

An Inside Story on the Experience Economy

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Many contemporary views on the future of technology and business put the individual and his experience first. The rising affluence and growing transience of people, places, things that created the material basis for today's global, informational and networked society, is argued, has led to an even greater change that occurs deep inside people's minds that is slowly affecting society and the economy at large: The existential view on life is shifting from a largely external oriented view towards a more and more internal oriented view. It is no longer only the effect on the outside world, but the effect on our inner selves, our experience that is driving our decisions and therefore shaping our consumption patterns. The economy transforms into an experience economy in order to support more and more people in their need towards psychological self-determination and wellbeing.

To better understand what experiences are, we can look at the behaviour of actors in the experience society at large and try to understand and explain their dynamics. But one can argue whether this approach is the most logical one to start with. Experiences are not manufactured and distributed by the outside world like products or services. They are not created in organization space but in individual space. They form spontaneously inside our mind as a result of interaction with our environment. If we want to understand how memorable, meaningful experiences are formed and structured, we may need to start from the inside and see what cognitive science that studies human perception and cognition has to tell us.

The Literary Mind

Cognitive science is the study of mind and intelligence. It is interdisciplinary field that embraces philosophy, psychology, artificial intelligence, neuroscience, linguistics, and anthropology. Cognitive science originated in the mid-1950s when researchers started to work on theories of the mind based on complex representations and computational procedures. Cognitive science tries to uncover the mysteries behind vague notions like consciousness, emotion and experience and is therefore not only interesting for cognitive psychologists and neuroscientists for example but also for multimedia information retrieval researchers [1] and commercial experience providers as I will argue. In *The Feeling of What Happens*, Antonio Damasio [2], one of the world's leading scientists in neuroscience, puts the dualism between mind and body introduced by René Decartes into question. One of the main difficulties with the body-mind dualism has to do with experience and consciousness. Who or what is the audience for the display of images produced by the brain? According to Damasio, the human brain may use structures designed to map both the organism and external objects to create a fresh second-order representation. This representation indicates that the organism, as mapped in the brain, is involved with an object also mapped in the brain. And as the mind is constantly processing external and internal events, the brain answers the unasked question of who is experiencing this movie-in-the-brain, the sense of self emerges. Self-awareness is part of the movie and creates within the same frame, the "seen" and the "seer", the "thought" and the "thinker". The presence of you

is the feeling of what happens when your being is modified by the acts of apprehending something.

Cognitive science theories help to remember that everything we experience is seen, interpreted through our brain. We never see the real world. The mind maps both the organism and external objects into a single representation. Thinking and sensing/acting both involves operations on mental objects, some connected to nerve cells that may activate muscles for example to control your movements, others are not. To the mind there is no fundamental difference between thinking and acting, this observation is important.

When we are conscious we continuously form experiences, stored in our mind as memories, series of events that happened to us – stories. This brings us to another theory, described eloquently in the *Literary Mind* [3] by Mark Turner. Turner, like Damasio, is a proponent of *embodied philosophy*; a school of philosophy that says the mind can only be well understood by taking into account the body and the more primitive underpinnings of the mind [4]. Embodied philosophers believe the laws of thoughts to be metaphorical, not logical; truth would be a metaphorical construction, not an attribute of objective reality and use findings in cognitive science to underpin this. Turner starts his book by emphasizing the importance of story – “narrative imaging” as the “fundamental instrument of thought, crucial for planning, evaluating, explaining, for recalling the past and imaging the future” (pp. 4-5). Artificial intelligence researchers such as Roger Schank [5] and schema theory proponents also place concepts like story, script and schema at the center of human cognition, but Turner goes a step further. Turner argues that the more “literary” aspects of language, particular metaphor and other rhetorical tropes, are central rather than marginal to cognition and communication. The human mind, he continues, heavily relies on what he calls “parable”, the ability to project stories onto other stories to create new stories (metaphorical construction). Story and parable are not only seen at work in the mind’s most complex literary achievements but can be found in the simplest acts. Everyday experience is organized by a “constant yet unnoticed” narrative flow, beginning with the “small spatial stories” we rely on in tracking a moving object, crossing from one room to another, pouring coffee into a cup (p. 13). The ability to construct such minute spatial narratives is universal and highly adaptive: we are evolutionarily designed to “learn to distinguish,” out of the flux of experience, objects and events on a human scale that can then be organized as stories (p. 15). A few examples help to explain how story and the projection of stories in parable work.

