Applying a phenomenological approach to games analysis: A case study

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One expressed need in computer games literature is for intrinsic evaluation methodologies and workable operational research procedures to evaluate subjective game-play experiences and judgments and other user "pay-offs." A phenomenological methodology provides an appropriate "bottom-up," subject-centered, inductive, and empirically driven research approach. However, a need exists for case examples and specific methods to follow on how to apply a phenomenological methodology to games research. The authors offer a case study of how they used it to develop and test evaluation criteria for games, illustrating their analysis with examples from two studies where 25 participants played, then analyzed, offline adventure and role-play computer games. The authors' evaluation approach offers bridges between the design and analytical sciences. It contributes to the analytical sciences by attempting to identify theoretical principles for evaluating quality in narrative adventure and role-play games. It contributes to the design sciences by supplying findings expressed as design principles for games improvement.

KEYWORDS: *analytical science; design science; games; narrative; phenomenological methodology*

Game researchers complain of "theoretical imperialism" within games research, that is, the uncritical adoption in games analysis of methods, analytical tools, and interpretive approaches developed for other media texts. Aarseth (2003) reflects that instead of treating the new phenomena carefully, and as objects of a study for which no methodology yet exists, frequently games "are analyzed willy-nilly, with tools that happen to be at hand, such as film theory or narratology" (p. 1). Kücklich (2002), referring to narratological theoretical approaches to games research, claims that they "failed to yield valid results because they could not 'read' the games they were studying. Literary scholars were simply too absorbed in these fantastic worlds to pay attention to the rules governing that (game) universe" (p. 1). Essentially, they fail because they try to fit their subject of study to the theoretical frame, instead of vice versa. Fewer scholars than before now believe that they can just take their "ready-made theories off the shelf" and "project them blindly to computer games" (Eskelinen, 2004, par. 6). Nevertheless, some of the rich body of theories already developed for other media texts should be applicable to games. However, which are? We discuss a case study of how a phenomenological methodology correlates narrative theory elements with aspects of players' game-play experiences, to establish the relevance of narrative theories to a game artifact.

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A heated and sometimes acrimonious argument erupted in the late 1990s and continued into the early 2000s in games literature over this issue (the uncritical application of *narrative theories and analytical tools* to games research) and a second issue concerning the *place of narrative* within games. (This distinction is between the use of narrative analytical tools for investigation versus the usage of narrative elements within the games themselves.)

The second issue concerns a sentiment within one camp of the game-development community that issues of narrative are secondary to game play, an idea that goes so far as to suggest that the play starts when the story stops. Such a sentiment risks that the narrative is being sidelined in games, inhibiting its maturation. For instance, Laramee (2002) complains, "Sadly, game plots have rarely risen above the level of the B movies of the 1940s and 1950s," as he criticizes the attitude that "we are making games, not stories" (p. 270). Games may not be narrative, but adventure and role-play games do contain narrative elements, and the important question should be, How can narrative be integrated into games to create a good quality experience?

Before continuing, a brief note on the type of games we study in this article. These are large-scale offline adventure and role-play computer leisure games (TOMB RAIDER is a well-known example from the adventure genre), which have a gradually unfolding, prewritten, central narrative. Certain goals must be achieved to complete the central story, although side quests are usually possible.

Bridging between design and analytical science

A better awareness of the use of narrative in current games (diagnosis of what narrative elements can be employed and where) is needed before lessons for improving the quality of these narrative elements (improvement prescriptions) can be drawn from the large body of preexisting literature on narrative (such as creative-writing guidelines) developed for prior media.

Some characteristics, used to define traditional narrative, are as follows: time (Branigan, 1992), causal and contingent relationships among events (Chatman, 1990), change (Rimmon-Kenan, 1983), and causality (Branigan, 1992; Ricoeur, 1976). Narrative has also been defined in terms of linked events or by their internal dynamics: in Todorov (1971/1977), as a movement from equilibrium through disequilibrium to a new equilibrium; in Bruner and Lucariello (1989), as a form centering on conflict and trouble; in Bielenberg and Carpenter-Smith (1997), as the interaction of action, character, conflict, and genre. In Bordwell (1985), it is further defined as a communication conduit and as a particular representation, structure, and process. Even the briefest consideration of the multitudinal, "high-level" nature of these "defining" variables suggests why evaluating narrative presents a challenge for any media context, including games. Narrative elements or characteristics are not simple entities at the end-unit level of deconstruction, but highly complex ones, so more detailed specifications, properties, or concrete examples of how they may be shown in games are needed. Locating it becomes problematic when narrative can embed, or be embedded

by, nonnarrative entities such as argument or description, or when it can adapt itself to diverse circumstances, fictional or nonfictional representation, genre, and media. The analytical science community, attempting to investigate narrative in games, needs to first identify and locate it.

