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Publisher: Routledge
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Journal of Physical Education, Recreation & Dance
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/ujrd20

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Published online: 10 Apr 2013.

To cite this article: Joy Butler (2013) Stages for Children Inventing Games, Journal of Physical Education, Recreation & Dance, 84:4, 48-53, DOI: 10.1080/07303084.2013.773828

To link to this article: http://dx.doi.org/10.1080/07303084.2013.773828

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Stages for Children Inventing Games

Joy Butler

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Children have always made up their own games. During recess and out in the yard or street, all they need to be up and running are a ball and a few friends. Building on this natural instinct to play, students often invent games that are usually fun, fair, and inclusive. Inventing Games (IG) is an offshoot of teaching games for understanding (TGFU), which was constructed by educators in the United Kingdom (Thorpe, Bunker, & Almond, 1986). It structures educational outcomes to help students learn about game structures, rules, and the principles of fair play, principles outlined in National Association for Sport and Physical Education (NASPE) Standard 2. These principles are applied not only to game play, but to students' lives as members of a democratically organized society who might be expected to exhibit the responsible social behaviors referenced in Standard 5. This article offers practical advice for teachers who want to experiment with Inventing Games in their schools.

Inventing Games is organized around the TGFU classification system developed by Thorpe, Bunker, and Almond building on the work of Margaret Ellis (1983). This organizes games by intent or primary rule into four classifications: target games, striking games, net/wall games, and invasion games (Table 1).

The IG approach has three educational purposes:

1. To bring play back into games (Standards 3, 4, and 6)
2. To help players learn about game structure (standard 2)
3. To help players learn about "democracy in action" (Butler, 2005; Standards 5 and 6)

This article focuses on one of the game categories—invasion games—which is most often used in schools and so probably the most familiar. It offers a process that the author has developed over the last 15 years or so and builds on the "games making" work of Almond (1983) and "games shaping" notions of Ellis (1986). The process has 10 stages, which can be organized into a unit over varying numbers of classes, depending on desired outcomes, grade level, experience, and student ability. The outline offered here is not specific for any grade level, but Table 2 offers a guide to necessary stages for various grade levels.

Inventing Games workbooks can be developed that are specific for the grade level being taught. The workbooks would need to delineate all the stages of the IG process relevant to the grade level suggested in Table 2. Individual workbooks can track, structure, and record individual progress, and group scribes can use group workbooks to structure and record collective processes. Sets of IG cards can also be developed that serve as reminders and prompts for

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inventing games processes. These will be referred to in the course of this article.

Stage 1: Creating Democracy in Action and Defining the Game Category

1A. Democracy in Action. Intentions and expectations: Establishing group system, roles, and a policy for making decisions (Standards 2, 5, and 6).

It is important for each group (of four to six students) to design simple, fair processes that will help them to work together cohesively and make ethical decisions (Standard 5) that will later transfer into sound decision-making in game play. The construction of this decision-making process depends on the following structures:

a. Consensus building (not every decision may be unanimous)

b. Group decision-making processes (Must everyone speak? Should a hand be put up to speak? Should they have a talking stick?)

c. Majority rules voting (How will decisions be made? By vote? What if there is a tie?)

d. Conflict resolution (How will conflicts be resolved? By the group? By the teacher?)

e. Inclusion (How can everyone be involved? What if they don't speak up?)

The following reminders about group process might be included in the workbook or on an IG card, depending on the group's abilities:

- Contribute to your group discussion; you have the right to do so.

Table 1.
TGFU Categories and Intent

TGFU Category	Main Intent of the Game (Primary Rule)
Target Games (e.g., archery, bowling, curling)	To send away an object and make contact with a specific, stationary target in fewer attempts than opponent
Striking Games (e.g., baseball, cricket, rounders)	To place the ball away from fielders in order to run the bases and score more runs than the opponents
Net/Wall Games (e.g., badminton, pickleball, tennis, volleyball)	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
Invasion Games (e.g., basketball, hockey, soccer)	To invade the opponent's defending area and to shoot or to take the object of play into a defined goal area

Table 2.
Recommended Stages for Grade Levels

No.	Stages	3–4	5–6	7–8	9–10	11–12
1	A. Intentions and expectations: Establish group system, roles, and a policy for making decisions	X	X	X	X	X
	B. Define invasion games	X	X	X	X	X
2	Establish the game through democratic process	X	X	X	X	X
3	Play the game	X	X	X	X	X
4	Refine the game	X	X	X	X	X
5	Identify the role of coach		X	X	X	X
6	Establish the official's role		X	X	X	X
7	Showcase all the games	X	X	X	X	X
8	A. Identify defensive strategies			X	X	X
	B. Refine defensive skills			X	X	
	C. Identify defensive transpositional strategies (defense to offense)			X	X	
9	A. Identify defensive strategies			X	X	X
	B. Refine defensive skills				X	X
	C. Identify offensive transpositional strategies (offense to defense)				X	X
10	Connect students' invented games to established national invasion games			X	X	X

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- Listen to your peer until she or he has finished speaking.
- Be respectful of your peers' ideas, even if you don't agree.
- Be responsible for contributing to the decision-making process in the group.
- Consider alternative ideas as the game unfolds.
- Use your vote wisely.

