This issue includes six articles that provide a comprehensive view of the many possibilities offered by games. The authors offer valuable insights on what they believe can influence motivation and the cognitive process in formal and informal educational settings. These papers are essentially based on their experience and the collection of a significant amount of data, both qualitative and quantitative. They explain to which extent first- and second-order concepts can support cognition in arcade-style games (Moore and Hsiao), how user modeling can be applied in video games through personality types and learning styles (Quick, Atkinson, and Lin), how spontaneous learning activities found in Alternate Reality Games (ARGs) can be used to gamify classroom environments (Moseley), the lifelong educational and motivational benefits of participating in game jams (Preston, Chastine, O’Donnell, Tseng, and Macintyre), the importance of visually and emotionally realistic environments for crowd simulation (García, Fernandez-Robles, Larios-Rosillo, and Luga) and the complex (but rewarding) process of managing a multidisciplinary team for the design of educational games.

Together, these articles reveal how mainstream education can leverage implicit learning opportunities and mechanisms found in popular, yet under-used, gaming events and platforms such as game jams and ARGs. They show how emotions need to be accounted for the realistic simulation of human behaviors. The authors also demonstrate the importance of considering all stakeholders involved in the design process for GBL environments, including users (i.e., personalized approach), game designers and instructional designers, who often need to speak the same language, despite of different areas of expertise.

In the first paper, Moore and Hsiao provide a theoretical explanation of how concepts can be used to promote both game play and cognitive activities in arcade games; he explains the dilemma faced by game designers who wish to strike a balance between fun and learning objectives, and how this may be solved. Moore and Hsiao start by explaining the term concept, and reveal that conceptualization (e.g., classification of items) forms a significant part of a gaming experience. According to Moore and Hsiao, conceptualization can expand our working memory, because entities that are part of the same concept follow the same rules. Concepts can be acquired or discovered. While the acquisition of concepts is often employed in formal education, where concepts are defined, described, and classified, the discovery of concepts requires more cognitive resources, but can sometimes lead to misapprehension or oversight. Interestingly, concept discovery can...
be found in video games, where players have to implicitly identify, classify, and respond to different concepts such as enemies, or bonuses. Moore and Hsiao further examine first-order concepts, which are often used in arcade games, and they explain that, aside from improving the game play, these concepts have restricted applicability outside the game. The authors then provide examples of how first-order concepts can be implemented in arcade video games and argue that educational games need to use secondary-order concepts instead, because they can be used outside the game and therefore yield more educational benefits.

In the second paper, Quick, Atkinson, and Lin explore how personality types can be linked to players’ video game preferences. In one of the first studies of its kind, they analyze existing taxonomies for game design and players in MUDs (Multi-User Dungeons) and MMORPGs (Massively Multiplayer Online Games). The authors describe the limitations of these models (e.g., lack of empirical validation, or lack of applicability to several game genres and platforms) and explain how their study aims to address these limitations. Quick, Atkinson, and Lin then report on a study that included a wide variety of game genres. They describe a survey conducted with 293 students, where respondents’ personality traits and game preferences were measured. The authors performed both a cluster and factor analysis of the data collected, and found interesting results that corroborate and complement recent studies in this field. Based on these analyses, they identified factors that could explain enjoyment in video games, including fantasy, exploration, fidelity, companionship, and competition. The factor analysis, partially based on the factors determined in the cluster analysis, contributed to the identification of six main categories of players: dutiful companions, extraverted fidelitist companions, imaginative fidelitist companions, conscientious companions, introverted challenge-seeking companions, and calm challenge-seeking companions. The authors then compare their model to existing taxonomies; they explain the applications of their framework as well as its limitations.

In the third paper, Moseley analyses the features that engage players in games and explores how these could be employed in mainstream education. According to Moseley, gamification is becoming increasingly popular because it offers a simple and cheap means to bring motivation in the classroom and to make tasks more fun and engaging. In this article, Moseley focuses on ARGs (Alternate Reality Games), games that follow a low-cost format and which have successfully been used in several formal and informal settings. Moseley defines and describes ARGs as story lines, delivered in disparate pieces through different media types, which promote and support collaboration and cooperation between participants inside the game and enrich their lives. Moseley takes the reader through an interesting journey where he describes his growing interest in ARGs and the discovery of their potential for education. He presents the design and analysis of a survey he conducted with some players of the Perplex city ARG community, and that covers many facets of the rationale and benefits brought by ARGs. His analysis reveals interesting aspects of ARGs, notably that most players were not geeks, that they didn’t fit the long-lasting stereotypes related to addicted gamers, that they were playing the game for the first time and went online uniquely to play the game. Through the analysis of his survey, Moseley shows that ARGs deeply engage players over significant periods of time. Based on Moseley’s study, ARGs seem to become part of players’ daily lives, much more than a hobby, and sometimes “above other activities in the day.” Moseley also found that the most frequent and interesting activities in ARGs were related to solving puzzles, scoring points, communal activities, new challenges, narratives, leader boards, and prizes. He makes the point that, to be motivating, leader boards need to be combined with other activities, including assessment or prizes. Moseley also analyzed the educational aspects found in ARGs and discov-
ered that players instinctively learn new skills and knowledge in order to solve puzzles, by synthesizing new knowledge repeatedly, with most players spending 30 minutes per day, a type of engagement that many educators would like to see happening inside and outside their classroom. Moseley also noticed significant collaboration between players, a collaboration usually supported by strong scaffoldings and networks (e.g., forums, instructions on the website, or personal communications with other players). Contrary to other reports on online forums, this study showed that only 21% of players were lurkers (i.e., just reading, but not posting), suggesting that most players felt motivated and safe in this environment. According to Moseley, forums for this ARG formed a community of best practice where knowledge was shared through appropriate scaffoldings. Using insights from his analysis, Moseley explores how these motivational and learning aspects can be incorporated in formal education to make the learning process more engaging. He categorizes these opportunities as (1) problem solving at varying levels, (2) progress and rewards, (3) narrative devices (i.e., real or fictional), (4) influence on outcomes (i.e., in the game and the curriculum), (5) regular delivery of new problems, (6) potential for large community activities, and (7) the use of simple and already-available technologies.

