Carcassonne: Using a Tabletop Game to Teach Geographic Concepts

Michael Mewborne
Department of Geography
University of South Carolina
Columbia, South Carolina, USA

Jerry T. Mitchell
Department of Geography
University of South Carolina
Columbia, South Carolina, USA

Introduction

Games have been used as instructional tools throughout history. Chess, for example, has been used to study battle tactics (Young 2004), and *SimCity* has simulated urban planning for students for many years in elementary through college classes (Bereitschaft 2016). Educators like Dr. Maria Montessori have notably and intentionally emphasized the role that student-centered play has in healthy development, especially among young children (Lillard 2005).

While games are meant to be fun, fun is not the same as entertainment. Entertainment is passive. Educational experiences are more effective when learners are active participants, and when teachers carefully choose fun games with appropriate game mechanics and clear curricular connections, students can engage in rigorous mental processes. At the same time, students may learn a variety of skills or concepts in a nontraditional manner that may lead to enduring understanding. A side benefit also can be the development of soft social skills while engaging peers.

Herein we discuss the tabletop game *Carcassonne*, a German-style tile laying game created by Klaus-Jurgen Wrede in 2000. In this game, players draw tiles and then place those

tiles in meaningful context with other tiles (something of a more free-form puzzle) to create features like cities, roads, cloisters (monasteries), and fields. Players score points for the different features they build. The player with the most points at the end of the game wins. Throughout the game, students engage in game play strategies that illuminate a number of geographic concepts such as accessibility, the importance of infrastructure and urban services, and religious diffusion.

Games in Geography Education

How have games been used in geography education? Students used Lego blocks to build cities as part of the High School Geography Project developed in the 1960s (Helburn 1998), and others have suggested using other toys to teach specifically about physical geography (Carnahan et al. 2014), but this is not the same as introducing a *game* into instruction. Although often engaged for amusement, games typically represent a form of competition whereby participants contest each other according to a set of rules that define the game play. In geography, games have been used to simulate real-life scenarios (see Mitchell and Cutter 1997 for a disaster preparedness example using pen, paper, dice, and discussion) and to enliven student interest in activities (Hupy 2011; Gaillard and McSherry 2014).

More recent scholarship has addressed the potential for bringing electronic gaming into the classroom. Examples here include city building games (Bereitschaft 2016; Kim and Shin 2016), augmented-reality games (Davis 2017), and education computer games (Brysch et al. 2012). Others have described using *Pokémon Go* to improve spatial orientation skills (Carbonell Carrera et al. 2018).

While board games have been developed with geographical themes (e.g., *The Scrambled States of America*), and others have the potential to enhance spatial skills (e.g., *Battleship* and learning coordinate systems), little has been written on board game use to enhance geography instruction, especially for those games not designed for a particular educational purpose.[1] *Carcassonne*, the game introduced here, although not described for use previously in a geography classroom, has been used to instruct games studies students about games mechanics (Hullett et al. 2009).

Carcassonne

Carcassonne is a Eurogame available in the United States from Z-Man Games. Eurogames, or German-style games, tend to involve less direct player interaction, conflict, and reliance on luck, while emphasizing strategy and economic concepts. This is in contrast to American-style games like *Monopoly*, which have a longer play time and involves rolling dice and in which progress is made at the expense of other players. Other notable Eurogames include *Settlers of Catan*, *Power Grid*, and *Ticket to Ride*.[2] While digital versions of *Carcassonne* do exist, this lesson uses the tabletop game version. One key pedagogic benefit of a real, physical game is that it occupies space and therefore requires more direct spatial thinking. The experience is itself spatial. *Carcassonne* is a tile-laying, tabletop game for two to five players (Figure 1). Players take turns drawing a tile from the deck and placing that tile into a growing, developing map. The map ultimately features complete elements from the medieval French landscape such as roads, walled cities, cloisters, and farm fields. Each completed element earns points for the player who claims and completes it. As road, city, and cloister development are worth different points, player

> *"One key pedagogic benefit of a real, physical game is that it occupies space and therefore requires more direct spatial thinking."*

Figure 1. Students play *Carcassonne* in an AP Human Geography class by drawing tiles, drawing contiguous features, and claiming features with small wooden game figures. (Color figure available online.)

strategy is paramount for success. When all tiles have been placed, players tally their total points from complete and incomplete features. The player with the most points wins. Games usually last 30 to 45 minutes.