Students establish their own system of making group decisions based on these five principles.

Teachers need to resist the temptation to "help" students to easy answers, remembering that process is just as important as outcomes in this stage. On a similar note, students may wish to rush this stage of the process in order to get on with game invention. The teacher will need to listen carefully to what is being done and said to ensure that everyone's opinion is heard and respected and that matters are not being rushed through.

Debrief: The teacher will invite each group to summarize its processes and may draw attention to differences and similarities in the ways that these have been constructed.

Roles: Two roles that need to be quickly established are that of scribe and that of equipment manager. These are summarized on the IG cards as follows:

1. Scribe. The scribe records decisions your group has made about game set up (playing area, equipment size, ball type, goal dimensions, and rules)

2. Equipment manager. The equipment manager makes a list of the equipment you will need and hands it in to the teacher. After the teacher hands out your game equipment, the equipment manager delivers it to the group and sees that it is properly returned at the end of class.

1B. Game Constructs: Invasion Games (Standards 2, 5, and 6). In this stage, the groups identify some invasion games and discuss and define their basic constructs, regulations, and rules. They go on to identify three differences and three commonalities among them, and they consider the differences between regulations and rules. These are noted in the workbook by the group scribe.

The teacher serves as both the facilitator and monitor of the discussions and, as a resource, provides information about invasion games. The teacher also makes sure, in the lesson debrief, that the groups' summaries of invasion games and their characteristics are comprehensive and accurate.

Students are usually quick to suggest that invasion games have a goal at each end and that the main intention of those playing them is to invade the opponent's defending area to score while protecting their own goal. As the teacher tests students' hypotheses, it helps them to articulate ideas about the classification and to become more conscious of game constructs. For example, if someone suggests that baseball is an invasion game, the rest of the class can point out that since invasion games have goals at each end, baseball does not fit.

Debrief: The characteristics or structures of invasion games can be summarized as follows:

- A goal at each end
- Clear boundaries
- Scoring areas
- Attack opponents' goal while defending own
- Offense: maintain possession and score goals
- Defense: regain possession
- Transposition: quick moves to and from offense and defense

Stage 2: Inventing the Game (Standards 1, 2, 4, 5, and 6)

Each group creates a rough outline of its game. These might include the basic boundaries, the type of goal and ball, the scoring system, a name for the game, and (most important) a short list of about five rules, including a safety rule. These can be refined as the game develops and are recorded in the group workbook. The functions of rules are summarized on the following IG card and/or included in the workbook:

Rules:

a. Allow the game to flow
b. Provide a structure to which all players can relate
c. Provide a safe environment
d. Establish fairness
e. Envolve everyone
f. Make the game fun

Students help the scribe to fill in the workbook as they work through their game design. Blank spaces can be left for students to enter their own drawings of the equipment and playing areas. Older students can add more detail in terms of measurements and size.

The teacher can observe and monitor the way the groups work together but should allow considerable freedom in this stage as students exercise their imagination. Part of the process is that even the most impractical ideas can be rethought and redesigned. Since students work at different rates, some groups will be active much more quickly than others; this allows the teacher to focus on groups that need more help. As one or two groups get moving, the others tend to catch up quite quickly.

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Debrief: This might be a good time to highlight group processes that are working well.

Stage 3: Playing the Game (Standards 1, 2, 3, 4, 5, and 6)

Once the group has decided on its game, the equipment manager shows the teacher the completed workbook (signed by all the members of the group), collects equipment, and directs the group to their assigned playing area.

Through quick observations of each group's game play, the teacher determines whether the games flow and whether they are fair and accessible. Quick interventions may be appropriate. If, for instance, a player is stuck in a restrictive role, the teacher might ask the group's reasoning before weighing in. Will positions rotate, for instance? Questions such as, "How can the group introduce a rule that results in more movement for everyone?" or follow-up questions such as, "Why do we want everyone involved?" may help.

