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# Nonlinear Pedagogy Game Instruction

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Additional information is available at the end of the chapter

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## Abstract

Pedagogical game-based instructions such as Teaching Games for Understanding (TGfU) and constraint-led (CLT) theory from ecological perspective of motor learning seems to attract significant attentions among TGfU and motor learning researchers, educationist and physical education theory generator. Even though TGfU as game-based tactical approach through its pedagogical principles representation and exaggeration considered as a Nonlinear Pedagogy (NP) approach but in essence TGfU is a student-centered tactical approach of learning games. Whereas NP proposed by motor learning exponent's dwells around student centered skill learning approaches. However, by merging these two approaches of TGfU a tactical centered model and CLT a technical student-centered approach under the roof of holistic NP at early research stage in Malaysian PE game curriculum. Some preliminary findings indicated supremacy NP compared to Linear pedagogy (LP) in terms of tactical decision making when to apply of long and short shot, recovery to base, drop shot and smash in badminton doubles game play performance. As conclusion, implementing NP in Malaysian school would further strengthen tactical-technical/skill approach and suits teachers and weaker player as teachers can adjust the tasks accordingly to the situated learning environments.

**Keywords:** nonlinear pedagogy, linear pedagogy, teaching games for understanding (TGfU), constraint-led (CLT) theory, student centered-tactical learning, student-centered technical-skill learning

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## 1. Introduction

A great deal has happened to sports-related games learning and teaching since the introduction and British conceptualization of Teaching Games for Understanding (TGfU) as a tactical model by Bunker and Thorpe in 1982 [1, 2]. Subsequently formation of Tactical Game Model (TGM) the American version of TGfU, Revised TGfU model, Game Sense the Australian version, Play

Practice and so on [3, 4]. On the other hand motor learning exponents as to defend the value of student-centered technical-skill development, they proposed the Nonlinear pedagogy (NP) [5, 6] using Constraints-Led Theory (CLT) as their main underpinning framework. Lately pedagogical model of TGfU and NP very much grounded globally [7, 8]. However, the linear pedagogy (LP) teachers' centered model or skill-led or technical-based model of teaching games that follows three stage of linear process of warming up activities, skill/technical activity/skill drills and a game-based activity and the end still dominating, fancied by certain sector of society [9].

What is great value if both students centered pedagogical approach can merge under one roof of holistic NP approach. In that able to develop and upgrade tactical-technical game play configuration to greater heights as to cope to present day pedagogical challenges. Perhaps self-determined learning heuragogy and technologies theories may challenge game based approach time to come [10].

This chapter will provide some insight and ideas to construct game based tactical-technical lesson. Therefore this chapter supports the holistic NP, as a student centered tactical-technical game learning without omitting teacher's role utilizing developing active skill drills for technical-skill developments. This present model of NP combines the original and revised Teaching Games TGfU model [1, 11], TGM [12], and CLT in designing sports-related game learning [13].

Designing pedagogical learning and teaching approach for sports-related games in education and coaching setting are complex and chaotic [14, 15]. As Mitchell and Oslin highlighted teaching Physical Education (PE) in public schools represents complex environment for both teachers and students. The challenge for teachers more complex in that they must give equally opportunity for varying ability students to play game while managing time [16]. It is complex too for students and they face challenges in game play, as game play interwoven with making appropriate tactical decision making abilities including temporal and space anticipation, efficient skill execution of motor skills and executing effective movement skills while opposing team players. Moreover, the situation would be more complex, when teachers coordinate and apply digital technologies such mobile apps (Ipad, Ipod), Dartfish software analysis as to analyze tactical-technique game play [17]. How to tackle the complexity of teaching games depends on teachers' past experience, situational learning-environment and their philosophy of belief.