It also is important to note that the game which this lesson utilizes is not a *serious* game designed to teach a certain skill or concept or be a curricular tool. Instead we are intentionally using a game that was designed to entertain. While there are certainly some excellent, fun, and effective serious games (e.g., *World Without Oil* 2018), they do not have a corner on learning moments in the classroom. By using a game that was designed primarily to be fun, and by structuring play to be thoughtful, engaging, and focused on certain concepts, we reap the educational benefits of serious games with the fun and intrinsic motivation of gaming.

Curricular Entry Points in Geography

Carcassonne game play connects to a geography classroom in a number of ways. By way of explanation, we provide a few National Geography Standards here along with concepts from the AP Human Geography course description (The College Board 2015)[3] that demonstrate how playing *Carcassonne* can illuminate fundamental ideas central to geographic understanding (Table 1).

Some geographic concepts, such as territorial morphology and the importance of infrastructure, are readily apparent at specific times in the game. As students complete cities, the tiles, drawn at random but placed deliberately, will form a wide variety of shapes. Students can make connections here between the shapes of the constructed cities and the territorial morphologies of states. Likewise, as students complete roads, they can choose to create varying lengths of road based on the tiles they draw.

Table 1. Geographic standards, concepts, and examples in Carcassonne game play.

National Standard*	AP HG Concept	Carcassonne Example
3:1 The meaning and use of complex spatial concepts such as connectivity, networks, hierarchies, to analyze and explain the spatial organization of human and physical phenomena	The **gravity model** is useful in explaining interactions among networks of cities.	Players might be motivated to build larger cities by adding new tiles to incomplete cities in order to accrue more points from singular features.
9:2 Population distribution and density are a function of historical, environmental, economic, political, and technological factors	Population distribution and density affect the need for **infrastructure** and urban services.	Players build cities of various sizes and roads between cities to earn points.
10:2 Cultural landscapes exist at multiple scales	**Universalizing religions** are spread through expansion and relocation diffusion.	Players build cloisters and surround them with other tiles and features to earn points.
12:3 The spatial patterns of settlements change over time	**Rural settlement patterns** are classified as clustered, dispersed, or linear.	Features in the game will develop into patterns over the course of the game and can be compared to those of rural settlements.
12:4 Urban models are used to analyze the growth and forms of urban regions	Models that are useful for explaining the distribution and size of cities include the **rank-size rule**, the law of **primate city**, and Christaller's **central place theory**.	Players can analyze the distribution and size of cities completed in the game through comparison to existing models. For example, there are usually fewer large cities compared to smaller ones.
13:1 The functions and consequences of territorial divisions	**State morphology** has economic, political, and social implications.	Cities will take on different shapes based on the wall structures in the tiles. Players must choose how and where to build city walls, resulting in different morphologies.
16:2 The spatial distribution of resources affects patterns of human settlement and trade	**Von Thunen's model** helps to explain rural land use by emphasizing the importance of transportation costs associated with distance from the market.	Players earn points by connecting claimed fields to completed cities, thus building or claiming features based on relative locations with economic benefit in mind.

*Heffron and Downs 2012.
AP HG = AP Human Geography.

Concepts like accessibility may not be limited to specific features. For example, the river, once in place, will act as an intervening obstacle throughout the game. If a student places a farmer in a field to claim the feature, that field also may be cut off from cities (i.e., markets) not only by the river but also by city walls or roads placed by a competitor.

There is incentive to build longer loads or larger cities to generate more points per feature. This game play could lead to a discussion about the gravity model or the importance of infrastructure to urban functions. Conversely, a student may choose to simply complete one feature and move on to work on another. This decision-making process, based on observations over time and progress toward a goal, allows students to analyze these concepts through the simulation the game affords. This is the essence of human geography: While there are certain patterns and models that may predict human behaviors in space, we are driven by complex systems of motives and values and may change our processes or behaviors over time. This is well-simulated in the game and can provide for robust class discussion and reflection.

Summary

This lesson plan utilizes the tabletop game *Carcassonne* for student simulation of geographic principles at work in human decision-making. Playing games involves understanding the mechanics of the game and creating and implementing a strategy in order to overcome any obstacles the game presents in order to gain the most points and win. As students learn the complex mechanics of the game, they adapt and modify their decision making. Likewise, as humans study geography, we learn the complex mechanics of daily life at the small scale and the progress of society at the larger scale. As such, game play as in *Carcassonne* can be used to communicate geographic principles.