Debrief: At the end of the class, the teacher invites each group to decide how well they worked together to set up the game, analyze the game to see if it is working (and why or why not), and define what makes it fun. Answers are recorded in the workbooks.

Stage 4: Refining the Game (Standards 2, 5, and 6)

As the games are played, the teacher can encourage the students to use game time-outs as needed to refine their games. The teacher may call these timeouts personally or allow students to do so, depending on their age and abilities. Time-out topics might include the following:

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

These questions might be introduced as a package with older students or one at a time with younger ones. As students work through these questions, they consider changes and improvements to their game. Changes in regulations would change court dimensions, ball size or type, goal size, and the scoring system. These can be manipulated to make the game more accessible or more challenging. Changes in rules usually influence the flow, fairness, and accessibility of games. For example, a rule created by a fourth-grade group demarked the centerline as a boundary for offense players, stopping traffic at the goalmouth, allowing and providing defensive players with more time to strategize. Reversing this rule (by preventing defensive players from crossing the mid-line) set up offensive players with more time to take shots on goal. Rules can be defined as prescriptive (must do) and proscriptive (must not do). The balance of these two can be appreciated by older students, as they consider what restricts and what increases game flow.

With receptive groups, the idea of a "Committee Box" can be introduced. This allows any student to take one of the following cards to make proposals during timeouts:

a. Change existing rule card
b. Add rule card
c. Drop existing rule card
d. Restate rule card

The group discusses the cards, putting ideas to a vote or consensus. This promotes understanding of committee work and offers a glimpse into how national bodies modify rules. (The teacher can offer examples.) The teacher's role here is to facilitate game modifications that render the game easier or more challenging.

Debrief: The end of this stage offers a useful opportunity for the teacher to ask groups what they have learned about the value and role of rules.

Stage 5: Identifying the Role of Coach (Standards 5 and 6)

With the games underway after rule or regulation changes, the next step is to share them with the class—but first, each group elects and records the name of a coach (nominating self or others) after they have discussed what this role involves. The teacher guides the discussion of criteria and responsibilities, using the following IG card:

a. What is the role of a leader?
b. How can leaders help groups make decisions?
c. What is clear communication?
d. What is respectful communication?
e. Why is it important to listen?

Debrief: The end of this stage invites some teacher-facilitated discussion of coaching. Why do we need coaches? Do we always need coaches? How did the game change after a coach was appointed?

Stage 6: Establishing the Role of the Official (Standards 5 and 6)

It is important for students to serve as officials, since it helps them understand the rules (and thus play better) and develop empathy and respect for people in this role. This is also a good time for students to draw up a list of penalties and signals for rule violations and add these to their workbooks. The next phase of game playing has all groups working with these player coaches (except when they are serving as officials) and all players taking a turn as official. The teacher's role in this lesson is to "coach" to students in these two roles.

Debrief: Once again, this session might conclude with some discussion on the differences in the experience of playing with the inclusion of the coach and official.

Stage 7: Showcasing the Games (Standards 1, 2, 3, 4, and 6)

In large classes, groups can be paired up, as one group demonstrates to the other and several games are showcased simultaneously. In smaller classes, groups can first demonstrate their game to another group before being invited to show their game to the whole class. The following sequence can be used:

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1. Each coach explains the game to the audience (another group or the whole class).
2. All members of the group then showcases the game.
3. After a few minutes of play, the audience comments or suggests improvements.
4. Pair up groups.
5. Have each group play the other group's game, with the coach explaining and guiding the process.
6. Students choose which game they wish to play.
7. If all students prefer one game—then both groups can play it (in my experience, students always pick the game they have invented).
8. If the groups haven't found a name for the game, others in the class could be invited to help out.

Debrief: What did the students learn from watching other groups' games? What suggestions did they accept? What do they think of their games now?

Stage 8: Defense (in 3 Parts): Strategies, Skills, and Transposition) (Standards 1, 2, 3, 4, and 6)

8A. Identifying Defensive Strategies. With the game established and somewhat developed, the teacher can move into the most interesting part of the process: developing game play through organized tactics.

Many teachers prefer to start with offensive tactics to capture student interest. Though it is true that many students are more excited by scoring than preventing goals, a good offense takes the opponents' defense into consideration. How better to understand what opponents are trying to do than by considering their defensive systems first?

The basic questions of defense are as follows:

1. "How can your team try to stop the other team from scoring?"
2. What are your opponents' defensive tactics? Why do you need to know?

Possible solutions:

- Covering/marking a player (full court, half court, sagging)
- Covering/marking an area
- Double-teaming

In their teams (not groups), students brainstorm answers to these questions. The coach lists ideas in the workbook and decides which one to try first during game play. During time-outs, players evaluate their success and consider further improvements, using the following IG card or section in the workbook.