In “The building has fallen into disrepair”, a spatial event story of falling is projected onto the rather different spatial event story of roof tiles breaking, paint chipping and windows cracking. In the “fax machine chewed up the paper” an action story of chewing is projected onto a story of damage in the fax machine. In “The global slowdown pushed the American economy into recession,” a spatial action story of physical forces on physical objects and the consequent change of their spatial location is projected onto a nonspatial story of economics (p48). More complex projections lead to sentences as “Appollo took from them the day of their return” in *Homer, the Odyssey* or “Memory would come like a rope let down from heaven to draw me up out of the abyss of not-being, from which I could never have escaped myself.” in *Marcel Proust, Remembrance of Things Past*.

Parable is at the heart of literature, but examples like these also show that parable is at work in everyday life. Turner argues that these dynamic processes of parable are basic to the construction of meaning and the construction of language and not something 'exotic'. Turner thereby reverses the view of Chomsky [6] that language is built up from syntactic phrase structure that build up language and that out of language one builds up narrative and a special case literary narrative and parable. It works the other way around. Language originates out of parable that is at the basis of the literary mind.

Theoretic Extensions

If stories, projection and their powerful combination in parable comes before grammar, language, literature and is fundamental to human thought, then parable may also form the basis of innovation, communication, organization and finally the creation of entire societies and their political, cultural and economic structures.

Innovation

Consider the following example: An ancient artisan has projected the small spatial action stories of "the object rotates around its axis when it is pushed by somebody" and "the board carries a stone" to a primitive wheelbarrow story ('kruiwagen' in Dutch). What happens is that the artisan has invented the wheelbarrow by blending two simple spatial stories that he had experienced. Experience creates new stories in our mind that can be blended with existing ones into new knowledge. The process of story projection is at the very heart of many high-tech companies today and is highly visible: As a scientific researcher in Philips Research one of my jobs is to write invention disclosures that can lead to patents for Philips. What I am doing is projecting stories onto other stories that exist in my mind in order to hopefully create unique new stories that lead to intellectual property rights.

Communication

Conceptual blending applies to our mental world, so how could the wheelbarrow story of the ancient artisan propagate in the minds of millions of other people and become common knowledge?

Remember that the mind maps both the organism and external objects into a single representation. When we say or write something or simply just 'do' something, we activate mental objects attached to nerve cells that have the capacity to affect our external world: We are indirectly encoding stories in the outside world. By simply pushing the wheelbarrow, the artisan communicated his knowledge about the wheelbarrow story to everybody who saw him. Shared experience is one form of communication, spoken or written language is another. When a manager leads a project meeting he is carefully planning in his mind not only the message itself but also how he states the message while at the same time taking into account internal politics and relationships he has with his subordinates, peers and superiors. Using spoken language, bodily language and other tools like a laptop and beamer he is encoding stories in the external world.

Other people (who are also represented by complex mental objects/stories in our mind) as they sense and interpret the world through their brain will decode the stories left there and project these stories with their existing base of stories to create new

impressions, ideas and knowledge. The people who saw the ancient artisan performing or heard the manager talking were indirectly decoding these stories.

Organization

Communication, passing on stories through shared experience, greatly increased the rate of innovation. If the mind had no means of any communication with the outside world, everybody would be projecting stories and creating new stories, individually, and we would still be in the Stone Age.

To increase our knowledge and power even more, the human brain came up with stories of organization to aggregate and direct mental power to invent and distribute highly complex stories around the world. Cultures, governments and companies are essentially in the business of making and distribute stories. Cultural expressions has always been about stories; buildings, paintings, theatre plays and of course literature infuse us with stories. Governments produce laws, stories that tell citizens what their rights and obligations are. Multinational companies like Philips, Shell and Unilever are not only producing and distributing millions of products, they are first and foremost diffusing stories into the minds of millions of people. Over the past decades, companies and organizations have grown more aware of this fact. Modern marketing and brand management puts the end user experience first [7] and this is reflected also in technological visions such as Ambient Intelligence [8].

The Experience Economy

What's new?

Although it is common to speak about the importance of experience in business and technology, to the mind every economic offering is experienced. Coffee beans, coffee bags, a cup of coffee served in a restaurant or a cup of Italian espresso that you enjoy on a terrace in Venice all form stories in our mind. The brain must interpret tangible physical products and commodities as well as intangible information goods and service encounters before we can 'see' them with our brain. If we strip the physical appearance of commodities, products and services what remains are complex, interrelated signs and symbol networks, stories that can be blended to create new thoughts and actions. So what is new about the experience economy if every economic offering has always been interpreted in a subjective way by the human brain?

