

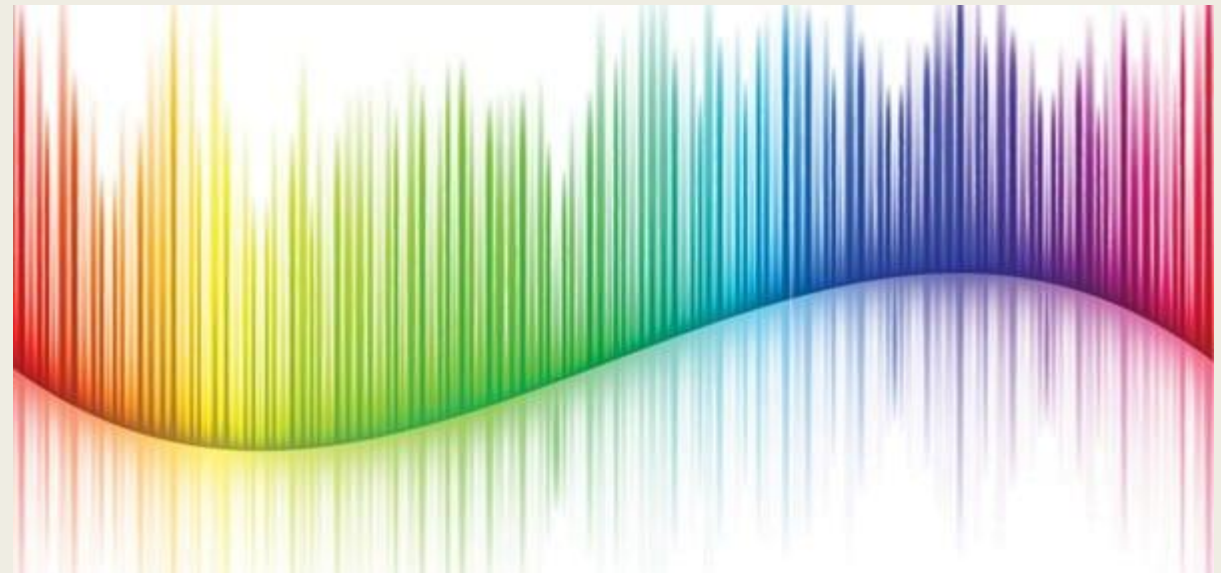
# PHASE WORKSHOP 1

This workshop will provide a brief history of The Spectrum, its basic tenets, and the 11 Landmark teaching styles which emerge when teaching is defined as a chain of decision making. Armed with this knowledge we will explore the styles strengths and what they can achieve, and how Spectrum knowledge provides teachers with a toolkit of styles to deal with any curriculum document or learning objective.

We will provide practical examples of how The Spectrum can aid teachers in meeting learning outcomes from syllabus documents from the UK, Australia, NZ and Sweden to name a few. The final part of this workshop will also demonstrate how The Spectrum assists teachers who use models based practice (MBP) to implement chosen models with greater fidelity by providing the 'how to' in the form of the micro-pedagogies needed.

# THE SPECTRUM

- **WHO HAS HEARD OF IT??????**
- **WHO DISCOVERED IT?**
- **HOW OLD IS IT? – 20, 30, 40, 50 YEARS, MORE...?**
- **WHAT IS IT?**



# Short History of the Spectrum

- Began in 1966 when Muska Mosston discovered the **Spectrum of Teaching Styles**.



- The **Spectrum of Teaching Styles** was based on the premise that **teaching is a chain of decision making**, i.e., **who** makes the decisions and **when** and **what** are the **intentions** or purpose of those decisions.

# Decisions: – the who, the what and the where?

- **Pre-Impact** – decision which define the **intent** (lesson objectives, skills/tactics/principles to learn)
- **Impact** – **face to face** interaction between teacher/student, the Students interacting with the learning episodes
- **Post-Impact** - decisions concerning assessment—**feedback about performance** during the impact and evaluation of the overall congruence between the intent and the action of the learning experience.