The traditional philosophy believer inclined to linear pedagogy with skill progression and small sided game play akin teacher-centered intentional skill-technical approach, underpins behavioral theory of explicit learning [18]. In contrary, skill drills activities deprive students from game engagement and motivation [19]. However, the present chapter supports skill drills elements in NP if it's being carried out in a small portion in game learning without depriving game play approach. This is due to skill drills still has it value in skill development if planned systematically through introducing active skill drills and it would benefit the slow learners and late bloomers. Whereas NP exponents philosophy believes on student-centered implicit learning with nonintentional automatic acquisition of knowledge and skill learning underpins constructivism and cognitive theory [18].

Nevertheless what teachers philosophical belief, sports related game configuration very much inter-related or interwoven between tactical-technical components of game play without omitting fitness component. The technical components relates to skill-technical motor learning and tactical decision making refers to tactical cognition process which both essential for game play.

As such applying dual process of learning viz. implicit, explicit or combination implicit-explicit learning crucial for tactical and technical development. When to apply explicit, implicit or implicit-explicit learning and teaching depends on situational learning environments, subject-matter, learning objectives, varying students abilities and game situation [11, 18]. In order plan a game lesson in PE classes, Lambert and Killingley suggested the STEP method manipulation (space, task, equipment, people/players) the best way to differentiate and adjusting the game play task in accordance too tactical-technique-skill for varying abilities students [20].

## 2. Background

Human learning process at times can be non-linear and linear, what matters effective creative and critical learning process takes place be it technical or tactical components of a game play. Motor learning exponents sees that learning in games as a non-linear process and skilled technical execution is the center game learning. Motor learning experts proposed NP the learner-entered approach for game learning through skill acquisition and development as the central tenants of game learning [21]. They suggested that teachers should provide game lesson with different game tasks and degree of difficulty in order to adapt during game play environment. As such students learns game configuration through exploration, practice play that both movement co-ordination solutions and decision making [21, 22]. The concept of NP or nonlinearity focuses on technique-skill development learning approach coined by the motor learning exponents, roots from interacting elements of task, environment and individual players or learners constraints. All these constraints such as body anthropometric nature such as, height, weight, playing surrounding, and opposition varies especially open skilled games.

Therefore game play learning and performance takes place, shaped by interacting task, environment and individual interaction. Hence teaching and developing skill-technique in isolated approach may collapse when task constraints, when players oppose by opposition players or the individual emotion may be effected [23]. Nonlinear pedagogy approach encourages exploratory learning in physical education applying pedagogical principles that focus on manipulating task constraints and creating representative learning designs to enhance skill-learning [5, 6]. Even though game learning appears to be nonlinear, complex's technical skill should be taught by game like active skill drills methods especially for less ability students and students at the beginning stage of learning game, these students needs guidance from teacher. Repetition and active skill drills method through LP are the best methods for skill development in this kind of environments. Some findings indicating specific football drills that rooted from LP improve the development of technical/tactical and physical variables in players through small-sided and conditioned games [24, 25].

Teachers even omit tactical considerations from practice because they focus so intently on teaching technical skills. Teaching tactics is much harder and takes much more effort than teaching techniques. Tactical skills can best be defined as the decisions and actions of players in the contest to gain an advantage over the opposing team or players. Game play tactical decision making should be taught first before technical skill development otherwise the game will collapsed [26, 27]. Tactical decision making very much depends on the players cognitive processing capabilities especially in anticipating space and temporal perception [28]. Teachers

can teach players to learn tactical elements in game play through three critical aspects known as tactical triangle; i. reading the game play or situation, ii. acquiring the knowledge needed to make an appropriate tactical decision and iii. applying decision-making skills to the problem in game situations [29]. Generally tactics are defined as the decisions and actions of players in the contest to gain an advantage over the opposing team or players [29, 30]. In order to comprehend tactical learning in decision making for it is important for players to recognize how to use specific tactics in game play [26]. The successful application of tactics involves performing the right skill at the right time on the field to achieve the general strategic objectives of the game that were decided upon before the game started [30, 31].

