

Playing life away: Videogames and personality structure

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This study aims to fill a gap in the current research on the personality organization of frequent videogame users. The scientific literature in this area refers only to the existence of risk factors that increase the likelihood of abusing videogames and their negative consequences on the mental health of users (Gentile et al., 2011; Lemmens, Valkenburg, & Peter, 2011; Rehbein & Baier, 2013). In this study, a sample of patients who reported spending an excessive amount of their time playing videogames were recruited from Instituto Quintino Aires–Lisbon/Oporto and took the Rorschach Personality Test (Exner, 1993, 1995). Two other samples—one consisting of patients who reported not playing videogames, and the other of patients who were discharged from the institution after psychotherapy—also took part in the study. The patients in the first sample revealed less exposure to the relational sources of stress that are necessary for socioemotional development and less interest in others than did patients in the other samples. Other results regarding the personality structure of the subjects in the three samples are compared and discussed in light of cultural-historical psychology.

Keywords: clinical psychology, cultural-historical psychology, personality psychology, Rorschach Personality Test, videogames

Introduction

The personality of frequent videogame users has been inconsistently studied in the existing literature. Furthermore, the literature lacks a sufficiently relevant theoretical framework for explaining the implications that excessive use of videogames can have for the development of personality. The present study, based on the theoretical framework of cultural-historical psychology, provides the first step toward understanding this problem.

Lev Vygotsky, founder of cultural-historical psychology, postulated that human development is the product of two evolutionary processes: a process of biological evolution and a process of cultural-historical evolution (1930/1994). The process of biological evolution concerns the hereditary transmission of all the inherent features of the *homo sapiens* species from the standpoint of the

bodily structures, organ functions, and certain types of reflexes and instinctual activities. The process of cultural-historical development relates to the personal transformation that results from mediated activity on cultural artifacts (objects, people, events), the products of the development of human societies. According to Vygotsky, cultural-historical development is the dominant factor in human development, specifically with regard to the transformation of higher nervous functions and the formation of personality. The link between the higher psychological functions in the individual and in the culture was theorized by Vygotsky in the General Genetic Law of Cultural Development. According to this law: “Every function in the child’s cultural development appears twice: first, on the social level, and, later, on the individual level; first, between people (interpsychological) and then inside the child (intrapyschological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals” (Vygotsky, 1978, p. 57). Thus, for Vygotsky and at the heart of cultural-historical psychology is the idea that the human brain undergoes a process of transformation when a human being performs an activity on the world, on cultural tools, in a relationship with other humans.

What is this activity that promotes human development? Leontiev (1945/1981) postulates that activity is the process that meets the special needs of the subject; this process arises from the relationship the subject has with the world. It is characterized by: an object, which is what this very process is directed to as a whole, is what is modified and explored by the subject; a motive, which is what stimulates and moves the subject toward the activity; and emotions and feelings, which are always governed by the object of and motive for the activity. Object and motive must match for this process to be considered an activity. When this is not the case, the process is called an action. The object does not have its own capacity to move the subject. So, for triggering the action, it is necessary that the object be perceived as related to the motive of the activity, which the action will eventually be part of. The object within the action will have to coincide with a direct goal, which will be connected to the motive for the activity. According to Leontiev, the motive for the activity can even be transferred to the object/goal of the action, its result being the transformation of the action into activity. This particular relationship between action and activity provides new relationships with reality, with new needs and motives; ultimately psychological development occurs. The conceptualization of these relationships with reality was also important for the study of human consciousness and the sense-based formations of personality. Distinguishing himself from Leontiev, Bratus (2005) postulates that a sense-based formation is not a personal sense—that is, the reflection in consciousness of a relationship between a motive and a goal—but rather a dynamic system that integrates the mutual relations of one or several general motives with various less general motives and, correspondingly, of a more general activity with a less general activity.

Vygotsky (1933/1976) studied in detail one of the forms of the main activity of personality development: play. Vygotsky argued that play is the imaginary and illusory realization of unattainable desires and is the main factor in the development of children. When the child is confronted with a demand for the nonimmediate

gratification of her needs, she must create an imaginary situation in order to perform her activity and to satisfy her needs. Throughout psychological development, play continuously reflects the complex forms of relations with reality and with others, with newer and also increasingly demanding rules arising from this complex interaction. In parallel with the development of play, the gradual conversion of this complex activity in internal psychological processes takes place. The child learns to obtain increased satisfaction by submitting to the rules of play and at the same time by refusing to act immediately on impulse. The rules thus become self-determinations and internal self-limitations, which overlap the strongest impulses and, if appropriately met, bring the utmost satisfaction to the future adult personality. Also, in addition to providing a new way to desire, play enables the transformation of perception, an increase in active decision-making, the emergence of a sense-based orientation, and the resolution of conflicts between volitional motives and the development of abstract and moral thinking.