If the literary mind can bring forward organizations to aggregate and direct mental power then it is logical that changes in society like the emergence of an experience economy, are the result of a change in the direction of *collective* story projection or what we normally would say – a change in the way the majority of people think and act. Another part of the answer is that although every encounter with an economic good leads to new stories being formed in the mind, not all such interactions may lead to the same amount of new stories being created. In other words, the amount of new stories projected could be a measure to distinguish between ordinary and memorable commercially staged experiences, between commodities at one end of the spectrum and transformations on the other end. I will analyse both lines of thought in more detail next.

Internal-oriented Existential View

In the past we mostly projected stories with the means to affect, control and shape our external world. Hunters and gatherers and later farmers were completely subjected to what nature provided them. The focus of human reasoning was on biological survival and therefore on creating new stories in their mind that led to more food, shelter and stability for the individual and society. Except for philosophers and religious institutes, the majority of people's thoughts and actions were occupied with ideas to increase productivity and efficiency. The two industrial revolutions in the 19th and 20th century accelerated this process even more but also lay the seeds for change. Growing affluence and a great increase in the rate of technological progress affected the foundations on which the mass production paradigm rested. The success of mass production flooded society with new products, services and ideas that were affordable for more and more people. This enormous increase in choice also meant that more people could make *different* choices, which included choices in lifestyle [9]. This meant that the stability and homogeneity on which the mass production paradigm rested came under pressure. The Western society started to defragment when people started to see themselves more as individuals that are in control of their own lives. At the same time Internet and globalization have turned the attention of organizations elsewhere: Stagnating demand in Europe and the US caused companies to look elsewhere for growth, in China and India. There is something wrong in Europe and the US, large institutions tell us.

But perhaps the problem is not so much in the markets in Europe and the US but in the way companies addressing those markets, in consumption patterns that have changed. Thanks to the success of the mass production paradigm, consumers have turned into individuals seeking psychological self-determination [10] and meaningful experiences [11]. Companies lack behind; they are still fundamentally organized in much the same way as they did in the beginning of the 20th century, according to the enterprise logic invented by Henry Ford and perfected by Pierre DuPont and Alfred Sloan of General Motors. This points to a change in the direction of collective story projection among consumers. The human mind started to blend stories to solve the problem of biological survival but with these needs largely met and many new and different choices – stories to blend – available, the human mind can focus its attention elsewhere, on the inner world itself. Sociologist Gerhard Schulze [12] and many others argue that this situation management with the goal to affect one's own inner mind is a crucial change from the past and a defining characteristic of the experience society. In the experience economy with its strong focus on meaningful and authentic brand stories, the literary mind is exposed. We look through the commodities, products and services and 'see' the bare stories they encode: "Work is theatre and every business is a stage [7]."

Participation and Meaning

The difference between the experience of commodities and transformations may be related to how many new small, spatial stories are formed in the mind and to what extend these newly formed stories can lead to the emerge of new stories through parable on their turn. Your wedding day or a trip to Tibet for example may create so many new impressions, small stories in your mind (many of which close to existing stories in you mind) that you automatically form many new connections, stories in your mind. You will consider the experience to be meaningful because it changed your mental landscape dramatically and – since the self and the mental representation

cannot be separated – you. The experience became a self-defining moment, a turning point in your life or *Erfahrung* in German [13]. Wood that you buy in a shop does not create too many new small stories in your mind, nor does it create many new story strands. Buying wood is therefore an ordinary experience or what is called an *Erlebnis* in German (note: that this can change if the buying wood has a special meaning to the individual, this exception is worth mentioning because it can turn ordinary commodities into meaningful experience).