Researchers argues that tactics operate under strong time constraints because they must be decided upon and then implemented under pressure during game The specificity of tactics means that tactical learning cannot be easily separated from technical-skill learning, since a tactic is only successful if performed skillfully. However, as Anderson and Hopper suggested that tactical components should be introduced earlier, prior to skill development, otherwise if the student game practice without NP will sink [23, 24]. Research findings indicated players learn tactics via LP approach better, at times teacher should play an important role in enhance the game performance, by stopping the game at the teachable moment and instructing on how the students or will improve their decision making and technical skills [30].

The merging these two approaches viz. TGfU a tactical centered and CLT technical centered approach under the roof of holistic NP would be another alternative for game learning. Changing game play environments warranted players to learn game tactics and technical skill through active skill drills framing different game situations. Single method of approach may not be that suitable in every game learning situation. Modification and eclectic nature of NP very much sought and needed constantly in the changing game play environments for players to solve game problem [21, 31].

Prior to the emergence CLT, those undertook research via TGfU globally and in Malaysia evolved around comparing TGfU model versus skill-based model or technical model in terms of skill execution, tactical decision making and knowledge components across various types of small sided game play. Based on the numerous findings indicated that TGfU model seems to be a better learning model for game learning compared to skill-led teaching approach or the technical model [32–34]. PE game curriculum designer apart from addressing versus paradigm issue, another issue of TGfU to be resolve. TGfU apparently need support of motor learning theories such as CLT especially in improving game configuration in terms of perfection of skill execution, fitness components and adapting different game situations, different constraints and environments and pedagogical constitutes [35]. A part from game play configuration, TGfU model too in needs of additional assessment tools apart from Game Observation Instruments (GPAI), cleverly developed by Mitchell, Oslin & Griffin [36, 37].

### 3. Underpinning nonlinear theoretical framework

The development of nonlinear pedagogy in this chapter underpins the following models, and theory. Firstly, the original TGfU model [1] as reflected in **Figure 1** (as permission granted

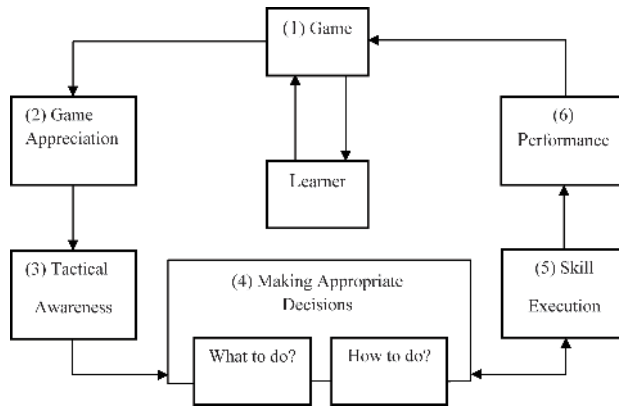


Figure 1. Original TGfU model.

by Dr. Rod Thorpe), TGfU revised model as **Figure 2**, (permission granted by Prof. David Kirk [11] and were further strengthened using Tactical Game Model (TGM) with permission granted by Mitchell, Griffin & Oslin [12] roots from constructivism and cognitive theories as in **Table 1** [23, 24]. The TGM dwells around attacking strategy, defending strategy and restarting framework as intergal part of tactical strategy of game play. In addition, within the TGM framework autentic game play observation instrument or Game Performance Assesment Instrument (GPAI) was introduced to assess tactical decision making, skill acquisition players with and without ball within small sided game play situations [12, 36].