In the fourth paper, Preston, Chastine, O’Donnell, Tseng, and Macintyre describe the organization of game jams, and their benefits at both educational and motivational levels. This unique piece of researchers explores how game jams are perceived. Preston, Chastine, O’Donnell, Tseng, and Macintyre describe the history of game jams, a relatively recent phenomenon, whereby participants can work in teams and create multiple games, using successive prototypes developed cyclically over 48 hours. These environments make it possible for competitors to “learn by doing” and refine their knowledge of development tools in a safe environment. Preston, Chastine, O’Donnell, Tseng, and Macintyre explain that, because players are naturally creative and inclined to expand their game worlds, they are naturally attracted to game jams. This interest in game jams can also be explained by the inherent features found in game jams, such as stimulation, challenge, negativity (i.e., possibility to deviate from the organized elements of the jam), exploration, cognitive synergy or danger. According to Preston, Chastine, O’Donnell, Tseng, and Macintyre, these experiences broaden participants’ skills and network, providing useful opportunities for their future career. The authors explain that, in addition to game development skills, jams also offer many educational opportunities such as creative thinking, or computational thinking. Preston, Chastine, O’Donnell, Tseng, and Macintyre then present the results of a survey on motivations to enter a game jam, and the perceived benefits on the part of the attendees. The results indicate that game jams are highly collaborative, that new jammers have a passion for making games; they are interested in advancing their skills, connecting with other peers in their field, and in gaining a better understanding of the game development process. The results also showed that non-jammers often don’t know about game jams, may lack time, are too far away from the game jams, or think they lack the necessary skills to enter this type of events.

In the fifth paper, García-Garcia, Fernandez-Robles, Larios-Rosillo, and Luga report on a project that aims to provide a realistic serious game simulation of massive evacuation, by increasing safety awareness and knowledge of the procedures for first-time responders. They explain that, while self-protection awareness has received great attention in the news, little has been done to research and find ways to educate and raise self-protection awareness, especially for events with significant numbers of attendees. García-Garcia, Fernandez-Robles, Larios-Rosillo, and Luga describe the design of a training and planning tool for first-time responder, that reproduces individuals’ reactions and psychological states in a realistic 3D environment. Their model includes trained and untrained individuals, with related perception such as senses or awareness of danger, knowl-
edge (e.g., short-term memory), and actions (e.g., goals, plans to achieve these goals, and resulting sequence of actions). The model also accounts for the factors that mitigate, enhance or enable behaviors, emotions or actions. Garcia-Garcia, Fernandez-Robles, Larios-Rosillo, and Luga also describe the instructional design strategy behind their project, as well as some of the gamification techniques used to enhanced engagement.

In the sixth and last paper, Chamberlin, Trespalacios, and Gallagher share their experience of designing and developing educational games using what they call the “Learning Games Design Model.” This practical and comprehensive paper provides a blueprint for those planning on forming a multidisciplinary team for the creation of educational games that are both instructional and engaging. Readers will find interesting templates that can be used to refine the educational objectives, and consequently guide and prepare the development team. The authors emphasize the importance of multidisciplinary teams for Game-Based Learning, and explain that there is little documentation or guidelines available for this purpose of instructional games, probably because game design is a complex process, and that there is sometimes a lack of understanding between game designers and instructional designers. While most approaches consider entertainment and instruction separately, the authors propose a model that integrates instruction and engagement seamlessly. In their model, all stakeholders are involved in the different phases of the design. Chamberlin, Trespalacios, and Gallagher review existing models for serious games design and identify three essential phases, namely, pre-development (i.e., forming teams, defining learning objectives, and experiencing each other’s perspective through play and reading), development (i.e., iterative prototypes) and final stages (i.e., summative evaluations and distributions). According to the authors, all members of the team should be involved in designing, testing, developing, or informing the development. In addition, Chamberlin, Trespalacios, and Gallagher provide a series of case studies where their model was used to create two games, Treadsylvania and Ninja Kitchen. For both projects, the authors define the objectives, the stakeholders, the different phases of the project, and the challenges faced by the team, emphasizing how the model helped to address these issues accordingly.

I hope that you find these articles both inspiring and informative.

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IJGBL