There are several strategies to maximize the amount of new stories projected by the mind. One possible way is the route of the arts or religion in general; carefully constructed, originally structured stories, appealing to universal human emotions and ratio. This is why we go to the movies, read books or go to church. We hope that in these stories we find something that sheds some light on our own life. Another way is by technological innovation. The automobile and TV created wonder and marvel in the minds of people in the beginning of the 20th century. The most effective way according to the literary mind theory seems to let people actively choose the situation they want to be in. Every individual will have different stories in his mind and not all new stories will connect easily with the ones already present. It is impossible for people or organizations to steer this. They can only make approximations. Making approximations used to work fine in a time when human needs were relatively stable and homogeneous, but the very success of mass production has made this increasingly difficult and therefore companies with their industrial mindset and logic are struggling. Advanced marketing, total quality management, reengineering, mass customization and relationship marketing, all try to reconnect to the consumer but fail to view the consumer as a complex individual with unique needs and wants that change over time. Although relationship marketing or 1-to-1 marketing probably come closest, companies can only make guesses as to the stories in your mind because most commercial encounters are simply too short of duration. This is the transaction crisis Zuboff and Maxmin write about in their book the Support Economy [14]. Rather than trying to compose a fixed story in the hope it will activate many spatial stories in many people (and therefore an *Erfahrung*), companies should design environments that support people in personal story making. By allowing people to choose, the chance they activate a larger part of the existing stories in their mind is increased, and thereby the chance that the experience is more meaningful and memorable to them. This explains why many meaningful experiences are often co-created [15] or why business and technology need to be designed with sense and simplicity in mind.

The central role of story and story projection in human thinking and acting, which is brought to the surface by the experience economy but always has been present on the micro-level, turns into a discussion on understanding the production and consumption of text, topics typically in the domain of literature and performance studies, when we start to look at the macro-level as we will do next.

Understanding Text

If we look beyond their physical form, products and services are simply the carriers, the media to deliver stories into the minds of people. But if products and services can be seen as the media, which convey stories, they can be analyzed as text. Text has been the object of study for centuries in literature studies. Many literary theories exist

(see e.g. [16] for a good overview); some (e.g. Russian Formalism, Structuralism) argue that to understand text we should look at the structure of the text, others argue that the social, cultural context in which the text has been written must also be taken into account (e.g. Marxism, Feminism, Cultural Studies). Post-structuralists like Jacques Derrida argue [17] that not individual words but their interrelationships are important to understand any text. We must “deconstruct” a text in order to fully understand it. Deconstruction implies that we should not only read the words but also what is *not written* and take this into account when we try to uncover the true meaning of a text. This deconstructionist approach naturally extends the definition of what text is to include a wide range of human endeavour. Rather than think of history as a succession of modes of economic production, political post-structuralists Deleuze and Guattari [18] suggest that we think of it as a succession of signifying regimes, ways of ordering the flows of matter and of desiring production using “mots d’ordre” or command words. French language philosopher Jean Baudrillard [19] argues that these signifiers can become more ‘real’ than what is being signified. When we watch the war on terror in Afghanistan on TV, we do not see the actual, ‘real’ war, but a *simulacrum*, something that replaces reality with its representation. Themed shops, restaurants and other places are designed to replace reality with a representation. One of the dangers is that the lines between real and what is simulated become so blurred that more and more people can no longer make the difference.

Not only governments are exercising their authority, their power, through writing text. Companies are also writing text. Modern brand management and experiential marketing have brought the notion of story to the attention of managers but in essence companies have always been producing, writing text that is embodied in products and service encounters. Consumers are reading this text, consuming the economic offering. Philips produces, writes the Philips story in every Philips product that is manufactured and this story is read by the consumer, through the use of the product. In mass production the separation between the producer and the consumer is similar to that of the writer and the reader of a novel. The reader cannot influence the plot of the story; the plot is fixed. In mass customization the separation between the producer and the consumer is still present but contrary to mass production, the consumer can affect the features, the ‘shape’ of the product or service. This form of production is similar to the author of a web site that defines a network of hyperlinks between web documents that readers can follow. The writer has defined all the possibilities in advance but the reader defines which paths he follows and thereby the final experience. In the hypertext literature community, this form of non-linear, interactive narrative has been studied for quite some time. The plot structure of hypertext novels, web sites and most computer adventure games is more open than a novel or a movie for example but still very much closed because the reader is only allowed to choose between story lines. The plot structure itself remains untouched. In co-creation strategies such as open source and Lego Mindstorms [20], the difference between the producer and the consumer blurs. The final product is the result of a dialogue between the consumer and the producer. In this form of production, the plot structure is open; readers can alter it. The closest literary form that resembles this mode of interaction is found in live action role-playing games [21], improvisation theatre [22] and other forms of performance [23] where the audience becomes an active participant in the play. Reader and writer are not actors but become roles that people can take at every point in time. Generally speaking, the overall designer of the improvisation theatre play defines a set of rules, guidelines for each type of actor and the story world itself.

Participants must obey these rules but are free to create their own performance within this frame.

As we move away from the firm centric value creation process to modes where value is co-created at the touch points of interaction between the individual and the company we see that the reader slowly transforms into a writer, into a performer that not only reads the text but also writes the text. To understand such environments we need an in-depth knowledge of both literature theory and performance theory because each individual is both reader and writer at the same time.

