According to the Qualifications and Curriculum Development Authority (QCDA), the new secondary curriculum in physical education focuses on developing the skills and qualities that learners need to succeed in school and the broader community. Underpinning this curriculum are personal, learning and thinking skills (PLTS) that are considered essential to successful engagement in the subject matter. Achievement of these PLTS should see students as independent enquirers, creative thinkers, team workers, self-managers, effective participators, and reflective learners. In order to achieve these goals, students are expected to be presented with learning experiences that allow them to "work with increasing independence, applying their competence and creativity to different types of activity”, "experiment confidently with their own creative approaches to produce effective outcomes", "collaborate with others in working towards a common goal”, “take personal responsibility for organising their time and resources", “engage with activities that they enjoy and have selected for themselves”, and “identify for themselves new and improved techniques, tactics and strategies.”

A case for student-designed games

It is the intent of this paper to present the idea of “student-designed games” as a highly appropriate, but also stimulating and beneficial method for teachers in Key Stages 3 and 4 to engage students in these PLTS. In addition, we present a technique that teachers can use to help structure students’ first experiences with games making that allow them to be successful.

In games making, students design their own games within certain parameters presented by the teacher. From a constructivist perspective, Rovegno and Bandhauer (1994) suggest that asking students to design their own games allows them to engage actively with and explore components of game play (skills and strategy) and, in turn, to construct a deeper understanding of these components, as well as helping them to think critically about their experiences playing games and sports at break and after school.

Games making is not a case where all the teacher has to do is explain the skill, hand out equipment, and say, “Make up a game.” Cox (1988) lists three slants to presenting games making tasks, and describes them as the “structured choice,” "limited choice,” and “open choice” approaches. At the most basic level (structured approach) the teacher limits the number of choices available to the students. For example, the teacher may limit the number of players on a game, and limit the choice of equipment to no more than five items. Alternately, students can work with games they already play and make manipulations to the number of players on a side, the size of the court/field, the implements and/or balls used, or some simple rules. Cox (1988, p. 15) suggests that the structured approach “prevents the
development of overcomplicated games which can (and often do) take an inordinate time to devise.” In the limited choice and open choice approaches, students can design games that are completely unique and present tactical problems not seen in any of the sports they historically play.

The jigsaw classroom
As was mentioned earlier, this paper presents a technique teachers can use when first introducing games making to students. The technique is known as the “jigsaw classroom”, and the underlying theory is that just as in a jigsaw puzzle, each piece - each student’s part - is essential for the completion and full understanding of the final product. It is based upon the wider pedagogical model of cooperative learning and seeks to achieve five elements for pupil learning: positive interdependence, individual accountability, shared group goals, group processing, and face-to-face interaction. If each student’s part is essential, then each student is essential; and that is precisely what makes this strategy so effective. The following capsule gives an example of how the jigsaw classroom works.

The students are divided into the small ‘home’ groups common to cooperative learning:

Group A: Student 1A, Student 2A, Student 3A
Group B: Student 1B, Student 2B, Student 3B
Group C: Student 1C, Student 2C, Student 3C
Group D: Student 1D, Student 2D, Student 3D

The students numbered one then form an ‘expert’ group and are given a concept to master. The students with numbers two and three respectively also form separate expert groups and undertake to learn or develop different concepts. Eventually the home groups are reformed and students try to teach each other the information they have learnt. The model is structured so that the only access any student has to the other concepts is by learning from the related expert.

I used information of gymnastic ability and existing friendship groups to choose the home groups. In the first week of six the pupils were introduced to the jigsaw classroom and divided into their home groups. Once the home groups were together the students were asked to choose an expertise (mats, box, bench) and then the expert groups for the creation of the expert sequences were created. This process took two weeks, at the end of which each expert group was required to hand in a sequence prompt sheet. Experts then spent weeks three, four and five back in their home groups learning the three sections of the final routine. Week six was used for group performances, although some time was also found for whole sequence practice.