This article describes a process developed specifically for game analysis: a process for analyzing players' responses to sample offline narrative games, aimed at identifying criteria by which players assess designs. It uses a phenomenological methodology that rejects a priori theorizing and uses inductive analytical methods to select aspects of preexisting narrative theories on the basis of their pertinence to users' empirically derived subjective judgments of games.

A difficulty with using phenomenology is that it developed as a high-level philosophical approach or methodology[1] rather than a research technique or method; therefore, researchers must develop their own specific research plans within phenomenology's more general doctrines, philosophical and methodological precepts. Polkinghorne (1989)[2] stresses the point that phenomenology is more a philosophical approach or methodology than a research technique, saying that although a number of researchers have developed methods based on the conceptual tenets, these methods

> based on phenomenological principles . . . function as general guidelines or outlines, and researchers are expected to develop plans of study especially suited to understanding the particular experiential phenomenon that is the object of their study. (p. 44)

However, there are insufficient examples to follow in games research literature, and one of this article's central contributions is a case study of how a phenomenological approach can be applied in games research.

Analytical and design approaches

In a series of two studies, loose conversational data (transcribed from audiotaped group discussions of people's analysis of their experiences with games) were deconstructed and design guidelines articulated and tested. Insofar as results were both diagnostic and prescriptive, we suggest that our research straddles analytical science and design science approaches.

In distinguishing the analytical sciences from the design sciences, we mainly follow Klabbers (2003a, 2003b, 2004, 2006 [this issue]) and aspects of van Aken (2004).[3] The analytical sciences characteristically develop, test, and justify theories; outcomes tend to be used diagnostically or descriptively—they focus on how and why things work. The design sciences build and evaluate artifacts for well-defined contexts of use. Their usability is the evaluation criterion for their success. Design science outcomes tend to be used prescriptively, focusing on answers to what should be done. We extrapolate on these characteristics and suggest that the design sciences are concerned with human interventions to develop or improve an artifact, whereas the analytical sciences need not be interventionist. Design sciences are thus more

application-oriented than analytical sciences. Furthermore, it is important to note that these distinctions are differences of emphasis and goals; they are not absolutes or mutually exclusive. As Lee (2000) says, in the design sciences, "it is still important for a theory to explain and predict a phenomenon, but it is less important than the instrumental use of a theory to build a system" (p. vii).[4]

Now, game designers need prescriptive guidelines for artifact construction or improvement, but those guidelines must be backed up by empirical evidence. A large body of primary qualitative data was gathered in a series of mini focus-group interviews, in which 12 participants analyzed their experiences playing four commercial adventure games in a controlled environment. Study objectives were to understand what features appeared to produce cognitive, emotive, or sensory engagement in participants' reactions to narrative multimedia designs, and what criteria they used to discriminate between the perceived qualities of their experiences. Although loosely following Moustakas (1994), we adapted and extended from his guidelines by developing our own process for implementing phenomenological principles within this study.

On the basis of this first study, a series of tentative evaluation propositions was framed that it was hoped would be applicable to similar game products within the adventure genre. These propositions are prescriptions for good design, to be used during formative evaluation. They link an intervention with a desired outcome or performance in narrative games and, thus, contribute to the design sciences.

A second study was later designed to test the results derived from Study 1. Study 2 captured users' experiences of a different set of computer games and then explored their reflections on the appropriateness of the Study 1 proposed evaluation criteria for narrative role-play games.

The empirically derived findings are used as the basis for calling on related theory. Theoretical considerations are examined in conjunction with the findings to ask which aspects of narrative are being invoked in narrative games and what are operational or empirical definitions, or examples, of their existence? The operational specifications and delineation of narrative features in multimedia, although not exhaustive, provide a number of solutions to the question of defining and locating narrative elements and theories in games. This contributes to the analytical sciences.