One can therefore assume for the theoretical framework of cultural-historical psychology that psychological development is synonymous with demand. It occurs only when the future person, always confronted with culture's demands, has to mobilize himself to meet the recurring needs that arise from this relationship in the course of his life.

Having revised the main concepts of cultural-historical psychology, we will now briefly review the literature on investigations with videogames, one of the most dominant leisure industries today, forecasted to constitute a \$111 billion market by 2015 (Gartner, 2013).

The existing literature does not explore the personality structure of videogame users in a comprehensive manner. Park and Lee (2012) confirmed the influence of personality traits (the "big five" personality dimensions) on the experiences of gratification of videogame users. They identified extroversion as the strongest predictor; it influenced three of the four domains of gratification: entertainment, education, and escapism. Agreeableness was also found to have an impact on educational and esthetic gratification. Wei (2007) showed that playing violent videogames on the Internet was associated with greater tolerance for violence, lower empathic attitude, and more aggressive behavior. Rehbein and Baier (2013) systematized a set of risk factors and protective factors related to addiction to videogames (American Psychiatric Association, 2013). The risk factors were a TV set in the children's room, a gaming console in the children's room, ownership of a hand-held gaming console, much gaming time, use of violent games, problematic videogame use in childhood, single-parent family, and male gender. These variables were predictors of videogame addiction in adolescence. Misuse of videogames was found to be regulated only by protective factors that reduce the frequency and impact of use. The protective factors were parental devotion, parental supervision, general integration into the child's social class, and school-related well-being. In another longitudinal study, Gentile et al. (2011) found that longer gaming time, lower social skills, lower level of empathy, and lower impulsiveness control were risk factors for gaming addiction. Depression, anxiety, social phobias, and inferior school performance were outcomes of problematic gaming behavior. Pathological gaming also increased loneliness (Lemmens, Valkenburg, & Peter, 2011).

Starting from the need to provide a comprehensive and holistic analysis of the personality of frequent videogames users and resorting to the explanatory power of the cultural-historical conceptualization, we can verify the hypothesis that the personality structures of frequent videogame users and sporadic users/nonusers are significantly different: frequent videogame users are not exposed to the needs that originate from the demands that human development makes.

Method

Participants

The study included three samples of patients from Instituto Quintino Aires, an institution in Portugal known for cultural-historical clinical psychology and neuropsychology. Sample 1 consisted of 23 patients who spent excessive time playing videogames. Sample 2 consisted of 23 patients who had various types of clinical complaints but who did not spend excessive time playing videogames. Sample 3 was composed of 23 subjects who were discharged from the institution after successful psychotherapy. Tables 1 and 2 report age and gender distributions for the subjects in the three samples of the study.

Table 1. Mean age (*M*) and standard deviation (*SD*) for the three samples

| | M | SD |
|-----------------------|----------|-----------|
| Sample 1 ^a | 16.4 | 10.7 |
| Sample 2 ^b | 16.5 | 3.1 |
| Sample 3 ^c | 16.4 | 6.1 |

Note. ^{a, b, c} *N* = 23.

Table 2. Frequency distribution of subjects' gender

| | Frequency | | | Percentage | | |
|--------|------------------|-----------------|-----------------|-------------------|-----------------|-----------------|
| | Sample 1 | Sample 2 | Sample 3 | Sample 1 | Sample 2 | Sample 3 |
| Male | 20 | 18 | 14 | 87.0 | 78.3 | 60.9 |
| Female | 3 | 5 | 9 | 13.0 | 21.7 | 39.1 |

Instruments

The Comprehensive System (CS), developed by Exner (1993, 1995) for the Rorschach test, was utilized in order to study the personality organization of the participants. This system evaluates personality structure taking into account seven dimensions, or chapters: control and stress tolerance, affective features, self-perception, interpersonal perception, information processing, cognitive mediation, and ideation. Each dimension consists of specific variables. The CS also evaluates the presence of personality disorders using six psychopathological constellations: the Perceptual-Thinking Index (PTI), the Depression/Apathy Index (DEPI), the Coping Deficit Index (CDI), the Suicide Constellation (S-CON), the Hypervigi-

lance Index (HVI), and the Obsessive Style Index (OBS). All variables and chapters as well as four of the psychopathological constellations are treated quantitatively. Only the HVI and OBS constellations are analyzed qualitatively, as being present or not present. In order to obtain an individualized understanding of the patients, Quintino Aires (2009a) provides maladaptation and clinical-reference values and a clinical-oriented interpretation for the variables, chapters, and constellations of the CS. The results obtained in this investigation are presented and discussed in light of this clinical interpretation.