"... as humans study geography, we learn the complex mechanics of daily life at the small scale and the progress of society at the larger scale."

Lesson Overview

Carcassonne is a tile-laying game where players create landscape features such as cities, roads, cloisters, and fields. Game play allows students to simulate a number of specific geographic concepts over the course of the recommended 40-minute playing time. Given the number of urban and land use concepts most frequently cited during play, the game can be used to introduce a similarly themed unit or as an end-of-unit review.

Time Required

Approximately 70 minutes are required (10 minutes for introducing the game and explaining rules; 40 minutes for play time; and 20 minutes for reflection and debrief).

Preparation

Materials/Resources

A base game of *Carcassonne* that includes the river is needed for this lesson. Two to five players can join one game. For a class of 30 students, six game sets are necessary[4] or the instructor can modify this lesson to allow for team play.

Lesson Resources

Teachers may find useful the following background reading on human geography and urban and rural land use:

- Rubenstein, J. 2017. *The Cultural Landscape, AP® Edition: An Introduction to Human Geography.* 12th ed. Columbus, OH: Pearson.
- AP Human Geography Course Description: https://apcentral.collegeboard.org/pdf/ap-human-geography-course-description.pdf

On gaming:

- What is a Game? Crash Course Games #1: https://www.youtube.com/watch?v=QPqR2 wOs8WI&list=PL8dPuuaLjXtPTrc_yg73RghJEOdobAplG
- Ancient Games: Crash Course Games #2: https://www.youtube.com/watch?v=H1lv 3cOmlzM
- Board Games: Crash Course Games #14: https://www.youtube.com/watch?v=TVm4ck okD84&list=PL8dPuuaLjXtPTrc_yg73RghJEOdobAplG&index=15

On *Carcassonne*:

- Z-Mann Games–*Carcassonne*: https://www.zmangames.com/en/products/carcassonne/
- How to Play *Carcassonne* in 3 Minutes–The Rules Girl: https://www.youtube.com/watch?v=-74FYj21JVg
- *Carcassonne*–How to Play: https://www.youtube.com/watch?v=R1qh-lhxy9s

Objectives

1. Identify and explain four or more geographic concepts (i.e., key vocabulary terms) observed in, or closely related to, the game.
2. Reflect on strategies used during the game and connect those choices to at least two geographic concepts.

"Reflect on strategies used during the game and connect those choices to at least two geographic concepts."

Assignment Implementation

1. Prior to game play, students should be given an overview of the game. This may include having students watch brief, online videos that summarize the rules and mechanics of the game. Video suggestions are provided in the Lesson Resources section of this lesson.

2. As students begin group play, provide student assistance as necessary. Common problems include:
   - Failing to lay features in a contiguous fashion. A road tile must connect to another road tile or end in a city or intersection. Roads cannot end abruptly into an empty field, city center, or city wall. Rivers cannot flow from a city center into another city; rivers flow from spring to reservoir. A city must be surrounded by a single, contiguous wall (Figure 2).
   - Improperly placing game figures on a tile. For each turn, players can only place one follower on a tile, and it can only be the tile placed during that turn. Players cannot put multiple followers on a single tile, nor can they put a follower on a tile laid in a previous move, regardless of whether they or an opponent placed that tile (Figure 3).
   - Fixation with scoring points. While the object of the game is to win by scoring more points, the object of the lesson is to learn about human activities and patterns in space. As such, scoring can be ignored to keep the play flowing. However, if student motivation is enhanced by declaring a "winner," the instructor may still choose to have students score their game play.

Figure 2. Carcassonne tiles must be laid to create contiguous features. In this example, the city to the northwest and the road to the south are complete and accurate, while the center city feature is incorrect as it has no eastern wall.

Figure 3. Players may claim features when tiles are played on their turn. Multiple players cannot claim a tile claimed by another player. In this example, the city has been incorrectly claimed by two players.

