Inventing Net/Wall Games for all Students

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Introduction

The Inventing Games (IG) approach is first and foremost connected to **play**. Games invented by children have been the occupation of children (during recess, after school, in the yard, and in the street) for centuries, and we could argue that these activities have been the precedent to most institutionalized games. Children need no more than a ball and a convivial group of friends to start creating a game. What is interesting is that if the children are committed to playing together as the game evolves, it usually has a canny knack of being inclusive of everyone's ability and experience. As the players get more familiar with the game, the rules evolve and become more sophisticated.

Inventing Games Approach and the TGfU Classification of Games

The difference between spontaneous play at recess and the Inventing Games approach process is that while IG builds on this natural instinct to play, it has very clearly defined educational outcomes that allow the students, through a collective learning process, to cognitively as well as intuitively learn about game constructs. In contrast to games lessons led by the teacher, in IG, the teacher works in a learning partnership with students to facilitate the process of creating their games.

The IG approach is also organized around the teaching games for understanding (TGfU) classification system developed by Thorpe, Bunker and Almond (1986), and built on the work of Margaret Ellis, (1983). This includes the four categories in the classification system of target games, striking games, net/wall games, and territorial games. Figure 1 summarizes the four game categories and the core intent (primary rule) of games in that game category.

In the IG approach, teachers invite their students to invent a game within one of these categories. For this paper, we are using examples from the net-games category to illustrate this (Hopper and Butler, 2011). Once the students have completed an IG unit, the connections and transfer of concepts, strategies, tactics and skills from their 'own' game (or baseline game) can then be made to the more institutionalized games within that category (Butler & McCahan, 2005). They achieve conceptual understanding, rather than becoming adept at a series of unrelated skills.

After playing their games, students discuss ways in which their rules might be developed or modified in order to make playing more inclusive and enjoyable (more enabling) for all participants (Almond, 1986, Rovegno, 1994). The games evolve as learners explore them through play, and through group and self-reflection.

Len Almond, one of the originators of TGfU, published an article on 'Games Making' in 1983, pointing to the enormous educational opportunities of Games Making (Almond, 1986, p. 67). Teachers who had attended one of his Department of Education workshops on Games Making took the activity back into their schools, and reported their successes, finding that students felt a sense of ownership of, and involvement in, their learning, as they got the chance to teach others, including their teachers. The teachers also found that as students worked to create their own rules, they began to understand the purpose and value of rules in general. As they explained their game to others and worked to invent them, they learned how to cooperate and communicate more effectively (Castle, 1990). It is to this area of student learning in the social and ethical domains that we are most interested.

TGfU Category	Main intent of the game (Primary Rule)
Target Games (archery, bowls, croquet, golf etc)	To send away an object and make contact with a specific, stationary target in fewer attempts than opponent.
Striking Games (baseball, cricket, Danish longball, softball)	To place the ball away from fielders in order to run the bases and score more runs than the opponents.
Net/Wall Games (Pickleball, tennis, volleyball etc)	To send ball back to opponent so that they are unable to return it or are forced to make an error. Serving is the only time the object is held.
Territorial Games (Hockey, Netball, Rugby, Soccer etc.)	To invade the opponents defending area and to shoot or to take the object of play into a defined goal area.

Figure 1. Summary of game categories and core intent (primary rule)

By negotiating the construction of their games through establishing rules (dictate what actions can be done, e.g. place the ball within bounds of the court and what cannot be done, e.g. cannot hit the net from a serve) and regulations (equipment, number of players, playing area), students are able to practice skills and attributes that might be defined as those necessary for democratic citizenship. Rather than simply adhering to existing rules, they are required to design and revise them. As they experiment with different ways of negotiating, discussing, and eventually making decisions, they gain a more conscious and embodied understanding of how the existence of rules can contribute to fun experiences and make them accessible to all. They learn through trial and adaption, realizing that an imbalance of prescriptive rules (must do) and proscriptive rules (cannot do) can stifle a game making it less desirable to play or make it too open that it creates chaos (Butler & Robson, in review).

The following processes have been developed by the authors over many years of teaching and coaching at the secondary and elementary levels, as well as years of teaching pre-service teachers and established teachers who are interested in expanding their understanding of games and offering more student-centered experiences (Butler, 1996).