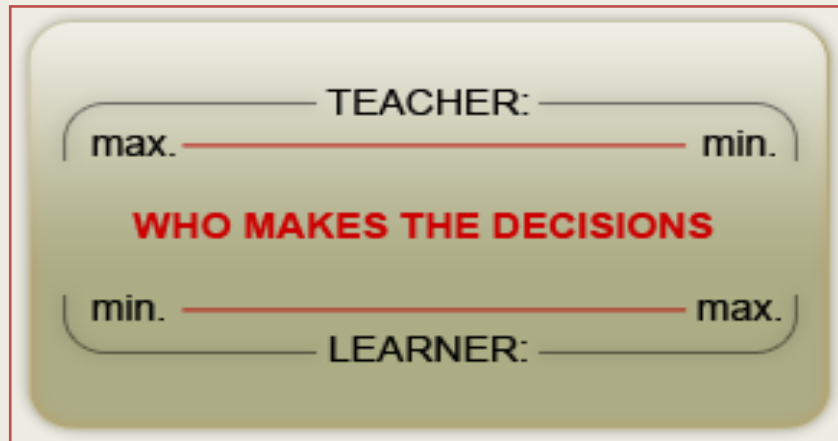
# Spectrum of Teaching Style Clusters

## Reproduction Cluster

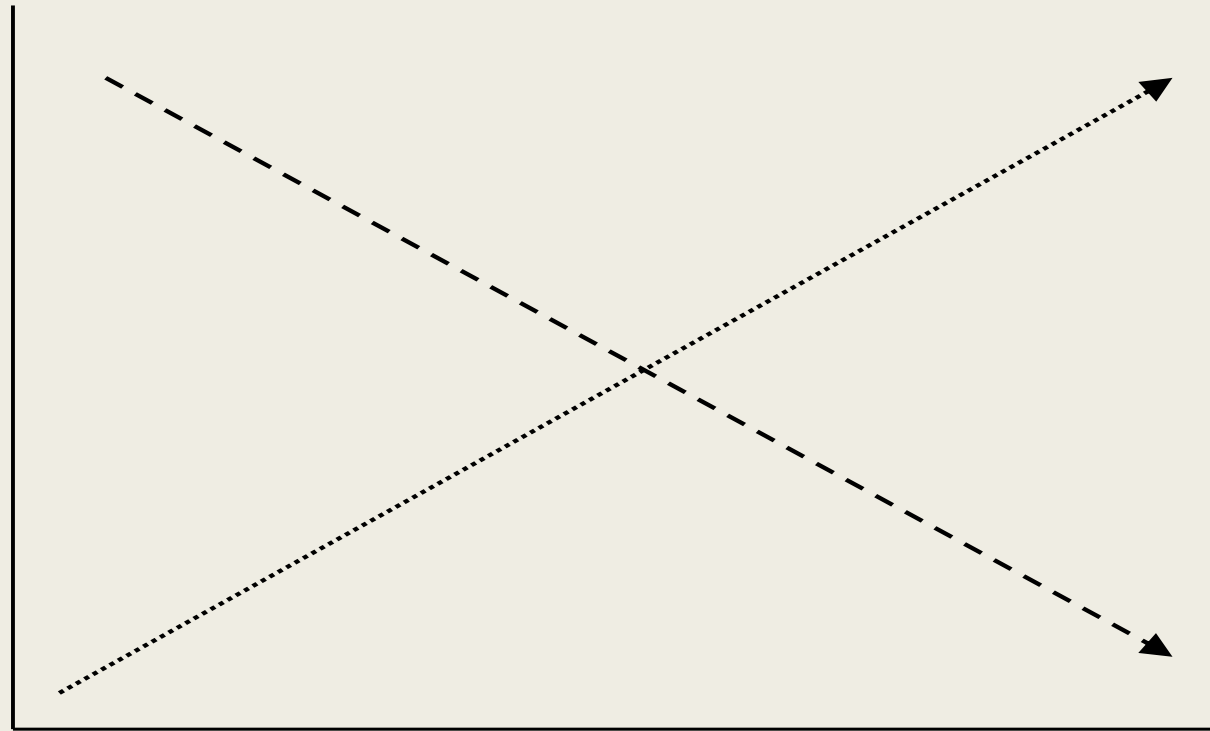
- Style A – Command
- Style B – Practice
- Style C – Reciprocal
- Style D – Self Check
- Style E – Inclusion

## Production Cluster

- Style F – Guided Discovery
- Style G – Convergent Discovery
- Style H – Divergent Discovery
- Style I – Learner Designed Individual Program
- Style J – Learner Initiated Program
- Style K – Self Teaching



**Responsibility for  
decision making**



A B C D E F G H I J K

### **The Spectrum of Teaching Styles**

**Student** .....→  
**Teacher** - - - - -→

# Five Channels of Human Development

- **Social** (interacting with others)
- **Physical** (performing physical movements)
- **Emotional** (affective domain/joy/sadness of competition/movement)
- **Ethical** (fairness, rules)
- **Cognitive** (thinking to solve movement problems/respond to the environment)

# Non-Versus Perspective

- One style is not better than another.
- Educational ideas presented in opposition to the status quo.
- **Direct instruction** versus indirect instruction, behaviourist versus humanists.
- Requires teachers to abandon one theory for the new – if you don't you are negative, cynical, old.....?
- “Even a clock that is broken is right twice a day”.
- Spectrum values all style for the objectives they can meet.



# The Spectrum

**Style A:** Copy me, mirror me, move when I move

**Style B:** skill and drills, GSA, TGfU, Open ended questioning (Guided Discovery), group work, peer teaching, co-operative learning, PSI, Inquiry, PBL

