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Part II

Emotion and Morality

6 Emotion Theories, the Affective System, and Why a Digital Games Researcher Should Care

J. Matias Kivikangas

Introduction

Anyone having played good, or particularly bad, games understands that playing digital games can be a very emotional experience. This has led many scholars to studying emotions in order to explain, for instance, the motivation for and the experience of playing digital games (e.g., Bartsch, Mangold, Viehoff, & Vorderer, 2006; Oliver & Raney, 2011), or the behaviors related to play (e.g., Cohen, 2014; Lang, 2006). Even when the reports do not explicitly use the term 'emotions', researchers have studied pleasure and/or arousal (Nacke, 2013; Poels, van den Hoogen, Ijsselsteijn, & de Kort, 2012) that are commonly thought as a part of emotions (Lang, 2010), emotion-related constructs like fun or enjoyment (Vorderer, Klimmt, & Ritterfeld, 2004; Wang, Shen, & Ritterfeld, 2009), or other concepts that do not focus on emotions but are intricately intertwined with them, such as engagement, involvement, or flow (Przybylski, Rigby, & Ryan, 2010; Takatalo, Häkkinen, & Nyman, 2015; see Caroux, Isbister, Le Bigot, & Vibert, 2015, for a review). Accordingly, there is a large body of literature about emotions and gaming, but games research as a whole is relatively weakly connected to emotion research. Without being familiar with and taking into account at least some emotion theory, it is easy to present wrong questions and seek answers in the wrong places.

As a prominent evolutionary psychologist said, "Because evolution by selection is the only known causal process capable of producing the fundamental components of human nature, all psychological theories are implicitly or explicitly evolutionary" (Buss, 2016, p. 45). Hence, as there are dozens, if not hundreds of emotion theories, it is also necessary to be able to assess the theories according to whether they conflict with an evolutionary perspective.

Emotion Theories

According to evolutionary psychology, the human mind, quite similar to the body, comprises numerous individual mechanisms that have developed as adaptations to specific evolutionary problems (Buss, 2016). This abundance of individual mechanisms itself presents an evolutionary problem: how to coordinate the operation of highly overlapping mechanisms in a way such that they do not defeat each other's purpose. For example, gathering resources and avoiding predators are both relevant for survival, but in situations where both resources and predators are present, the organism often should not pursue

both goals at the same time. This problem calls for superordinate regulatory mechanisms that prioritize and coordinate the other mechanisms—for instance, prioritizing avoidance, which, in turn, requires coordinating the division of attention and information processing between the predator and an escape route, preparing the body for action, deciding whether to run or sneak, and so on. Many evolutionary theorists believe that emotions are such regulatory mechanisms, each constituting a mode of operation for a particular functional goal (Al-Shawaf, Conroy-Beam, Asao, & Buss, 2016; Tooby & Cosmides, 2008).

Conflicting theoretical views

At the core of emotion theories is the layperson's understanding of an affective psychological state that we commonly call emotions—such as fear, anger, and happiness—that are accompanied with emotion components: Changes in physiology (e.g., sweaty palms, beating heart), expression (facial, posture, and tone of voice), information processing (e.g., when happy, things are interpreted differently when one is happy vs. angry), and specific action tendencies (e.g., we tend to attack when angry but retreat when fearful). Modern emotion theories reject naïve essentialism (Figure 6.1, top panel) in favor of multicomponential views (Scherer, 2005; Zachar, 2014). In other words, there is no essence of fear that makes you feel fearful, your eyes widen, and hands sweat, your posture to back off and behaviorally avoid the object of fear; instead, in different theories, this combination of symptoms in a certain context, or some parts of it, may be called fear. However, in research on emotion, there is no consensus on the exact definition of emotion (Izard, 2010; Russell, 2012). Furthermore, the existing theories disagree on details about the process how the psychological states come about, what their underlying psychological structure is, the relationships between the components, and many other issues.