We position our approach to developing testable principles or propositions for games design, development, and evaluation within the science of design for two reasons: the first is that their goal is prescriptive; the second is that the causal model used to induct the study outcomes, process theory, is more widely used in the design sciences. We try to explain "how the inputs and outputs are related, rather than simply noting the relationship" (Crowston, 2002, p. 151), as variance theory does.

Conversely, we position our approach to selecting narrative theory as analytical science, partly because its causal model is variance rather than process (and partly because these outcomes are descriptive and diagnostic rather than interventionist). Our goal, at the stage of analysis we undertook, was to identify elements of narrative theory pertinent to users' empirically derived subjective judgments. Thus, we looked to identify correlations between empirically derived variables and narrative theory variables—a variance view of causality. However, our means of identifying the narrative theory,

devices, or structures that may be causally affecting game quality is bottom up and inductive, rather than following the "deductive-nomological" theory of causation, as denoted by Hempel and Oppenheim (1948).

Having identified which aspects of narrative theories or models are relevant to users' game experiences (analytical science), a further research goal would be to establish what lessons can be drawn from them (design science evaluation mechanisms for games improvement), for instance, from literary criticism or creative fiction writing, to aid game designers, thus transferring from description to prescription, bridging from the analytical to the design sciences.

The inductive means of identifying theories on their correlation to game players' subjective responses ensures a close fit between the preexisting theories and the game texts they characterize, avoiding criticisms on this issue mentioned previously. As Frasca (2003) points out, the role of narrative in games is beset by misunderstandings and misconceptions that need to be resolved, and a core issue, as he and others see it, is coming to an agreement about terms (i.e., the specification of narrative and narrative elements within games).

Case study of research design and analysis

First, we describe our overarching research design and questions to place the discussion of the analysis we designed into context.

We carried out two studies. Study 1 yielded a series of user-engagement propositions for testing and refinement in Study 2. In both studies, participants played a series of games before participating in mini focus-group sessions to analyze their experiences in an open-discussion framework. We conducted the studies to explore user engagement in narrative adventure and role-play games (the genres considered most likely to contain significant narrative presence). Specifically, these studies aimed to answer the following questions:

Question 1: What are the factors affecting engagement in multimedia CD-ROM games?
Question 2: Can assessment criteria of benefit to game designers be drawn from the answers to Question 1?

In Study 1, 12 participants were divided into five groups to play and discuss the following commercial adventure games in a controlled environment:

- BROKEN SWORD II: THE SMOKING MIRROR
- ECSTATICA II
- DISCWORLD II: MISSING PRESUMED
- THE CURSE OF MONKEY ISLAND

In Study 2, the proposed evaluation criteria emerging from Study 1 were tested and refined. Three role-play games were selected to reflect a quality spectrum to ensure a broad range of responses from participants.[5] Thirteen participants (in groups of 3, 3, 3,

and 4) played the games in a series of sessions before engaging in recorded group discussion. The games were as follows:

- GOTHIC
- MIGHT AND MAGIC IX
- MORROWIND

Once the results are analyzed and reported, we ask a third question:

Question 3: Which aspects of narrative are being invoked in narrative games and what are operational or empirical definitions, or examples, of their existence?

The analysis loosely follows Moustakas's 1994 phenomenological inquiry, in particular the Stevick-Colaizzi-Keen method of analysis, which he created by adapting the work of other researchers. This advises to obtain a full description of the experience of the phenomenon, using a phenomenological approach. From the verbatim transcript, complete the following steps:

- Consider each statement with respect to significance for description of the experience.
- Record all relevant statements.
- List each nonrepetitive, nonoverlapping statement. These are the invariant horizons or meaning units of the experience.
- Relate and cluster the invariant meaning units into themes.
- Synthesize the invariant meaning units and themes into a description of the textures of the experience. Include verbatim examples.
- Reflect on your own textural description. Through imaginative variation, construct a description of the structures of your experience.
- Construct a textural-structural description of the meanings and essences of your experience.
- Finally, construct a composite textural-structural description of the meanings and essences of the experience, integrating all individual textural-structural descriptions into a universal description of the experience representing the group as a whole.