**Style C:** Peer teaching, co-operative learning, PSI

# The Spectrum

**Style D:** Dartfish, De Ja Vu, Film yourself

**Style E:** Station work, set your own challenge

**Style F:** Guided Discovery, Inquiry Approach,  
Socratic questioning

# The Spectrum

**Style G:** PBL, GSA, TGfU, Inquiry Approach

**Style H:** PBL, GSA, TGfU, Inquiry Approach

**Style I:** Design your own training program,  
PSI

# The Spectrum

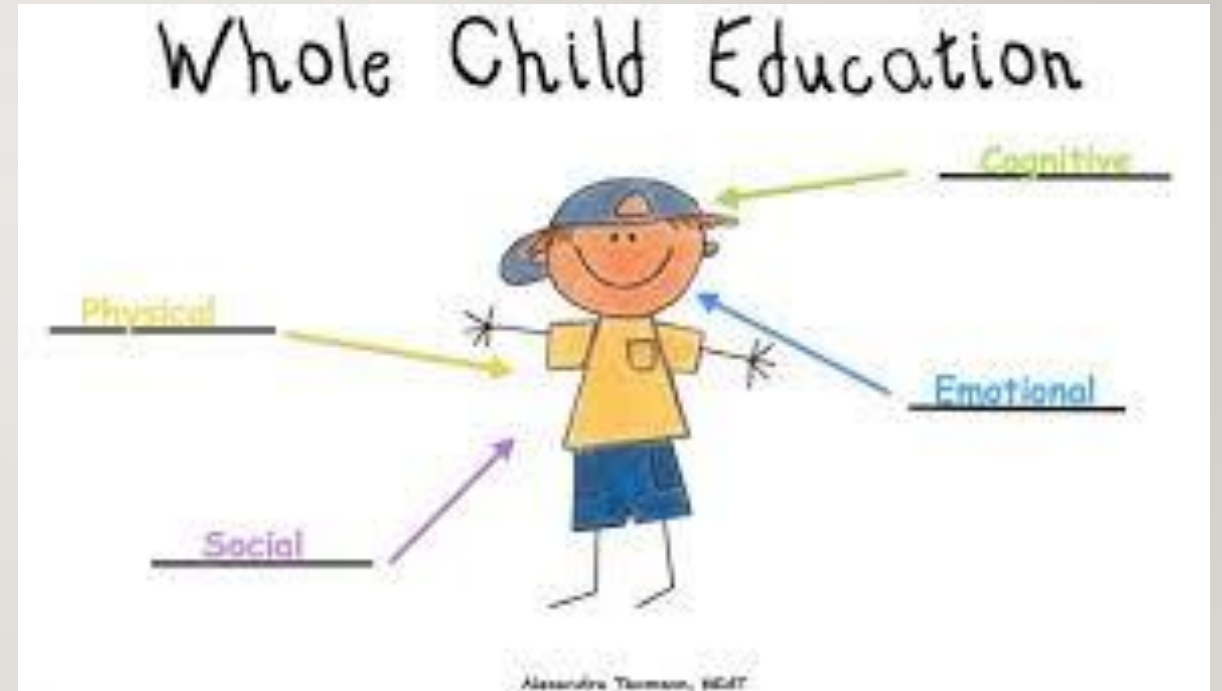
Style J: Doing a PhD (minus the uni assessing)

Style K: I want to learn about .....?

# WHY DO I NEED TO DO THIS?

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- Not developing the 'whole' person.
- Development Channels – Social, Physical, Ethical, Emotional & Cognitive
- Just developing someone through the reproduction cluster styles – using memory/recall
- ACARA document



Style A – Command Style – The T makes **all the decisions** in each set and the L's role is to decide to follow **on cue** to achieve the performance.



# Style A – The style we love to hate

- Mindless?
- Not higher order thinking,
- Yet.....
- Many religious ceremonies (marriage, funerals) are full of on cue performance.
- Dance, synchronised swimming kata/forms Tae Kwon do/Karate, ice dancing, aerobics, dance to name a few
- Syllabus – (Synchronised Swimming – SHAPE, creating a group performance that demonstrates synchronous and individual movements – ACARA, “Pace and rhythm in games, dance and movement to music” - Skolverket) requires it.

# Style B- Practice Style

- The teacher selects the subject matter tasks, the quantity, and the time limits so that students can practice individually and privately. The teacher circulates among all students and offers private feedback. The students learn to set a pace to practice tasks within an allocated time frame.
- **Private practice**
- **Private feedback**
- **Psychomotor domain**
- **Shift of decisions in the 'doing' (pace & rhythm)**
- **Repetition of practice – motor skills**



# Style B

- <https://drive.google.com/drive/my-drive>

# Style C- Reciprocal Style

- The teacher selects the subject matter tasks and presents the expectations for students to work with a partner. One student (the doer) practices the task, while the other student (the observer) uses a teacher prepared criteria (checklist) to offer immediate feedback and performance clarification to the doer. When the tasks are finished, the students switch roles and continue to the next set of tasks. This experience offers practice in giving and receiving immediate feedback about the task and practice in developing comparing, contrasting, communicating, and social skills.
- Pre-Impact – T
- Impact – L(d)
- Post-Impact L(0)

# Style C

- Task card criteria sheet
- An observer and a 'doer'
- Work in a partnership
- Communication and collaboration
- Socialisation and verbal skills
- Giving and receiving feedback from peers
- Patience, empathy, tolerance, respect and acceptance of others' differences in performance
- The teacher interacts with the observer
- Enact change

# Style C



# Style D- Self-Check

- The teacher selects the subject matter tasks and designs criteria (performance checklist) for the students. Students individually practice the tasks and check their own performance using the checklist. The teacher privately communicates with students to listen to their self-assessment comments and either reinforces the learner's use of the criteria or redirects the learner's focus.
- Pre-Impact – T
- Impact – S
- Post-Impact - S
  
- Style C .....but without the observer. The Student is the observer.
- Great style now that ICT's have caught up.