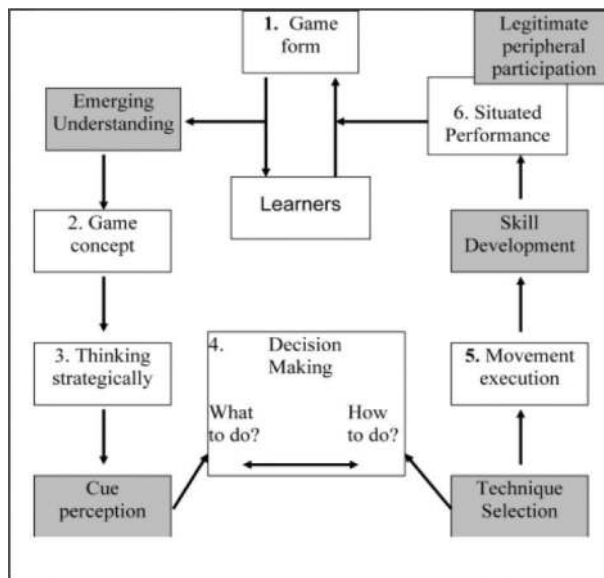


Figure 2. Revised TGfU model.

Tactical and problem	Skill level 1	Level 2	Level 3
	Offense or scoring	strategy	
Setting up attack- creating space on the opponent's side of the net	Overhead clear (forehand, backhand) Overhead drop shot (forehand, backhand)	high service underarm clear	
Winning the point	Smash Attacking short serve		Attacking drop shot
Attacking as a pair			Front, back offense.
	Preventing scoring	(defense)	
Defending space on your own side of the net	Recovery to center court-footwork	Low service	
Defending against an attack		Returning the smash	Returning the drop shot
Defending as a pair			Side-to-side defense communication

Table 1. Attacking strategy, defending strategy TGM framework.

Skill acquisition stems robustly among motor learning theory generator for long time and skill execution crucial for any game play. These motor learning proponents values the importance of CLT in shaping and chaining players with game skills, movement skills and game play knowledge. As the motor learning proponents argued that CLT framework can help physical educators to build their teaching and learning instruction using different task, level of performer and environmental constraints to explain on how learner acquire movement skills and decision making behaviors [21, 38]. The constraints-led approach was developed based on ecological psychology and dynamical system [22, 38]. The constraints-led theory as **Figure 3**, is divide into three categories: performer, environments and task as these factors interacting that shape students behaviors as created by Newell to as provide a framework for understanding how skills and movement patterns emerge during task performance [22, 38].

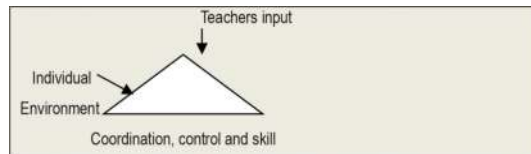


Figure 3. Constraints-led theory.

#### 4. NP tactical-technical development Malaysian context

Malaysian PE curriculum lately moved towards standard based KSSR, KSSM curriculum advocating TGfU as the main sport-related game based instruction [39]. It's a forward step by the Malaysian Ministry of Education cleverly introducing TGfU replacing skill based approach or the LP, however one has to be caution as the original TGfU model itself still need to be strengthen in order to be a holistic game-based model. One shouldn't completely ignore LP still has it strength in skill development through teacher-centered explicit learning [40, 41]. Perhaps, Malaysian curriculum designer should also consider the emergence of CLT to be merged with TGfU family models. Furthermore one should not omit the revise model of TGfU developed by Kirk and MacPhail demands the importance situational learning perspective cue-perception and skill development components in line with situational learning theory [11]. Based on this premise and constraints the development of NP and preliminary research badminton among Malaysian secondary school students was possible.

The NP based on the following elements adopted from variation of TGfU family models in term of a tactical approach on 'what to do' and 'how to do' – game problem solving based on clues and guided discovery approach through guided questioning and skill developments via skill drills techniques. While from CLT and in line ETA lesson plans by that includes tactical problem, lesion focus, cognitive and psychomotor objectives, modified game and conditions to execute game tactical problems, questions for solving tactical problem [36, 38].

Activities in badminton game play will be organize based on mini game situations and by adjusting and constraints in the playing area, 1 vs. 1, 2 vs. 2, or 1 vs. 2 as well as using active and passive drills for skill development in line with situational learning in badminton game play situations [11, 42].

