

## Red Cross --Why Games?

Since 2009, PETLab and members of the Red Cross have developed several game prototypes to address a variety of issues: games that connect action to the probabilistic elements of weather forecasts, games that demonstrate the benefits of energy-efficient cookstoves or the benefits of micro-insurance, and games that facilitate data collection in communities such as capacities for disaster response.

Games encourage empowered action and they generate shared experiences and discussions that are truly participatory. For humanitarian organizations and local volunteers it is an active learning experience; a playful dialogue about situated action rather than an abstract discussion or exercise.

Despite their usefulness, many people view games as a child's pastime, as a medium that is not serious, and is made solely for entertainment. This view is supported by media coverage of games, in particular videogames, where it's all about shooting space marines and adolescent fantasy. However, a longer view of game's role in society reveal that they are an ancient form that is found in almost every culture. The earliest evidence of games pre-date written culture, and indicate that they are a large part of cultural practice and making sense of the world.

### A (very) Brief History of Games

To ask what makes games useful in the humanitarian context demands a general understanding of what games are, and perhaps more importantly, what games *do*. Before we indulge in these definitions, however, it is useful to recognize the history of games. Many people are often surprised that games predate written history. The earliest games—or at least the earliest evidence of games—can be found in a set of ancient Sumerian dice from 5000 BCE. Ancient games are often affiliated with ritual, as they still are. Sports are ritualized, from the numbers passed down from player to player to the chants, signals and superstitions of fans. Historically, the ancient Egyptian board game *Senet* (3500 BCE), was depicted in hieroglyphs as a talisman for the journey of the dead. At the same time, ancient games can also reference everyday activities. The game *Mancala* (6 BCE) is an allegory for sewing seeds. There are many other ancient games, including sports and hunting games.

In *Homo Ludens*, the book many consider to be the seminal text on games and play, cultural theorist Johann Huizinga describes the relationship of play and games to civilization: *When speaking of the play-element in culture we do not mean that among the various activities of civilized life an important place is reserved for play, nor do we mean that civilization has arisen out of play by some evolutionary process, in the sense that something which was originally play passed into something which was no longer play and could henceforth be called culture. The view we take in the following pages is that culture arises in the form of play, that it is played from the very beginning. (1938)*

Games are reflections of culture – both are played. Play mediates different aspects of culture, allowing us to engage in activities that reveal broader themes. As games evolved through

history, we see how such games as *Chess* (6 AD) represent notions of war and strategy; while ideas of hierarchy and value and, literally, the court, are depicted in a traditional deck of cards. Many of these games, which are still in play today, carry different cultural associations and purposes. As they evolve, their original meanings dissipate and other cultural associations take their place. Two interesting examples of this exist in the board games *Life* (1860) and *Monopoly* (1902). Both were designed as polemic games aiming to teach life lessons or provide political commentary. *Monopoly*, originally called “The Landlord’s Game” by its creator, Quaker and political activist Elizabeth Magie, was meant to show the negative results of monopolies (by rewarding them, a puzzling strategy). *Life*, created in 1860 by Milton Bradley, carried with it a strong moral message about work and family, with players either ending up in “happy old age” or, simply, “ruin.” These early examples of popular board games are interesting precursors to serious games – the kinds of games we’re using in humanitarian contexts.

### Defining Games

The first thing to recognize about games is that there are many things that fit the category of ‘game,’ but there is no single set of characteristics that form a game. Just like art: one can use the term categorically, but on closer examination there are many forms of art. Games have, as Wittgenstein has said, “family likenesses”:

*We are inclined to think that there must be something in common to all games, say, and that this common property is the justification for applying the general term ‘game’ to the various games; whereas games form a family the members of which have family likenesses. Some of them have the same nose, others the same eyebrows and others again the same way of walking; and these likenesses overlap.* (1958, p. 17)

Despite the challenge defining games, it is helpful to have a provisional definition, if only to realize that a definition of games, like a definition of art, is simply a description and not a strict boundary. We could start and end our search for a definition with Katie Salen and Eric Zimmerman’s attempt from their seminal book *Rules of Play* (2003). In it, they look at definitions from game scholars and theorists and from these definitions, form an aggregate one: “A game is a **system** in which players engage in an artificial **conflict**, defined by **rules**, that results in a quantifiable **outcome**” (emphasis added). This definition gives us some elements to consider. The first is the notion of games as systems. The second is the idea of conflict. The third is the concept of rules and the fourth is the idea of a quantifiable outcome. For each of these concepts, we will adapt Salen and Zimmerman’s elements of games to a definition that is more descriptive of what games *do* in the context of humanitarian work. We propose that it is the active and dynamic nature of games with different contexts that underpin their usefulness in the humanitarian ecosystem.