- In addition to ensuring that game mechanics are functioning properly, the instructor should interject when a geographic concept is developing during game play. This may be accomplished by preparing a list of questions to ask students about patterns that arise during the game. Examples include the following:
  - If during the laying of tiles a grouping of cloisters appears, ask students why that might not happen in real life. A student might respond that Christianity, as a universalizing religion, would want to spread out its sacred spaces in order to reach more people. Conversely, students could note that they do in fact see churches clustered together in their own towns. Ask students why it would be beneficial to build several religious buildings, even of the same faith, in one place. Students might respond to this by noting that those religious buildings are built for people and will therefore be located where the population density is higher.
  - Find the longest road in play, complete or incomplete. Teachers may want to reference "infrastructure" as a vocabulary term and ask students their motivation for constructing such a long road. Beyond the fact that they drew the tiles at random and had to play them, there is also the motivation of accruing points. Ask students to consider why cities or states would be motivated in the real world to construct longer roads. Is it better to build long roads or short, more direct roads?
  - Look for oddly shaped cities. Have students connect these odd shapes to territorial morphologies. Which cities are compact? Which are prorupt? Which shapes are most common? Is it possible to build fragmented cities? Do these become city-states in this example?
- Students ultimately should be able to make observations and connections themselves and lead conversations with peers.

3. As an alternative to free play, students can be asked to play in such a way as to create a geographic conceptual outcome. Students can be given a geography word bank in advance of game play and asked to create or implement a number of these terms as they lay tiles. For example, if one of the concepts is *central place theory*, then a student might make a large city surrounded by multiple and roughly equidistant smaller villages. If the term is *intervening obstacle*, the player might use a road or the river to cut off an opposing farmer/player from connecting their fields.

4. After roughly 40 minutes, game play should be winding down either because the game has run its course or because class time is limited. As a game to be resolved in a single class meeting, students should play all tiles, score uncompleted features, celebrate their victories, and begin to clean up.

5. After game play, students should move to a structured time of reflection in one of the following ways:
   - Students can create key vocabulary lists during game play, individually or as groups, to document their observations. After all students have had time to create lists, have students share the key terms with the class (Figure 4). Ask students to define these terms, and then explain the definition using their game play experiences. Lists can be saved and shared as study tools or built upon in later classes.
   - Students can keep an individual "journal" in which they document their moves in writing and with photographs over the course of the game. The instructor may have students use these journal entries to describe specific moments in the game in which geographic concepts were best illustrated.
   - Students can be asked to design their own game in order to teach a specific concept. As *Carcassonne* can be tied to many different geographic concepts, instructors may have students use their game play experience to create a game around specific vocabulary. For example, students may be asked to add tiles or rules so that the game better
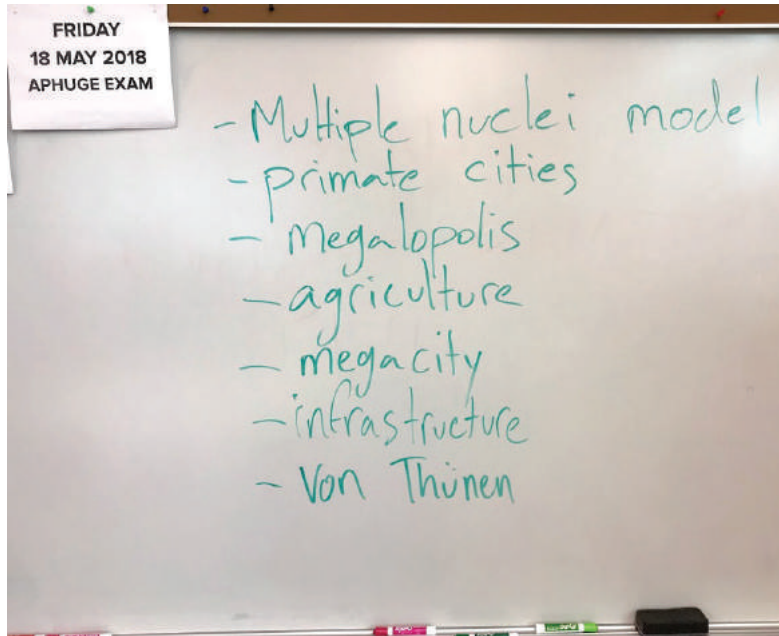
"Students can be given a geography word bank in advance of game play and asked to create or implement a number of these terms as they lay tiles."

Figure 4. During post–game play reflection, students offer—and then define—AP Human Geography vocabulary terms that they observed during play time. (Color figure available online.)

addresses urban land use models. Sample responses might be tiles with walls within cities to denote varying rings or sectors and figures of various sizes to communicate differences in socioeconomic status.

