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# Press Play to Grow!
# Designing Video Games as "Trojan Horses" to Catalyze Human Development through the *Conveyor Belt* of Growth

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*Learning is at its best when it is goal-oriented, contextual, interesting, challenging, and interactive. These same winning characteristics also define the best computer games … Learning can and should be hard fun!*
- Clark N. Quinn, E-learning & video game designer, and author.

*We are already the most overinformed, underreflective people in the history of civilization. Is it possible the twenty-first century needs a new kind of learning and a new kind of leader to help us …? Perhaps [we can] begin building not simply an information highway but a transformation highway.*
- Robert Kegan, developmental psychologist, professor, and author, Harvard University.

## I. Introduction

*As odd or paradoxical as it may seem, I envision video games being increasingly designed to facilitate human development, as virtual reality technologies continue to evolve and integrate with leading edge developmental practices*[1].

Most of us have played a video game at least once in our lives, or at least watched somebody else play, often a close one. Can you remember what you felt when you played a video game for the first time, or watched another player deeply engaged in one? I invite you now to engage in a brief *Phenomenological* exploration. Try to access how you were feeling, what were your emotions about it? … Who were you at that moment? Can you identify what "self" was playing, or observing somebody else deeply immersed in the game? What were your thoughts about it? Was there something "magical" or "different" about that? Just pause a little moment and close your eyes to really access and embody that memory…

So, how was your experience? I could access my memory quite clearly, as if it was happening right at this moment… It is 1981, and I am playing *Pong* for the first time… "I am feeling a deep sense of excitement, curiosity and awe. I am kind of dazzled, can't almost contain myself in my skin. My whole being is bubbling as I engage in this dynamic, alive but basic "virtual reality" unfolding in front of my eyes and TV. My fingers are frantically rolling the control, in utmost focus and attention. Moving the bar up and down, the epitome of virtual action! Ping… pong…ping…pong… Yes! A little bit there… Damn!!! I almost got it!" As I reflect through my experience now, I can see myself going through some kind of altered state of

[1] For a better comprehension, this paper requires a basic knowledge of the work of the multi-disciplinary contemporary philosopher *Ken Wilber* and his emergent *Integral Theory* (2005), including the five main aspects of the AQAL model: *Levels* of Development (horizontal and vertical growth); *Lines* of Intelligence, *States* of Consciousness, *Types* (or styles) of Personality, and *Quadrants* (Wilber, 2000). It is also recommended a basic understanding of *Integral Psychology* (Wilber, 2000); *Integral Spirituality* (Wilber, 2007), *Integral Life Practice* (ILP) (Wilber, 2007), and Spiral Dynamics (Beck & Cowan, 1998). Some references are provided along the way.

flow, close to a brief "pre-trans" mystical experience. The 11-year old boy is amazed. He stares at the screen. Thoughts arise in his awareness: "Wow… what a cool experience! This is really fun! How strange… How "they" can make that? How they can do something like that in my TV? Hey, it is my turn now, I want to play more!"

*Video games as a Storytelling Media of the 21st Century*

Now being a 38 year-"young" man researching video games at the dawn of the 21st century, I still feel quite amazed and dazzled with what is now being called "a new generation of interactive entertainment". Recent technological and artistic developments have made some of these games to be so realistic, meaningful and potentially engaging that the line between "virtual" and "real" reality are really starting to fade away... Transported through time from *Pong* to now, I see myself enthusiastically engaging in a 40 hour (15 days) "action-research" marathon playing *Bioshock*, a video game set in a beautiful but "fallen" utopia futuristic city called *Rapture*, located at the bottom of the ocean. The creative storyline is based on Ayn Rand's constructivist insights from the book *The Fountainhead* (1943), which unfolds in an exquisite aesthetics of a post civil war art deco decayed environment, providing the adequate atmosphere that invites me to subtly experience with full engagement a series of existential insights.

Suddenly, the quest for the victory is also the quest for my own path and identity as a player. Am I really in control of my choices in the game? Groundbreaking surprises await me throughout the path as I start knowing more about myself, my past history, and why I am really there. Boundaries between my player self and "real self" sometimes seem to disappear… Chosen by many standards as the "game of the year in 2007", *Bioshock* is part of an emergent generation of "*First Person" role playing video games (RPG)* that bring an exquisite mix of high level of aesthetics, technological power, and a fairly amount of subjective depth (if you have the right "eyes" to see it), including "grey" moral choices that go beyond the "black and white" of good and evil. However, as expected from a contemporary best selling action and role-play game (RPG) title such as *Bioshock*, many aspects of the current paradigm of video game design are still at play, including violence, shootings, weapons, and blood, lots and lots of blood…

But, would that really spoil the other deeper and more positive aspects of the experience? Would that be really only a video game problem, independent of the reactions and interpretations of the player? Are video games, especially from the *First Person RPG* genre, "doomed" to be a

just a mirror of our contemporary mainstream culture, society and entertainment? Well… yes and no, if seen from the lens of the *Integral Psychology* created by the contemporary philosopher Ken Wilber (2000), which can take into a more balanced account both the "dignity and disasters" of the evolution of video games and virtual reality technologies in a broader and deeper context; a perspective that accounts for many developmental variables and aspects of AQAL.

But before I continue, it is important to note that due to issues of space and scope, I did not investigate in depth the potentially harmful and negative aspects of video games, since my primary concern was to focus on the main topic of exploring their healthy, positive and proactive potentials for catalyzing human development. However, as a side note, I suggest that further developmental research about the combination of a low Self-Center of Gravity (Wilber, 2007, 2000) with critical levels of disintegration, unbalances, shadows, and/or repressions in the five main aspects of a player's AQAL constellation, could add significant data to complement most of the existing academic research on video games - which is mostly concerned with the negative influences of video games as related to cognitive-behavioral and other objective and empirical factors (e.g.: games' intrinsic mechanics, dynamics, genres, themes and contents).

In general, many people think that some video games nowadays can bring more negative than positive influences to players, or at best a neutral contribution. Actually, you (or somebody close to you) may be even one of them. Also, people from all ages today are fairly used to the idea of most video games as being "kids" or "adolescent" things, or being mostly superficial entertainment. But even if there is some true to that, this has not been always the case in the short but exponentially intense "30-yearish" history of video games… As I came to realize, the potentials for video games to promote positive and proactive influences can be especially significant at this moment in time and in the future yet to come, with a myriad of educational and developmental possibilities already being explored (see page 16), and many more still waiting to be "discovered" and "downloaded" into concrete video game manifestations.

In the next *section II*, I will provide a general presentation of my academic research on video games and human development, exploring their connections and potentials through various methodologies and zones by using a *Quadrivia analysis*. In the last *section III*, I will continue this exploration focusing on specific educational categories and proposing the application of various integral frameworks to facilitate human development through skilful and timely developmental education and practices. It is from here that I want to invite you to walk with me

through a brief journey into the new world of 21st century video games, so we can start co-envisioning and co-creating together the emergent world of *integral developmental video games!*

## II. Integral Methodological Pluralism (IMP) and Video Games: A Quadrivia Analysis

In order to explore the developmental potentials of video games from a broader integral perspective, I chose to research this topic using my two-quarter Integral Research classes taught by Sean Esbjörn-Hargens, Ph.D. - leading integral scholar-practitioner and author - as part of my Masters in Integral Psychology at John F. Kennedy University (JFK). Since then, I have been continuously engaged in what has been an already 9-months long ongoing integral mixed-methods research, based on a *Quadrivia* analysis (Wilber, 2007) of video games using six of the eight zones from Integral Methodological Pluralism (IMP): *Phenomenology, Structuralism, Hermeneutics, Ethnomethodology, Empiricism* and *Systems Analysis* (see more details in Appendix #2). Due to issues of space, I will not cover in this paper the *Empirical Analysis* of my research, which was composed by a survey analysis of 150 people from different backgrounds (see appendix #8). I will also not dig much deeper into the *Phenomenological* and *Structural Analysis,* which I used to collect important information of my instrumental and interpretative role as a researcher, and the influence of my own perspectives in the various data collected. In broader terms, I used my *Phenomenological Analysis* to explore my subjective experiences of playing different kinds of video games, as well as autobiographical inquiry, journals and observations about my personal and professional background as related to video games and human development (see more details in the Appendix #4). In the *Structural Analysis*, I investigated my Personality type through the Enneagram (number 4 identification) (Hudson & Riso, 1998), and a Myers-Briggs assessment (INFP). I also assessed my developmental level through the Sentence Completion Test (Level of # 4/5) (Cook-Greuter's, 2008). The *Individualist* level (#4/5) hovers around the Green/Self-identity moral line (Self-Center of Gravity); Teal to Turquoise Cognitive line; and Teal Interpersonal line (Esbjörn-Hargens, personal communications, March, 2008)[2]. Both sets of *Phenomenological* and *Structural* data confirmed my previous self-analysis and interpersonal triangulations, also bringing significant insights as for my role as a researcher

[2] Due to issues of space, from now on I will refer to (personal communications, date) as (pc, date).

*The Widespread Influence of Video Games in our Culture and Society*

In my *Systems Analysis*, I surprisingly realized that the influence of video games in our culture and society is much bigger than I had imagined. Indeed, "from all the entertainment media existent today (music, TV, movies, web, books, cartoons, theater), the video game industry is the fastest growing and one of the most popular, pervasive and profitable segments in the already "trillion-dollar-a-year" entertainment industry" (Bryant & Vorderer, 2006); having already surpassed the movies and music industries altogether (PricewaterhouseCoopers, 2007). From 1996 to 2007, computer and video games sales in the US grew from 2.6 billion into 7.5 billion dollars per year, as well as from 74.1 to 240.7 millions of units sold (Entertainment Software Association, 2007). In the year of 2007, "U.S. sales of video games, which includes portable and console hardware, software and accessories, generated revenues of almost $18 billion, a 43 percent increase over the $12.5 billion generated in 2006" (NPD group, 2007); reaching 37.5 billion in worldwide sales revenues (PwC, 2007). In the year of 2005 in the US:

> More than eight in ten (83%) young people [had] a video game console at home, and a majority (56%) [had] two or more. About half (49%) [had] one in their bedroom, and just over half (55%) [had] a handheld video game player. (Rideout, Roberts & Foehr, 2005, p.36)

Two years later in 2007, it was estimated that 33% of homes had a video game console in the US (ESA, 2007), with 38% of video game players being female, and 62% male (and 31% of women being age 18 year or older, in contrast with 20% of boys being age 17 or under). It was also estimated that 67% of American heads of households were playing computer or video games (ESA, 2007). In terms of time, adult gamers had been playing computer or video games for an average of already 13 years (males, 14; females, 11) (!) (ESA, 2007), with an approximate number of "46% of all gamer parents [playing] for 10 years or more" … in average of 21 hours a month (!) (ESA, 2007). These astounding numbers make video game play and "practice" in terms of time range and commitment to be quite significant and extremely prone for incorporation of a applications aimed to catalyze human development, since these practices also tend to request a lot of time, commitment and steady growth over time (See ILP, p. 18).