### Games as Systems: Modeling Complexity

Ancient Sumerian dice might be one of the most enduring technologies in our culture. In addition to being very similar to dice still used today, the forms of thinking they enable, such as understanding randomness, probability, and odds, persist in the most advanced videogames today. Ultimately, games embody many of the same ideas they did 7000 or more years ago.

Games help players make sense of the complexity of systems by placing us into the system as an active participant. In other words, *games model complexity*. It is the paradoxical relationship between the simplicity and stability of a game's rules and the complexity and dynamism generated by playing with a game's rules that creates the experience and excitement of a game.

Games are perhaps the most suitable medium with which to describe systems. When we play a game, we interact with a dynamic system and we learn to think and act systemically. Many scholars and learning theorists have identified "systems thinking" as one of the more important strategies for connecting knowledge to action (Forrester, 1999). Scientist Peter Senge defines systems thinking as "a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots" (2006). In addition to Senge, Donella Meadows' work has been highly influential for these projects. Meadows worked with Jay Forrester, the originator of Systems Dynamics, a methodology for framing and understanding complex problems (1961). By understanding the systemic aspects of a problem, whether it be climate change, early warning communication systems, or the logistics involved in aid, one can find 'leverage points' in the system where intervention will have the most impact (Meadows, 1999).

This may be one of the primary differences between games as entertainment and games in the humanitarian context. Learning how interventions in a system create emergent outcomes, and mapping those outcomes onto a real scenario, provides us with a glimpse of the system's complexity. In other words, games are simplified models of reality that generate surprising complexity. It's important to recognize that games, as systems models, are just that—models. Meadows reminds us of this in her posthumously published book, *Thinking in Systems: A Primer*.

*Remember, always, that everything you know, and everything everyone knows, is only a model. Get your model out there where it can be viewed. Invite others to challenge your assumptions and add their own. (2008)*

While games can model reality, playing a game is an active engagement with a system isolated from the consequences of the real world. In the book *Man, Games and Play*, sociologist Roger Callois describes one of the requirements of games as being inconsequential and that this is key to our enjoyment of them (1961). They are models, and can be treated as such. When we fail in a game, it has little real consequence in the world outside the game. This is essential to our enjoyment of a game: when we fail we learn something new about the game and ourselves. Game theorist Jesper Juul has found that good games that challenge us and allow us to fail, thereby forcing us to change our habitual modes of thought (2009). Games provide us with a model world in which iterative failure and eventual success becomes the only way to progress and learn how its systems work.

Games are the medium of systems and models that generate complexity. They engage us as active participants in that system, and teach us how the system works through the feedback of failure and success. This is one reason why games can be so useful in humanitarian work. They provide a context for experimenting with strategies and attempting to

apprehend problems through a low-consequence representation—a systemic representation. We iterate through strategies and learn from the game as it provides us with dynamic feedback. Using the metaphor of holistic medicine, games treat things systemically and not symptomatically. The action research model and the VCA also approach problems in this holistic way, searching for solutions through iterative, empirical, and participatory methods. Humanitarian work involves systemic features such as feedbacks, trade-offs, delays, and unanticipated “side effects,” all suitable for exploration through games (Gonçalves 2008). This affinity among games, systems, and the participatory methods used to understand them, provides us with one reason games are gaining traction in the humanitarian context.

Games provide us with the rare opportunity to fail without consequence, receive clear feedback about our performance and try again, as many times as we like. This is what makes them so well suited to humanitarian purposes. In essence, games are practice for many aspects of life.

-----NOTE -- there’s much more to say, but we could end here (Colleen)

### **Conflict: Contesting Assumptions**

The notion of conflict or challenge is central to games. Without it, the game wouldn’t exist. In sports, we create challenge through physical constraints—get the ball in that hole over there, but hit it with a tiny stick past sandpits and bodies of water (Suits, 2005) In card games, we test our abilities to remember and predict, to make decisions based on uncertainty and hidden information. In board games, we navigate spatial puzzles, attempting to gain a strategic advantage and capture territory or the other player’s pieces. In videogames, we react to quickly coordinate the eye and hand, we solve puzzles involving interlocking blocks, or we play together to overcome large challenges in virtual worlds. In this way games are similar to many narrative forms—both involve some form of conflict.