Ambient narratives

To create environments where stories can be co-created a balance is required between the freedom to interact when we perform and the structure that is imposed on us by our environment. This tension is well known in interactive drama [24] where performers can change, alter or otherwise affect the story told. Too much interactivity and we feel lost; too much structure and we feel as if our choices do not matter much. Well-designed interactive narratives carefully balance these two aspects, but when most people think about interactive narratives they think about electronic text (hypertext) or computer games only. In the previous section we stretched our definition of what text is and what reading is and this now enables us to see many different forms of interactive narrative around us. Architecture is a good example. Depending on the way you walk through a museum a different story is conveyed to you. The same holds for theme parks and shop layouts. Interactive narrative can also be found in the industrial design or paintings for example [25].

When we strip the perceptual characteristics of these different forms of interactive narrative what essentially remain are complex, interrelated sign systems. These signs and symbols can be interpreted or read as text. When we superimpose these different interactive narrative forms on each other, a single what we call *ambient narrative* emerges. An ambient narrative has the following characteristics [26]:

- Interactive: Readers can create their own experience, their own story by making stories in the ambient narrative. Their actions change, alter or otherwise affect the story told, like other forms of interactive narrative and drama such as computer games or hypertext novels. They can even create their own scenes and add them to the ambient narrative.
- Situated in mixed reality: An ambient narrative is neither fully virtual nor physical, it combines the virtual and real world. Actions in the real world (e.g. entering a room) can lead to changes in the virtual world (e.g. a computer character starting to greet you from a nearby LCD display).
- Designed to support everyday life performances: Enhancing does not necessarily mean improved functionality. Functionality is just one dimension of experience. Ambient narratives come in different genres.

Ambient narratives are related to alternate reality games [27]. Alternate reality games like Perplex City [28] can be considered as one of the possible genres of an ambient narrative. To explain this, it is best to draw up some (hypothetical) examples of ambient narratives.

Example 1: When you come home in the evening and turn the key the light switches on in the hall. When you walk in the kitchen a voice welcomes you and presents the

latest news and messages on the TV screen in the kitchen. After you prepared dinner you walk to the living where the Ambient TV starts one of your favourite movies.

Example 2: It is cold and dark outside and you are watching *The Ring* (a horror movie where people who rented a video tape get murdered in a gruesome way after seeing the movie). When the movie ends, you feel uneasy. Five minutes later the lights in your home fall out and switch on again. It is as if someone or something has messed with your electricity. Not much later you start to hear a voice of an old man that tries to warn you from the rear speakers. What is happening? Am I losing my mind? You decide you must be dreaming and walk upstairs to the bathroom. As soon as you pick up the toothbrush the mirror TV switches on. You see the face of an old man in the mirror; he speaks to you in a language you do not understand. He tries to warn you about the movie you've just seen. You decide to go to sleep but you can't. Suddenly you hear the phone ring...

Example 3: At 18:00 the doors of an exotic fish restaurant open. The captain and the chef de cuisine welcome the guest on board their submarine. Today swordfish is on the menu. When you walk into the fish restaurant you see that the inside looks like a boat with a large steer in the middle. Through the displays on the wall concealed as windows you see a view on the ocean. At 19:00 the boat departs, the images on the display start to change and it seems as if the restaurant starts to move. The captain and his crew inform the restaurant guests that they need to switch off their mobile phones because the boat is starting to dive. Slowly, the sea level on the images on the display starts to rise and lights in the restaurant flicker for a moment. The sound of engines are heard in the background...

The ambient narrative concept connects business and technology we believe with the deep linguistic nature of themed environments and environments where people can actively participate in the experience. It provides technologists with a framework for the design and implementation of a system architecture for ambient intelligent environments that support co-creation. Individual technology components such as a robust sensor network can be identified and researched further. For brand and marketing managers the concept of ambient narratives can provide a terminology as well as rules and guidelines for the design of the customer interface (touch points). Ambient narratives are dramatic stories instead of literary stories. Dramatic stories like movies have properties of enactment, intensification and unity of action, whereas literary stories like novels have properties of description, extensification and episodic structure [29]. Ambient narratives are performed, enacted in real time and the architecture, interior design and ambient media must work in concert with each other to create an aesthetically pleasing, immersive experience (intensification). And because the goal of ambient narratives is to improve everyday life performances, all incidents should be causally related to a central action (unity of action).