However, this guidance for a number of these tasks is fairly general and brief. We needed more specific structure and procedures for some of the analysis tasks and, to this end, we developed our own means of deconstructing data in a manner aimed at isolating players' assessment criteria and our own process for building up, incrementally modifying and testing those criteria, which we now explicate.

The process we developed for isolating players' assessment criteria is now delineated.

Phase 1: Collecting primary data

A concrete experience of games is an important beginning point, because even though reasonably experienced game players may be selected as participants and so have game experiences to draw on, shared concrete references aid group discussions. The game playing is followed by small group open discussion sessions where participants explore their positive and negative reactions, impressions, and quality judgments.

TABLE 1: Unitary Statement: D13

Participant 10:	"Whenever you hit someone for the first time they bled. There was no need for that. You need that to be the big killer punch or something."

TABLE 2: Unitary Statement: D14

Participant 9:	"I thought WARCRAFT was really good when I started playing it and then it was, like, what's next—and nothing. You've got bigger ships and bigger guys . . ."
Participant 10:	"Yes, everything bigger."
Participant 9:	"Yes, but there is nothing new, nothing new at all. You've found it all out. You then get magic spells which is just another weapon—there is no real challenge there."
Participant 10:	"It's all basically the same."
Participant 9:	"Yes, but it's the same thing amplified."

It is significant that Study 2 discussion sessions were extended to include a separate and final phase in which the propositions (summaries of assessment criteria) developed in Study 1 were discussed. By this means, Study 2 results could be used to test the Study 1 propositions both implicitly and explicitly.

Phase 2: Creating manageable units for analysis

A large body of transcribed conversational data must be reduced to manageable units for analysis. To this end, each statement in our study was coded alphanumerically by the transcript it came from and by its sequential occurrence within the transcript. The basic units for analysis were one sentence or a sequential series of sentences, referring to the same experience, object, event, or idea. For example, the comment in Table 1 is demarcated as a unitary statement (a unit of meaning for analysis) because it deals with a single concern (in this instance, an undesirable aspect of one of the games played) and also because comments immediately before and after can be identified as addressing something slightly different.

The next unitary statement in the session, D14, is seen to address a subtly different point (see Table 2).

This snatch of dialogue is demarcated as a unitary statement because of its sustained concentration on a central, single concern and also because its subject marks a slight shift from the subject of D13. In D13, the subject dealt with a game's inappropriate response or feedback to the particular action of a player; in D14, the subject moved subtly to a criticism of games where difficulty level does not grow to maintain challenge as the player progresses through the game. It makes up one analytical unit, with sentences united by their shared referent, "challenge."

Unitary statements are thus sentences in sequences, referring to one object—an experience, idea, event, or dimension—that provide analytical, evaluative, interpretative, experiential, and *accompanying* behavioral information on the experience. Behavioral information alone ("I chatted to the skull . . ."; "The monsters chased me . . ."), which

does not provide insight into the meaning of players' experiences or offer analytic or evaluative insight on game design, is not used for further analysis.

Phase 3: Deconstruction of unitary statements

In our study, preliminary analysis was carried out on the independent statements. They were then clustered and analysis was continued with the grouped material. An advantage to creating deconstruction tables for each unitary statement before clustering is that diverse terms, reflections, and analytical angles are already developed prior to seeking commonalities within grouped critiques.

A deconstruction table for the unitary statement is created. The statement is considered from four points of view, within four *channels*. Notes are made against each channel heading. The channel headings are as follows:

Referent: what the statement explicitly refers to as a participant's declared concern or interest. It summarizes the problem or issue addressed.

Reason: any suggestion by a participant to explain his or her reasons for concern or interest in this matter.

Solution: any suggestion by a participant as to how an expressed difficulty might be resolved or improved—otherwise, any such suggestion by the researcher (and indicated as such).

Proposition: a tentative proposition or guideline based on consideration of the table's foregoing content. The proposition abstracts any "lesson" or evaluation criterion from the critiques.

The next example shows the deconstruction table for one unitary statement (see Tables 3 and 4). Note that a degree of creative suggestiveness is used to explain or codify participants' expressed preferences and behavioral motives.

The purpose of these channels is to explicate each issue being critiqued: in phenomenological terms, to separate the noema from the noesis. The *noema* is what is perceived, remembered, or felt or how something is judged. The roots or *noesis* of an experience are the reasons for what is experienced.