*Video Games as Conveyor Belts of Human Development*

The topic of using video games to catalyze human development first came to my mind as a strong intuitive hint I had while reading Ken Wilber's (2007) recent book *Integral Spirituality: A Starting New Role for Religion in the Modern and Postmodern World*. In there, Wilber discusses a concept that he calls the "Conveyor Belt," a visual metaphor in which the institution of religion could ideally serve as a conveyor belt to facilitate spiritual and moral development within and throughout all developmental stages or "stations in life" (p.197); and especially in relation to the critical (and complex) move from pre-rational to rational and post-rational stages of inner growth, corresponding to the shift from Red/Amber to Orange altitudes and beyond. While reading the concept of the Conveyor Belt, I had a significant insight: "*What if entertainment could also serve as a conveyor belt for a massive wave of individual and collective growth, both in personal and spiritual ways*?" During the two months before beginning my "official" IMP research, this question gradually led me to the subject of video games as being the most promising segment of entertainment to accomplish this role, especially due to their exclusive *interactivity* factor. Also, as I curiously came to realize through different methodologies, the video game industry has been focusing during the last 30 years a great deal of attention into the ages of childhood, adolescence and early adulthood, corresponding to the developmental range of pre-rational to rational stages of development. Moreover, an increasing part of the video game industry have been gradually going through a major cultural transformation in terms of questioning their current worldviews, paradigms, values and social responsibility, tapping into some post-modern altitudes of inquiry and practices (GDC, 2008). In my view, this is a timely and quite welcomed change, especially given the fact that the average age of gamer today is 33-years old[3], an age especially prone to benefit from integral research and applications related to inner growth beyond conventional adulthood levels (Cook-Greuter, 2006).

Based on that, video games could also have a potentially strategic role to facilitate a mass development of a broad range of people through a *virtual Conveyor Belt of growth*, providing a significant contribution to the transition from adolescence to adulthood levels of inner development. According to Wilber (2007), this is a critical issue that reflects in many ailments of our current culture and society, including a lack of post-mythical spiritual and moral values

[3] According to the Entertainment Software Association's *2007 Sales, Demographics and Usage Data: Essential Facts about the Computer and Video Game Industry*, 28.2% of players in the US are under 18 years, 47.6% between 18 and 49, and 24.2% over the age of 50. In terms of parenting, "the average age of a gamer parent is 40 years old … and 93% of parents who play computer and video games have children who also play them" (p.8).

counterbalanced with an over emphasis on rationality, spread of fundamentalist beliefs and even the raise of separatism, intolerance and terrorism around the world (Wilber, 2007).

In the beginning of my research, I had a pivotal insight based on Robert Kegan's work (1994) (see quote p. 2) that video games can provide both support and challenge to players to facilitate improvement and growth in specific learning edges and obstacles related to the level of development they are at. This concept is also connected to the importance of designing video games that can be strategically adapted to different kinds of players in relation to various AQAL dimensions, especially developmental levels. These ideas were both confirmed, distilled and expanded in personal communications with many integral thinkers from my *Hermeneutics Analysis*: Ken Wilber; Sean Esbjörn-Hargens, Ph.D., Alden Gannon (IT professional and gamer); and David Zeitler, M.A. - leading integral scholar practitioner and also my teacher at JFK. Zeitler (pc, November, 2007) also cautioned for a negative economical factor that could be resultant of making a very complex (and inaccessible) game, suggesting that "the more complex you make it, the less people you are going to get [that] would understand it, and appreciate it" (pc, 2007). This unskillful approach would result in a game being less popular, useful and profitable, which is an issue that brings an important challenging factor related to my main developmental proposal.

*Video Games as "Trojan Horses" to Catalyze Human Development*

To the extent that video games can provide these developmental tools skillfully and efficiently through various kinds of customized applications, the better, more meaningful, attractive, adaptable and even "acceptable" these video games can be to the general population. That will include spreading their influence and popularity into a broader range of players from various AQAL constellations and hence becoming even more economically feasible to be conceived, produced and accepted in the market.

However, for the same economical, popular and marketable reasons, I see the feasibility of these new video games to be dependant of using some kind of "tricky" but proactive strategy. It is known by many different psychological and spiritual traditions that inner growth can be (and often is) a very challenging process, although extremely rewarding and worthwhile. In order to transform or integrate different aspects of their selves, sometimes the client or student needs to be proactively guided by the therapist or guide in subtle or surreptitious ways that can appear to

be quite "tricky"; otherwise he or she might not have the will or guts to move through those challenging (and sometimes scary) aspects of human development. Likewise, I envision these new video games as being proactive "*Trojan*[4] *Horses" of inner growth,* purposefully taking into account the fundamental aspects of player's reality based on various Integral Theory frameworks and subtly (or surreptitiously) exploring their full potentialities of growth through various developmental concepts and practices. Ideally, these developmental tools would be totally embedded in their design, and hence not being too forceful, literal or even apparent at first glance. In my research, I realized early that these developmental tools would not work so effectively if exercised or "facilitated" from a "top-down", "forced upon" or preaching approach. This open ended, more subtle and informal approach of incorporating meaningful and educational messages into video game design also resonates with the social concerns and ideas of some of the most mindful (and successful) lead game designers in the world[5] (GDC 2008).

Based on these concepts and ideas, I can envision these developmental video games being used by all kinds of teachers, guides, mentors, coaches, therapists and even religious leaders. In this way, both players and helping professionals would have a clearer and better sense of "how to" and "when to" use those video games for their various developmental and educational purposes and aspirations. From the perspectives of marketing, economy and production, this trend could revolutionize how video games have been seen, looked after, and purchased nowadays, potentially increasing their already successful appeal, popularity, and demand in unprecedented and significant ways. Adding to the fast emerging interpersonal, cultural and social potentials for human development that can be provided by Massive Multi-player Online video games (MMO) - and their virtual communities composed by millions of players[6] - the evolution of these developmental applications could spread into exponential waves of massive individual and collective transformation maybe never accomplished by any kind of

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[4] According to Wikipedia (2008, ¶1), "in the context of computing and software, a Trojan horse … is a piece of software which appears to perform a certain action but in fact performs another … this action, usually encoded in a hidden payload, may or may not be actually malicious". In this context of this paper, they are intended to be 100% positive and proactive, with the hidden and subtle purpose to promote human development through seemingly entertaining video game experiences.

[5] Ken Levine (*Bioshock, 2K*), Peter Molineaux (*Fable, Lionhead Studios*), Louis Castle (*Command & Conquer, Electronic Arts*), and Chris Taylor (*Total Annihilation, Gas Powdered Games*).

[6] The most popular MMO video game today, the World of War Craft (WOW), already counts with 10 million users worldwide (December, 2007), and this "viral" trend has been increasingly followed by several other video games in many countries around the world. In addition to that, casual games have been quickly incorporated into massive community websites such as Facebook and MySpace, as well as through mobile phones and other portable devices.

media in history. As a very young industry and media still in its baby evolutionary (but quite accelerated) steps, the popularity and future potentials of video games and virtual simulators have been envisioned by many to be much greater than most of us can ever start to conceive…

*Video Games as the Ultimate Art Form?*

From my *Systemic Analysis* in triangulation with other methodologies, I also realized that video games are gradually pushing the current paradigm of how many people may actually see or think of them, either in terms of art, technology, "kids play" or entertainment. The expansion of the video game industry has been so rapid and great that some of the big brand video game companies are now struggling to use the word *game* due to its intrinsic associations to "young" and "play", opting instead for *interactive entertainment* in order to accommodate the broader role of their new products in the emergent market of "pop" virtual reality. At an interesting round table discussion published in the Edge magazine from the UK (October, 2007) - the developer Chris Kingsley, owner of the largest independent game developer in Europe, comments:

> I find it really bizarre that people don't understand how much of an all-encompassing art making games is. You think of all the things we do that are just coincidental to making a game. We've got actors and dancers, and choreographers, because we need to move. We've got architects to build environments, sculptors to create characters; we've got painters to make textures, writers to write stories – interactive stories. We've got lighting guys. *We've got an amazing set of skills that we completely under-appreciate. I think computer games are the ultimate art form*. (p.79)

I definitely resonate with Kinsley's (2007) statement, especially when I think in terms of emergent and future potentials of video games and virtual reality simulators. Indeed, if there is one core thing that can mostly characterize this new art form, it is the unprecedented potentials of new and upcoming interfaces between humans and machines…

*A Bird's Eye View on the Interfaces between Humans & Machines: Integrating Spirit &Matter*

Sweeping through the Arts section of a recent Time magazine (May 19th, 2008), I spotted an article about a new trend that has been called the "future of movies". The story analyses two recently released top-box films: *Iron Man* (Favreau, 2008) and *Speed Racer* (2008), the later directed by Larry and Andy Wachowsky. As stated in the Time:

> The implicit message [of *Speed Racer* and *Iron man*] is that we've dwelled too long in the crypts of antiscientific dystopia. We live in an age of sophisticated machines. They do much of our work for us; we spend most of our playtime with them. So, let's recognize our symbiosis with machines – and celebrate our mastery of them – in movies that couldn't be made without them. (Corliss, 2008)

The Wachowsky brothers are also the creators of *The Matrix Trilogy*, where Wilber (2004) contributed with groundbreaking philosophical commentaries about the not so often understood hidden potentials and "spiritual side" of human-machine interfaces (*The Ultimate Matrix Collection*, 2004). In an interview with Larry Wachowsky at Integral Naked, Wilber (2005) "suggests that it's not until the last twenty minutes of [the Matrix Triology's] part 3, *Revolutions*, that the key to the trilogy is revealed" (¶7). Discussing about *Neo*'s awakened vision of the core essential nature of *machines*, a revelation he confides to *Trinity* in a legendary statement: 'If you could see them as I see them, they are all made of Light....' (¶7) - Wilber (2005) proposes that "the machines represent Spirit, but Spirit as alienated and therefore attacking..." (¶7). Fast rewinding to almost 50 years ago, a renowned scientist, visionary and Christian Mystic called Teillard de Chardin suggested similar ideas in his book *The Future of Man* (1959):

> We may be reassured. The vast industrial and social system by which we are enveloped does not threaten to crush us; neither does it seek to rob us of our soul. The energy emanating from it is free not only in the sense that it represents forces that can be used: it is moreover free because, in the whole no less than in the least of elements, it arises in a state that is ever more spiritualized.
> (Chardin, 1959, p. 190)

Likewise, his contemporary philosopher and mystic Sri Aurobindo envisioned in *The Future Evolution of Men: The Life Divine Upon Earth* (Aurobindo, 2003) that "matter will reveal itself as an instrument of the manifestation of Spirit; a new liberated and sovereign acceptance of material nature will then be possible" (p. 35). Accordingly, the mystical teachings of the Jewish Kabala refer in their sacred scriptures about the interdependent dynamics between Spirit and Matter: "The Sefiroth of God manifest themselves in the structure of the physical world and are a bridge between the world of God and the human world" (Molloy, 2002, p. 292). Being in the leading edge of the evolution of "matter", I see technology as being one of such instruments and manifestations, allied with some mysterious and still untapped potentials of our human body.

According to Wilber's (2005) integral interpretation of the *Matrix Trilogy*, *Zion* represents body … the *Matrix* represents mind … and the *machines* … represent [alienated]

*spirit*" (Integral Naked, ¶8). In his words: "it is only in the integration of body, mind, and spirit that all three are redeemed and peace returns" (¶9) - an insight that connects with one of my main intentions to incorporate the concept of Integral Life Practice (ILP) (see p. 18) into the core structure of video game design, in order to promote an overall AQAL integration. As a result of this integration – following Kegan's (1994) subject and object developmental dynamics – players can "use" *matter* (*machines*, video games) in more proactive ways to free their *spirit* (human development), instead of letting their spirit "be used" by them (addictions, developmental arrest, regressions, distractions, escape), even if not totally aware of the process (Trojan Horse approach). In other words, that overall integration will also allow video game players to "play" more freely and boldly with their own AQAL constellations (e.g.: their various selves and life conditions), without being "played by them". Any similarity with "real life" - such as moving from the slavery of the *Matrix* (Samsara) into the freedom resultant of being gradually and finally able to "play" with the *Matrix* itself (Development, Awakening, and Non-Duality) - may be not mere coincidence… So, would you be ready to take a virtual "*red pill*"?[7]

*The Interfaces between Human Development and Video Games*

From a trans-disciplinary stance that includes both modern and post-modern scientific contemporary perspectives, this revolutionary integration between Spirit and Matter – as well as between humans, machines and video games - has been also watched very careful by some leading scientists and thinkers. Standing out among them is Ray Kurzweil[8] (2008), a renowned author, inventor and futurist, and one of the World's best thinkers and authorities on technology nowadays. At one of the key lectures in the Games Developer Conference 2008 (see appendix #2), Kurzweil stated in that "in the acceleration of technological progress, there is no industry in the world matching the video game industry today" (!) According to him, as technology evolves towards new kinds of subtle, cybernetic, and more embodied interfaces, "*video games and virtual reality simulators will be the main tools used for teaching, training and learning in the next decades*." In his book *The Age of Spiritual Machines: When Computers Exceed Human*

[7] In the *Matrix* movie (2000), this enigmatic question relates to a metaphor where the character *Neo* needs to make a fundamental decision of choosing between either taking the "red pill" (Truth & Awakening) or the "blue pill" (Ignorance & Sleepiness) offered by his mentor *Morpheus*.