# Style E – Inclusion Style



- The teacher selects the subject matter and designs each task with varying levels of difficulty. Students select the level that is appropriate to their performance. If inappropriate level decisions are made, the student may change the level choice. Students check their performance using the teacher prepared performance checklist (criteria sheet). The teacher circulates to acknowledge the choices the students have made and to ask questions for clarification to affirm the accuracy of the students' assessment process.
- Pre-Impact – T
- Impact – S
- Post-Impact - S

# Style E

- Continued participation
- Varying levels of skill challenge
- Psychomotor/emotional/cognitive – aspiration vs reality (ability)
- Shift decisions in the ‘impact’ phase
- Feedback and assessment in the ‘post-impact’ phase
- Decision about the entry point
- Self-evaluation

# Style F – Guided Discovery

- The teacher asks one student a series of specific questions; each question has only one correct answer. The questions are sequenced in such a logical way that each answer leads the student step by step to discover the idea, concept or solution that is anticipated.
- Pre-Impact – T
- Impact – T/S
- Post-Impact – T/S
- One of the most mis-understood styles



# Guided discovery



Pre-Impact – Teacher – objectives, subject matter, design of the logical sequence of q's



Impact set – Teacher/Learner – responds to q's asked by the T.



Post-Impact Set –  
Teacher/Learner – receives feedback and verifies solution.

# Guided Discovery

- TGfU, GSA and Constraints Led Approach (CLA) all use questioning (as does many styles) and suggest they use Guided Discovery.
- However many styles use questioning but questioning alone does NOT represent GD.
- The cognitive intent (not recall but a search for the answer which requires more than one question - Mosston & Ashworth, 2008) of the questioning is what makes GD.
- Often words such as 'reflect' and 'consider' are used but these do not necessarily denote a cognitive operation of discovery (SueSee, Pill & Hewitt, 2021).
- Cognitive liabilities (Mosston & Ashworth, 2008) when done as a group for 2 reasons.
- *all learners are not starting from the same/exact challenge point or point of knowledge with regards to passing/dribbling. The second aspect is the processing speed of the 25 students when thinking and responding to the questions from the teacher. The students' processing speeds would all need to be identical (an unrealistic assumption) so that when the teacher asked the questions associated with using a Guided Discovery Style all 25 students would be able to discover the exact same predetermined response and discover it at the same time (SueSee, Pill & Hewitt, 2021).*

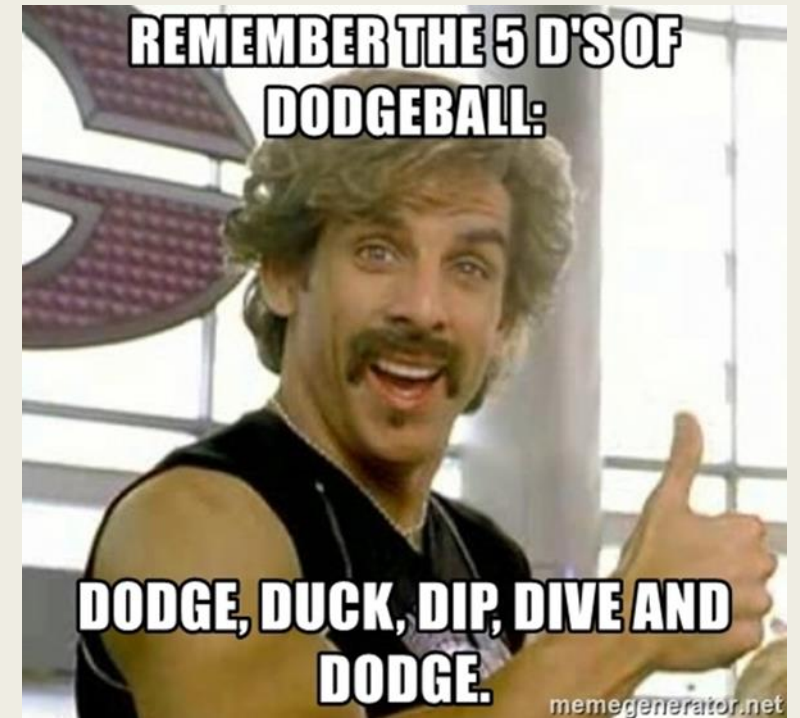
# Discovery Experience One - Guided Discovery!

- Play a game of Endball/Endzone.
- Identify the teachable moments .....which are.....?
- When something is going well or when something is not going well.

# GUIDED DISCOVERY QUESTIONS (5W'S + H)

(Pill, 2013)

- WHAT HAPPENED....?
- WHY DO YOU THINK THAT HAPPENED....?
- HOW COULD YOU MAKE IT HARDER FOR THEM TO....?
- WHEN?
- WHO?
- WHERE?



# Beginner Version

- **What** happened.....?
- **Why** did this happen...?
- **How** could you prevent this from happening....?
- **What** would have made this more difficult for the defender to....?
- **Finish this statement for me** "The closer/faster/slower I move/pass/go the easier/harder it is for the defender to.....?"



# 2 W's & an H

**WHAT HAPPENED....?**

.....  
.....  
.....

**WHY DO YOU THINK THAT HAPPENED....?**

.....  
.....  
.....