The theoretical views can be divided into two major views on the general structure of affective feelings (i.e., the subjective component), the discrete and the dimensional views. According to the discrete emotion view, specific emotions occur in reliable clusters that are different from each other in terms of component patterns (specificity; i.e., instances of fear are different from instances of anger or happiness), but more similar within (coherence; i.e., fear of snakes is similar to fear of flying; see meta-analysis in Lench, Flores, & Bench, 2011). The dimensional views (e.g., Yik, Russell, & Steiger, 2011), on the other hand, suggest that emotions can be presented in a space of two dimensions, most often valence (or how pleasant vs. unpleasant an emotion is) and arousal[1] (how calm vs. activating the emotion is; see Figure 6.1, bottom panel). For example, fear is a high-arousal and negative valence emotion, while sadness is also negative valence, but low in arousal (Russell, 1980). An alternative dimensional model sees the valence and arousal dimensions as interdependent, noting that, empirically, when an emotion increases in negativity or positivity it also increases in arousal (Watson & Tellegen, 1985; cf. Norris, Gollan, Berntson, & Cacioppo, 2010). This model allows simultaneous positive and negative emotions (Larsen & McGraw, 2011; Watson & Stanton, 2017) that are impossible in the valence-arousal model but that may be relevant for a games researcher. A further dimensional account suggests that, most importantly, the dimensions reflect motivational direction rather than the subjective feeling (Eder, Elliot, & Harmon-Jones, 2013)—that is, approach (to a positive stimulus) or avoidance (to a negative—although anger is an exception, negatively experienced but motivating behavioral approach). The motivational dimension model is the closest dimensional model to the evolutionary perspective, as evolution operates in response to different actions, not to different feelings—it does not matter if a feeling is functional, if the organism does not act on it—but many theorists suggest that the different dimensional models are fundamentally similar as feelings motivate us to act (Lang, 2010). Furthermore,

some theoretical accounts suggest that both discrete and dimensional views are compatible (Watson & Stanton, 2017).

In addition to the discrete and dimensional views are the major theory families that propose more detailed accounts of how the emotional system as a whole works (as opposed to the affective feeling alone). The views on the structure of affect overlap greatly with the theoretical families but are not synonymous with them. The traditional emotion theory family within the discrete emotion view, the basic emotion theories (Figure 6.1, middle panel) posit, in a nutshell, that emotions not only occur in reliable clusters, but they are also natural categories that represent hardwired response programs to coordinate mostly automatic emotion response components (see special section in Russell, Rosenberg, & Lewis, 2011). Both discrete and basic emotion views have been justified by evolutionary accounts, arguing that individual emotions are adaptations for specific evolutionary challenges (e.g., Tracy, 2014). Some neuroscientists maintain that identified neural circuits indicate specialized brain structures for specific emotions (e.g., Panksepp & Watt, 2011; Saarimäki et al., 2015), but others disagree (Hamann, 2012; LeDoux, 2014).

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The other major theory family, largely related to the dimensional view, is the family of constructionist theories, whose proponents criticize the basic emotion theories. They assert that instead of emotion-specific modules, each emotional episode is constructed uniquely to a situation depending on the context by domain-general processes, such as core affect (often proposed to consist of the valence and arousal dimensions; Russell, 2009), conceptualization, and contextualization. In their view, emotions are experienced as specific emotions like anger or fear only as a result of conceptualizing sensory input (both from the environment and from within the body) with learned knowledge of emotion categories (Barrett, 2017b; Lindquist, 2013).

The third influential emotion theory family is the appraisal theories that include both theories with dimensional/constructionist views and others with discrete views (for a review see Moors, Ellsworth, Scherer, & Frijda, 2013). Appraisal theories aim to specify the information the emotion system must process to respond to different situations with correct emotional responses. They do this by slicing the problem into smaller parts and solving those separately (for instance, determining whether the stimulus is unpleasant, relevant to the individual, and caused by someone else, may lead to activating anger; see, e.g., Scherer, 2013). Most other theorists also accept and integrate the idea of some kind of appraisals in their own views, although they may disagree on details (e.g., whether appraisals lead to a discrete emotion or not; Moors, 2014).