[8] As the inventor of the CCD flat-bed scanner, OCR and voice recognition software (among many others), Kurzweil was called "the ultimate thinking machine" by Forbes, the "rightful heir to Thomas Edison", and one of 16 "revolutionaries who made America," by PBS. His work and insights have been praised by US presidents (national Medal of Technology), and technology insiders such as Bill Gates (Microsoft) and Mike Brown, Nasdaq.

*Intelligence* (1999), Kurzweil explores important technological implications related to the topics of human evolution, intelligence growth and even spirituality, although still falling short of some "Flatland" reductionisms (Wilber,1996) by collapsing subjective evolutionary realities into objective and empirical "scientific" interpretations. Based on a *four Quadrant* and *Quadrivia* analysis (Wilber, 2007), I realized that as optimistic and feasible (and far-fetched!) those predictions claimed by Kurzweil's (2008; 1999) may appear, he still do to not take into account a fundamental developmental perspective: The relationship between those objective and empirical evolutionary aspects (UR, LR), and some of the main subjective (UL) and inter-subjective (LL) developmental realities related to human development explored by Integral Theory and the AQAL model (Wilber, 2007). In spite of that, I envision that many of his technological predictions - especially those related to education and training - could naturally expand to incorporate the use of these video games and virtual reality simulators to facilitate human developmental processes as conceived by this paper and research.

This vision is based on Integral Psychology's (Wilber, 2000) groundbreaking exploration of those "left-quadrant" (UL & LL) developmental processes, and how they can be integrated with the mainstream's current (but limited) focus on objective and empirical development (e.g.: social, technological, economical, and behavioral). Coming from a broader and deeper perspective, Wilber (2005) has also offered intriguing predictions on how technology could be used to catalyze human development. In an interview from the CD series *Kosmic Consciousness* (2005)[9] he claims that technological interfaces geared towards State-training (such as *Holosync*) could also reach the efficiency that meditation techniques have scientifically proven to provide in terms of not only facilitating, but accelerating inner growth. Certainly, those interfaces could be also incorporated in video games, since there are already interesting examples of this trend starting to appear in the market, such as the existent biofeedback & stress-release oriented video game *Journey of the Wild Divine* and, most importantly, the upcoming *Emotiv* interfaces (Winter 2008) - which can recognize seven basic emotions based on EEG readings and use this data to explore "real time" biofeedback interfaces with the upcoming video games.

In a recent *AQAL Journal* conference call that was also part of the *Hermeneutical Analysis* section of my research – Ken Wilber (pc, February, 2008) shared with me his belief that

[9] Disc #3, track #5: *What Techno-Economic Base Will Emerge to Support Integral Consciousness?*; and Disc #7 , tracks #3: *EEG Evidence of Brain States Associated with Satori.*

*virtual realities (including video games) can potentially be one of the main vehicles underlying the next emerging 2nd tier techno-economic mode of the 21st century,* as technology becomes more advanced, subtle and ethereal. According to him, this will be especially true in the decades to come, when cyber technologies and mind-brain interfaces reach a groundbreaking point of allowing human beings to use machines and virtual realities devices in a much more symbiotic, direct and proactive ways. In his worlds: "I do think that is going to happen, brain-mind linkages which in essence will plug every human mind into the World Wide Web and world wide computer capacities, [which] is going to be the techno-economic mode that underlies 2nd tier" (pc, 2008) - a statement that brings up back to the *Matrix* world, this time in a "real" way.

In our discussion, Wilber initially established a basic distinction in terms of three different kinds of development - *Cognitive* line, *Self-related* lines and *Talents* (or gifts) line (Gardner, 2006) - and discussed the challenges and potentials for using video games to facilitate growth in each one of them. Among those, he believes the most challenging would be the *Self-related* lines "because those involve in a sense a kind of death and rebirth [of developmental levels]" (pc, 2008). Through different methodologies in my research, I realized that both Cognitive and Talents (gifts) lines of development have been gradually explored by some video game designers, as well as researched in terms of their causes and effects by various e-learning scholars and institutions (see page 16). However, intentional exploration and research in terms of the Self-related lines has been fragmented, limited, or inexistent; when seen from the broader and integrative perspectives of Integral Theory, AQAL, ILP and Integral Play (see p.20).

From a meta-view perspective, Wilber considers that the "idea of having video games that could be conducive to growth in all three of [those lines of development] *is certainly something that is feasible, the question is how much would it actually have an impact* [emphasis added]" (pc, February, 2008). He is both optimistic and realistic about the challenges of designing video games to facilitate human development, pointing to some of the potential limitations of current virtual reality technologies in terms of promoting real transformation. In his worlds: "The factors that go into transformation are so numerous and are so variable, just almost anything short of full live experience makes it a little bit harder to get transformation occurring" (pc, 2008). Even though there are significant challenges ahead, Wilber is still supportive of the idea of developmental video games: "I certainly would not discourage it, but there are an awful lot of factors to consider about something like that…" (pc, 2008).

In regards to these considerations, my basic perspective is that we better start looking more carefully at these factors, taking those challenges with a sense of ground, clarity, lightness and purpose. Given the significant amount of time that an increasing number of players from all ages have been spending with video games, I see the potential impact of developmental video games and virtual reality simulators to be too significant to be left by chance. In my view, their influence have the potential to be gradually increased as time goes by, following the steps of upcoming technological innovations that will create advanced interfaces between "virtual" and "real " life. In order for these predictions to fully manifest in our daily life, gradual but exponential innovations in the areas of virtual technology, artificial intelligence (AI) and brain-mind interfaces will need to continue until a critical point of growth is reached that can totally revolutionize the current technological paradigm (Kurzweil, 1999). And the fact is that these innovations are already happening, and in astounding speed.

In the meantime, incremental developmental steps can (and will need to) be conceived and implemented in video game design in order to use more proactively the powerful tools we already have today, so we can start building a bridge for a brighter, more developed tomorrow. I envision this process happening on the base of continuous improvement and skilful developmental customization of video games' design based on integral frameworks, as well as in empirical tests and observations of different educational and developmental types of learning through various current and new video game applications. As an example, video games can start incorporating either *initial (pre-game)* or *"on the go"* integral personal assessments - e.g.: Personality types and styles (Enneagram, Myers-Briggs); Lines of Intelligence (Psychograph), Levels of Development (Spiral Dynamics); States of consciousness (Biofeedback) and Quadrants (Integral Intake; Marquis, 2007) - providing skillful customization and continuous re-adaptation to players' traits and development while playing those games, following "autopoetic" developmental adaptations (Esbjörn-Hargens, pc 2008; Wilber, 2007). As a result, these video games can be better suited to facilitate transference of skills from "virtual" to "real" life, and vice-versa. In order to be more effective, the design of these games will need to be also based on video games' intrinsic and exclusive mechanics, structure and language, instead of only borrowing or importing design concepts from other media (GDC, 2008).

*The Game Developers Conference 2008 (GDC 2008)*

One of the highlights of my mixed-methodological explorations was my attendance at the GDC 2008, one of the biggest gaming events in the world. Besides having the "time of my life" in the midst of so much creativity, fun and technological innovations, I had the opportunity to interview Daniel Erickson as part of my *Hermeneutical Analysis*. Erickson is a lead designer of *Bioware,* one of the most successful video game companies nowadays that tend to explore some higher moral developmental altitudes (Orange & above) in some of their games' narratives and storytelling[10]. From that interview, I could get a clearer "insider's view" of my developmental topic that helped to shed a more granular light into its main challenges and potentials; which nevertheless were in basic resonance with general comments from Kurzweil (2008) and my other interviewees presented in this paper (Wilber, Zeitler, and Gannon).

While at GDC 2008, I also realized through my *Ethnomethodological* and *Systems Analysis* that video games have currently multiplied through dozens of different genres *(see Appendix #2)*, cultures and sub-cultures - including an increasingly influential category of video games being exclusively designed for education, training, health and social change, mostly through the initiatives of the *Serious Games* movement, which had a special summit at GDC 2008 (*see Appendix #2*). According to Akira Baba (GDC 2008), a video game researcher from the University of Tokyo, there is still certain distrust for *serious games* in the United States related to the idea that games could actually serve for non-entertainment purposes - although some common games such as *The Sims, Madden, Sim City,* and *Flight Simulators* have been re-customized (*mods*) for "serious" purposes by players, trainers or researchers. He claims that in Japan there is not a fine line between the concepts of entertainment and non-entertainment, and offers his own definition of serious games (Japan style): "Digital games that are scientific evaluated by empirical data and analysis … [geared to] improve people's lives." Baba (GDC 2008) also highlighted the great importance of *designing video games based on both empirical analysis and theoretical models,* an insight that is in great alignment with integral frameworks explored in my paper and research.

## III. Developmental Learning and Education through Video Games

[10] *Bioware* video games include: *Jade Empire, Star Wars: Knights of the Old Republic,* and *Mass Effect* (among others).

Based on my *Ethnomethodological* and *Systems Analysys*, I realized that one of the main empirical "bridges" that can be explored to facilitate the use of video games for developmental purposes is the field of education. Academic research about the positive impact and influences of video games in education is still in its baby steps, even though investments in "game-based learning" had already reached the amount of $125,000,000 in the year of 2006 (Blunt, 2006). Since then, an increasing number of contemporary academic studies have been gradually proving their efficiency and success (Blunt, 2006; McDivitt, 2006; Baba, Hichibe & Tomiyasu, GDC 2008). In terms of current educational applications, I found in my research (Gee, 2007, 2003; Bogost, 2007, 2006; Prensky, 2000; Blunt, 2006; Johnson, 2005; Quinn, 2005; and Aldrich 2005, 2003) that existent video games can be generally divided in *three main categories related to promoting different kinds of learning* corresponding to distinct aspects of AQAL, especially the Lines of Intelligence. These three learning categories can often intersect with each other within a specific video game genre and design.

I also noticed that these three types of learning can occur either *directly* - e.g.: purposefully designed, such as in "serious games" - or *indirectly* - e.g.: non-purposefully designed or collateral. The collateral type of learning tends to occur in most video games independent of their content (Johnson, 2005), but can be especially significant in popular role playing (RPG) and adventure games (Gee, 2007). So, on one hand, video games can promote:

1. Education to facilitate *acquisition of information*: Formal and Conventional orientation. This type of learning is important for human development purposes in terms of Horizontal (translation) types of growth (Wilber, 2007), although it is more connected to less complex cognitive aspects (e.g.: memorization).
2. Education to facilitate *learning processes*: Cognitive and Social orientation, also called *Soft or Thinking Skills* by the author and designer of educational simulations Clark Aldrich (2005). This kind of learning has a special importance for developmental purposes, since it is related to underlying, deeper and more complex cognitive functions often associated with both Horizontal and Vertical (transformative) types of growth (Wilber, 2007) in various *Lines of Intelligence* (e.g.: Emotional, Interpersonal, Self-identity, Morals, Values).
3. Education to facilitate *concrete actions*: Technical and Training orientation, also called *Hard or Action Skills* (Aldrich, 2005). This kind of learning is also important for human development purposes, especially in relation to certain Lines of Intelligence such as Talents

(or gifts) (e.g.: Music, Math, Kinesthetic, Spacial) – and is closely related to various action-oriented and practical manifestations coming from most Lines of Intelligence.