**HOW COULD YOU MAKE IT HARDER FOR THEM TO....?**

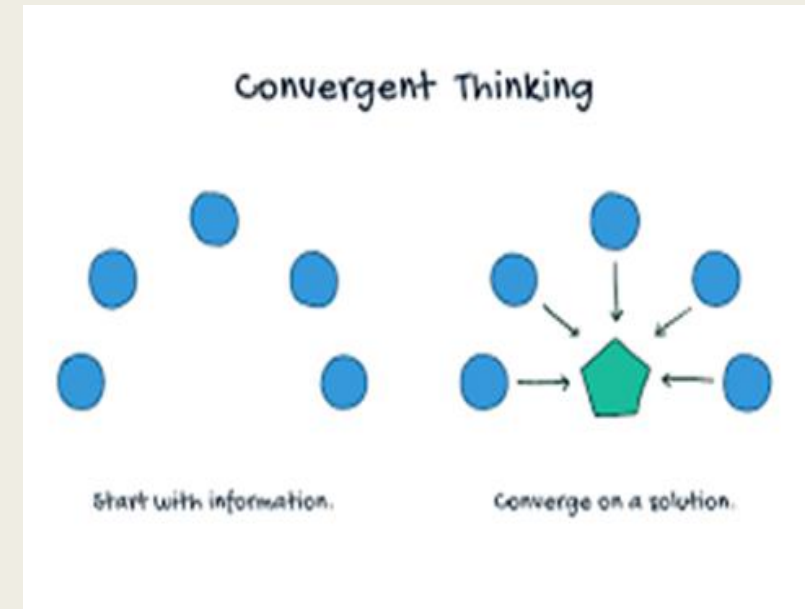
.....  
.....

# Why do this?

- When you ask the questions you ask S's to take out your card and write a brief answer to the Q's.
- Then we will share our responses.
- By doing this initially it stops 'free riders' (I don't know so I will not search/try-I'll just get the answer off someone else) and creates an environment/expectations from the T that they expect everyone to think. When we share (in small groups or as a class) there will be people who didn't know and will now get the answer off others but this strategy encourages all to try to discover.

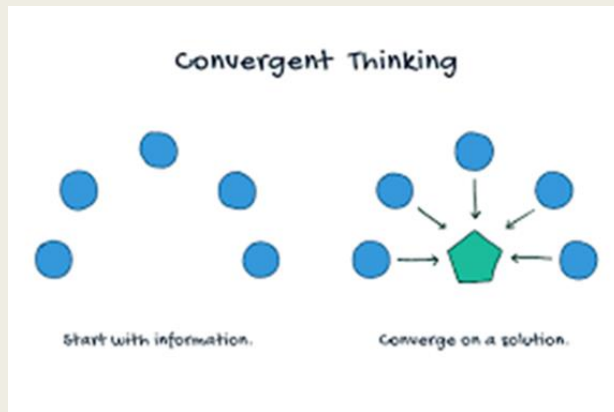
# Convergent Discovery

- Defining characteristic is to discover the correct (predetermined) response using a convergent a process. In the anatomy of the Convergent Discovery style, the role of the teacher is to make subject matter decisions, including the target concept to be discovered, and to design the single question delivered to the learner. The role of the learner is to engage in reasoning, questioning, and logic to sequentially make connections about the content to **discover the answer**. The teacher does not ask the student for one answer if there is in fact many answers. (M&A, 2008).





# Convergent Discovery



- To discover the correct (pre-determined) response using a convergent thinking process. There will be one correct answer.
- Pre-Impact – Teacher – subject matter decisions, target concept to be discovered.
- Impact Set – Learner – to engage in reasoning, questioning to discover the concept.
- Post-Impact – Learner – verifying through checking or seeing their solution solve the problem!

# Convergent discovery

DANGER!

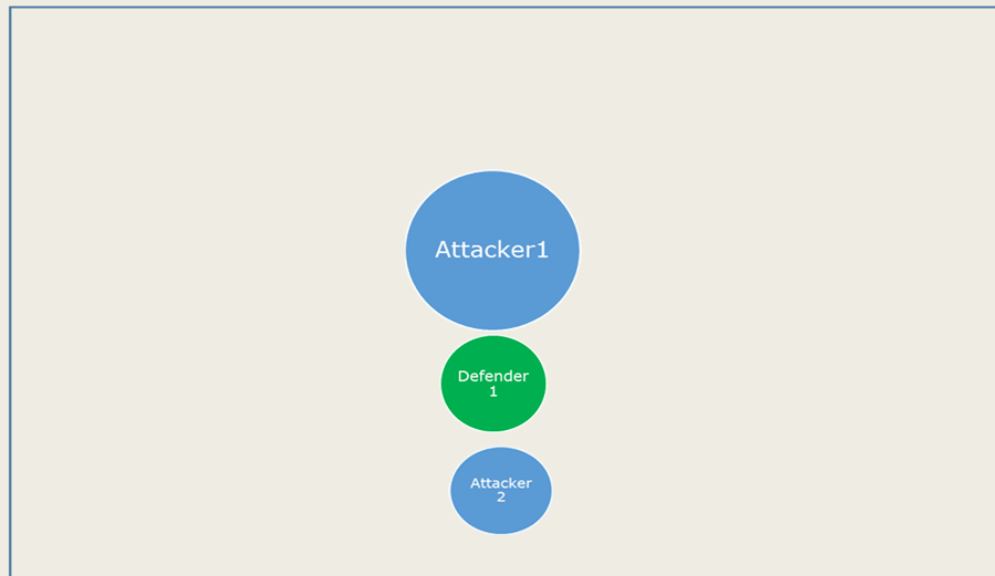
Do not use Convergent Discovery if  
there is more than one answer –  
Divergent Discovery needed!



