Oh, the Thinks You Can Think: Language Barriers in Serious Game Design

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Abstract

It is well-known that problems in interdisciplinary communication between knowledge communities can seriously hinder innovation [5, 21, 22, 24]. The games studies community is a highly interdisciplinary community, and there are, not surprisingly, regular terminology debates that question the definitions of some of our most fundamental terms such as 'game' and 'simulation'. While game analysis and criticism for the purposes of social and humanities research may not require direct collaboration between disparate disciplines, game design does, especially when the game is being designed for serious purposes. This paper is a discussion of some of the accepted meanings of key terms, discuss some of the implications of an inability to agree on the meanings of basic terminology and offer several strategies to address this problem.

INTRODUCTION

"Everyone should have his own point of view." said Alec.

"Isn't this everyone's Point of View?" asked Tock, looking around curiously.

"Of course not," replied Alec, sitting himself down on nothing. "It's only mine, and you certainly can't always look at things from someone else's Point of View. For instance, from here that looks like a bucket of water," he said pointing to a bucket of water; "but from an ant's point of view it's a vast ocean, from an elephant's just a cool drink, and to a fish, of course, it's home. So, you see, the way you see things depends a great deal on where you look at them from. Now, come along and I'll show you the rest of the forest."

Norton Juster, p.107-108, "The Phantom Toll Booth" [15]

Are we building a game or a simulation? Are digital games more like traditional board games, face-to-face play, theatre, or something else? Is "Serious Game" a misnomer? Does it matter?

It is well-known that problems in interdisciplinary communication between knowledge communities can seriously hinder innovation [5, 21, 22, 24]. The game studies community is a highly interdisciplinary one, and there are, not surprisingly, regular terminology debates that question the meanings of some of our most fundamental terms: game, simulation, system. While game analysis and criticism for the purposes of social and humanities research may not require direct collaboration between disparate disciplines, game *design* does, and this is especially crucial when the game is being designed for serious purposes because design teams for serious games will often involve multiple subject matter experts (SMEs) and other professionals from multiple disciplines. These papers is a discussion of some of the implications of an inability to agree on the meanings of basic terminology and although it is too soon in the evolution of game studies for a solution to be offered, a heightened awareness of the issues are essential, and several strategies to address this problem are offered.

WHORF-SAPIR AND GAME DESIGN

'Language shapes the way we think, and determines what we can think about.'

'We dissect nature along lines laid down by our native language. Language is not simply a reporting device for experience but a defining framework for it.'

~ Benjamin Whorf

Human language is a highly contextual symbol system and is generally accepted to influence how we make sense of the world [27]. We use

language to represent concepts, ideas, things, and so on. BUT, language is also routinely vague and ambiguous [13], SO in order to use language as a tool for communication, we need to use words that all participants understand in the pretty much the same way. For example, when the same words are used to mean different (even slightly) different things, we experience what Shaw and Gaines have referred to as conflict [3]. "Game" for example can be understood in many ways and although many interpretations may be equally valid, the design process is likely to proceed along divergent lines if one group envisions *Who Wants to be a Millionaire* [10] as their idea of a game and another envisions *The Elder Scrolls IV: Oblivion* [1]. As interdisciplinary work becomes more and more common, we will experience these clashes more and more often. In game design, some organizations simply keep the groups separate and solve their problem that way. Some game companies have artists working in one place and programmers in another. This arrangement works for them and they only need one or two people who can translate. Unfortunately, this sort of setup doesn't work so well (generally speaking) in collaborative research or serious game design efforts. These are both tasks that require knowledge experts, often from radically different traditional bases and backgrounds. This is a good thing in many ways, but it also leads to problems. Using words that have pre-existing but different meanings for different communities can cause significant difficulties. In order to communicate effectively, we need a common language.