On the other hand - and what is most important for my proposal - I observed through different methodologies in my research a "gap" associated with a lack of significant initiatives being explored in terms of promoting:

**4.** Education to facilitate *human development* - as defined by Integral Theory (Wilber, 2007): Transformative and integrative orientation. This kind of education is closely related to the soft skills involved in learning processes, although it also embraces acquisition of information and concrete actions.

*However, what makes it distinct from the others is the focus on the individual as an integrated and multi-dimensional whole*; embracing a broader sense of "Self" that extends through, and is influenced by all of the five fundamental aspects of AQAL (Wilber, 2000). In terms of Integral Psychology (Wilber, 2007, 2000), it will be necessary for video games to promote a skillful and timely balance of awareness, support and challenge in order to catalyze integration, growth and transformation in terms of the five aspects of AQAL, which correspond to the overall Self of video game players. Due to the small scope of my paper and its main intention to provide just a brief overview of the topic, I did not focus much deeply in any of these specific aspects, besides providing a summary in the Appendix #1.

Based on those three educational distinctions, one of my basic proposals is to improve and expand their applications by intentionally designing video games to skillfully incorporate the fourth developmental and integrative type of education aimed to catalyze human development.

*Developmental Cross-Training*

By observing through my research how random, indirect, collateral, limited, and/or fragmented different aspects of human development tends to happen in terms of various Lines of Intelligence and other aspects of AQAL, *I realized the fundamental importance of categorizing and embracing those five main categories into a more integrated and complementary video game design approach*. This *Integral Approach to Video Game Design* contains a theoretical and practical framework that can provide a clearer, deeper and more comprehensive exploration of those different perspectives and their complementary relationship to the overall process of

human development – resulting in more focused and effective video game design applications (see summary in the Appendix #1).

Based on that, parents, gamers, coaches, counselors, teachers, leaders and institutions would have a clearer and better sense of the best ways to use those video games for their various developmental and educational intentions and goals. As an illustration of how these concepts can be strategically used, take the Lines of Intelligence for example. According to Wilber (2007), George Leonard and Michael Murphy (2005), to the extent that we engage in some kind of "cross-training" program for human development that can cover some of our main Lines of Intelligence, more will be the chances that growth in one or more lines start to literally "push" development in the others[11]. Based on the emergent concept of Integral Life Practice (ILP) (Wilber, Patten, Leonard & Morelli, 2008) - composed by an "Ultimate Body, Mind, Spirit Cross-Training" designed to facilitate a healthier, fuller and more integrated processes of human development - it is also one of my intentions to integrate (as much as possible) at least the ILP's core developmental modules (and some auxiliary practices) into the structural design of these new video games, adapting them to different genres, storylines and content.

These ILP modules are composed by interdependent and complementary core practices related to Body (physical, kinesthetic and somatic), Mind (intellect and emotions), Spirit (existential and spiritual), and "Shadow" (unconscious or repressed psychological aspects[12]) (Wilber, 2000; Jung, 1989) - besides other auxiliary modules (ethics, sex, work, emotions, relationships). In my view, some of these modules can be skillfully and subtly (see Trojan Horse approach, p. 8) incorporated in the design of a specific "cross-training" video game, or divided in several game modules or levels in a concise video game within a complete developmental package. As a result, these video games will be able to provide customized but subliminal Integral *Virtual* Life Practices to players that otherwise would not have interest, knowledge or "time" to engage in such developmental activities. Moreover, they will be also capable to support the ILP of players interested in exercise some aspects of themselves that would be either more difficult, time consuming or risky to explore in their "real lives"; both in solo or in group.

[11] The same inter-dependent developmental process can also happen in relation to *Quadrants* in the AQAL model.
[12] See more details on the relationships between shadows, human development and video games on page 10.

*Video games Re-Integrating the Big Three of Arts, Morals and Science*

One of the greater potentials of video games is related to the fact that we now have the ability to actually *interact* with a mass medium of communication that can be intentionally designed to deliver developmental "packages" skillfully designed to catalyze personal and spiritual growth in mass scale - in contrast to non-interactive or passive processes of learning absorption generally provided by other forms of media. Based on that, I invite you to start looking around at what is happening in terms of the leading edge of technological and artistic research in the planet, and start linking them to the idea of creating interactive tools that can integrate entertainment and human development. In my view, video games can potentially re-integrate the big three of *arts* (computer graphics), *morals* (human development) and *science* (technology) in a multi-functional media, allowing players to access both "the beautiful, the good and the true" (Wilber, 1996) through the sheer and transformative experience of "play"…

*Integral Play Framework*

According to Integral Play (Gordon & Esbjörn-Hargens, 2007), an integral theoretical framework developed by Gwen Gordon, M.A. - educational designer and transpersonal play researcher - and Sean Esbjörn-Hargens, Ph.D, the experience of "play" can integrate various developmental aspects by allowing players to experience both *Horizontal growth* and *Vertical growth* in specific contextual playgrounds, as well as through various states of engagement and flow. One of the core elements of their theory is the exploration of "how play is not only an epiphenomenon but also an instigator of transformation" (p. 62). As suggested by this developmental theory, the experience of play can - from an integral perspective - not only embrace but strongly support the continuous growth of various "Play Selves." These Play Selves correspond to consecutive and embracing levels of inner development ranging from pre-personal (pre-rational), to personal (rational), to post-personal (post-rational), to transpersonal (or spiritual) stages of inner growth. In summary, Gordon & Esbjörn-Hargens (2007) Integral Play framework offers a thorough and well founded developmental model of play, which can be integrated with the ILP and used to facilitate inner integration and transformation through the "Conveyor Belt" of childhood, adolescence and adulthood, as well as to catalyze further development throughout adulthood stages and beyond, a subject rarely explored in other

conventional developmental theories (Cook-Greuter, 2005).

*Final thoughts*

After reading this paper, you may either be now a fan of "developmental video games", or you may still be thinking: *Ok, <u>but</u> can video games be really designed to catalyze human development?* Most probably, you may be within the broad range between those extremes.

I will give you then one more interesting reason to support the developmental potentials of video games, this time based on history. Whether some may like or not, we are already fully immersed in the information technology age, meaning that a lot of aspects of life that we were accustomed with are gradually and radically changing as time goes by. There is a common historical pattern related to how human beings tend to initially react to radical technological innovations (Johnson, 2005; Kurzweil, 1999), which happened with the advent of the telephone, TV, movies, and more recently, the Internet. For those who still remember, there were also a lot of recent doubts and scepticism in the beginning of the Internet. Many people actually doubted that the Internet could be a powerful and useful media, as many visionaries initially claimed. However, the inaccuracies of those doubts are quite flagrant nowadays. I see video games and virtual reality simulators as being the natural followers of the revolutionary advent of the Internet, gradually bringing into the foreground of our daily life a second wave of radical transformation in the way we deal, use and interact with technology.

After all, why not? If books related to self-help, personal improvement and spiritual awareness have been successfully around for several years; if millions of people have benefited of using all kinds of media tools related to personal and spiritual growth - such as audio books, CDs, DVDs, talk shows, web pages, biofeedback interfaces, therapeutic and meditative technologies; if web 2.0 community portals are starting to bring developmental messages and applications into the mainstream; if movies and theater plays have been already used for many therapeutic purposes; if religions and spiritual traditions have been using for centuries all kind of artistic media to invoke inner transformation, then I ask: Why not video games?

For me, these are important questions to be made at this auspicious moment of great opportunities represented by the contemporary advances of the video game industry, as well as the fields of developmental psychology and other integral developmental frameworks. In my view, video games as popular virtual reality simulators have the *potential to provide highly*

*engaging and joyful interactive experiences related to "real tim*e" *and "hands on" practical learning and transformation towards personal and spiritual development through the Conveyor Belt of growth* - set in skillfully customizable "virtual worlds" or casual gaming realities that can be eventually transferred into real situations and experiences in the "real world."

In my view, we are now in a great, timely and also critically needed position to start integrating the *big three* of all artistic (beauty), developmental (good) and technological (true) systems we have been building around us in the last century, so we can start using them in more proactive and constructive ways. In my view, video games can be a significant example of that, even if we need (for now) to use surreptitious *Trojan Horse* developmental approaches due to our collective center of gravity as a culture and society. He have now in our hands the great possibility of exploring these emergent potentials through novel and creative applications, in order to create more healthy, useful and proactive entertainment experiences; and as a result of that, a better world for all of us to live, play and enjoy, in both *virtual* and *real* ways. As the old Jewish prophet Hillel used to say, *"if not now, when?"* - which I add: "*If not us, who"?*

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## Appendix #1

Summary of the Fundamental Design Concepts to Catalyze Human Development

Based on current educational and developmental research on video games - *Integral Theory (Psychology and Spirituality)*, *Integral Life Practice* (Wilber, 2007) and *Integral Play* (Gordon & Esbjörn-Hargens, 2007) - in order to promote a more comprehensive and effective design framework, video games will need to purposefully take into account a series of aspects related to scientifically observed dynamics of human development (Wilber, 2000; Kegan, 1998). Some of these main aspects are:

1. Continuous exploration and improvement of alternative video game designs incorporating new technological interfaces – e.g.: Biofeedback (Wild Divine, Emotiv), upcoming 3D interfaces (Apple), and customized tools and practices related to human development based on developmental and integral psychology frameworks. These improvements will be allied with empirical tests and observations of different educational and developmental types of learning through various current and new video game research and applications.

2. In terms of Integral Theory (Wilber, 2007), it will be necessary for video games to provide a skillful and timely balance of awareness, support and challenge to players in order to facilitate inner integration, growth and transformation of *five fundamental aspects* related to their overall process of human development:

- *Levels of Development*, including psychological and spiritual growth in both Horizontal and Vertical types of development, as well as in individual and collective (multi-player and MMO) applications.
- *Lines of Multiple Intelligences* (Gardner, 2006), divided in Cognitive line, Self-Related Lines, and Talents line (Wilber, 2008); as well as cross-training between two or more *lines of intelligence* based on the Integral Life Practice (ILP) framework.
- *States of Consciousness*, including inner states of consciousness (Wilber, 2007), moods, and emotional tones. It would also include training positive, healthy and growth-inducing altered states of consciousness (e.g.: flow, joy, awe, love, relaxation, meditation, mindfulness, creativity, peek experiences).
- *Types or Styles*: *Genres* (masculine vs. feminine; yin vs. yang); *Styles* (aggressive vs. passive; individualistic vs. communitarian; leader vs. follower; thinker vs. feeler); and especially *Personality types* (Enneagram, Myers-Briggs).

- *Quadrants or the four basic dimensions of reality*: *Subjective* (psychological, emotional, intellectual, spiritual); *Inter-subjective* (relationships, worldviews, cultures and sub-cultures); *Objective* (physical body, behaviors); and *Inter-objective* (systemic, social, economical, institutional, educational) aspects. Ideally, a player would need to "touch bases" with basic aspects of all those four dimensions, experiencing different kinds of growth and integration both within each dimension and among all them, since their intrinsic interdependence and complementarities.

2. Incorporation of initial or "on the go" personal assessments based on the five main aspects of human development - e.g.: Personality types and styles (Enneagram, Myers-Briggs); Lines of Intelligence and Levels of Development (Spiral Dynamics, Sentence Completion Test, Psychograph, ILP); and States of consciousness (Biofeedback interfaces).