Emotion theories and the problems of employing them in digital game research

As mentioned in the beginning of this chapter, emotion theories have not been widely used in digital games research. A general lack of overlap in expertise between the fields is one likely reason, but there are at least two other reasons that relate to the emotion theories themselves. First, research on affective phenomena has focused on emotions, which have traditionally (especially within the basic emotion family) been thought of as a particular subset of all affective phenomena. And while these

prototypical emotions, like anger and happiness, are the most obvious starting point as they are the strongest of the affective phenomena, their descriptions often do not seem to be fruitful for digital games research. For instance, happiness is the only positive basic emotion in many theories (see e.g., Tracy & Randles, 2011), which could be considered insufficient for describing many different kinds of positive experiences during game play (e.g., feelings of thrill, fun, satisfaction, pride, social enjoyment). Accordingly, the dimensional approaches, and specifically the valence-approach model, have been used more frequently in digital games research, whereas the potential utility of other theory families has been largely ignored so far in this area of research. As mentioned before, there are several reasons for this. For example, until very recently (Barrett, 2017b), constructionist theories have not been detailed enough, and it has been difficult to apply appraisal theories to playing experiences, perhaps because typically the former focus on the very small details of a very specific subset of affective phenomena.

A potential solution to the problem of difficult applicability can be found by employing an evolutionary perspective, according to which the focus on emotion alone is somewhat arbitrary to begin with as the criteria to what constitutes an emotion have been traditionally based on functionally unjustifiable grounds (Al-Shawaf et al., 2016). To better understand affective game experiences, the scope should be broadened, also taking into account phenomena not falling into the traditional prototypical emotion categories. For this, the motivational dimension model (Eder et al., 2013) provides a good starting point, asserting that all affective phenomena are fundamentally about approaching resources or avoiding threats—basic building blocks present in most games as well. I discuss this more in detail below.

The second reason is that the lack of consensus between the emotion theories makes it difficult to decide which ones a digital games researcher should use—what are the pros and cons of each approach for this purpose, and which particular theories are the most fruitful while preserving both evolutionary and empirical plausibility?[2]

On a more general level, the constructionists have laid out multiple empirical critiques of basic emotion theories (Barrett, 2006), arguing that the constructionist approach is better supported by evolutionary theory (Barrett, 2013, 2017a), neuroscientific evidence (Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012), and the empirical evidence on coherence and specificity of the components (Lindquist, Siegel, Quigley, & Barrett, 2013). Some of these claims have been rejected by different scholars (e.g., Adolphs, 2017; Izard, 2007; Lench, Bench, & Flores, 2013; Panksepp, 2007), but it does seem to be a growing opinion that the traditional basic emotion theories should be reformed, and perhaps integrated with the constructionist theories (e.g., Hamann, 2012; LeDoux & Brown, 2017; Panksepp, 2007; Scarantino, 2012). At the same time, the position of appraisal theories is more solid, as most theories agree on the existence of some kind of appraisals (Moors, 2014; Russell, 2014). I present a more detailed look at the issue elsewhere (Kivikangas, manuscript in progress), but will describe the core idea of the integration below. I argue that at least some kind of integration of the different theoretical families is crucial for a better understanding of affective phenomena related to digital games. I base the integration of modern views on evolutionary psychology (cf. Al-Shawaf et al., 2016), which stresses functionality and the information process view on adaptations.[3]

Multi-Level Affect System

Instead of discrete emotions (that perhaps should not be understood as the traditional list of basic emotions at all, but rather as precise and limited functions), a more fruitful approach to affective phenomena in digital games should consider the affective system as the motivational primus motor of the human mind. Like any adaptation, the ultimate function of the brain is to perpetuate the genes of the organism that hosts it. The role of the brain is to guide behavior to fulfill that goal, by producing adaptive movement, and, in more complex organisms, adapting the behavior to the environmental requirements in more and more nuanced ways. The affective system provides the internal force to move the body in the fundamental motivation directions: to avoid threats, and to approach resources (including resources for survival, reproduction, and caring for offspring) and threats to be removed (Eder et al., 2013)[4]. Affect, then, can be thought of as not only the feelings that reach consciousness, but that aspect in any psychological processes which has evolved to create approach and/or avoidance behavior (cf. Panksepp & Biven, 2012). Emotions are only a part of what the affective system produces—the part that the conscious mind feels most powerfully, and that have thus been given names—and the emotion components are outputs of the affective system not limited to emotions alone (see Figure 6.2).