For example, suppose we are building a learning activity that encompasses introductory activities, the use of a digital object (the program that some would consider the 'game') and a de-briefing activity afterwards. The software developers who actually implement the program that is the digital object would likely refer to just the digital object as the game, the company marketing the product may wish to call the entire unit a game, and the teacher/facilitator leading the instructional intervention may not consider any of it to be game-like. Who's right?

The answer may well be no-one, and everyone. Although this may appear on the surface to be a cop-out, when dealing with interdisciplinary work, it is important to acknowledge prior or accepted meanings of terms without judgement. However, simply acknowledging or honouring difference will not get us very far. Ultimately we use these words to communicate ideas and we in turn use

those ideas to make serious games. Terminology debates get in the way of that.

WHAT IS A GAME?

"We cannot define anything precisely! If we attempt to, we get into that paralysis of thought that comes to philosophers, who sit opposite each other, one saying to the other, 'You don't know what you are talking about!' The second one says 'What do you mean by know? What do you mean by talking? What do you mean by you?', and so on."

Richard Feynman (1963)

Is a game still a game when it is not being played, and can anything become a game if we play with it? A precise definition of 'game' is well beyond the scope of this paper, but a working understanding would seem essential for any members of a development team engaged in making one.

In his classic work, "Homo Ludens", Johan Huizinga defines a game as, "a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is different from ordinary life1" [14]. Clark Abt defines games as "an activity among two or more independent decision-makers seeking to achieve their objectives in some limiting context" [4, p.6]. Katie Salen and Eric Zimmerman [23] describe games as systems that can be considered in at least three ways: as rules (closed systems), as play, and as culture (the way the game exchanges meaning with the culture at large). Brian Sutton-Smith suggests that each person defines games according to his (or her) own perspectives [26], and Jesper Juul says in order to be a game it must have rules, quantifiable outcomes, with different values over which players have influence and to which the player feels emotionally attached, and that the consequences of the game must be optional and negotiable [16]. We all have some sense of what constitutes a game, yet coming up with a clear and precise definition is difficult.

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1 I was unable to find the exact location of this quote within the book. This excerpt is repeated from an online paper by Julien Kücklich 17. Kücklich, J. Play and Playability as Key Concepts in New Media Studies, Dublin City University retrieved from:
http://www.playability.de/Play.pdf on June 2004, 2004

The lack of a definitive statement on the nature of games should not prevent us from examining games, or from building them and using them as tools for other purposes. Games, however difficult they might be to define, clearly exist. A definition that is too broad, such as one that implies anything we treat as a game becomes one is not useful, and a definition of game that is too narrow excludes development choices that might otherwise be beneficial. A development team must be clear on what it is building and yet retain sufficient flexibility to allow innovation.

SIMULATION VS GAME

You can know the name of a bird in all the languages of the world, but when you're finished, you'll know absolutely nothing whatever about the bird... So let's look at the bird and see what it's doing -- that's what counts. I learned very early the difference between knowing the name of something and knowing something.
                                                            ~ Richard Feynman

Common sources of friction and debate, especially in serious games are the relative definitions of the terms 'simulation' and 'game'. In other words the distinction between these two entities is a source of contention. One line of reasoning argues that digital games are a form of software that belongs to the larger category of simulation programs. According to the computer simulation community, (digital) simulations are based on models that have some degree of consistency - some set of rules we can describe, and some sort of purpose. Models are abstractions. There is no precondition that the model must be based on reality. For other communities like Education however, simulations necessarily model reality and are distinct from games, which do not [11]. Perhaps reality and abstraction are seen as mutually exclusive. They need not be, as it is possible to create a totally fabricated set of rules for a totally hypothetical system made up in a dream and it can still be modelled using a simulation. In other words, it's still a simulation.