Phase 4: Clustering

Deconstruction tables now include source statements and any preliminary analysis carried out on them. They are moved as one unit into clusters.

Units are clustered by content comparisons in the proposition channel, that is, by similarity of any lesson or evaluation criterion within that channel. Although much of this process is done in one phase, we found that continued analysis revealed emerging patterns or, similarly, relatedness or difference, requiring the later addition of new clusters or the shifting of units that more properly belonged to another cluster.

The purpose of clustering is to take a multitude of variations of a phenomenon and to focus on what is unchanged in the multiplicity. Phenomenologists call that which is continually maintained during the variation the "invariant."

TABLE 3: Unitary Statement

C254:	"I noticed if you walked past the people and you have walked past them before, they just shout the same thing at you and I am sure they have a greeting, 'Hey Outlander!' or 'Hey Stranger!' but they do it every single time you walk past. You would like them to actually remember that you have walked past them before. That is the case in MORROWIND. It takes the realism out of it a bit."
C256:	"I have played games before where maybe they had ten different things to say so the first time you walk up to them they say, 'Oh, I can have you!' and the second time they say, 'Are you joking, leave me alone!' and the third time they say, 'I am starting to get annoyed. Can you leave me alone!' They remember that you have been to them before and therefore if you keep going up and up and up they say, 'Go away,' or whatever, because they realize that you are just pestering them."
C257:	"It's not taking away from the realism of the game because that is what someone would do."

TABLE 4: Deconstruction Table

Referent	(negative symptom) Users unhappy with recurrent dialogues containing no indication of any previous histories. The recognition of players' input is limited.
Reason	Characters are seen to be obviously programmed entities rather than characters with some appearance of responsiveness. The computer nature of the medium is obvious. There is regurgitation and unnecessary repetition of material. (Circular repetitious movement rather then movement forward, losing the dynamism contained therein.) Example of poor interaction.
Solutions	Conversations should not repeat word for word what was said previously.
Interim responsiveness of the environment proposition	Dialogue that has been accessed by the user should not (unless perhaps something within it is needed afterwards?) repeat. Memory of interaction could be built into programming and game characters should show their responses to it within their dialogue.

Phase 5: Analysis of clusters

A summary proposition statement, or lesson, written for one unit within a cluster is incrementally modified, extended, or negated based on consideration of other statements.

The following is a walk-through of the development of one proposition entitled "Spatial Clueing." Consideration of the following unitary statement (B10) began the analysis (see Table 5).

Table 6 is the deconstruction table for that statement.

The next unitary statement (A36) in that cluster is in Table 7.

Table 8 is the deconstruction table for this statement.

The two proposition channels were compared to produce an interim proposition statement (see Table 9).

Other unitary statements, such as the following (C97), also fed into this proposition (see Table 10).

TABLE 5: Unitary Statement: B10

"For the time frame, MONKEY ISLAND was the easiest because it was a lot more linear than the others. With the others, one would probably have to go to a different part of the scene to solve a puzzle in another area. In MONKEY ISLAND, everything seemed to be scene-based, everything one had to do was within that scene. It was a lot clearer."

TABLE 6: Deconstruction Table for B10

Referent	The participant likes that all the tasks to be completed are held in one scene. What they have to do (and it is hypothesized what resources they must find to do it) are clear. They liked a certain amount of linearity where tasks to be done at one time are held in one space.
Reason	(hypothesized) The resource space for achieving the goals is contained in one area. This eases problem solving.
Solutions	The spatial design may be structured to restrict the game play space (i.e., items for one task may be found in one room only).
Proposition	The domain space for exploration should be restricted. All the tasks to be completed at one time (and hypothesized: resources for them) are better held in one space.

TABLE 7: Unitary Statement: A36

"In DISCWORLD, you found yourself wandering off into places you didn't really need to be because you didn't have a clue where you were going. You were on one side of the land when you were supposed to be on the other."

This and other unitary statements refined this emerging proposition. Table 11 shows the final Study 1 proposition.

Now, the Study 1 proposition can be considered based on critiques of three other games (GOTHIC, MIGHT AND MAGIC, and MORROWIND). Players agreed with the above proposition, offering their own examples of how and why spatial constraints should be implemented, indicating that they helped to supply interim closing points to structure the experience, they imposed a linear order to some events, and they enabled random discovery. However, players' commentaries indicate that, with regard to random discovery in large spaces, spatial containment is not the only solution (see Table 12).