1. Define the TGfU Category and create a Democratic Process

Setting the parameters in this stage defines a) the TGfU category and b) establishing processes for how groups make decisions in the construction and playing of their invented game. Groups of 4-6 students can be formed, depending on the age, ability and previous experience for both processing decisions to create and develop the game structures and the decisions during game play. The critical work in this stage sets the tone and environment for the whole unit and for others to come. Essentially the foci are on the group working together cohesively to create the game and make decisions based on such criteria as inclusivity and fairness, and then to allow the transfer of these decision-making skills into sound decision making during game play (Butler, 2005). However, such an environment needs to be carefully planned and not left to chance or on-the-spot assumptions.

Students are then invited to establish their own system of making group decisions based on these 5 principles (see Figure 2). It is possible to have the groups make their decisions about roles during this stage or decide to introduce these as they become relevant. I tend to favor the latter approach to get the students moving as soon as possible. But two that are needed off the bat are:

1) Scribe of the group worksheet – (Unless you have everyone writing their own worksheet) who records the game set up, playing area, equipment size, ball type, goal dimensions and rules.

2) Equipment manager – responsible for collecting and distributing group game equipment (could provide an equipment list sheet to request equipment)

2. Establish the game through Democratic Process

Once groups have a clearly established system for making group decisions, their first task is to create a rough outline of a game; this should include basic boundaries, net height, ball type, scoring system, a name and most importantly a short list of about 5 rules, which include a safety rule. All these can be refined or changed as the game is developed through a process of adaptation. Since these are written into the students' worksheets in pencil so that they can be changed, edited, deleted or added to, there is an opportunity to 'test' the rules using some simple criteria in the stage of refining the game. The premise in the Inventing Games Approach is that rules are created for the following reasons:

a) to allow the game to flow,

b) provide a structure to which all players can relate,

c) provide a safe environment,

d) establish fairness,

e) involves everyone and

f) makes it fun.

As students start their process of planning through negotiation of ideas, it is vital that the teacher keeps a close eye on the groups' chosen decision-making process and reminds them of the agreed process.

An alternative to going straight into the inventing games approach, where students are creating a game from scratch, is to teach a simple game to familiarize students with the net/wall games category as shown in Figure 3. The game can be developed either as a co-operative game form (such as "keep the ball up after one bounce working with your partner") or a competitive game form (for instance, "try to send the ball into a court area in such a way as to make it difficult for you partner to return the ball"). Within these initial games, the teacher is focused on getting students to find the ball and equipment that they can use to do the task and is also working on effective movement off-the-ball in order to relocate to where the ball will bounce (Hopper, 2007; Hopper, 2011).

Figure 2 Working groups to design the basis of the game

Figure 3 Players engaged in 'Castle' game to work on keeping the ball going and anticipating placement of the ball (Hopper, 2007).

In this phase of the unit, the scribe can be assigned the tasks of recording rules and drawing the game set-up, and the equipment monitor to select/organize and make sure that there is safe use of the equipment. S/he can also be charged with the responsibility of collecting, and, as necessary, changing the equipment as the group tries out different balls and other equipment. This becomes a helpful management and organizational technique, preventing overcrowding in the equipment room or squabbles about equipment choices.

3. Play the game!

As soon as groups have planned out their game, the equipment manager is armed with a bag full of equipment, and they have an assigned playing area, groups are encouraged to start playing their game (see Figure 4). Groups will arrive at this stage at different times, and it may be necessary for the teacher to help move the process of preparing the game along through some carefully structured questioning.

Figure 4 After exploring their game design the players adjust their plans

It may be necessary to remind some groups of the concepts discussed in stage one of defining the category of net/wall games and then to remind groups of the primary aim to "keep the ball in the court area more often than the opponent." Some groups may need help with developing some possible add-on rules, such as (1) the ball can only bounce once or (2) the ball cannot touch the floor (3) the ball must go over a line on the wall, and (4) players must send the ball from where they catch it. Other groups may be playing in a space in the gymnasium playing over lines and net. Some groups may be using beach balls and their hands to strike the ball; other groups might be using paddle bats and a sponge ball. The teacher emphasizes that the games need to be fair in that all players, regardless of ability, must be able to play in the game and that each player does not have to send the ball in the same way.

4. Refine the game

By introducing the idea of class timeouts, time becomes available for the groups to work on the refinement of their games. With the rules in front of them, the groups as a whole have to answer the following questions:

a) Does the game flow?
b) Is the game structured?
c) Is it safe for everyone?
d) Is the game fair for everyone?
e) Is everyone involved?
f) Is it fun?