Concluding remarks

The concept of ambient narratives provides technologists with a framework for the design and implementation of ambient intelligent environments that are sensitive and responsive to people, but more importantly perhaps, it starts a discourse that may bring together the technical and business aspects with the cultural and critical ones. Technology and business it seems can learn a lot from literature and performance

studies as these disciplines provide insight into how meaningful and memorable experiences are structured.

In the 20th century, physics brought two important theories forward to explain the physical universe. Quantum theory describes the universe on the smallest scale – on the atomic and subatomic level. Einstein's general relativity theory gave us insight in the way the universe works at the large. Today, physics is searching for a theory of everything, a theory that unifies quantum theory with general relativity theory [30]. But will this theory also tell us more about our inner, subjective universe that is at the basis of the experience economy? At the end of this article I want to return its beginning; to story, projection and their combination in parable: Can we project the story of quantum theory onto Mark Turner's literary mind theory and can we project the story of general relativity onto post-structuralism and deconstruction to blend both these stories into a grand unification theory to describe our inner universe that brings the experience economy forward?

References

1. M. van Doorn and A. P. de Vries, *Psychology of Multimedia Databases*, Proceedings of ACM Digital Libraries '00, San Antonio, Texas
2. A. Damasio, *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*, Harvest Books, 2000
3. M. Turner, *The Literary Mind: The Origins of Thought and Language*, Oxford University Press, 1996
4. Wikipedia, *Embodied Philosophy*:
http://en.wikipedia.org/wiki/Embodied_philosophy
5. R. C. Schank and R. Abelson, *Scripts, Plans, Goals, and Understanding*, Hillsdale, NJ: Earlbaum Assoc, 1977
6. N. Chomsky, *Syntactic Structures*, Mouton & Co, 1957
7. J. Pine and J. Gillmore, *The Experience Economy: Work is Theatre and Every Business a Stage*, Harvard Business School, 1999
8. E. Aarts and S. Marzano (eds.), *The New Everyday*, 010 Publishers, 2003
9. A. Toffler, *Future Shock*, Bantam, 1984 (reprint)
10. A. Cornelis, *Logica van het Gevoel: Filosofie van de stabiliteitslagen in de cultuur als nesteling der emoties*, Essence, 1998
11. A. Boswijk, T. Thijssen and E. Peelen, *Een Nieuwe Kijk op de Belevenis Economie, Betekenisvolle Belevnissen*, Pearson Prentice Hall, 2005
12. G. Schulze, *Die Erlebnisgesellschaft: Kultursoziologie der Gegenwart*, Campus, 1992
13. S. Zuboff and J. Maxmin, *The Support Economy: Why Corporations Are Failing Individuals and The Next Episode of Capitalism*, Viking, 2002
14. C.K. Prahalad and V. Ramaswamy, *The Future of Competition: Co-Creating Unique Value with Customers*, Harvard Business School Press, 2004
15. J. Rivkin and M. Ryan, *Literary Theory: An Anthology*, Blackwell Publishers, 1998
16. J. Derrida, *Différance* (trans. by Alan Brass: Writing and Difference), University of Chicago Press, 1980
17. G. Deleuze and F. Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, University of Minnesota Press, 1987
18. J. Baudrillard, *Simulacra and Simulation*, University of Michigan Press, 1995

19. Wired News, *Geeks in Toyland*,
<http://www.wired.com/news/technology/0,69946-0.html>
20. J. Falk, *Funology: From Usability to Enjoyment*, Chapter *Interfacing the Narrative Experience*, Kluwer Academic Publishers, 2003
21. K. Johnstone, *Impro: Improvisation and the Theatre*, Routledge, 1987
22. R. Schechner, *Performance Studies: An Introduction*, Routledge, 2002
23. J. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, MIT Press, 1998
24. M. Meadows, *Pause and Effect: The Art of Interactive Narrative*, New Riders Publishers, 2002
25. M. van Doorn and A.P. de Vries, *Co-creation in Ambient Narratives*, in *Ambient Intelligence for Everyday Life (AmI-Life'05)*, Lecture Notes in Computer Science 3964, 2006, *To appear*
26. J. McGonigal, *This is Not a Game: Immersive Aesthetics and Collective Play*, Digital Arts & Culture Conference, Melbourne, Australia, 2003
27. Perplex City: <http://www.perplexcity.com>
28. B. Laurel, *Computers as Theatre*, Addison-Wesley, 1993
29. B. Greene, *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory*, Vintage, 2000