   Customization and continuous re-adaptation of video games according to these personal assessments and to player's inner development while playing those games, following a developmental "loop" of adaptation and learning (Esbjörn-Hargens, 2008; Wilber, 2007).

3. Maintenance and nurturance of the basic purposes of entertainment and economical profitability characteristic of successful video games, adding subtle and skilful strategies of incorporation of developmental messages and practices into the basic structure of these new video games (Trojan Horse concept).

4. Integration of some of the core developmental modules of Integral Life Practice (ILP) (Wilber, 2007) into the structural design of video games. These modules are composed by interdependent and complementary practices related to Body (physical, kinesthetic), Mind (intellect and emotions), Spirit (existential and spiritual), and "Shadow" (unconscious or repressed psychological aspects).

5. Design video games that can simultaneously (or specifically) adapt to different players, providing messages and practices that could be interpreted and acted upon differently by various Play Selves (Integral Play framework) (Gordon & Esbjörn-Hargens, 2007).

6. Design video games based on their own intrinsic mechanics, structure and language, instead of only borrowing or importing design concepts from other media.

7. Facilitate awareness, transference and applications of skills from "virtual" to "real" life, and vice-versa.

## Appendix #2

Follow below a list of the main methodologies - Phenomenology, Structuralism, Hermeneutics, Ethnomethodology, Empiricism and Systems Theory - and respective areas of exploration used in my mixed-methods academic research:

**Zone 1**: Phenomenological exploration of my subjective experiences of playing different kinds of video games, as well as autobiographical inquiry, journals and observations.

**Zone 2**: Personality type self-explorations: Enneagram and Myers-Briggs to identify filters and patterns. Developmental assessments: Cook-Greuter's (2008) Sentence Completion Test.

**Zone 3**: Interviews and discussions with a hardcore gamer and IT professional, two lead integral thinkers - Ken Wilber, David Zeitler - and a lead video game designer - Daniel Erickson from *Bioware*.

**Zone 4**: Full 5-day Participant-Observer attendance at the *Game Developers Conference* (GDC 2008), which counted with +16,000 participants and +120 expositors.

**Zone 6**: Empirical survey: Comparative analysis of 150 people from 3 different groups related to video games, human development, and people having interest in both areas.

**Zone 8**: Systems analysis: Educational systems as related to video games, Integral Education and Integral Play Theory.

**Plus:** Extensive academic literature review and media research (see appendix #10).

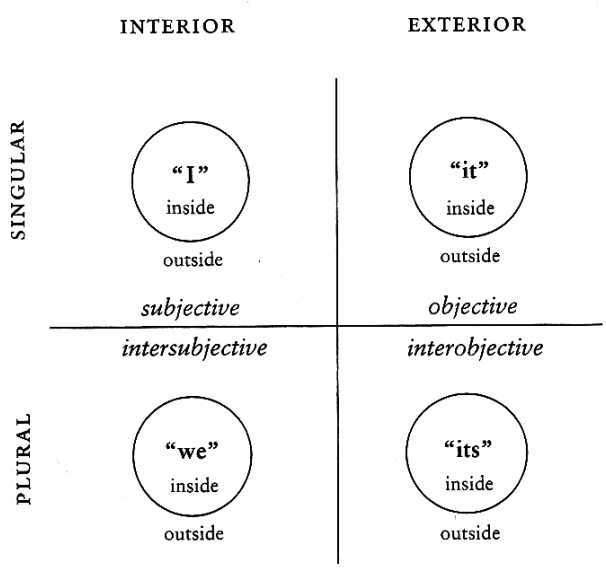



*Figure 1.2. 8 Primordial Perspectives.*

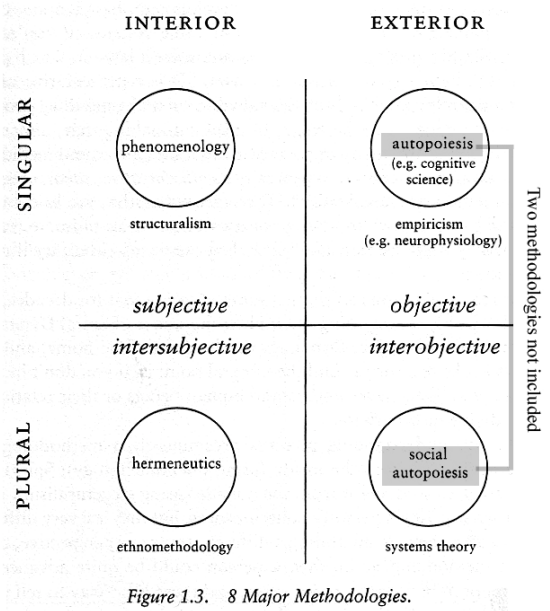
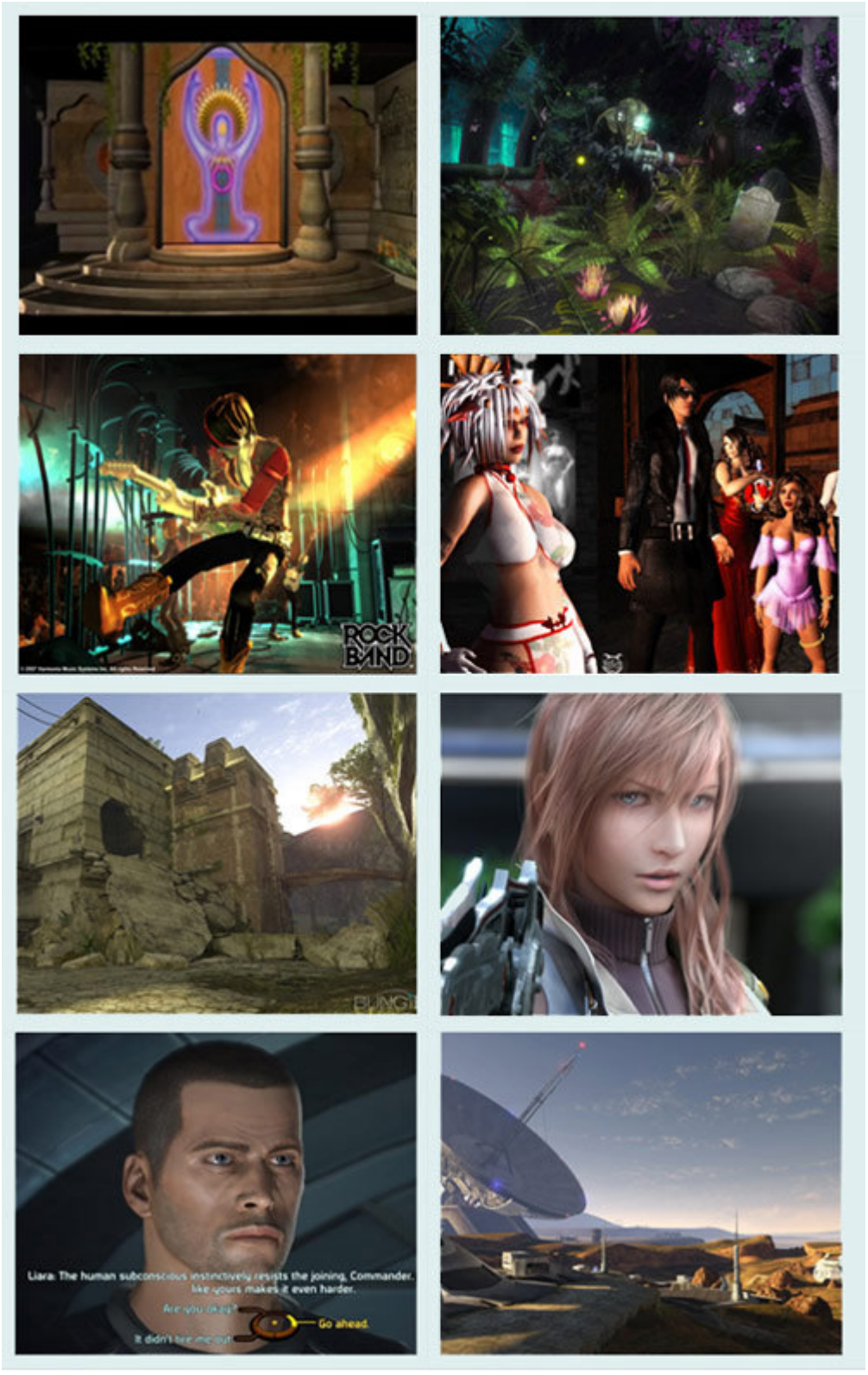



*Figure 1.3. 8 Major Methodologies.*

Diagrams extracted from Wilber, 2007 (observations in color gray added)

**Appendix #3**: High resolution screen shots of video games (left to right, top to bottom):

*Journey of the Wild Divine*, *Bioshock*, *Rockband*, *Second Life*, *Halo 3, Final Fantasy III, Mass Effect and Halo 3.*



# Appendix #4

Phenomenological analysis of my subjective experience of playing some video games

## Table #1 – Definitions (see page 33)

In relation to the definitions of subjective measurements related to various aspects presented in the Table #1 (page 33), I proposed *3 qualitative grades, related to each one of the categories and sub-categories presented in the table with slightly different meanings (see below)*:

| | |
|---|---|
| ***Strong (S)*** | Meaning strongly used or requested (Lines); strong intensity (States); clearly apparent or strongly impressive (Quadrants); strongly present (Integral Play). |
| ***Medium (M)*** | Meaning mildly used or requested (Lines); mild intensity (States); somewhat apparent or mildly impressive (Quadrants); mildly present (Integral Play). |
| ***Weak (W)*** | Meaning barely (or not) used or requested (Lines); low (or none) intensity; barely apparent or inexistent.(Quadrants); barely (or not) present (Integral Play). |

I made use of these graduations to analyze all the AQAL aspects, with exception of *Levels* and *Types*, which are discussed below. It is important to note that my graduations and classifications in the table reflected my own phenomenological experience of playing those video games, and may not coincide with the experience of other players, empirical observations and/or third, party reviews.

In relation to the AQAL (Wilber, 2007) and Integral Play (Gordon & Esbjörn-Hargens, 2007) aspects on Table #1, I considered the following sections and sub-sections:

| ***(1) Quadrants***<br>My personal experience of the play in relation to: | |
|---|---|
| ***(UL)* Upper Left**<br>*Subjective dimensions of experience divided in:* | (i) intentionality - as related to exercising multiple choices and free will. |
| | (e) emotions - fear, anger, greed, envy, excitement, pride, lust, etc. |
| | (f) feelings - joy, compassion, confidence, affection, peacefulness, courage, etc. |
| ***(UR)* Upper Right**<br>Objective & behavioral dimensions, divided in: | (a) actions, (b) behaviors, and (p) physical movements. |
| ***(LL) Lower Left***<br>Inter-subjective & cultural dimensions, divided in: | (m) meanings, (r) relationships, and (c) cultural aspects. |
| ***(LR) Lower Right***<br>Inter-objective & systemic dimensions, divided in: | (r) rules, (v) virtual environments, (s) social systems. |

| ***(2) Levels*** | |
|---|---|
| My personal experience of the play based on the *altitude (levels) scale of colors* (Wilber, 2007): | |
| ***Higher Edge*** level of the play | Note:<br>The altitude scale of colors refers to the grading of the following levels of development (from low to high): Magenta, Red, Amber, Orange, Green, Teal and Turquoise (Wilber, 2007). |
| ***Center of Gravity*** level of the play | |
| ***Lower Edge*** **level** of the play | |

| ***(3) Types*** |
|---|
| 3. My personal experience of the gender dynamics of the play related to: |
| (1) ***Feminine (Fem) vs. Masculine (Mas)*** |
| (2) The most perceptible *Enneagram* aspects present in these video games, such as: |
| **Main personality type (m#)** |
| **Integration towards type… (i#)** |
| **Disintegration towards type… (d#)** |
| **Wing types (w#).** |

| ***(4) Lines of intelligence*** | |
|---|---|
| My personal experience of the dynamics of the play related to the: | |
| **Line** | **Typical Developmental Researcher** |
| ***Cognitive line*** – *What am I aware of?* | **Piaget, Kegan** |
| ***Kinesthetic line*** – *How should I physically do this?*<br>*(I used it in terms of engaging more my full body)* | **Gardner** |
| ***Sensory-motor line*** –<br>*How should I react to this quickly? (definition by writer)* | **Piaget** |
| ***Interpersonal line*** – *How should we interact?* | **Selman, Perry** |
| ***Moral line*** – *What right to do?* | **Kohlberg** |
| ***Spiritual line*** – *What is of ultimate concern?* | **Fowler** |