In the humanitarian context, I would like to focus on what the conflict in the game enables players to do: *contest*. If we use the noun form of the word we describe a game-based competition between players. But if we consider the verb form of contest, a game enables us to challenge assumptions or test, through the game’s challenge and by challenging the game, the effectiveness of our actions. Whether players are learning to solve problems within the game or to confront the sometimes dissonant relationship between the game and reality, they are contesting relationships between the game and reality by testing how the results of their actions within the context of the game might map onto their actions in real life. Games provide a framework to contest and ask the questions: How close is the game’s scenario to our own experience? Does it challenge our assumptions about the relationships between action and outcome in reality?

Games involve logical systems, or rules, that provide the context for the challenge and provide players with an indeterminate script that they must fill in. A game’s rules lead to unexpected and emergent outcomes; actions that the designer never anticipated. This emergent quality of games is one of their most unique characteristics, and emergence is enabled by rules.

## **Rules: a Game's Grammar**

Rules are the most basic elements of games. To learn how to play a game, we first read the rules, are taught them by an experienced player or, in the case of videogames, we learn them through trial and error by the feedback the environment provides. One of the most interesting paradoxes of games is how rigidly defined rules lead to expressive and innovative forms of play. We push against the boundaries of the rules to gain an advantage (*Soccer's* fake injuries) and interesting behaviors emerge because of them (bluffing in *Poker*). This generative aspect of rules provides special challenges to the game designer. Designers create the rules for a game, but it is often difficult to understand how different players will interpret them. Rules create emergent play, and that emergence is often unpredictable. This necessitates “playtesting”, the process of testing a game to understand its emergent properties. A designer iterates between playtesting and prototyping to craft the game and the player experience.

One of the challenges of designing games is to create rules that lead to certain aesthetics. Chess is a game that has pieces that each can only move in certain ways. It is turn-based, leading to extended ponderous games (correspondence chess, for instance) or tensely timed competitive chess. Boxing, on the other hand is decidedly not turn-based—the action unfolds as fast as boxers can move, and speed and power are the dynamics of the game. Chess-boxing, a sport popular in Germany, plays off these two very different dynamics, challenging a player's physical and mental endurance. The rules and elements of a game combine to create an aesthetic effect. A tool that designers often employ is the “Mechanics, Dynamics, Aesthetics Framework”, or MDA (Hunicke, LeBlanc, Zubek, 2004). The mechanics are the rules, or in other words, the kinds of actions permitted by the rules of a game. Dribbling and passing a basketball, or the queuing order of blocks in a game of Tetris are mechanics. Dynamics are the emergent conditions of the game, such as a fast break in basketball or the emergent play involved in managing the relationships between pieces in Tetris. Dynamics are the phenomena that occurs between the game's mechanics and players experiences. Finally, Aesthetics are the emotional and experienced qualities of the game. A game can be fast-paced and high-scoring like basketball, or can increase in suspense and tension, like a Tetris end-game. When designing a game, rules provide the foundation for a game's mechanics, dynamics and aesthetics—they are the game designer's primary expressive tool.

For games in the humanitarian context, we can think of rules as a kind of grammar. In addition to containing many of the generative and aesthetic aspects of rules, a grammar allows for the development of a language. The language, in the case of humanitarian games, is a language of action, one that can be adapted to the local context but can still retain its basic structure. Using the word grammar to describe how rules function also emphasizes the different expressive potentials of a language, from poetic (literature, storytelling) to pragmatic (legal documents, policy) while still following the same grammatical structures. This translates to games' ability to describe different types of content through a shared structure, the structure of rules.

## **Outcome: Measuring Impact**

A final element in Salen and Zimmerman's definition of games is outcome, which in many games is measured by wins or losses, and in some games might simply be measures of progress or performance (beating one's own time, for instance). One of the most important aspects of game design is to develop clear feedback systems that tell the player how well they are doing and how close they are to the goal(s) of the game. Outcomes point to an essential aspect of games: they are interactive. The game is responsive to our actions, and our actions are influenced by the game. Outcomes, whether it's the final outcome or the current state of the game, provide players with choices to make. Strategy in a game is primarily the attempt to obtain a positive outcome by making choices based on the information the game or other players are providing us.