The above description is only one step beyond a largely accepted view of the affective system (e.g., Lang, 2010). A more detailed integration proposition suggests that in spite of apparently conflicting ideas, none of the most consistent theoretical views are completely wrong, but the conflicts are mostly about focusing on different parts of the complex machinery of the affect system and being confused by differing uses of terminology and historical misunderstandings (Kivikangas, 2018). The brain is organized hierarchically (e.g., Meunier, Lambiotte, & Bullmore, 2010), and strict specialization is more typical for evolutionarily early adaptations that are more related to the core challenges of survival and reproduction (Buss, 2016). Therefore, theories focusing on dedicated neural circuitries and highly specialized modules seem to be looking at the system from the bottom, seeing the first low-level, input-specific processes to influence the motivational state (e.g., the survival circuits of LeDoux, 2012; the autonomous nervous system responses by Levenson, 2011; the primary processes of Panksepp & Biven, 2012; the sequential stimulus checking by Scherer, 2001). The question whether these processes should be considered emotions has been discussed a lot (e.g., Barrett et al., 2007; Russell, 2009, 2012), but is of secondary importance as the focus should be wider in the first place. The relevant fact most researchers seem to agree on is that such low-level processes exist and that they contribute to the affective-motivational state of the organism. With regard to digital games research, the low-level theories are more relevant to topics such as fundamental motivations of survival (e.g., instinctive fear responses in horror games; see Lynch, this volume) and reproduction (e.g., why sexy, but also cute, game characters are used in games and why they work; see, e.g., Kringelbach, Stark, Alexander, Bornstein, & Stein, 2016, with regard to latter), momentary changes in attention and information processing (Lang, 1995; Scherer, 2001), and the operation of rewards (e.g., SEEKING process, Panksepp & Biven, 2012).

On the other hand, the theories focusing on subjective feelings, emotional language, and other high-level functions (especially constructionist theories, but also parts of basic emotion theories and appraisal theories focusing more on conscious feelings or emotional expressions) are looking at the system from the top (e.g., Ekman & Cordaro, 2011; Lindquist, 2013; Roseman, 2013). They focus on the last steps of how the motivational state and all other processing of the affect system information is acknowledged in the consciousness, presumably several hundreds of milliseconds after the change in environment. The high-level processes integrate the current information to earlier experiences and conceptual knowledge (Barrett, 2017b), and feed back to the lower levels in order to regulate behavior and other components

(cf. Norman et al., 2011). These theories are more relevant for studies on digital games related to subjective feelings (Barrett, 2017b; Roseman, 2013), recalled instances of affective feelings (Robinson & Clore, 2002), and highly processed considerations of digital games, such as ethical questions, feelings about stereotypes, and other typical social science topics.

<COMP: Place Figure 6.2 Here>

In a similar manner, the discrete and dimensional views can be seen as complementary views where one focuses on the affective or motivational direction of the affective phenomena more generally, and the other on the affective phenomena that have been conceptualized as discrete emotions (see also Roseman, 2011; Tellegen, Watson, & Clark, 1999; Watson & Stanton, 2017).

Practical implications for measurement and interpretation

Recognizing the levels of scrutiny of the theoretical approaches has consequences for the choice of research questions, and the measures used to investigate them. For example, using psychophysiological measures to investigate automatic and nonconscious responses to jump scares in a horror game is going to focus on relatively early phases of the affective process, the primal survival system. The reason why jump scares are so effective is that the survival system does not use complex information (such as "is this real?"), as it needed to be as quick as possible in the EEA (environment of evolutionary adaptedness) when the survival of an individual strongly depended on it (cf. Lang, 2006; see also Lynch, this volume). Self-reflections of such an experience are necessarily constructed afterwards by the high-level processes, and interpretations of the two may be markedly different because they originate from opposite ends of the process (cf. dual-process views: e.g., Evers et al., 2014).

In Table 6.1, I present a very simplified timeline of the processes going through the affect system (cf. Kivikangas, 2016), game-related examples of phenomena in each phase, theories relevant for interpreting the processes, and measures that can be used to investigate them (see e.g., Mauss & Robinson, 2009, for more on measures of emotion—although some interpretation is needed for understanding how each measure relates to the affect system). The list should not be understood as comprehensive or exclusive: Many of the theories and measures can also be used to study other phases as well, and there are a lot of other ones that could be used to study these phases. These are merely suggestions for possibly more fruitful approaches for game scholars. The table also shows how current theories, and particularly measures, are not designed from the multilevel architecture point-of-view and are clearly not optimal for studying it.

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Practical Example of Multilevel Affective Processes Relevant for Digital Games Research

It is commonly recognized that positive affect is the most important reason why people play games, even though identifying those affects has proved difficult (see the introduction of this chapter). Based on the multilevel model of affective processes, I propose that the affects related to exploration are among the most relevant. Similar arguments have also been brought forth by Koster (2013).