The task or lesson activities developed with different constraints, based on specific rules, and environment. This is done by modifying equipment available to the learners, playing areas size, and setting up goals and objectives in each lesson to upgrade players' performance as suggested by constraints-led theory. In order to expose students with constraints and difficulties of applying tactics of creating space for attack, closing space for defense strategy the researchers and teachers will create a long and narrow adapted court compared to a wide and shallow court. The perceived information from the task constraints (long narrow courts), this will enable the players to make tactical decision whether to execute, long and short shot. Adjusting and manipulating the area of badminton to wide and shallow courts as a task constraints could lead to the badminton players/students challenge the in solving of badminton tactical decision making and skill executing [22].

The NP badminton framework reflected in **Table 2** depicts the learning framework for five units for five weeks. In detail the nonlinear badminton developed evolving around the following elements of: solving tactical problem, executing footwork movements and badminton skills scoring (offense) and preventing scoring strategy in badminton game play situations [34]. Various game play situations were created based tasks, constraints and the players as performer.

Unit	Tactical Problems	Skill focus	Learning Objectives Dimensions	Guide discovery and Cues, Game play Observation Instrument
1	Restarting (Service) Scoring strategy	Forehand and backhand service	<b>Psychomotor:</b> Able to execute forehand, backhand service. <b>Cognitive:</b> Able to apply where to send high, low forehand, backhand back service during offensive strategy in game. <b>Affective:</b> Able to take responsibility to organize game.	What sort of forehand stroke do use you when clearing the shuttle while attacking? Which part of the court do send to the opponents to win a point?  <b>Cues:</b> Forehand grip. Thumb, first finger form "V" Backhand service Use a short, relaxed thumb grip.
2	Scoring and defending strategy	Footwork forehand clear and underhand clear	<b>Psychomotor:</b> Able to execute movement skills of forehand, overhead clear and underhand stroke of clear, technically sound. <b>Cognitive:</b> Able to apply when, where to create space, close space during game play. <b>Social:</b> Able to take responsibility to organize game	Why footwork important in badminton game play? How to execute footwork?  <b>Cues:</b> Underhand clear: Step forward with opposite foot, pull racquet back. Overhead clear: move directly under shuttle, weight on back foot.
3	Scoring and defending strategy	Footwork backhand clear	<b>Psychomotor:</b> Able to execute movement skills to the base, backhand clear technically sound in game. <b>Cognitive:</b> Able to apply when, where to find space in game play. <b>Affective:</b> Able to take responsibility to organize game	How do you score a point in badminton? How do you stop your opponent from scoring? How can you push your opponent back?
4	Scoring and defending strategy	Forehand drop short	<b>Psychomotor:</b> Able to execute forehand drop short, technically sound in game play. <b>Cognitive:</b> Able to apply drop shot in open space, close space during game play. <b>Affective:</b> Able to take responsibility to organize game	Q: How do you score a point in badminton? How do you stop your opponent from scoring? Q: How can you push your opponent back?  <b>Cues:</b> Adopt the forehand grip. Slice or tap the shuttle as you hit it
5.	Scoring strategy and defending strategy	Smash	<b>Psychomotor:</b> Able to execute smash. <b>Cognitive:</b> Able apply smash in open space during game. <b>Affective:</b> Able to take	What deadly skill do you use? Q: How do you execute smash skill?  <b>Cues:</b> When on contact with the shuttle you need to use your forearm, wrist to snap down to get the power of smash

**Table 2.** Badminton game play framework for nonlinear pedagogy.

While a daily lesson plan as illustrated in appendix indicating a sample badminton lesson based on the Malaysian Standard base Curriculum for form one secondary school students (13 year-old). This daily lesson plan was formatted in accordance with Malaysian standard based curriculum of KSSM [39]. Daily topics based on tactical topics of game play. Tactical topics in regard to scoring strategy, tactical problem solving involves creating space on opponents side of net, winning the point, attacking as a pair utilizing skills such as overhead clear by using forehand and backhand skills and overhead clear shots using forehand and backhand skills or underarm clear using forehand and backhand skills, low service, high service,



lob, drop shot, smash as well as returning to base. While preventing scoring (defense) tactics involved defending space on own side of the net, defending against an attack, defending as pair and skills involve forehand, backhand employing underhand and overhead strokes of clear and footwork movement, returning to the base.