These questions can be introduced as a whole package with older students and one at a time at the other end of the age and ability range. If the answer is 'no' to any of these questions, students are then encouraged to spend some time thinking about what needs to be changed to improve the game. A reminder here about the differences between regulations and rules is appropriate. Changes in regulations would change the dimensions of the court, the size or type of ball, goal size, court lines and the scoring system. Manipulating these make the game more accessible or challenging. Changes in the rules usually change the flow, fairness, and accessibility of the game. As shown in Figure 5, the players negotiate the game rules as they play and realize the challenges in the game.

Figure 5 Official clarify and negotiating rules as game played

5. Adaptation scoring for everyone

As players are able to create a game in which everyone can engage, then the groups implement a scoring system, for example, playing up to three points to win a game. However, drawing on Hopper (2011) notion of modification by adaptation, the outcome of the game is used to change the structure of the game. As he states,

> In modification by adaptation the game is modified to increase the challenge to the player who was successful on the previous game encounter. Changes can be made in relation to the constraints of the game, such as space, scoring, or rules conditioning play or number of players, in order to ensure the outcome of the game is close, and for the unanticipated to happen during game play (p. 6).

This means that in a game where the ball is hit against the wall, a person who wins the first game might have the size of the court they can hit into reduced, making it easy for his or her opponent to cover the target area. As a second example, a second line might be added to the wall that students have to hit over giving their opponents more time to play a shot. Figure 6 shows two players fully engaged in a tight game with the rules adapted to their playing abilities.

Figure 6 Players engaging in the game with structure adapted to make the game close

6. Refine for flow and identifying the coach

Once the adaptation scoring system is introduced, then players make final refinements to their games, making sure that the competitive games provide good opportunities for rallies and that students are positioning themselves effectively after sending the ball, in order to cover the target area of their opponents.

In order to prepare for this step, each group needs to elect one coach. Players may nominate themselves or others after they have defined what the role of a coach should be. As shown in Figure 7 the teacher may suggest tactical or skill pointers to the coaches in each group in regards to court positioning, ball contact, and basic follow-though in order to help control force and direction of the ball.

Figure 7 Teacher facilitating learning offer discussing pointers with peer coach

7. Identify the role of the referee

With the game well and truly underway with a few rule or regulation changes, the next phase is to have the groups show their games to others.

For the Official's role we feel it important for all the students to take a turn as shown in Figure 8. The experience both helps the students learn the rules and understand the responsibility of the official, and thus play better and develop an empathy and respect for people in this role. This is also a good time for the students to identify what the consequences will be if the rules are violated and add these to the developing list of rules.

Figure 8 Official scoring and interpreting the rules as the game is played

8. Showcase (assess)

As shown in Figure 9 the coaches stay with each game to explain it to the new players and the rest of the group rotate to a new game. Players then engage in the new games to assess how well they meet the requirements of the game being fair, fun, flowing and for everyone. Players offer feedback and if appropriate suggestions.

Figure 9 Players trying out another game with the nominated coach explaining the game

9. Revise (feedback)

Based on playing other games and the feedback from visiting players, each group then makes further revisions to their games as shown in Figure 10. This can include adding on new equipment or extending the rules to address interpretation issues by visiting players.

Figure 10 Inventing games process creates a high diversity of game structures, focused on the net/wall, but owned, adapted and played by all the players

10. Tactical and skill practice

The previous nine steps, spread over several lessons, create game category related game forms that all students are able to play. This is an ideal situation from which to encourage students to explore tactical problems and skill practices related to their game. For example, "where should you position yourself after sending the ball short?" or "how do you strike the ball to get more accuracy?" Learning to control the ball in games you have created offers the ideal basis to transfer these ideas into more specific game units such as volleyball, tennis or badminton (Hopper, 2011). As noted by David's et al. (2010) "the essence of transfer is being able to adapt an existing movement pattern

to a different set of ecological constraints" (p. 95). As shown in Figure 11, the inventing games approach encourages students to adapt an existing movement pattern, a stable base for supporting for actions, to a landscape of constraints they have learned to manipulate in order to enable success through challenging engagement.

Figure 11 Transfer movement skills from one form of net/wall game to another similar but radically different game

Conclusion

IG stages offer an interesting way of engaging students in game play. This approach connects well to the system of learning known as the constraint-led approach and the related non-linear pedagogy for learning (David's et al. 2010). In addition, the IG captures the essence of the TGfU and game sense approaches in creating game forms in which all students can engage and from which they begin to understand how to play. This understanding can then be fed into formal units of instruction on adult games where IG forms can be used within such games as tennis, volleyball, and badminton.

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