the score take care of itself
- Guide Discovery, Ask Questions, Stop "Coaching"
- Our Game is Wonderfully Chaotic and Random
- Develop Grit, not False Confidence
- Radar on for Good = Feedforward not Feedback



# Initial Ability does not Correlate To Final Ability





**Cut Kids League 50% HS team/Stop Cutting Kids** 



# What are the FOUR Ways to Get a LEAD in Rally Scoring?



1.

2.

.

**3.** 



# You can Never Serve and Serve Receive Enough







# We Will Lose the Warm up But Win the Match







#### **Gender Differences**



- Men Battle to Bond. Women Bond to Battle
- Praise & Criticism
- Drills vs Games
- I spend a large amount of my time building their confidence Hugh McCutcheon
- Men need more teaching/Women more competition
- I spend the majority of my time with women working to convince them that
  they are better than they think they are; I spend the majority of my time with
  men working on getting them to realize they are not as good as they think
  they are. US Soccer National team coach
- Cody does 9 wrong & 1 right "I know but did you see that one?"
- Mac does 9 right & 1 wrong "I can't believe I screwed that one up..."
- Work application 2 traits/it's a lock 8 of 10/I won't apply....



#### **Questions?**

#### John.Kessel@usav.org