The daily lesson plan document as in appendix consists of the following elements: (i). Demography of a lesson plan, (ii) Phase 1- General discovery of tactics and skills of the day, through guided discussion. Followed game based warming-up, (iii) Phase 2 -Planning and application students centered tactics and skills learning using small sided game play situations Game play task with various constraints provided by teacher. Teacher employed guide discovery learning approach in discovering tactics and skill cues, Phase 4- Planning and application of tactics and skills tasks with higher constraints in small sided game situations via guide discovery approach and formal game play observation assessment. Finally Phase 5- Limbering down activities, reflection discussion.

Authentic and formative assessment as part of learning in the standard base curriculum and in the TGM framework [12, 39]. Therefore this chapter advocates a modified net and wall Game Observation Instruments with permission from Stephen Mitchell measuring psychomotor and cognitive outcome as in **Figure 4**, and affective domain in term of game play enjoyment reflected in **Figure 5**. As for cognitive domain two new elements the spatial and temporal

Game Performance Assessment Instrument Net and Wall Games (Badminton)													
Class: _____ Evaluated: _____ Team: _____ Observation date: _____													
<b>Components and Criteria</b>													
i.Skill execution perform forehand and backhand, drop shot and smash into the opponents court													
ii.Decision making: Students make appropriate choices of when to place a long or short shot/drop													
iii.Spatial and Temporal anticipation as part cognitive decision making													
<b>Recording procedures</b>													
<ul style="list-style-type: none"> <li>▪ Use tally to mark the observed category E, A: 1 mark and IE, IA: 0 mark</li> <li>▪ Mark each player's response during the game.</li> <li>▪ <b>Decision making:</b> If the players you are evaluating strikes the shuttle long or short, be sure to mark whether the players made an appropriate (A) and inappropriate (IA) decision making</li> <li>▪ <b>Skill Execution:</b> whether able to executes kills of underground forehand and backhand, drop and smash: Efficiently (E) and inefficiently (IE)</li> <li>▪ <b>Spatial and Temporal anticipation:</b> Players able to anticipate Spatial and Temporal anticipation between skill attempt (A) and unable return to a recovery position (IA)</li> </ul>													
Name	Skill execution				Decision Making long or short		Spatial and Temporal anticipation		Drop shot		Smash		
	Forehand	Backhand			E	IE	A	IA	A	IA	E	IE	
	E	IE	E	IE	E	IE	A	IA	A	IA	E	IE	
Adapted with permission Mitchell et al. (2013).													

Figure 4. Adapted game observation instrument for net/wall game.

Affective Domain Assessment Net and Wall Games (Badminton)	
Name of players: _____	
Class: _____ Evaluated name: _____ Team: _____ Observation date: _____	
The purpose of this assessment is to keep track of behaviors displayed by players learning tasks and game play. Whether or not you assign a point value to the categories is your decision. Keep in mind that games are self-officiated, so there will be opportunities to observe players taking responsibility for their behavior	
Points: Positive behavior identified 5 4 3 2 1 negative behavior identified	
Acceptable behaviors	Unacceptable behaviors
Supports and encourages teammates	Lacks any show of support or encouragement for te
Follows all calls without argument	Argues or breaks rules regularly
Other	Other
Total	Total
Ratio: Acceptable, Unacceptable, (Adapted with permission Mitchell et al., 2013)	

Figure 5. Adapted game observation instrument for behavior.

anticipation were added to the original Game Observation Instrument for badminton game play as in **Figure 4**. These two instruments would be beneficial to assess students' authentic game play performance through video analysis.