In the EEA, one of the most fundamental survival problems was to find relevant resources: food, water, shelter, mating partners, etc. To carry out this task, an organism must (a) know what resources are needed at a particular moment, (b) recognize promising sources of those resources in the immediate surroundings, (c) approach the source when one is accessible, and (d) stop looking for that resource when it has been attained. This requires mechanisms for prioritizing needs, recognizing, motivating approach, and coordinating the whole set of mechanisms. The affect system provides all this, adapted to solve the ancient problem that predates humans and even mammals. And because it is so ancient, it carries out the work automatically and, to a large extent, independently of our conscious thought—which means that it works just as well for resources that are only resources inside a game, as soon as they are recognized as such (Lang, 2006).

Recognition (b), and mobilizing action after recognizing, is exactly what low-level appraisals do (Moors et al., 2013). They are simple pattern-matching/decision mechanisms, duplicated and specialized for different tasks (Barrett, 2012). They recognize patterns that in some cases are organized in advance of experience, but some are set up with the same structure but a variable token instead of specific innate token for activation. This token can be passed to it by higher processes that, after playing a game, have identified a sensory pattern that corresponds to earlier rewards—for instance, a resource like iron in a strategy game like *Civilization*, or ammo or a medikit in a first-person shooter, or a character (a social resource) in a story-driven game. The sensory pattern of this token is now considered a resource, and as the brain does not differentiate it from resources like (real) food that the player needs outside the game, due to the proximity of rewards, the brain may prioritize it over food while playing (a). The coordination of different appraisals is handled by an affect channel specifically adapted for seeking resources (Kivikangas, 2016; Panksepp & Biven, 2012). It includes the dopamine system that controls reinforcement learning (Daw & Shohamy, 2008; LeDoux, 2012), allowing the organism to predict the probability of reward (the token) in the future by assigning the reward to patterns that are detected consistently before the reward itself (see Cushman, 2013, for a basic explanation of the process in the context of morality). This process tells the motivation system to approach these patterns—which, in the example of a digital strategy game means using the mouse and using the suitable units to seize it—when they are observed to be accessible in the proximity (c). This process also has the property that the activation dies off when the reward is too predictable, such as just when the resource is attained, which is when a separate consummatory response activates (LeDoux, 2012; Panksepp & Biven, 2012). Hence, if the consumption fulfills the need, the pattern that acted as a token for the appraisal is suppressed, and no longer sought for (d). However, game resources (and many other rewards) have no specific consummatory response (an enjoyment we would get for, e.g., adding the medikit to the inventory). We have specific adaptations to reward us for the act of eating, drinking, and having sex—but they also act as terminators for seeking more of the same right now, allowing something else to be prioritized over them. Without the signal for termination, we continue seeking far longer than the affect system is evolved for.

Thus, exploration happens when we are seeking resources, or things that may lead to resources, in an environment where more immediate survival issues are not salient (cf. positivity offset; Norris et al., 2010). It is enjoyable because the dopamine system rewards us for this act of seeking in anticipation of the actual reward. The activity itself may not be that interesting (e.g., monotonous clicking in mobile games), and the rewards are often not that satisfying when they are obtained, but the design of the

game activates the seeking channel which continues until some other process stops it—or when the activity grows too predictable otherwise.

Conclusion

Why do people play games? How can game experiences be analyzed? What factors constitute a good or bad game experience? Why are certain stereotypes, tropes, and game mechanics so popular? What are phenomena like fun, flow, or engagement? In this chapter, I have argued why knowledge of emotion theories and the ability to assess them from an evolutionary perspective would be useful for game researchers. My claim is that questions like those above, and many more, can be better answered with an understanding of things like fundamental motivational directions, low-level input-specific processes, high-level construction of experience, the way the brain processes input in sets of constrained appraisals, and the interaction of these parts in the multilevel affective system. I argue that the affective system, evolved as the mechanism for producing the set of fundamental evolutionary motivations to act and for coordinating the specialized adaptations implementing those motivations, underlies almost all human action. Understanding the particulars of its inner workings allows us to ask better questions, use measures more suitable for answering them, and provide a more solid theoretical grounding for both questions asked and the answers found in research on the use of digital games and emotion.