1. Try ideas out and modify during time-outs.
2. How did your chosen defensive strategy work?
3. How did the offense manage to score against your team?

During this problem-solving stage, it is important for teachers to encourage students to work through trial and error, noting why something worked and why it didn't. This helps players construct a schema for situational strategy planning.

Debrief: Discuss what was learned in planning one strategy. Define the difference between strategies and tactics.

8B. Defining Defensive Skills (Standards 1, 2, 3, 4, and 6). This sophisticated stage is best reserved for more experienced students. The teacher can suggest it for some groups and not others. It helps players identify the skills needed for implementing strategies, such as observational skills, movement analysis, appreciation of progressive skills practice, and the forging of connections between practice and game play. First, players are invited to list defensive skills in their workbooks.

Possible solutions:

- Staying with the player
- Keeping goal side of player
- Tackling
- Anticipation – interception – reading

Debrief: How has the skill practice helped the strategy and game play?

8C. Identifying Defensive Transpositional Strategies (Defense to Offense). Again, this stage is best reserved for more experienced players. Often, players win the ball on defense but move into offense slowly, thus losing it again. Changing from defense into offense requires team organization.

Problem-solving questions on this IG card include the following:

1. How does your team gain possession from the team with the ball/object?
2. What have you noticed about your opponents' defense that would allow your team to penetrate their defense?
3. Once in possession, what system/organization helps you to move quickly into offense?

Possible solutions:

- Interception
- Intuition
- Reading the game
- Considering offense options
- Closing down passing lanes
- Forcing an error with defensive pressure

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Stage 9: Offense (in 3 Parts): Strategies, Skills, and Transposition (Standards 1–6)

9A. Identifying Offensive Strategies. As with the defensive stage, this begins with the identification of problem questions.

- How do you keep possession of the ball/puck to set up scoring opportunities?
- How can your team score more points/goals than your opponents?

Possible solutions:

- Keep ball moving, short, safe controlled passing
- Focus on the player with the ball
  - What to do with the ball?
- Focus on the players without the ball
  - Where to go to be available for a pass?
  - Creating space for the player with the ball
- Division of roles to cover goal
- Transpositional awareness
  - Risk in losing possession
  - Creating space for opportunity
  - Thinking two or three moves ahead

The same method of trial and error is used with offensive and defensive strategies. The teacher might digitally record game play so that students can more easily analyze what is going to work, what isn't, and why. Time-outs are used at the teams' discretion as strategies become refined and adaptive.

A coaching session may be appropriate for distinguishing between on-the-ball and off-the-ball play. Possible foci for follow-up might include player support and assistance for the player with the ball.

9B. Refining Offensive Skills.

1. Identify and list skills that are required to use offensive strategies effectively.
2. Ask students to design a practice that isolates these skills. Start slow and build up to full speed.
3. Ask the coach to watch the drill and ask him/her for ideas for improvement.
4. Develop the skill until it is almost game like.
5. Go back to the game and try the refined skills within the game context. Do they help?

Possible solutions:

- Moving to receive pass
- Passing to open players
- Supporting role
- Creating open spaces
- Carrying, passing, receiving, shooting skills
- Combining locomotor and manipulative skills

9C. Identifying Offensive Transpositional Strategies.

Problem question: If your team loses possession, how will the team switch quickly to defensive mode?

Possible outcomes:

- Interception
- Intuition
- Reading the game
- Considering offense options
- Closing down passing lanes
- Forcing an error with defensive pressure

> If learning is to be sustainable and transferable, experiences need to be meaningful and thus memorable.

Stage 10: Connecting Students' Invented Games to Established National Invasion Games (Standards 1–6)

For one or two lessons, allow students to play an invasion game of their choice, using a completely different means of propelling the ball/puck. For example, if students chose a throwing IG game, they might choose a kicking or implement game, such as soccer or hockey. Identify transferable concepts. These might include the need for rules and officials, modifying behavior, keeping possession, obtaining possession, passing the ball ahead of teammates, or player-to-player defense.

Assessment

Rubrics based on the outcomes sought can be made up for each stage. The use of Game Performance Assessment Instruments work really well with this approach—particularly at the end of the game-making stage and then after each of the three stages in either defense or offense.

Conclusion

If learning is to be sustainable and transferable, experiences need to be meaningful and thus memorable. Chalking up a blueprint game for each of the categories, or including these in the workbooks will help students fully understand and appreciate the game structures of subsequent games.

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