Definitions based on Wilber (2007)

| ***(5) States*** **of awareness:** |
|---|
| My personal experience in relation to: (involved during the play) |
| ***Gross state*** (physical body: kinesthetic dynamics) |
| ***Subtle state*** (subtle body: energetic dynamics) |
| ***Causal state*** (causal body: mindfulness dynamics) |

| ***(6) Play Selves*** |
|---|
| My personal experience in relation to the different *Levels of Play Selves* (Gordon & Esbjörn-Hargens, 2007) being exercised in the act of play. |
| **See appendix #6, p. 36, table (2) Developmental Levels of Players** |

## Appendix #4 (cont.): Table #1

Table #1: Phenomenological experience of video games* based on AQAL and Integral Play categories (see label descriptions in Appendix #1 in page 42)

| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Video Games** | Bioshock | Need for Speed | Fifa Soccer 2006 | The Sims 2 | Guitar hero III | Dance Dance Revolution | Rockband | GTA San Andreas 3 | Second Life | Big Brother Brazil | Lula 3D | Journey into the Wild Divine |
| 2 | **Categories** | Action | Racing | Sports | Simulation | Musical | Musical | Musical | Indie | MMO Community | Community | Adult Sex | Spiritual |
| 3 | | | | | | | | | | | | | |
| 4 | ***AQAL*** | | | | | | | | | | | | |
| 5 | **Quadrants** | | | | | | | | | | | | |
| 6 | Upper Left | Si Se Mf | Wi Se Wf | Mi Se Wf | Mi Me Mf | Wi Se Sf | Wi Se Sf | Wi Se Sf | Wi Se Wf | Si Se Sf | Wi Me Mf | Wi Me Wf | Si Me Mf |
| 7 | Upper Right | Sa Sb Wp | Sa Wb Mp | Sa Mb Wp* | Wa Sb Wp | Sa Wb Mp | Sa Wb Sp | Sa Wb Sp | Sa Sb Wp | Ma Sb Wp | Wa Sb Wp | Wa Mb Wp | Ma Mb Wp |
| 8 | Lower Left | Mm Wr Mc | Wm Wr Wc | Wm Mr Mc | Mm Sr Sc | Wm Mr Mc | Wm Sr Mc | Wm Mr Mc | Wm Wr Mc | Mm Sr Sc | Wm Sr Sc | Wm Mr Mc | Sm Mr Sc |
| 9 | Lower Right | Mr Sv Ms | Mr Sv Ms | Sr Sv Ss | Sr Mv Ss | Mr Sv Ws | Mr Wv Ws | Mr Sv Ws | Mr Sv Sc | Wr Sv Ss | Sr Wv Ss | Mr Mv Sc | Mr Mv Ms |
| 10 | **Levels** | | | | | | | | | | | | |
| 11 | Higher edge | Teal | Orange | Orange | Green | Orange | Orange | Orange | Orange | Integral | Green | Orange | Teal |
| 12 | Center of gravity | Orange | Amber | Amber | Amber | Amber | Amber | Amber | Red | Green | Amber | Red | Green |
| 13 | Lower edge | Red | Red | Red | Red | Red | Red | Red | Magenta | Red | Red | Magenta | Amber |
| 14 | **States** | | | | | | | | | | | | |
| 15 | Gross | S | S | S | S | S | S | S | S | M | S | S | M |
| 16 | Subtle | M | M | M | M | S | S | S | M | M | M | M | S |
| 17 | Causal | W | W | W | W | M | M | M | W | W | W | W | M |
| 18 | **Lines** | | | | | | | | | | | | |
| 19 | Cognitive | M | M | M | M | M | M | M | M | M | M | M | M |
| 20 | Emotional | M | W | W | M | M | M | M | W | S | M | W | M |
| 21 | Interpersonal | W | W | M | S | M | S | S | W | S | S | M | M |
| 22 | Kinesthetic | S | S | S | W | S | S | S | S | W | W | W | M |
| 23 | Sensory-motor | S | S | S | W | S | S | S | S | W | W | W | W |
| 24 | Moral | M | W | W | M | W | W | W | W | M | M | W | M |
| 25 | Spiritual | W | W | W | W | W | W | W | W | W | W | W | S |
| 26 | **Types** | | | | | | | | | | | | |
| 27 | Gender dynamics | Mas | Mas | Mas / Fem | Mas / Fem | Mas / Fem | Mas / Fem | Mas / Fem | Mas | Mas / Fem | Mas / Fem | Mas | Mas / Fem |
| 28 | Enneagram | m8 i2 w9 | m7 d1 | m7 d1 | m9 i3 w8 | m7 d1 | m7 d1 | m7 d1 | m8 w7 | m7 i5 | m3 d9 w2 | m8 w7 i2 | m9 i3 w1 |
| 29 | | | | | | | | | | | | | |
| 30 | ***Integral Play*** | | | | | | | | | | | | |
| 31 | **Play selves** | | | | | | | | | | | | |
| 32 | Magical | M | W | W | W | W | W | W | S | S | W | M | M |
| 33 | Aggressive | S | M | M | W | W | W | W | S | W | W | M | W |
| 34 | Ordered | W | W | S | S | M | M | M | W | S | S | W | M |
| 35 | Status | M | S | S | S | S | S | S | S | S | S | M | M |
| 36 | Sensitive | M | W | M | S | M | M | M | W | S | M | W | S |
| 37 | Complex | M | W | W | M | W | W | W | W | S | M | W | M |
| 38 | Dynamic | W | W | W | W | W | W | W | W | W | W | W | M |
| 39 | Ego-aware | W | W | W | W | W | W | W | W | W | W | W | M |

* Partial list of video games to be completed, see full list on pages 11 & 12.

**Appendix #5 –** Video game genres

## Video games genres (examples added)

**1 Action**
1.1 Action-adventure *Bioshock, Mass Effect*
1.1.1 Stealth *The Legend of Zelda, Metal Gear series*
1.1.2 Survival horror *Bioshock, Silent Hill series*
1.2 Beat 'em up and Hack and slash
1.3 Fighting *Fight Club, Street Fighter series*
1.4 Maze *Portal, Pac Man*
1.5 Platform *Super Mario Bros*
1.6 Shooter *Space Invaders*
1.6.1 First-person shooter *Bioshock, Call of Duty 4*
1.6.2 Massively multiplayer online first person shooter
1.6.3 Tactical shooter
1.6.4 Third-person shooter *Grand Theft Auto (GTA) IV*
1.6.5 Rail shooters and light guns *Space Harrier*
1.6.6 Shoot 'em up *Ikaruga*
1.7 Side-scrolling *Sonic the Hedgedog*

**2 Adventure**
2.1 Text adventure / Interactive fiction *Myst*
2.2 Graphical adventure *Fable, Final Fantasy XI*
2.3 Visual novel *Ace Attorney, Magical Date*
2.4 Interactive movie *Dragon's Lair, Resident Evil 4*
2.5 Dialog game *Mass Effect*

**3 Construction and management simulation**
3.1 City-building *City LIfe, SimCity*
3.2 Economic simulation *Zapitalism*
3.3 God games *Deus Ex*
3.4 Government simulation *Civilization series*

**4 Life simulation**
4.1 Biological simulation *Spore, Populous, Sim Earth*
4.2 Pet-raising simulation
4.3 Social simulation *The Sims series*

Source: Wikipedia, 2008 (games added)

**5 Role-playing**
5.1 Action role-playing *Bioshock, Mass Effect, Jade Emprire*
5.2 Massively multiplayer online role-playing *Maple Story, The Lord of the Rings World of War Craft, Enter the Matrix, Second Life*
5.3 Tactical role-playing *Final Fantasy Tactics*

**6 Strategy**
6.1 Real-time strategy and turn-based strategy *Close Combat*
6.2 Tactical games *America's Army*
6.3 4X *Command and Conquer, Age of Empires*
6.4 Artillery *Call of Duty 4*

**7 Vehicle simulation**
7.1 Flight *Flight Simulator series*
7.2 Racing *Need for Speed, Mario Kart*
7.3 Space *Mass Effect, Star Wars*
7.4 Train *A-Train*
7.5 Vehicular combat *GTA IV, Interstate 82*

**8 Other notable genres**
8.1 Music *Rock Band, Guitar Hero III*
8.2 Party *Dance Dance Revolution, Mario Party*
8.3 Pinball *Visual Pinball*
8.4 Programming *Final Fantasy XIII*
8.5 Puzzle *Portal, Tetris*
8.6 Sports *Fifa Soccer series, Wii Sports*
8.7 Traditional *Pac Man, Donkey Kong*

**9 Video game genres by purpose**
9.1 Adult *Lula 3D, Playboy Mansion*
9.2 Advergame *Burger King*
9.3 Casual *Crayon Physics, Flow*
9.4 Christian *Left Behind*
9.5 Educational *Brain Age series*
9.6 Exergame *Wii Fit games*
9.7 Serious *Go to www.seriousgames.org*

**10. Spiritual** *Journey of the Wild Divine Night's Journey*

## **Appendix #6–** Integral Play Framework

All tables based on data from Gordon & Esbjörn-Hargens' (2007) Integral Play framework and Integral Theory (Wilber, 2007). Some definitions were omitted, added or modified according to my research subject (colors added)

| **(1) Quadrants: Individual, Collective, Exterior and Interior perspectives** | |
|---|---|
| **(UL) Upper Left -** Subjective dimensions<br>How is my subjective ***experience*** while playing a video game. | **(UR) Upper Right -** Objective & behavioral dimensions<br>What ***actions and behaviors*** are induced by a video game. |
| **(LL) Lower Left –** Inter-subjective & cultural dimensions<br>The ***meaning*** of my video game play experience. | **(LR) Lower Right -** Inter-objective & systemic dimensions<br>What are the ***structures, rules & systems*** involved in a video game. |

| **(2) Developmental levels of Players** | | |
|---|---|---|
| **Play Self Level** | Play Rhetoric | Developmental Stage (Sutton-Smith, 2003) |
| **Unitive Player** | "Trans-personal" video games | Frivolous oriented video games |
| **Dynamic Player** | Transition | Transition |
| **Complex Player** | Post-personal - Post-modern video games | Higher-Self oriented video games |
| **Sensitive Player** | Transition | Imaginative oriented video games |
| **Status Player** | Personal - Modern video games | Personality oriented & Progress oriented |
| **Ordered Player** | Transition | Social role oriented video games |
| **Aggressive Player** | Pre-personal - Pre-modern video games | Power oriented video games |
| **Magical Player** | Pre-personal - Pre-modern video games | Fate oriented video games |

| **(3) Types or Styles of Players** |
|---|
| **Individual & Interior aspects:** *Particular inner inclinations, talents, etc.* |
| **Individual & Exterior aspects:** *Particular behaviors, personality traits and body types, etc.* |
| **Collective & Interior aspects:** *Particular interpersonal, cultural, spiritual or religious beliefs and worldviews, etc.* |
| **Collective & Exterior aspects:** *Particular educational styles; video game themes, etc.* |
| **Also personality types:** Astrological archetypes; Myers-Briggs personality test, Enneagram system |

| **(4) Lines of intelligence** |
|---|
| **Cognitive line -** "What is this video game about?" |
| **Emotional line -** "How do I feel by playing this video game?" |
| **Interpersonal capacity line-** "How should I interact with other video game players?" |
| **Moral judgment line –** "What is right to do in playing this video game?" |
| **Kinesthetic sense -** "How do I move in this video game (or how do I move my body while playing it?)" |
| ***Spiritual line*** - "What is of ultimate concern in the core message of this video game?" (Wilber, 2007) |
| And many others… |

| (5) States of consciousness: Gross, Subtle and Causal, as well as Emotional states (see below) | |
|---|---|
| **"Positive emotional States"** | **"Negative" emotional States** |
| ***Excitation state*** | ***Fear state*** |
| ***Joy state*** | ***Depression state*** |
| ***Focus State*** | ***Anger state*** |
| ***Flow State*** | ***Anxiety State*** |
| ***Ecstasy state*** | ***Frustration state*** |
| ***Transpersonal state*** | ***Confusion state*** |
| And others… | And others… |