The (digital) simulation community has been doing computer simulations since the beginning of computing [12], and simulation, modeling and gaming have always been intertwined [7]. Those of us from other communities, including education and the military only see the tiniest sliver of what the computer simulation community is doing, but we might be surprised at how many simulations went into the design and development of many of our everyday items, from cars, to drugs, to food. There are, of course many different types of simulations (stochastic, discrete, continuous, distributed,...). By this classification, most games fall under the subcategory of discrete event simulations. While by far not all simulations are games, in this community all games are simulations.

If one looks at the algorithms of a digital game (i.e. one that is not a digital version of a traditional game) - those algorithms that actually make it behave the way it does - one will find that they are in fact simulations. It is certainly true that most games have some aspects that classical simulations normally lack, but that does not make them something other than simulations. If one adds software or devices to a computer to allow it to be used like a television, it does not stop being a computer. Similarly, if one adds a front end onto a simulation to overlay contest mechanics and allow people to interact with it as a game, it is still a simulation. Interestingly, the computer simulation community does agree that there are some things about games that make them a distinct sub-class of simulations, so it's not as though it's all one amorphous happy family. However, what they see as a difference has nothing to with the game or contest elements - or reality vs. fantasy - it has to do with the use of peripheral devices.

PHILOSOPHICAL PERSPECTIVES

The fundamental thing about human languages is that they can and should be used to describe something; and this something is, somehow, the world. To be constantly and almost exclusively interested in the medium – in spectacle-cleaning – is a result of a philosophical mistake.
                                                            Sir Karl Popper

Is a game only a game when people are actively playing it? Should a Fisher-Price stacking toy be re-classified as a weapon if some wacko uses one to choke someone by shoving it down their throat? Should cars be classified as weapons because they are sometimes used in hit and run incidents? These propositions may well be interesting and worthwhile philosophical exercises but when it comes to actually building something, it is problematic to classify objects by their use as opposed to their original intent (i.e. the one intended by the designers/creators). Now, that's not to say that the classification of a particular object must be static and permanent, but classification by use puts us in a potentially difficult position if we are designing and

developing a game. What should we call a game that has not yet been played? The *SIMs* [28] and *Katamari Damacy* [2] remain entertainment games, even when used in educational contexts. *Oregon Trail* [18] remains a serious game, even if I play it just for fun.

In a serious game development always keep the goal of the development project in mind, including who it is for and what they are supposed to be getting out of it. Philosophical questions can be both entertaining and emotionally charged so keep the goals as concrete as possible. "A lot of the conflicts between the humanities and sciences have to do with big worldviews and not small everyday problems. You may not be able to convince your colleague that your metaphysical assumptions are better than theirs, but you may still find that you can come to agreement about ways to interpret concrete problems that everyone has experience with. Staying in the concrete keeps the argument from devolving to the 'does the table really exist, or is it only a social construction?' kind of arguments that don't seem to get anyone anywhere" [24].

THE PROBLEM WITH REALITY

The relativistic perspective implies that there can be no true objective reality. A potential difficulty with the reference to 'reality' in simulations is that many people take it to mean a reality necessarily connected to what we currently know about the world. It is then further restricted by **their** reality. What we currently know about the world is a moving target. Data about the moon were hypothetical (i.e. **not** based on reality) in the early part of the 20th century, theoretical in the middle of the 20th century and observed in the later part of the same century. Does that mean that the programs written to model the moon were **not** simulations until we had actually been there?

Here are some difficulties that come with hinging a definition of simulation on an adherence to reality:

Problem 1: Whose reality? What is reality? Objective? Subjective? There are no clear answers to these questions: philosophers have been grappling with this for millennia - in a way it is the central question of philosophy.

Problem 2: Perceptions of what is being simulated are contextual and depend on your perspective. One point of view may see *World of Warcraft* [8] as a simulation of a social economy while another can only see a fantasy.

Problem 3: Any (complex) system can be viewed at various levels of abstraction. Different levels of abstraction reveal different aspects of the system. *Tetris* can be seen as a model of a packing problem, or as a wholly artificial game.