Notes

[1]Further dimensions, such as dominance (Russell & Mehrabian, 1977), have been suggested to distinguish between presumed discrete emotions that occupy the same two-dimensional properties (e.g., anger and fear are both high-arousal and negative valence).

[2]I am not aware of a comprehensive review, and there is no space for that here, but I hope I have provided some help by proposing the categorizations in this chapter. For another interesting categorization, see Scarantino (2016).

[3]The old emotion vs. cognition dichotomy is meaningless, as both motivation to do something (the affective system) and the processing of information in order to find the best way to do it (cognition) are typically intricately intertwined. Hence, cognitive mechanisms are an integral part of the affective ones, and vice versa (e.g., Pessoa & Adolphs, 2010).

[4]The evaluative space model (Norman et al., 2011) further elaborates on the operation of the motivation system by showing that positive and negative are not symmetric, but that positive is stronger in a neutral environment, while the negative is stronger than positive when both are activated—and that these biases differ from individual to individual (Norris, Larsen, Crawford, & Cacioppo, 2011).

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Figure 6.1 Layperson's, or essentialist view (top); a basic emotion view (middle panel); a dimensional model (bottom panel; adapted from Yik et al., 2011).

Figure 6.2 A schematic of multilevel processing in the affect system. Depicts the two levels primarily relevant to the emotion theories. Both levels operate in a parallel and interactive fashion, instead of basic emotions or constructions exclusively dominating the affective system. The key function of the brain/mind—including feelings—is to produce behavior that is adaptive to the environmental challenges. Some of the challenges are as old as life (survival and reproduction) and some others a bit younger (taking care of offspring, living in groups), but those that have repeated enough have formed dedicated brain circuitries to solve them. These circuitries are activated by detection (appraisal) of specific input patterns, and they produce powerful motivations to act and involuntary changes in the body. The better the input matches the patterns, the stronger the output of the dedicated circuitries. The conscious experience is constructed in the process of modeling current and anticipated environment and self, and consciousness produces action plans to the automatic processes that select and coordinate the details of moving the body. It experiences the motivation produced by the dedicated circuitries as feelings that urge (but do not automatically carry out) specific types of action. *Note:* "M to …" = motivation to.

Table 6.1 Rough simplification of levels of processing, how they relate to game play, and what emotion theories and measures may be useful for studying them

Processing phase	Example phenomena	Relevant emotion theories	Relevant measures
Orientation (in absence of imminent stimuli) and early appraisal	Player's attention focuses on a change; resource seeking: Player is exploring the environment; Anticipation: Player is expecting a change (e.g., enemy attacking)	Appraisal theories focusing on process (Scherer); SEEKING primary process (Panksepp); (other: perception and executive function)	Eye-tracking; EEG early event-related potentials (ERPs); [Geneva Appraisal Questionnaire (Scherer)]

Quick survival processes activate	Jump scare; immediate rewards from attaining resources; titillating sexual content	Basic emotion theories focusing on neural level (Panksepp); neuroscientific research (LeDoux)	EEG early ERPs, [facial EMG, skin conductance]
Other specialized processes activate	Goal-oriented processes related to exploration; frustration, anger over obstacles; competition (drive to dominate others, responses to results); moral & social appraisal (re: evil characters, betrayal in multiplayer); social connection with co-players	Basic emotion theories focusing on neural level (Panksepp); neuroscientific research (LeDoux); (other: morality, social needs and motivations)	EEG early ERPs, [facial EMG, skin conductance]
Motivational system reacts	General behavior patterns related to avoiding dangers and approaching resources (e.g., circling movement patterns in shooter games; arrangement of units in strategy games)	Dimensional theories focusing on preconscious processes (Russell 2003; Cacioppo, Norris, Norman; Lang & Bradley; Watson), basic emotion theories focused on output (Levenson)	Behavioral approach/avoidan [Self-Assessment Manikins (Bradley Lang)]
Construction processes	Player's verbalized self-reflections of the game or their feelings	Constructionist theories (Lindquist; Barrett), appraisal, dimensional, and basic emotion theories focusing on conscious feelings (Roseman, Russell, Ekman)	PANAS (Watson & Clark) and most verbal questionnaires

Note: Brackets in the measures column are used in case of measures that actually utilize responses related to level 4 or 5, but when used with focus on a lower level may still give relevant information from it.