**Table 1: Transitional zones between each Play Self:** (Table extracted from Gordon & Esbjörn-Hargens, 2007)

| Transition Zone | Transitional Play |
|---|---|
| Dynamic to Unitive Player | Koans, paradox |
| Complex to Dynamic Player | Meditation, Action Inquiry, spontaneity |
| Sensitive to Complex Player | Improvisation, Bohmian Dialogue, collaborative art projects |
| Status to Sensitive Player | Cooperative Games, rope courses, the arts |
| Ordered to Status Player | Stock market, business competitions |
| Aggressive to Ordered Player | Competitive sports, fair and party games |
| Magical to Aggressive Player | Gambling, betting on results |

**Observation:**

As an example, this table presents what aspects each Play Self would need to be "challenged" in order to gradually move into the next developmental level. It addresses where to focus in terms of designing video games to intentionally facilitate players from any level of development (relative to any developmental Line of Intelligence) to take more a directed, effective, and "playful" path towards inner growth.

**Table 2: Potential negative aspects of each Play Self:** (Table extracted from Gordon & Esbjörn-Hargens, 2007)

| Play Selves | Disaster |
|---|---|
| Unitive Player | Manipulation of subtle energies and people's spiritual longings for personal gain |
| Dynamic Player | Manipulation of the complexity of the situation for unfair personal gain |
| Complex Player | Using awareness of others' weakness against them |
| Sensitive Player | Intolerance of lack of participation |
| Status Player | Being deceptive, opportunistic, manipulating others for their own gain |
| Ordered Player | Rigidity, exclusivity, intolerance of individuality |
| Aggressive Player | Cruelty, incapacity for empathy |
| Magical Player | Unnecessarily suspicious |

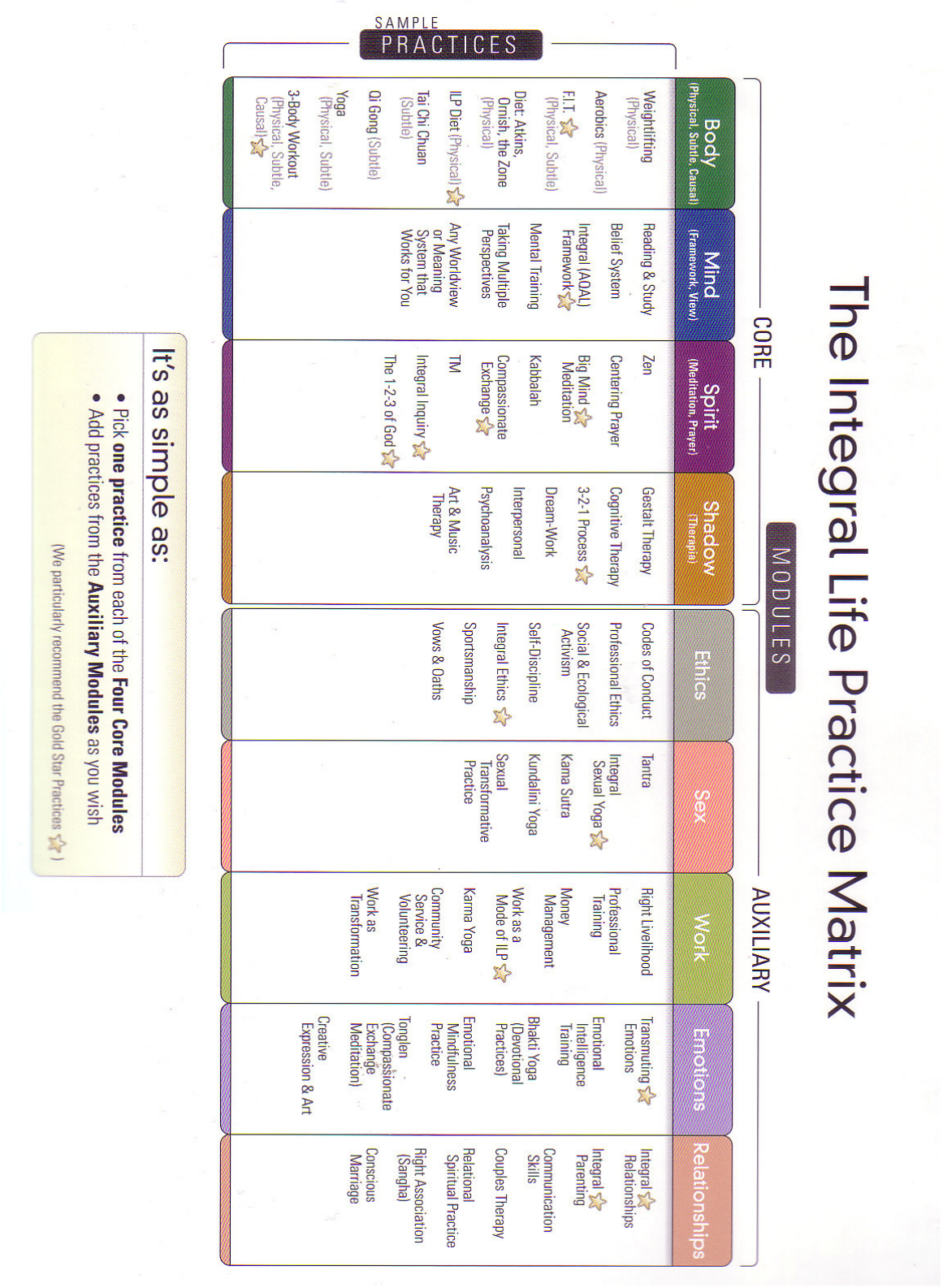
Figure 8. The Disasters of Play Selves

**Observation:**

When applied to my research topic, each of these potential "disasters" could be taken in account in the video game design, where a designer could either try to prevent them as much as possible, or "play" with these potentialities as "learning edges" to catalyze human development in relation to its five main aspects of AQAL (see page ).

The many potential applications of these two integrative and developmental concepts described above (tables 1 & 2) could take another whole research project…

**Appendix #7 –** Integral Life Practice framework



# **Appendix #8 –** Empirical Survey

## Analysis and Discussion

The data presented in the survey results brought a significant body of information into my research. Various correlations, observations and partial conclusions could be drawn from that, in many different ways and combinations. In addition to that, many confirmations and surprises were unfolded by doing this analysis, reflecting underlying influences that might have directed many of those responses based on different **AQAL categories** (Wilber, 2007) – e.g.: Personality types, genders, levels of personal and spiritual growth and integration, worldviews, beliefs, inclinations, bias, lines of intelligence, professions, social classes, cultural backgrounds, etc.

I am presenting below some of the aspects that I found most interesting or intriguing, relating them to their question number in the survey (Q#) and also associating this data with different categories of AQAL and the overall topic of the research.

**Group (1): people related to the subject *of personal and spiritual growth***
**Group (2): people related to the subject *of video games and video game design***
**Group (3): people related to the subjects of groups (1) and (2)**

Chart # 1
Number of participants & % (per group)

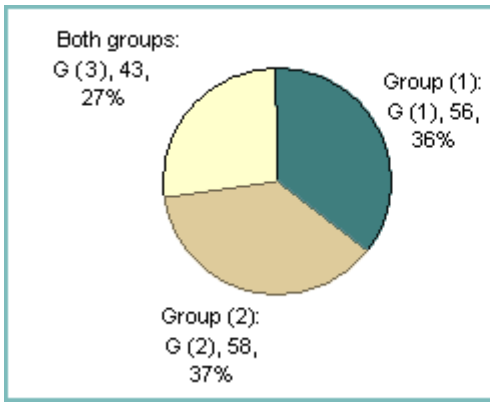
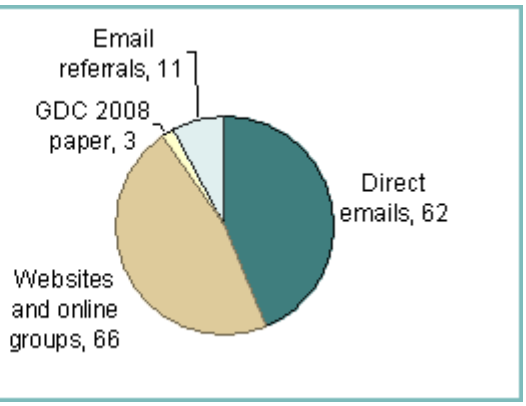



Chart # 2
Sources of distribution & number of responses




1. Surprisingly, the overall gender (Types) division of participants was somewhat balanced (79M, 58F), as well as in the ***group (1)*** (28M, 32F), in the ***group (2)*** (30M, 25F) and the in group of people belonging to the ***group (3)*** (19M, 16F), which represented those interested in the subjects of *groups (1) and (2)*. This balance of genders was intriguing for me especially in relation to the ***group (2)***, due to the fact that according to my observations at GDC 2008, most of participations were male (around 80 to 90%). I suppose this pattern may be due to the fact that the genders related to serious games may be more balanced in number, and also probably because women would tend to participate more in surveys related to inner growth (?) However, those are just suppositions at the moment, given this relatively short survey sample.

2. The professional roles (Q# introduction) of the participants (LR Quadrant) were spread in a very broad range, more than I expected from each group. That brought a richer number of shared experiences, perspectives and opinions into the survey.

3. In general, a significant number of people in all groups have played video games very often (29.5%) (Q#1). However, the difference of between the ***group (1)*** and the two others in terms of playing the past year was

significant (1-7 days *vs*. 91-270 days). But, in a quite surprising result, a significant number of people from all groups played more than 365 days in their whole lives (excluding last year). This was a really intriguing discovery, due to the fact that even many people from group (1) (26.1%) have played a lot of video games in the past, but not nowadays.

4. Most people in all groups experienced some growth while playing a video game (Q#2) in terms of different skills (Lines of Intelligence), which also differed between groups. ***Group (1)*** tended more towards growth on reflexes; the two other ***groups (2) and (3)*** towards intellectual growth. All agreed on coordination growth which had the third higher score**.** I wonder what underlies this difference in opinions, based in a general AQAL analysis of individual and collective perspectives (experiential, behavioral, cultural, social, professional, etc.). Other types of growth also listed were: playfulness, non-attachment, lucid dreaming, subtle energies, problem solving, cognitive, financial dexterity, social skills, acoustical, musical, ethical, strategy, relational, cooperation, teamwork, wisdom, writing inspiration, aesthetic, physical, self-esteem, stress management, witnessing, leadership skills, understanding human behavior, empathy, insight, artistic, cardio rate, educational, cultural appreciation, interpersonal relationships.