Ultimately, this reality problem may actually be at the core conflict between the way different groups use and perceive these terms (simulation / game) We say "A reality"; they hear "THE reality". In Educational Technology, there is a notion that fidelity is a measure of 'realism'. A question that follows from this is, is something classed as real because we have seen and touched it, or because we "believe" it to be real? If so, a Venus 'simulation' cannot be a simulation because it is not real - we have never been there. Venus is a real place, but some of what we know is theoretically determined (i.e. not real), and much of it is deduced from indirect evidence. I would not class it as a game, but if games have to have competition, and simulations must be real, where does that leave the Venus model? Is it sufficient to be based on a mathematical model? What about quantum computing? Are we saying the models we implement of quantum devices and elements are NOT simulations? They are largely based on mathematical theory, but we have no REAL quantum anything to simulate.

A truly realistic simulation does not exist, although some flight trainers, etc. are pretty good. Simulations all require abstractions - abstraction permits chess to be seen as a simulation of territory, and monopoly to be seen as an abstraction of real estate development. It also permits *World of Warcraft* [8] and *Everquest* [3]to be abstractions of society, and *Pikmin* [19] to be an abstraction of resource acquisition. Snooker is a physics game; sandcastles are architectural models. There really is no conflict with this view. In fact, it broadens the spectrum to allow for legitimate applications of models and activities in learning situations that might otherwise never be considered.

WHY IT MATTERS

The chief virtue that language can have is clearness, and nothing detracts from it so much as the use of unfamiliar words.
                                        ~Hippocrates

Unfortunately, when different expert groups use the same terminology but mean different things, there is conflict [25], and progress not to mention effective communication is impeded.

While some groups can argue quite effectively that games and simulations are distinct (and this perspective must be seen as valid), when it comes to building serious games, as long as games are seen as a different category from simulations, there is a tendency will design, use, assess, and value them differently. It is hard to see how this is useful.

One consequence of a distinction between simulations and games is that some educators use this as a justification to dismiss the educational potential of some games because the story is rooted in fantasy. Tying simulations to reality limits their applications. It can end up being a way to restrict imagination and creativity. In some ways it is the grown up equivalent of telling someone she can't colour the trees in her drawing purple because real trees must be green. These distinctions often come as a result of value judgments that are being made. A particular application can be seen to have intrinsic merit due to it being classified as a simulation, but something else is "just" a game and therefore lacks merit. Placing games as a sub-category of simulations means we would now have to judge some simulations as OK and others as not, which is harder to justify, but which might turn out to be a more productive discussion.

Margaret Gredler the author of the games in simulation chapter of the Handbook of research on educational communications and technology published by the Association for Educational Communications and Technology [11] defines games as "competitive exercises in which the objective is to win and players must apply subject matter or other relevant knowledge in an effort to advance in the exercise and win." She also claims that "bells and whistles" should be minimal and fulfill no important purpose. She finds it problematic when learners are led to enter incorrect answers for the sounds or graphics. These distinctions create a division between both the applicability and perceived value of a program used for instruction depending on whether it is categorized as a game or as a simulation. It also implies that trying some action in order to "see what happens" is undesirable. It is certainly possible that this is not a distinction between objects, but rather a design decision. If the reward for an incorrect answer outweighs that for a correct one, the gameplay is poorly designed (unless you are actually trying to

tempt them for a reason). Dr. Gredler also claims that players should not loose points for incorrect answers as this is not conducive to effective learning. One of the most significant lessons we are learning from game design is that participants both welcome and expect consequences to poor choices in a game. No risk, no gain. Games are a great way to acquire subject matter knowledge, not just to apply it.

DIGITAL VS NON-DIGITAL

"When I use a word," Humpty Dumpty said, in a rather scornful tone, "it means just what I choose it to mean -- neither more nor less."
"The question is," said Alice, "whether you can make words mean so many different things."
"The question is," said Humpty Dumpty, "which is to be master -- that's all."
        -- Lewis Carrol, "Through the Looking Glass"

However we eventually resolve our communication issues, different groups still need to communicate. In order to do so we need a *common* language or at least a shared understanding, which is something we don't currently have.