Procedures

Information related to the time playing video games was acquired through the normal first consultations of patients performed by Professor Joaquim Quintino Aires. After exposure of the clinical complaint, when asked how they spend their leisure time, the subjects in the first sample reported spending time solely playing video games. This information was then recorded on the first-consultation sheet and included in the patients' clinical process. After initial consultation and, if the complaint brought was so justified, the patient performed a personality assessment based on the Rorschach test. Subjects for the second sample were selected taking into account the mean age for the first sample. These patients did not report spending time playing videogames in the first consultation. The characteristics of subjects in the third sample corresponded to those of all patients discharged from the institution after successful psychotherapy. The data of the CS for each subject were collected with the aid of the Clinical Management Team of the institution. The data for the first and second samples came from their first evaluation upon entrance to the institution. The data for the third sample came from their last reevaluation prior to discharge from the clinic. All evaluations were conducted at the institution and were performed by psychologists with extensive experience in the administration and coding of the CS. All psychologists on the team receive theoretical and practical training in the CS as part of the institution's cultural-historical clinical psychology and neuropsychology course. They are also subjected to regular supervision by Professor Quintino Aires with a view toward providing a uniform coding procedure among psychologists. It is assumed that in this study the scoring method for the CS was similar for all the psychologists. After all the CS protocols were gathered and their data were entered into the statistical analysis software, mean comparison measures were taken (Field, 2005; Maroco, 2007).

Results

The results are organized in two parts. The first part concerns the significant differences in the CS's variables and constellations between subjects who spent excessive time playing videogames and the sample of patients who did not play videogames. The second part concerns the significant differences between Sample 1 and the patients who were discharged from the institution. The differences are accompanied by the clinical interpretation postulated by Quintino Aires (2009a).

Comparison Between Sample 1 and Sample 2

For the variables of the various chapters and constellations of the CS, Tables 3 to 11 present the parametric and nonparametric results of the comparisons made between the sample of patients who spent too much time playing videogames (Sample 1) and the sample of patients who did not spend time in this activity (Sample 2).

Significant results for *control and stress tolerance* are shown in Tables 3 and 4.

Table 3. Parametric significant differences for the CS's *control and stress tolerance* variables

| Variable | Samples | N | M | SD | t | df | p | r |
|----------|---------|----|------|------|------|----|------|-----|
| FM | 1 | 23 | 4.61 | 2.44 | 2.38 | 44 | <.05 | .34 |
| | 2 | 23 | 2.87 | 2.51 | | | | |

Table 4. Nonparametric significant differences for the CS's *control and stress tolerance* variables

| Variables | Samples | Mdn | U | p | r |
|-----------|---------|-------|--------|------|------|
| es | 1 | 8.00 | 167.00 | <.05 | -.32 |
| | 2 | 13.00 | | | |
| SumC' | 1 | 1.00 | 158.00 | <.05 | -.36 |
| | 2 | 2.00 | | | |
| SumV | 1 | 0.00 | 142.50 | <.01 | -.49 |
| | 2 | 1.00 | | | |
| SumT | 1 | 0.00 | 141.00 | <.01 | -.43 |
| | 2 | 1.00 | | | |
| SumY | 1 | 1.00 | 132.50 | <.01 | -.44 |
| | 2 | 4.00 | | | |

Explanation of results:

Variable es: Subjects in Sample 1 (*Mdn* = 8.00) experienced lower levels of stress than subjects in Sample 2 (*Mdn* = 13.00), *U* = 167.00, *p* < 0.05, *r* = -.32.

Variable SumC': Subjects in Sample 2 (*Mdn* = 2.00) had more difficulty verbalizing their emotions than subjects in Sample 1 (*Mdn* = 1.00), *U* = 158.00, *p* < .05, *r* = -.36.

Variable SumV: Participants in Sample 2 (*Mdn* = 1.00) focused more on the negative characteristics of their self-image than participants in Sample 1 (*Mdn* = 0.00), *U* = 142.50, *p* < .01. The effect was medium sized, *r* = -.49.

Variable SumT: Subjects in Sample 1 (*Mdn* = 0.00) showed no need to touch or be touched by others, revealing an exacerbated conservation of their vital space when compared with subjects in Sample 2 (*Mdn* = 1.00), *U* = 141.00, *p* < .01, *r* = -.43).

Variable FM: In comparison with subjects in Sample 2 (*M* = 2.87, *SD* = 2.87) subjects in Sample 1 (*M* = 4.61, *SD* = 2.44) showed more propensity to elab-

orate about their day-to-day situations and to engage in greater ideation activity originating from nonsatisfied basic needs; this ideation activity interfered with their ability to maintain voluntary attention. The difference was significant $t(44) = 2.38, p < .05$, and represented a medium-sized effect $r = .34$.