5. Most people in ***group (1)*** (47.1%) were cautious ("maybe") in terms of seeing the potential of *existing* video games to be used (directly or indirectly) for other areas besides entertainment (Q#3) (LR Quadrant). However, most people in the other two groups strongly agreed with this trend. As for the potential of video games in the *future* (Q#4), the ***group (1)*** tended to agree (58.8%), and the other remained mostly strongly agreeing. The majority of people in ***groups (2)*** (89.3%) ***and (3)*** (80%) think that "this is already happening", but a significant part of ***group (1)*** (46%) think this is going to happen only in terms of many years. These differences may probably show a certain bias, resistance and/or lack of knowledge of group (1) in relation to the subject, as well as maybe a more optimistic and/or expert approach of the other two groups, probably due to their professional experience, investment and/or familiarity with the topic. Also, they may reflect differences of views and interpretation of how video games could be possibly used in those contexts.

6. Most people in ***groups (1)*** (73.9%) **and** ***(3)*** (82.1%) considered that *existent* video games could improve *teaching* (Q#3) (see education in Systems analysis). Although most people of the ***group (2)*** were also agreeing on that, they considered *training* (88.5%) as the main channel for improvement. As for video games' potential in the *future* (Q#4), most people of ***group (1)*** (86.8%) matched training with teaching, most of ***group (2)*** (86.8%) remained the same, and a significant consensual majority of ***group (3)*** (94.7%) believed that video games will improve relationships in first place, which may reflect their experience, investment and/or familiarity in both worlds of humanities and technology. I found these differences in opinion fascinating, reflecting the importance to really take into account different and complementary perspectives in relation to this complex subject.

7. In relation to video games having the *potential* to enhance learning in intellectual and emotional ways (Q#5), both ***groups (2)*** (46.4%) **and** ***(3)*** (60%) strongly agree, but ***group (1)*** (46%) again was more cautious, although also tending to agree. The same pattern happened in relation to their opinions on video games having the potential to enhance experiential (embodied) learning and practical skills (Q#6), with a slightly smaller percentage of ***group (1)*** (37.3%) tending to agree, and boths ***group (2)*** (50%) and ***group (3)*** (55%) strongly agreeing in a short increase. Again, the same issues discussed in the item 5 may have exerted an influence on the different responses.

8. In terms of *existent* video games being used to facilitate personal growth (Q#7), surprisingly most of ***groups (2)*** (42.3%) **and** ***(3)*** (36.1%) tended to agree, but most of ***group (1)*** (54.2%) was again cautions ("maybe").
   In relation to spiritual (or religious) growth, both ***groups (1)*** (47.9%) **and** ***(3)*** (36.1%) kept their positions, but making an intriguing change, a significant part of ***group (2)*** (39.6%) tended to disagree**.** I think the reason for this change is probably due to a certain tendency of many people of group (2) to be "turned off" with the word "religious" (which I added as alternative to the word "spiritual" in order to cover a broader spectrum). But in any case, I found these differences of groups in relation to the spiritual or religious aspects really interesting, reflecting how complex such issues of inner beliefs, cultural bias and subjective interpretations can actually be.

9. As for the possibility of *future* video games being purposefully designed to facilitate personal growth (Q#8), most of ***groups (1)*** (45.8%) **and** ***(2)*** (47.2%) tended to agree, and most of ***group (3)*** (52.8%) strongly agreed.
   Again the same pattern of results of *item 5* showed up in terms of "when*"* these games will be (or are already being) able to provide it, although with decreased percentages for the last groups.
   In terms of the areas that still need to be improved to make this happen, a significant number of people form the ***groups (1)*** (82.3%) and ***(3)*** (77.1%) cited "*designer's intentions*". However, ***group (2)*** (69.8%) which had probably most game designers although they were also represented by the ***group (3)*** - cited "*deeper storytelling*". I also wonder what would be the underlying reason of this difference, which could also be related to some of the issues exposed in item 5 , in addition to possible differences of interpretation of the actual meaning related to those options.

   Interestingly, most of ***groups (1)*** (50%) **and** ***(2)*** (49.1%) would be wiling to play these "*personal growth*" video games "sometimes", and most of ***group (3)*** (61.8%) would play them "very often" (Q# 9). I think this answer brought a key information that could probably confirm the potential marketability of these video games related to personal growth, and actually point into an already existent (and latent) demand for them, as already seen in the blossoming market of best selling books related to self-help, personal and spiritual growth.

10. As for *the possibility of future* video games being purposefully designed to facilitate spiritual (or religious) growth, most of ***group (1)*** (42.6%) kept their position of tending to agree, although in a lesser percentage. Most of ***group (2)*** also lessened their percentage (35.8%) and changed to "maybe", as well as ***group (3)*** (34.3%) who matched in both tending to, and strongly agreeing. A different pattern happened in terms of "when*"* these games will be (or are already being) able to provide it (*items 5 and 9)*, with ***group (1)*** (61%) and ***group (2)*** (53.7%) thinking that this is going to happen only in terms of many years, and ***group (3)*** (48.5%) thinking that "this is already happening".
    In addition, all groups (73.9%) generally agreed in citing "*designer's intentions*" as the main areas that still need to be improved to make this happen. Finally, a significant but part of ***groups (1)*** (39.6%) **and** ***(2)*** (34%) would be willing to play these "*spiritual growth*" video games "sometimes", with the majority of ***group (3)*** (37.1%) willing to play them "very often" (Q# 10). This answer also added a significant data towards the confirmation of an existing demand and market potential for video games related to spiritual growth, even if lesser than those related to personal growth. However, since part of the definition of personal growth includes spiritual growth in the higher levels and lines of development, these video games would probably join those purposes along the way. It was stimulating to see a certain "dance" of values and opinions happening especially between ***groups (1)*** **and** ***(2),*** in terms of either dismissal, caution and/or optimism related to various issues (e.g.: religion, spirituality, usability, feasibility, efficiency, etc.), and the relatively more integrative and balanced views of ***group (3)***.

Finally, many participants offered their important and valuable comments, views, information, opinions and suggestions, both in terms of example of games (open questions) and related to the topic of the research as a whole (comments). I ended up using this all information as a background reference for other methodologies explored in this paper.

**Appendix #9 –** Further lines of exploration

In terms of recommendations for future research, I consider important to explore in more depth the "negative" potentials of video game and their relationship with those five main developmental aspects of AQAL, and how to possibly prevent these negative effects as much as we can in new and alternative video game designs. As I said previously in this paper, I basically covered the "dignity" of the potential of video games in relation to facilitating inner development, but not the potential "disasters". I say that especially in relation to the uses I intended in my research topic, which according to different situations (and players) could also bring potential issues not envisioned yet. These issues would include video games potentially promoting violence, aggression, addiction, physical injuries, "disembodiment", fragmentation, emotional problems, interpersonal issues (due to addiction), and alienation. Besides that, other individual, material, cultural and social issues would certainly continue to appear, disappear and/or co-exist with all the great potentials that lie ahead in their path. As I said during my Integral Research class presentation (March 2008): *"I don't know what could be the negative extent of some of those potentials issues, neither what's really going to happen in the future. The only thing I know is one thing – That there is no way back!"* And by saying that, I acknowledge the sometimes fuzzy but certainly purposeful and strong impulse of evolution in the Kosmos, either in the world of inner development, or the world of technology and video games, or any other world out there. And, most importantly, in the "worlds that those worlds" could co-create by bridging and integrating their own bodies of knowledge, which is one of the fundamental drives of Integral Theory (Wilber, 2007).

I would also apply the Integral Play Theory framework (Gordon & Esbjörn-Hargens, 2007) to a series of comparative studies about the relationships between various video game genres, video game players and Play Selves, as well as how to better apply these findings into designing more customized and efficient developmental games. I can also already envision a new video game rating that would go way beyond (both in depth and span) the current entertainment ratings already being applied in the market. Instead, a video game from a new developmental generation would also include ratings based on AQAL and Integral Play, qualitatively covering all aspects of these frameworks relative to what this video game was designed to provide.

In addition to that, I would also explore with more depth other Lines of Development

such as Fowler's Lines of Faith, and Kohlberg's Lines of Morals, which have intrinsic connections to the spiritual aspect of my research. I would also explore more extensively both somatic and kinesthetic developmental applications in video games, in order to better understand the potentials of using emergent and upcoming technologies - e.g.: Biofeedback (Wild Divine, NeuroSky, and Emotiv EEG interfaces (October 2008), which can recognize various basic emotions and use this data to interface with the games in a myriad of potentially useful developmental applications); 3D interfaces (upcoming from Apple); 3D displays (Zalman) and Domes (Z-Dome); Sensing mouse (Haptix); camera and movement recognition (full body and partial body) devices (Zcam, Cam-Trax, EyeTech, Nintendo Wii & Wii Fit); and the incorporation of existing motion capture devices used to build video game characters (Moven, Stage, PhaseSpace) into real-time interactive video game applications. In my view, these new technologies presented at the Game Developers Conference 2008 (GDC 2008) are the precursors of some of the upcoming revolutionary technological innovations predicted by Kurzewil (2008) and Wilber (pc, February, 2008; 2005).

Finally, I would investigate more thoroughly what are the most pressing educational, psychological, behavioral, cultural and social issues in the academic fields of video game and virtual simulators in order to integrate them with my topic of research, supporting both these fields and the fields of developmental and integral psychology (theory and applications) to cross-pollinate and further expand into powerful multi-disciplinary partnerships.

**Appendix #10 –** Extra references used in the research

Besides collecting different qualitative and qualitative data from all the 6 methodologies briefly described in Appendix #2 and listed in the references, I collected data from other sources in many informal ways, which were naturally used as a background reference to add, compare and contrast the overall research data. In terms of events attended, besides attending 5 full days at GDC 2008 (around 25 lectures plus expo, awards and workshops), I went to the *Wired NextFest 2007* in Los Angeles on September 14, 2007; the *GameWorks* entertainment complex in Las Vegas in September 12, 2007; and visited the stores *GameStop* and *Frys's* (Pleasant Hill, CA) several times from October 2007 to May 2008, where I had the chance to observe video gamers playing in different consoles.

I also gathered data from various specific websites during this time (gamasutra.com, seriousgames.org, gamesforhealth.org, gamesforchange.org, yahoogames.com, gamespot.com, ign.com, edugamesblog.wordpress.com, meaningfulplay.msu.edu, interactivemediainstitute.com, gameslearningsociety.org, and many others); including subscribing to some online discussion groups. I also constantly watched for daily news (yahoo, ABC, CNN); subscribed to video game magazines from January 2008 to June 2008 (Edge, Electronic Gaming Monthly, XBOX, Playstation, PC Gamer, etc.); and watched many movies and documentaries, including: *Rise of the Video Game Levels 1 to 5* (Discovery Channel, 2007), *Video Game Invasion: The History of a Global Obsession* (2004), *Video Games: Behind the Fun* (2007), *Classic Game Room* (2007), and *The King of Kong* (2007).

In terms of video games recently played, I "action-researched": Strategy games (*Portal,* completed in around 35 hours); (2) Action games (GTA San *Andreas 3* (5 hours) and B*ioshock*, completed in around 40 hours*)*; and into a lesser extend (30 minutes to 5 hours): (3) MMORPG games (*World of War Craft*); (4) Racing games (*Need for Speed*); (5) Sport games (*Fifa Soccer 2006*, *Wii Sports);* (6) Simulation games (*The Sims 2, Flight Simulator X, Sim City 4*); (7) Adventure games (*Super Mario Galaxy*); (8) Entertainment & Musical games (*Guitar hero III*, *Dance Dance Revolution, Rockband*); (9) Community games (*Second Life* MMO, *Big Brother Brazil*), (10) Adult and Sexual content (*Lula 3D*); (11) Spiritual & Subtle games (*Journey into the Wild Divine*); (12) Indie games (*World of Goo, Crayon Physics, Flow*), (13) Casual Serious Games on training, simulations, social change, health and education (*various*).