A GSA could be used to create an environment which allows the concept to be taught (discovered or memory/recall) **when it is the best to pass over the head of the defender**. The game has a formation of a rectangle and attacker 1 (A1) in a hoop in the middle and attacker 2 (A2) and defender 1 (D1) at least 1 metre from A1. In groups of 3 we will ask all three students to do 20 passes in total out of the circle. They are to do 10 to the longest part of the rectangle (**game 1**) and 10 to the shortest (**game 2**). They then are asked “in which of these two situations is it most appropriate to do a pass over D1?”

## Game 1

Figure 1—A pass to the short side of the rectangle.



## Game 2

Figure 2—A pass to the long side of the rectangle.



# More Convergent Discovery!

As before but **speed** being the variable to manipulate,

They can then present their Convergent Discovery episodes to the group.

Then.....**Go back to Endball** game and see if there is **transfer** of the tactic we discovered.

Design a series of questions which elicit convergent discovery or 1 answer. Q's should converge on answer or preferred solution. Game provides a situation for preferred response through manipulating rules, space etc.

Production thinking: “if-then-because” with the idea that S’s will eventually do this unprompted/no scaffolding.

**“If-Then-Because”**

**IF** I am .....?

**THEN** I can/not .....?

**BECAUSE**.....?

# Divergent Discovery

- defining characteristic is to discover divergent (multiple) responses to a single question/situation, within a specific cognitive operation. In the Anatomy of the Divergent Discovery Style, the role of the teacher is to make decisions about the subject matter topic and the specific questions and logistics to be delivered to the learner. The role of the learner is to **discover multiple designs/solutions/responses to a specific question** (M&A, 2008).

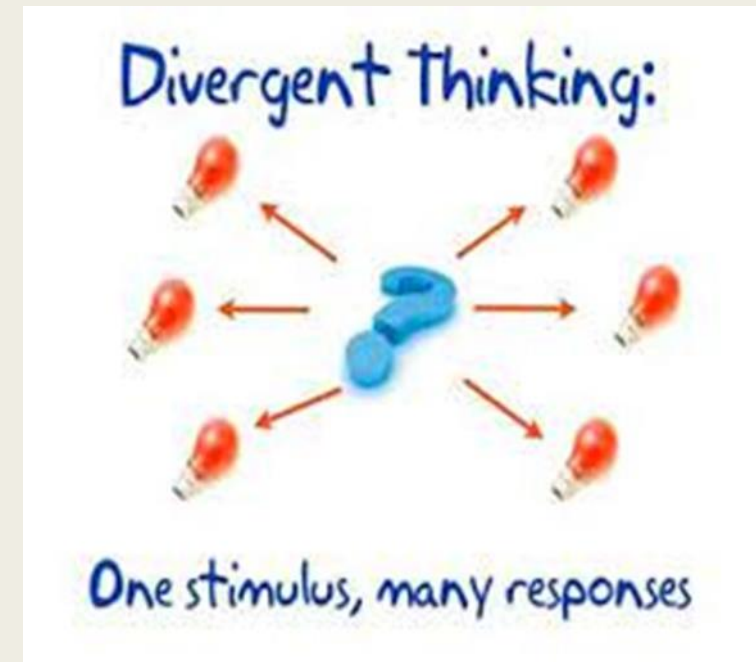


# Divergent Discovery

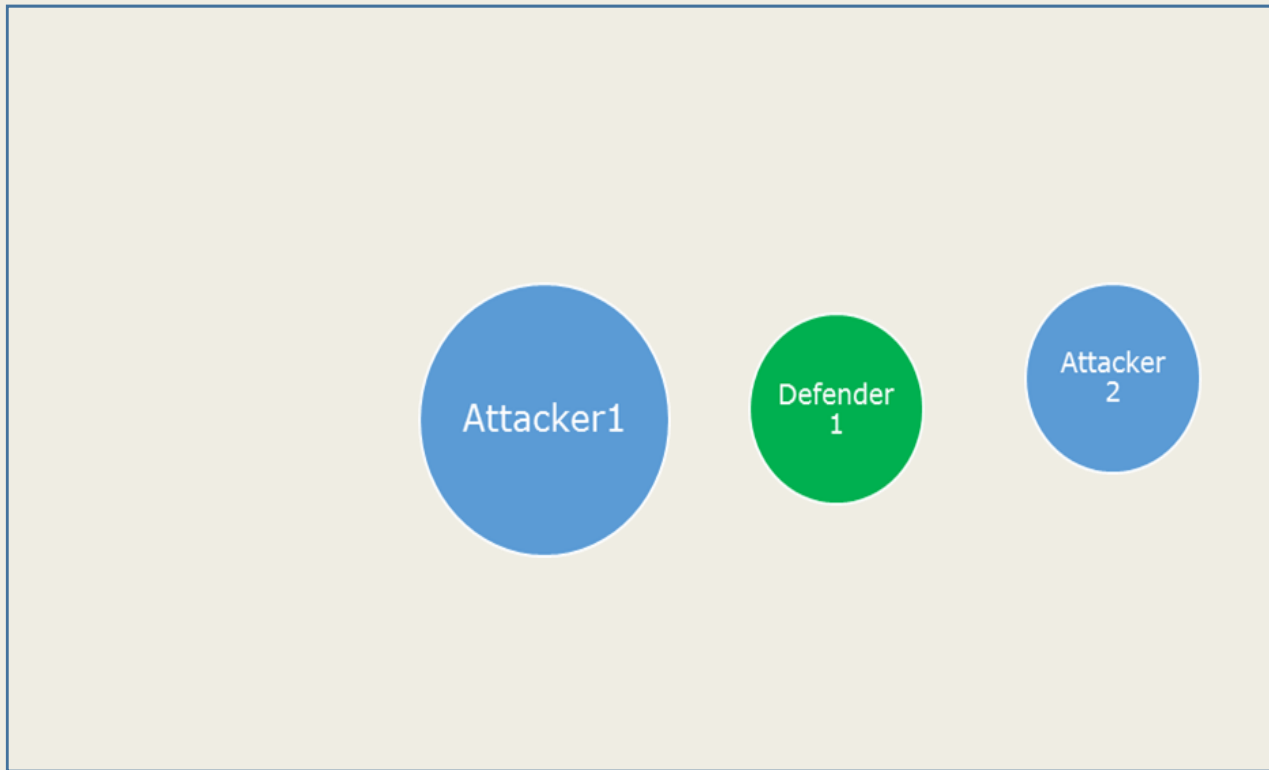
is the creation of two or more “responses to a single question/situation, within a specific cognitive operation”.