## 5. NP preliminary study in badminton among Malaysian students

As to confirm NP model as a valid and reliable pedagogical model for sport-related game, the writer of this chapter as the principle researcher conducted a preliminary study on badminton among Malaysian secondary school students comparing NP with LP model. The study utilized experimental design  $n = 56$  students aged 13 years old selected randomly and assigned equally into groups of NP model,  $n = 28$  and LP model,  $n = 28$ . Statistics tests of Univariate ANOVA and ANCOVA were used to analyze the collected data [43].

Prior to the NP intervention, the content of NP lesson was piloted for content validity in terms of: (i) demography of the lesson plan, (ii) phase 1 (discovery of tactics in form of warming up activities), (iii) planning and application of tactics and followed skills execution in small sided game play situations with plank task and various difficulties and constraints for the performer (students), using guide discovery approach, (iv) planning and application of skill drills and again higher degree of skills intervention during small sided game play situations with higher task and constraints using guide discovery approach. (v) planning and application of tactics and skills with higher constraints using guide discovery approach, (vi) finally limbering down, and reflection activities. These main framework attributes of NP lesson were viewed by four reviewer experts (three in experts in the field of PE, motor learning, coaching, sociology and sports education and one in language expert). They were asked to rank the appropriate score from scale (1: totally disagree, 2: disagree, 3: Unsure, 4: agree, and 5: highly agreeable). As for all the attributes of NP content validity, the percentage of

score agreement given by the panels were between 90 and 95%. The preliminary findings indicated there was no significant difference between NP ( $4.21 \pm 3.40$ ) and LP ( $3.00 \pm 3.89$ ) in term of forehand underhand shot in doubles game play performance after intervention  $F(1.54) = 1.542, p = .220, p > 0.05$ . Similar results recorded for forehand overhead shot indicated no significant difference between these two models NP and LP,  $F(1.54) = 2.209, p = .143, p > 0.05$ . As for decision making in term when to apply of long and short shot in doubles game play ANCOVA indicated significant improve performance via NP compare LP,  $F(1.54) = 16.454, p = .00, p < 0.05$ . Whereas for players recovery to base in doubles game play again NP recorded significant improvement ( $2.50 \pm .923$ ) compared to LP model ( $.93 \pm 1.35$ ) after intervention with  $F(1.54) = 25.624, p = .001, p < 0.05$ . Similar results indicated for drop shot in doubles game play NP pedagogical model effectively recorded ( $2.78 \pm .630$ ) compared to LP ( $.86 \pm 1.00$ ),  $F(1.54) = 73.72, p = .001, p < 0.05, \eta^2 = .577$ . As for smash, too indicated significant improvement via NP ( $2.43 \pm .790$ ) compared LP ( $1.21 \pm .686$ ) doubles game play performance,  $F(1.54) = 37.69, p = .001, p < 0.05, \eta^2 = .830$ . The preliminary findings supports NP would further strengthen TGfU and suits teachers and weaker player as teachers can adjust the tasks accordingly to the situated learning environments.

## 6. Conclusion

As conclusion, implementing NP using student centered tactical-technical skill approach would further strengthen TGfU and CLT. The holistic NP probably can suits teachers with tactical-technical varying abilities students. What is so special with NP, in that teacher able to negotiate the weaker students, as teachers can adjust the tasks tactical-technique/skills accordingly to the situated learning environments without forgetting students social-emotional level (44). It proofs that human learning nonlinear, as findings among Malaysian school students supports the NP approach able to upgrade tactical-technical badminton game play outcome performance compared to LP.. The components of TGfU model such as small sided game play, tactical-skill led and skills approach. Furthermore, incorporating, planning and adjusting constraints' of activities with performer/students using CLT framework played the vital role too upgrading game play performances in terms of tactical decision making, skill execution drop and smash shot among Malaysian students in badminton game play. However, the NP needs further investigation with the emergence heutagogy and technologies theories.