Desiring techniques that make random discovery possible, players suggest the highlighting of essential objects when approached, with reservations about departure from realism giving way to the need for greater playability. The interim Study 1 proposition statement above is revised to take account of this (see Table 13).

The outcome of cluster analysis, this proposition, is checked once more against the clustered material to ensure that it satisfies the following criteria:

TABLE 8: Deconstruction Table for A36

Referent	Player wanders aimlessly around many locations in the game. They are trying to "happen on" information on where to go or how to proceed.
Reason	Noncontainment of problem space; environment too large (i.e., clues on where to go don't seem to be provided).
Solutions	Containment of space (i.e., random searching within one room).
Proposition	Unless causal or logical threads are otherwise provided (i.e., if the search for clues, tasks, or goals is completely random), then the problem space should be contained.

TABLE 9: Combined Proposition Channels on Comparing B10 and A36

Proposition	If the search for clues, tasks, or goals is completely random, the domain space for exploration should be restricted. All the tasks to be completed at one time (and hypothesized: resources for them) are better held in one space.

TABLE 10: Unitary Statement: C97

"You have to complete something to get onto the section (in the game TOMB RAIDER)—near enough in each section—it sort of near enough leads you there away. The puzzles aren't going away over that side of the country to find something—it's there somewhere if you figure out what to do with this brick or whatever. It leads you to where you are supposed to go."

TABLE 11: Interim Study 1 Proposition

Spatial containment	For problem solving by end users in multimedia, the environment within which discovery must occur should not be too large, when discovery of solutions is random. It should be contained. This focuses searching. Devices commonly used for containment are spatial (e.g., rooms, island, or scenes).

- It is capable of explaining other statements on that issue.
- Goodness of fit: It completely explains a phenomenon (including, for example, if a factor is cited as influencing appeal, then more of that factor is expected to increase appeal and less should decrease appeal).
- There exist supportive examples but no negative examples.
- No rival explanation meets the above criteria.

If it does not account for all the collated unitary statements, the proposition is rejected or modified (e.g., by including the negative instance to delimit the proposition's applicability).

This task of checking the proposition against all the textual material/data to see if it is consistent with this data, asking, "Does the proposition work for the new data?," becomes deductive logic, briefly.

TABLE 12: Unitary Statement: B272

"What I didn't like about MIGHT AND MAGIC was that after you killed the monsters, you didn't see the little bags of gold. I didn't pick that up until I had done it twice and I picked up one of them because you couldn't see them. I just noticed a bag there and I thought, 'What's this?' and I picked it up and it was gold. In GOTHIC, they flash at you. You see them miles away—whether it is a sword or an arrow or a berry. Another example of that is in BALDUR'S GATE. You have got your wee pointer and you just moved it across the screen and anything you could pick up, it lit up as it passed over it. If you could open a barrel or if you could open a chest it would light up, instead of having to meticulously check everything. You just put the pointer over everything and it lit up if you could pick it up, or use it, or interact with it in any way."

TABLE 13: Final Proposition

Spatial clueing	When random discovery must occur (i.e., items essential to game play must be found, but the player is not explicitly informed of this), devices must be used to ensure that the players can find them. Two such devices are containment of the space, so that random searching occurs in a smaller or directional space, and the highlighting of items to be acquired when approached.

Phase 6: Imaginative variation

Imaginative variation is a stage in Moustakas's phenomenology, which follows the main analysis phase. It involves varying concrete examples, imaginative possibilities, questions, other contexts, and situations that relate to the findings within imagination and intuition, to refine the picture of the experience. In our studies, we considered each proposition in terms of other contexts, theory, and thus possible refutation and, on this basis, made a few refinements or restrictions to an aspect of a proposition.

Phase 7: Textural and structural synthesis

Each proposition is a short summary statement of one criterion by which players are deemed to be judging quality. This loosely corresponds to Moustakas's structural synthesis of the meanings or essence of the experience. An explanation of the game conditions, and the players' rationale that gave rise to it, loosely corresponds to Moustakas's textural synthesis. In our report, we lifted the textural synthesis from the referent, reason, or suggested solution deconstruction channels and illustrated them with participants' quotes.