Outcomes are possibly the most controversial aspect of games as participatory tools for humanitarian purposes. Many people are concerned about the fact that most games have definitive winners and losers. But this concern can be addressed. There are cooperative models for games that place everyone in collaboration to defeat the game system itself. In the board game *Pandemic* (2008), players cooperate to cure diseases and keep them from spreading. In sports and physical games cooperation is often found within teams, but there are some cooperative examples of sports, such as hacky sack, a game where players cooperate to keep the ball aloft as long as possible. Whether the game is cooperative or competitive, outcomes are an important measure of performance. In fact, to measure is an activity mirrored in the humanitarian context: from measuring the way funds are being used to measuring the effectiveness of programs. A unique aspect of games is that they contain both a learning context and an assessment of how well players are able to meet the game's challenge (and in essence, learn how to play the game). In the games *Ready!* and *Before the Storm* the game also enables data collection and measurement. For instance, a feature of *Before the Storm* is to write in ideas for actions to take in response to weather forecasts. These actions provide a measure for both Red Cross volunteers and the community of their capacity to act, and of new ideas the game may uncover.

Games model the complexity of systems and help us model complexity. They allow us to fail in a way that contests our habitual modes of thought and try on new strategies, they allow us to compress or extend time and test our predictions, and finally, games, when they're well designed, are engaging. They draw us into a new situations and give us permission to play—to take risks and explore the boundaries of a system. Play is the one term Salen and Zimmerman exclude from their definition (although their book explores this topic thoroughly). Play is important enough to the nature of humanitarian games and games in general, however, that it must be addressed.

### **Play: Motivation and Engagement in Systems-thinking**

Now that we have a history and definition of games, I will state the most obvious, and most ineffable quality of them: they're *fun*. Or, at least, one might say that good games are fun. The term, 'fun', is difficult to accurately define. It is an imprecise term, and, perhaps most importantly when discussing games in relation to the important work of disaster preparedness

and risk reduction, the notion that these serious games are fun can be received with suspicion. In this case, I like to reference game designer and theorist Raph Koster's simple definition: "Fun is just another word for learning" (2003). In papers referencing the Games for a New Climate initiative, the term 'engagement' is often used in place of fun. I think this is a good replacement term and in many ways a better description of the quality of fun that these games encourage. For the humanitarian sector and the individuals I have been working with at the Red Cross, the fact that games provide more engagement than powerpoint is an oft-cited advantage: "Games with an underlying serious purpose can speed up learning, dialogue and action on climate risks, engaging people's minds and emotions, in sharp contrast to unidirectional learning through traditional lectures and PowerPoint presentations" (Bachofen, Suarez, Steenbergen, Grist, 2012). With engagement as a starting point, let's look at what creates that engagement: play.

Play is another misunderstood term associated with games. Our cultural associations with play are that it is what we do when we are not being serious. We place play into a counter-relationship with work. Johann Huizinga's study of play in culture arrives at a subtle distinction that places play in a completely different category than seriousness. He says, "Play is a thing by itself. The play-concept as such is of a higher order than is seriousness. For seriousness seeks to exclude play, whereas play can very well include seriousness." (Huizinga, 1938) The idea that play can include seriousness is fundamental to the idea of play as a learning disposition. It's a responsive position, one that prepares us to engage in the present situation. Playing a game involves shifting strategies when our current strategy isn't working—it is a dynamic approach to problem-solving. John Seely Brown, former chief scientist at Xerox PARC, connects this playful attitude to the contemporary issues we face as a society:

*...the importance of play is now of paramount importance throughout our lives. The reason for this is we're now living in world with exponential and continuous change. We're not just living through a transition; we have transitioned into always transitioning (as quoted in Chaplin, 2012).*

While all games provide some form of learning, different games emphasize different skills. Basketball hones our teamwork skills and physical agility. Chess develops our ability to imagine future states of the game and predict our opponent's moves. Games of chance teach us the often harsh lessons of probability. Videogames develop eye-hand coordination, but they also encourage an experimental mindset, learning the rules of the game through trial and error by taking action and risks in the game world. Games provide us with the rare opportunity to fail without consequence, receive clear feedback about our performance and try again, as many times as we like. This is what makes them so well suited to humanitarian purposes. In essence, games are practice for many aspects of life.

### Fit at the Red Cross

The VCA and the subsequent organization-wide shift to participatory program creation and assessment set the stage for the use of games for Disaster Risk Reduction. *Ready!* was directly inspired by the "Brainstorming" and "Ranking" methods from the VCA to highlight the

possible actions a community can take before or during a disaster. The action research orientation of the VCA also provided our Red Cross collaborators with a familiarity in iterative and empirical methodologies. This was important to prime the Red Cross for our collaboration, because the process of game development necessitates the iterative method. A game must be tested with players in order to understand possible emergent strategies and the overall aesthetics of the game.