Some have suggested that digital games are a logical evolution of traditional games or that computer games are simply a digital form of traditional face to face training exercises. Although the fields are related and there is some overlap, there are also significant differences. There is a different body of literature (and researchers) dealing with digital games as opposed to traditional games. Some see a continuum. Making it digital changes things.

This author is suggesting there is a difference - in terms of the play experience, what is required to support the game, what players can and cannot do, and possibly other things as well. For example, one can cheat at solitaire when playing with a deck of cards. One cannot cheat when playing solitaire on the computer, or at least, not in the same way. There is also a whole different dynamic on the computer vs. with a physical deck. If digital games were simply a variation on traditional games, one would expect that the population of gamers and the population of traditional game players would be similar, yet the overwhelming popularity of digital games confirms that this cannot be the case. Playing Canasta, with real cards and everyone in the same room is a different experience from playing over the net with just a computer simulated deck, which is also different from sitting someplace around a table (or what-have-you) in Second Life with other avatars.

There are some games that only exist as computer games such as *Tetris* [9], *Super Mario* [20], *Katamari Damacy* [2], and in fact many commercial video games could not be played without the help of a computer. MMOs have some similarities with both traditional paper-book-and-model RPGs as well as LARPs (live action role play), but there are also significant differences (player location, number of participants, non-player rule structures and enforcement to name a few). Wii sports is part simulation of the real sports they represent, part something else. Watching those little baseball players run around when they have no legs is kind of odd, no?

Digital games, board games, and classroom training simulations may all be rightly called games, but if so, it is akin to saying that a paint brush, a riveting press, and an MRI machine are all tools. There is value in understanding commonalities between different forms of games, but failing to recognize the differences prevents designers and developers from taking full advantage of the medium.

CONCLUSIONS

Language is by its very nature a communal thing;
that is, it expresses never the exact thing but a
compromise - that which is common to you, me,
and everybody.
        ~Thomas Earnest Hulme, Speculations, 1923

Most scientists realize that definitions cannot always be black & white, and defining a category does not preclude the possibilities of grey areas or entities that don't quite fit the definition. The fact that viruses are neither living nor non-living does not prevent us from using a definition of life that is useful.

Viewing something as a hybrid gives one access to perspectives and tools that one does not have if one simply views it as a continuum. It's kind of like genetics: donkeys and horses are quite distinct although they share some qualities, they are very different in other ways. You cannot handle, train, or even feed them the same. A mule may look like one point along the continuum, but is in fact parts of each - there is no continuum. Understanding the behaviour and needs of each parent helps understand the behaviour and needs of the hybrid.

One of the biggest problems in the segregation of games from other simulations is the lingering connotation in some circles (such as formal education) that simulations are OK, but games are frivolous. A consequence of this is that the distinction allows certain applications to be legitimized or dismissed merely by attaching one or the other label. Simulations are academically or educationally acceptable and games can be dismissed or trivialized. There is a noticeably negative view of games in both Gredler's [11] and Alessi & Trollip's [6] writings.

Short of creating a whole new vocabulary, there are still some general guidelines [24] that can help keep discussions on topic: minimize discipline-specific jargon, explain terminology as you understand it and qualify statements (justifications based on logic help to clarify perspectives but avoid value judgements about the correctness of one view over another), refrain from politics (unless of course the game being developed is a political one), and avoid assumptions about shared worldviews and remain in the concrete. Finally, do not expect to create converts to your perspective – focus on the shared goal of the project.

We need to develop a common language, to be sure, but it would be discouraging to see multidisciplinary synergism turn into yet another monolithic discipline where membership hinges on adherence to dogma.

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