## Acknowledgements

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## Conflict of interest

No conflict of Interest

## A. Appendix

### A.1. A unit of Nonlinear lesson plan

**Class:** Form one **Time:** 8.00–9.00 **Topic:** Badminton (Forehand stroke of clear)

**Learning standard:**

1.6.1 Able to execute movement skills to base, as well as able to executive skills of forehand overhead-underhand stroke of clear in badminton. 2.6.1 Able to describe various movement skill to base, skills of underhand and overhead stroke of clear.2.6.3 Able to justify when and where to use underhand and overhead stroke of clear. When and where to apply open space and close space tactics while attacking and defending strategy during doubles game play situations. 5.1.1 Readiness with proper attire, equipments.5.2.1 Able to demonstrate happiness while engaging in the activities

**Learning Objectives**

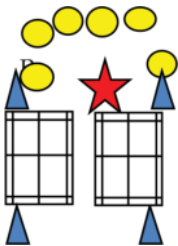
**Psychomotor:** Students able to execute badminton movement skills to the base, forehand overhead clear as well as underhand stroke of clear, technically sound in and singles doubles mini game play situations

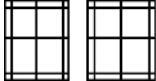
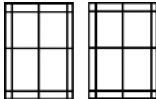


**Cognitive:** Students able to discuss and apply when and where to create space in attacking strategy and close space during defending strategy in doubles mini game play situations

**Affective:** Students able to take responsibility to organize, administer positive and encouraging doubles mini game play situations. **Elements across curriculum(EMK):** Creative and Critical in examining tactics and skills in badminton

**Teaching Aids:** Racket, shuttle, nets, skittles, poster, video.

**Evaluation of T &L:** Skills execution and tactical decision making (Game Play Observation Instrument). **Reflection:** By teacher and students

Learning development	Activities of T&L (Instructional activities)	Organization	Discovery (Discussion and Questions)
<p><b>Phase 1.</b> General discussion discovery forehand underhand, overhead clear strokes. Dynamic warm-up, stretching with footwork movement skills (10 min)</p>	<p>Warm-up: Individually practicing footwork from the base to the base of court. Then individual practicing under hand and overhead strokes and move around the badminton court grid.</p>	<p>Half court singles</p>  <p>P</p>	<p>What sort of forehand stroke or skills do use you when clearing the shuttle while attacking? Which part of the court do send to the opponents to win a point? How to move back to the base or recovery after attempting opponent shot?</p>

<p><b>Phase 2</b>            Planning and applications of tactics and skills            (15 min)</p>	<p>Mini game situation 1 (Creating space): Push and attacking opponent at open space at the back. Work across the grid in half court singles using underhand clear</p>	<p>Half court singles            1 vs. 1  </p>	<p>How do you score a point in badminton?. How do you stop your opponent from scoring? How can you push your opponent back?</p>
<p><b>Phase 3</b>            Planning and applications of tactics and forehand skills            (15 min)</p>	<p>Mini game situation 2 (Creating space): Use forehand underhand and overhead strokes to move your opponent forward movement individually. Work across the grid in half court singles using overhead clear</p>	<p>Half court singles            1 vs. 1  </p>	<p>Q:How do execute forehand underhand and overhead clear? A: Underhand clear, with step forward with opposite foot, pull racquet back and high, strong swing forward, A: As for Overhead clear, move directly under shuttle, weight on back foot, racquet moves to overhead hitting position, racquet strikes shuttle high, chest turns to target, player steps forward with hitting foot</p>
<p><b>Phase 4</b>            Planning and applications of tactics and skills            (15 min)</p>	<p>Skill drills 4X forehand drills (toss and clear underhand and overhead forehand in ini game situation 3 Creating space)-pushing opponent to back and front in a rally using forehand and backhand skills</p>	<p>x .....x            x.....x            x.....x            Full doubles court            2 vs.2  </p>	<p>When do you apply forehand and backhand skills in game play Why do you need to create space?            Game play and affective observations</p>
<p><b>Phase 5</b>            Reflection            (5 min)</p>	<p>Closure            Reflection and cooling down</p>	<p>Half court singles  </p>	<p>Cooling down            Summary and reflective discussion</p>

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