- Pre-Impact – Teacher – Subject matter, questions delivered to the learner.
- Impact Set – Learner – discover multiple solutions to the problem/question.

Post-Impact Set – Learner – verifies solutions.

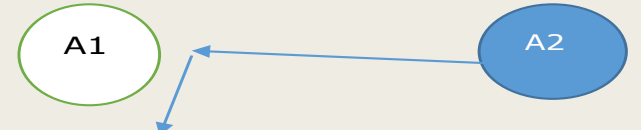
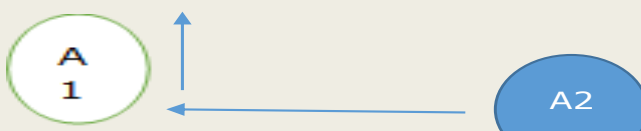
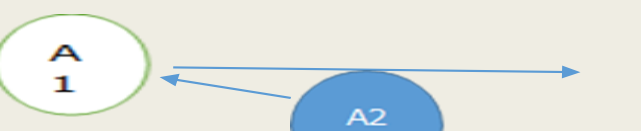

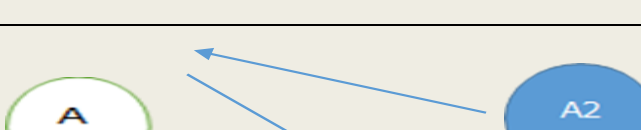


**Divergent Discovery**— is the creation of two or more “responses to a single question/situation, within a specific cognitive operation”.





# Divergent discovery

Possible Solutions	Diagram
A2 Leads in towards A1 and goes to left.	 A diagram showing two circles, A1 (green) on the left and A2 (blue) on the right. A blue arrow points from A2 towards A1. At the point of contact, the arrow turns left and points away from A1.
A2 leads in towards A1 and goes to the right	 A diagram showing two circles, A1 (green) on the left and A2 (blue) on the right. A blue arrow points from A2 towards A1. At the point of contact, the arrow turns right and points away from A1.
A2 leads in towards A1 and then straight back	 A diagram showing two circles, A1 (green) on the left and A2 (blue) on the right. A blue arrow points from A2 towards A1. At the point of contact, the arrow turns back and points away from A1.
A2 leads in towards A1's right and then straight back to left	 A diagram showing two circles, A1 (green) on the left and A2 (blue) on the right. A blue arrow points from A2 towards the right side of A1. At the point of contact, the arrow turns back and points away from A1.
A2 leads to A1's left and breaks back to the right	 A diagram showing two circles, A1 (green) on the left and A2 (blue) on the right. A blue arrow points from A2 towards the left side of A1. At the point of contact, the arrow turns back and points away from A1.

# Divergent discovery episode

Participants to write their 'create space' strategies on post-it notes (and post to white board) and demonstrate what they created. (5-10 minutes).

- **Then.....**Go back to Endball game and ask 1 student (in their group of 3) to choose a 'space creating' option from the white board. Play a 3 v 3 or 4 v 4 game of Endball to see how effective the strategy is. If it is not successful (or even if it is) pick a new strategy from the whiteboard and go again.
- The **Divergent Discovery** episode can then be extended (or cycle back on itself) by asking the participants to then pick 3 from their Divergent Discovery episode and trial each 5 times to evaluate which one (**Convergent Discovery**) is the most effective/successful?