The process outlined above used participants' reactions to narrative multimedia designs to deliver a set of tentative evaluation propositions identifying criteria participants perceived to discriminate between the qualities of their experiences.

Phase 8: Toward bridging between design and analytical sciences

The analysis of user responses up to this point centered on framing assessment criteria to aid game designers. It yielded prescriptive design-science outcomes.[6] Having

completed this phase, we could then address the next question. This was of a descriptive analytical science nature: Which aspects of narrative are being invoked in narrative games and what are operational or empirical definitions, or examples, of their existence? It arose because many of the characteristics commonly used to define narrative are abstract and conceptual, presenting difficulties in defining it and locating it. To answer this question, we correlated elements mentioned in players' subjective judgments with narrative-theory elements (which, thus, might be said to be significant to the game players).[7]

Examples of correlations follow. (Note that what we call "traditional narrative" is simply a working label to facilitate the reference to "norms," features of a narrative that are common to many traditional narratives, but certainly not all. For instance, in film or literature, many of the experimental movements experiment by breaking conventions, or normal patterns within their medium, yet they may be "high art." Their defining characteristics are their deviations from the standards currently operating.)

A. For instance, we can say that character development, an element of traditional narrative, is significant to players:

"Did you ever see a film called 'The Thing'? It's a very good film with Kurt Russell. He doesn't know who to trust and the game is the sequel of that. It's about what happens after and the people around you are reacting to your actions, because they don't know who to trust either, so if you act irrationally like shooting your gun off or pointing your gun at them for no real reason, they will start to get agitated and annoyed, until finally they just destroy you completely and kill you. So they are acting directly to how you are acting. So if you give them weapons, they will trust you more."

Game characters' psychological traits such as trust, suspicion, anger, rudeness, goodness, or badness are mentioned by players and enjoyed by them when they become the basis for behavior, relationships, and feedback received.

B. Players desire direction on where to go and what to do and restrictions on accessing certain locations or challenges until they have the experience or resources to deal with them.

"In GRAND THEFT AUTO the bridge is damaged so you can't move to the next level until that bridge gets repaired and you can't jump it or anything. In Red Alert there was certain areas that you could go into but if you went into them you got a warning saying: "Danger—Do not enter!" You enter anyway and you get killed. About twenty people would come down to shoot you. Later on when you got better armour and better weapons you could go in but not at that time. I thought that was a nice touch. So don't go in here or you will get killed but once you get to a certain technological level you can go in then, so it keeps the missions linear."

We therefore can say that some linear structure is significant to players. Linear structure is a characteristic of traditional narrative.

This finding is interesting given that a requirement to follow a predetermined pathway is heavily criticized by a number of game theorists because it restricts players' freedom and choice. Although our players did want to feel free to choose their own pathway, they did not want complete freedom, without direction:

> "There are some games like DISCWORLD where you just run about and do whatever you want but you need to follow some kind of structure to progress in the game. You can run about but you need that wee bit of linearity to go on in the game. You sort of need to be pushed in certain directions because you could spend two hours running about and not get anywhere . . . a wee push in the right direction. . . . Not completely, like."

Some linear elements are desirable, and we can locate them as restrictions on accessing certain areas, and direction:

> "Generally through these three games it has all been people standing at bridges or at various interfaces throughout the game. It all tends to be people telling you what to do. They are guiding you on your way and without them it would be aimless—just wandering about. It's them that are adding the variety to the game and guiding you, letting you know what the effect is supposed to be and how you are going to achieve it."

C. Another narrative element that players mention is a background story. They discuss MORROWIND, in which the main character wakes up as a prisoner, and "it is sort of a quest to find out who you are, so that sort of would keep you hooked a wee bit because you would want to know what happened, how you started out on that barge or whatever as a prisoner." This background story intrigues them: "You don't know what you are doing and that's the fun in it. You don't know where you have come from." It adds some complexity and depth. "It gives you more things to think about where you come from and stuff."

These are simply a few examples that begin to define and locate narrative elements in games.

Now, we could move on to the next question: What additional evaluation criteria may be drawn from narrative theory to aid game designers? These criteria may be listed together with those drawn from the analysis of user responses to complete the evaluation.

Thus, phenomenological approaches to game-play artifact testing enable testing for the existence of narrative theoretical elements.