- Students can write a strategy guide based on a specific term or concept. Within the guide, students explain how specific terms or concepts can be used to the advantage of the player in order to win the game. For example, a student might write about how they used Von Thunen's Concentric Ring model as a strategy because farms only earn points in the game if they are connected to cities in the same way (nearest the market) as shown in the model. A student might also discuss how certain urban land use models do not apply to this game (e.g., points are earned only for city size and nothing is known about the socioeconomic makeup or spatial arrangement of the city). In these explanations, students can demonstrate knowledge of the game and, more important, the geographic concepts covered in the class.

Assessment

- Students are able to identify and explain four or more geographic concepts at work during game play (Objective 1). This can be performed informally during game play or through a brief discussion at the conclusion of play.
- Students are able to reflect on strategies used during the game and connect those choices to at least two geographic concepts (Objective 2) through the creation of a product. Products may include, but are not limited to, journals; strategy guides; a similar, original game; or a written response to a prompt such as an exit slip.

Notes

[1]*The Scrambled States of America* is manufactured by Gamewright. *Battleship* is produced by Hasbro; da Silva (2015) describes an electronic version of the venerable game along with other examples of digital games for geography teaching.

Acknowledgement

References

Bereitschaft, B. 2016. Gods of the city? Reflecting on city building games as an early introduction to urban systems. *Journal of Geography* 115 (2): 51–60.

Brysch, C., Huynh, N., and M. Scholz. 2012. Evaluating educational computer games in geography: What is the relationship to curriculum requirements? *Journal of Geography* 111 (3): 102–112.

Carbonell Carrera, C., Saorin, J., and S. Medler. 2018. Pokémon GO and improvement in spatial orientation skills. *Journal of Geography* 117 (6): 245–253.

Carnahan, L., Pankratz, M., and H. Alberts. 2014. Teaching physical geography with toys, household items, and food. *The Geography Teacher* 11 (3): 93–107.

da Silva, C. 2015. Interactive digital games for geography teaching and understanding geographical space. *Creative Education* 6: 692–700.

Davis, M. 2017. Ingress in geography: Portals to academic success? *Journal of Geography* 116 (2): 89–97.

Gaillard, J., and A. McSherry. 2014. Revisiting geography field trips: A treasure hunt experience. *Journal of Geography* 113 (4): 171–178.

Heffron, S., and R. Downs (Eds.). 2012. *Geography for Life*. 2nd ed. Washington, DC: National Council for Geographic Education.

Helburn, N. 1998. The high school geography project: A retrospective view. *The Social Studies* 89 (5): 212–218.

Hullett, K., Kurniawan, S., and N. Wardrip-Fruin. 2009. Better game studies education the *Carcassonne* way. *Proceedings of the Digital Games Research Association*. http://www.digra.org/wp-content/uploads/digital-library/09287.19006.pdf (accessed December 10, 2018).

Hupy, J. 2011. Teaching geographic concepts through fieldwork and competition. *Journal of Geography* 110 (3): 131–135.

Kim, M., and J. Shin. 2016. The pedagogical benefits of SimCity in urban geography education. *Journal of Geography* 115 (2): 39–50.

Lillard, A. 2005. *Montessori: The Science and the Genius*. New York, NY: Oxford University Press.

Mitchell, J., and S. Cutter. 1997. *Global Change and Environmental Hazards: Is the World Becoming More Disastrous?* Washington, DC: Association of American Geographers.

The College Board. 2015. Human Geography. Course Description. https://apcentral.collegeboard.org/pdf/ap-human-geography-course-description.pdf (accessed December 10, 2018).

World Without Oil. 2007. *World Without Oil.* http://writerguy.com/wwo/metahome.htm (accessed December 11, 2018).

Young, E. 2004. Chess! What is it good for? *The Guardian.* https://www.theguardian.com/science/2004/mar/04/2 (accessed October 26, 2018).

Michael Mewborne is the Education Programs Manager for the South Carolina Geographic Alliance. He earned his Master of Arts in Teaching at the University of South Carolina and later taught World Geography and AP Human Geography at Chapin High School in Chapin, South Carolina, and River Bluff High School in Lexington, South Carolina.

Jerry T. Mitchell is the director of the Center of Excellence for Geographic Education in the Department of Geography at the University of South Carolina and Coordinator of the South Carolina Geographic Alliance. He has been Editor of the *Journal of Geography* since 2010.