# Cards to scaffold discussion/thinking

## **Claim, Support, Question #1**

Space, Predict, Aware, Anticipate, Rapid, Plan, Sense, Strategy, Thinking, Analyse, Move, Dodge, Lead-Off, Fake, End Zone, Wing, Side Line, Centre Court, Boundary, Bounce Pass, Chest Pass, Lob Pass, Technique, Agile, Footwork, Vision, Effective, Drawing Defenders, Creating Space, Marking, Tagging, Staying Tight, Man to Man, Zone, Losing your Marker, Pass and Move, Communication, Closing Down, Over-Lap

**How can the OFFENSIVE team use Game Sense to best effect in this game?**

- 1. Make a CLAIM about the topic**
- 2. Identify SUPPORT for your claim**
- 3. Ask a QUESTION related to your claim**

# CARDS TO SCAFFOLD DISCUSSION/THINKING

## **Claim, Support, Question #2**

Space, Predict, Aware, Anticipate, Rapid, Plan, Sense, Strategy, Thinking, Analyse, Move, Dodge, Lead-Off, Fake, End Zone, Wing, Side Line, Centre Court, Boundary, Bounce Pass, Chest Pass, Lob Pass, Technique, Agile, Footwork, Vision, Effective, Drawing Defenders, Creating Space, Marking, Tagging, Staying Tight, Man to Man, Zone, Losing your Marker, Pass and Move, Communication, Closing Down, Over-Lap

**How do you know when your DEFENSIVE game play is effective?**

- 1. Make a CLAIM about the topic**
- 2. Identify SUPPORT for your claim**
- 3. Ask a QUESTION related to your claim**

# CARDS TO SCAFFOLD DISCUSSION/THINKING

## **Claim, Support, Question #3**

Space, Predict, Aware, Anticipate, Rapid, Plan, Sense, Strategy, Thinking, Analyse, Move, Dodge, Lead-Off, Fake, End Zone, Wing, Side Line, Centre Court, Boundary, Bounce Pass, Chest Pass, Lob Pass, Technique, Agile, Footwork, Vision, Effective, Drawing Defenders, Creating Space, Marking, Tagging, Staying Tight, Man to Man, Zone, Losing your Marker, Pass and Move, Communication, Closing Down, Over-Lap

**What LEARNING will you TRANSFER to ANOTHER INVASION GAME?  
(Choose a more CHALLENGING or COMPLEX topic)**

- 1. Make a CLAIM about the topic**
- 2. Identify SUPPORT for your claim**
- 3. Ask a QUESTION related to your claim**

# Style I – Learner Designed Individual Program (LDIP)

- The teacher designates a broad subject matter/topic. Within that topic each student is responsible for producing an individual learning program that includes setting goals and the process for accomplishing the goals. The learners design, implement, refine the program, and create performance criteria for their learning programs.
- Pre-Impact – T
- Impact – S
- Post-Impact - S

# Style I - LDIP

- T designates subject matter – skateboarding.
- S designs or discovers questions or problems and seeks the solution (Mosston & Ashworth, 2008).
- This is a production cluster style meaning there must be discovery/creativity episodes NOT just recall or all Style B episodes. For example – “I want to learn how to hit a forehand in tennis – I will watch a Youtube clip” – Style B as decisions are the same as Style B – S watches Youtube (T) and replicates subject matter. Just feedback is missing.
- There will be clusters of styles or variety of episodes representing an “array of different teaching-learning styles” (Mosston & Ashworth, 2008, p. 280).

# Models Based Practice (MBP) & The Spectrum

- Models Based Practice (MBP) emerged as a proposed alternative to address the recognized educative deficiencies to student learning, content matter, pedagogy, and programming
- Recent MBP lists of models do not include The Spectrum - never explained why.
- We suggest that it would be helpful to include The Spectrum in discussions regarding the implementation of MBP to help them fly further.
- MBP's "great white elephants" or "great white hopes" (Casey, 2014)? and (b) To what extent can The Spectrum offer an opportunity to close the gap between the hope and the happening of MBP (Casey et al., 2020)?



# Spectrum & MBP

- MBP or curriculum models are a cluster of styles (SueSee et al, 2021) and T's need to know a cluster of styles to implement a model (Byra 2020, SueSee et al., 2016).
- No one teaching style can achieve all things.
- Practice Style—B, Guided Discovery Style—F, Convergent Discovery—Style G and Divergent Discovery Style—H, in meeting the central tenet of the Game-Sense Approach of teacher questioning to develop “thinking players.” Hastie and CurtnerSmith (2006) advocated the usefulness of the production cluster styles from The Spectrum when teaching a hybrid of the TGfU model for a Sport Education unit, like Kirk (2013) using the SEM.

# Spectrum and a GSA

Learning Experience	Teaching Style
Warm up with a 3 v 1 game of keep away	Practice Style if played previously and not instructed to discover/create a new way to pass/tactic etc.
Reflective questions – “What did you do to make it harder for the defender?”	Practice Style – drawing on memory or revising what they did.
Lets play a 4 v 3 keep away game and I want you individually to recall 3 strategies to keep the ball off the defenders. Once you have them, play for a minute for each strategy and tell me which one is the most effective.	Practice Style for listing/recalling the strategies. However.....if a student knows none, and creates new knowledge then Divergent Discovery.  Convergent Discovery for discovering which one is most effective.

# MBP and The Spectrum

## Learning Experience

S constantly has their pass intercepted.

## Teaching Style

T: Dave what happened there?  
S: He keeps getting my passes.  
T : Why do you think this is happening?  
S : He's too tall! And he jumps.  
T : Can he move in the air?  
S : No.  
T: Can you get him to jump?  
S : No  
T : What if he thinks you are going to pass?  
S: But I can't control what he thinks – can I?  
T: I don't know. When does he jump?  
S : When I pass.  
T : What if he thinks you are going to pass, but you don't.  
S: Like a dummy? Aaaaah. Now I've got an idea!

# References images

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