Conclusion

In our case study, we analyzed game players' reported experiences (relating to subjective affects, gratification, desires, wish fulfillment, interpretation, logic, strategies, and positive and negative reactions) and framed criteria by which the players judged those games. We articulated these criteria as propositions to be used prescriptively in adventure and role-play leisure games evaluation. Given that phenomenologists are expected to develop their own research plans according to phenomenology's theoretical tenets, the process that developed the results should be useful to illustrate how a phenomenological methodology may be implemented. To supplement the more general guidance for phenomenological data analysis given in Moustakas's Stevick-Colaizzi-Keen method, we added our own deconstruction process (splitting critiques into referent, reason, suggested solutions, and proposition channels) and reconstruction process (writing a tentative statement of the evaluation criterion and building it up by content comparisons of the lesson or evaluation criterion in the

proposition channels of other critiques on that issue). We thus offer a treatment for deconstructing and reconstructing data systematically, pivoting on the lesson/evaluation criterion in the proposition channel. Our case study illustrates where and how a phenomenological methodology might assist the development of games research methods.

Both analytical-science descriptions and design-science prescriptions for good narrative design are needed to deliver good-quality narrative and so that the narrative form can evolve in the new media (computer games). Many narrative theories already exist, but the discussion in the introduction shows the distrust of theory testing by game researchers, when the relevance of the theory to the artifact has not first been established. *Implicit in our approach has been the conviction that narrative theory testing should begin with game artifact testing*. Our case study illustrates how a phenomenological methodology can establish such relevance, using a variance theory model of causation. This inductive, reception-driven, data-centered approach (where analysis is driven by the game experience itself and narrative elements correlated with elements empirically judged to relate to game artifact/play experiences) helped us to identify elements of narrative theory in role-play and adventure games.

Furthermore, a rich body of preexisting narrative construction guidelines (e.g., fiction writing guidelines) also exists, which can be harvested to yield prescriptions on good narrative to assist game designers, but it is essential that an analytic, descriptive framework of traditional narrative elements in games be established for designers to consider prescriptions for good narrative based on them.

The distinguishing feature between the design and the analytical sciences that we mainly focused on was whether the research outcomes were prescriptive, that is, intended to intervene, versus descriptive, that is, intended to analyze and diagnose rather than intervene. We show how a phenomenological approach can create a cycle of cross-fertilization where one feeds into the other: where prescriptive outcomes (what lessons can be drawn from user responses to aid designers) are used to produce descriptive outcomes (what elements of narrative theory are found in user responses), which in turn can yield prescriptive outcomes (what lessons can be drawn from narrative theory to aid designers). By building bridges between these research outcomes, we begin to build bridges between the design and the analytical sciences.

Notes

1. Phenomenology is alternatively classified as a philosophy, a perspective, a paradigm (Patton, 1990), a philosophical doctrine about philosophy (Pettit, 1969, p. 40), or a methodology (Creswell, 1998; Moustakas, 1994).

2. Cited by Creswell (1998).

3. van Aken (2004), in the context of management research, distinguishes between what she calls the explanatory sciences and the design sciences (p. 224). This following mission, she specifies for the explanatory sciences, is the same mission we denote for the analytical sciences—to describe, explain, and possibly predict observable phenomena within its field. Conversely, the mission of the design sciences is to develop knowledge for the design and realization of artifacts (i.e., to solve construction problems, for example, as architects and civil engineers do) or to be used in the improvement of the performance of

existing entities (i.e., to solve improvement problems, for example, as medical doctors and psychotherapists undertake).

4. Pelz (1978, cited in van Aken, 2004, p. 223) denotes instrumental use as acting on research results in specific and direct ways—as distinct from conceptual use where results are used for general enlightenment on the subject in question.

5. They were chosen from an Internet site, Gamerankings.com (http://www.gamerankings.com), that collects statistics from a range of game sites and amalgamates and ranks them.

6. Each proposition "suggests courses of action aimed at changing existing situations into preferred ones" (Simon, 1996, p. 111), a key design-science characteristic.

7. This correlation between empirically derived variables and narrative-theory variables is a variance view of causality (commonly used in the analytical sciences), which simply notes the relationship between variables (rather than a process view, which seeks the causal explanation or why something works a particular way).

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