Casey (2004, p.12)

Using the jigsaw in games making
All games are comprised of primary rules and secondary rules. Primary rules are those that identify how the game is played and how to win. They provide a game’s essential character and what distinguishes it from another. A primary rule of volleyball is that you must volley the ball with your hands (i.e., you cannot catch or throw it), while in football, players can only use their feet and head to transfer the ball while inside the field of play (they can throw it in from the sideline). These rules make volleyball different from badminton, and football different from handball where you can throw the ball into the goal. Primary rules also designate players’ rights from both an offensive and defensive standpoint. While in handball, you can take three steps with the ball, in games like netball and Ultimate Frisbee you cannot move at all. In basketball you can only move with the ball while dribbling. In rugby you can pick up the ball and run with it, but you are limited to only passing backwards.

Secondary rules are those that arise out of the experience of playing a game, and are those rules that can be changed without affecting the essential character of the game. For example, the tiebreak in tennis varies according to the competition league in which it is adopted, while the shot clock in basketball is a secondary rule that limits the time a team has before it must make a shot attempt, and differs in every level of competition. In junior rugby the hand-off and kick through are removed to allow players to master the basics of the game before these elements are employed, while in cricket lost runs often replace the loss of wickets to ensure that a batsman gets an equal share of the bowling.

In a jigsaw lesson students form different expert teams which meet to design the primary rules of a particular game. After these “rules experts” have made their decision, they then return to their original teams to put the game together. In this way, all final games should be the same across groups. If a game is not developed consistently with the model it will be as a result of that particular expert’s lack of understanding or inattention during the design phase. That student is thereby accountable to the entire group.

After teams have played the combination game, they are then able to make team-specific adjustments to the secondary rules, make it a “good game”. By good game we mean something that is both “playable” and “enjoyable” for all participants. For example, game limited to two-footed hopping where the ball is carried between the knees to score in a basket will quickly become untenable, unenjoyable and exhausting to all those involved. Modifications by a team could change the methods of progression and scoring to make the game more competitive and enjoyable. A team should not feel that they could win easily but nor should they feel that they have no chance of making an equal contribution to any of their peers’ teams.
Jigsaw examples – Tag games

Students are charged with designing a tag/tig game. The expert designers in this situation will determine the rules about:

- boundaries and playing area
- how to tag (where, equipment, safety)
- how to get “unfrozen” after being tagged
- safe zones (places where you may not be tagged)
- chasing limitations (how to move, can you dive after someone to tag them).

Once these rules have been decided upon, the players return and experiment with the game. During trials, the rule experts may need to clarify specific issues again. However, these meetings should not concern secondary rules. Once the parent game has been played and the rules clarified, teams are now able to modify the game in order to make it a good game.

At Heathcote School (a pseudonym), a group of ten Year 11 students used this jigsaw method and created a tag game within 15 minutes. This allowed them to experiment with each of the more intricate dimensions of the game to make it more fun and challenging. Each pupil (see Figure 1) was randomly allocated to a jigsaw group (1 or 2) and an expert group (A-B).

The pupils, having noted who would make up their five-piece jigsaw, joined up with the expert from the other group and they both spent five minutes defining their section of the game. With the game assembled groups 1 and 2 independently attempted to play the game; refining the separate elements into a workable whole. The emphasis was on tinkering rather than wholesale changes as this would have been firmly against the student voice the teacher was trying to encourage.

Once the game had been played and refined each group had a chance to further modify the game in line with their aspirations for a better whole. The pupils involved in this “teaching experiment” had previous experience of both games-making and cooperative learning but as the teacher noted “with such defined limits on what they could decide upon I believe that any of my classes, regardless of prior experience, could have come up with a playable game.” The pupils, as one commented, felt that the whole process “allowed for the quick development of a game without a lot of time being spent in design – which means you can then work on playing it and modifying it, which is the most fun part.” To support this claim, the whole process, including interviews, changing, set-up and debrief took less than an hour, making it fit comfortably within a double lesson in the school’s timetable.

This idea is used extensively in Primary Schools, but a case has yet to be made for its inclusion in secondary education. Perhaps the words of classroom teacher best summarise the outcomes of this unit:

"The boys are engaged. All of them. Even those I would normally struggle to involve are raring to go. None more so than the boys who hide away in football and talk rather than play. I have seen those boys run away from the ball to ensure they escape any form of match play yet in this unit they have been game designers and trialed games that didn’t exist before we started this unit. The sporting ones loved it on the whole and while some did moan a little at the start that they weren’t doing a real game, this soon disappeared as they got involved in their new games."

References