Variables SumY: Participants from Sample 1 ($Mdn = 1.00$) reported lower levels of situational stress originating from others than participants in Sample 2 ($Mdn = 4.00$), $U = 132.50, p < .01, r = .44$.

Significant results for *affective features* are shown in Table 5.

Table 5. Nonparametric significant differences for the CS's *affective features* variables

| Variable | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|----------|---------|------------|----------|----------|----------|
| S | 1 | 1.00 | 84.00 | <.01 | -.59 |
| | 2 | 4.00 | | | |

Explanation of results:

Variable S: Participants in Sample 2 ($Mdn = 4.00$) showed greater need for autonomy than participants in Sample 1 ($Mdn = 1.00$), $U = 84.00, p < .01, r = -.59$.

Regarding *self-perception*, no statistically significant differences were found between Samples 1 and 2 on all variables.

Significant results for *interpersonal perception* are shown in Tables 6.

Table 6. Nonparametric significant differences for the CS's *interpersonal perception* variables

| Variable | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|----------|---------|------------|----------|----------|----------|
| SumH | 1 | 4.00 | 146.00 | <.01 | -.39 |
| | 2 | 7.00 | | | |

Explanation of results:

Variable SumH: Participants in Sample 1 ($Mdn = 4.00$) revealed less interest in others than subjects in Sample 2 ($Mdn = 7.00$), $U = 146.00, p < .01, r = -.39$.

Significant results for *information processing* are shown in Tables 7 and 8.

Table 7. Parametric significant differences for the CS's *information processing* variables

| Variable | Samples | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> | <i>r</i> |
|----------|---------|----------|----------|-----------|----------|-----------|----------|----------|
| Zd | 1 | 23 | -1.00 | 3.37 | -3.66 | 44 | <.01 | .48 |
| | 2 | 23 | 3.94 | 5.52 | | | | |

Table 8. Nonparametric significant differences for the CS's *information processing* variables

| Variable | Samples | Mdn | U | p | r |
|----------|---------|------|-------|------|------|
| Dd | 1 | 2.00 | 72.00 | <.01 | -.63 |
| | 2 | 7.00 | | | |

Explanation of results:

Variable Zd: Subjects in Sample 2 ($M = 3.94, SD = 5.52$) had more efficient emotional functioning, devoting more effort and energy to exploring their environment in a more meticulous and less erroneous way than subjects in Sample 1 ($M = -1.00, SD = 3.37$). The difference was significant $t = -3.66, p < .01, r = .48$.

Variable Dd: On average, subjects in Sample 2 ($Mdn = 7.00$) showed a predominance of attention to detail when processing information from the environment in comparison with subjects in Sample 1 ($Mdn = 2.00$), $U = 72.00, p < .01, r = -.63$.

Significant results for *cognitive mediation* are shown in Table 9.

Table 9. Nonparametric significant differences for the CS's *cognitive mediation* variables

| Variable | Samples | Mdn | U | p | r |
|----------|---------|------|--------|------|------|
| S-% | 1 | 0.00 | 162.00 | <.05 | -.35 |
| | 2 | 0.20 | | | |

Explanation of results:

Variable S-%: On average, participants in Sample 2 ($Mdn = 0.20$) felt there was more injustice in their relationships with peers than participants in Sample 1 ($Mdn = 0.00$), $U = 162.00, p < .05, r = -.35$.

Significant results for *ideation* are shown in Table 10.

Table 10. Nonparametric significant differences for the CS's *ideation* variables

| Variable | Samples | Mdn | U | p | r |
|--------------|---------|------|--------|------|------|
| 2AB+(Art+Ay) | 1 | 1.00 | 154.50 | <.05 | -.37 |
| | 2 | 2.00 | | | |

Explanation of results:

Variable 2AB+(Art+Ay): Subjects in Sample 2 ($Mdn = 2.00$) made more use of intellectualization as a defense mechanism to conceal their emotions than subjects in Sample 1 ($Mdn = 1.00$), $U = 154.50, p < .05, r = -.37$.

Significant results for the *psychopathology constellations* are shown in Table 11:

Table 11. Nonparametric significant differences for the CS's *psychopathology constellations*

| Variable | Samples | Mdn | <i>U</i> | <i>p</i> | <i>r</i> |
|----------|---------|------|----------|----------|----------|
| DEPI | 1 | 3.00 | 115.00 | <.01 | -.50 |
| | 2 | 5.00 | | | |

Explanation of results:

Constellation DEPI: Subjects in Sample 2 (*Mdn* = 5.00) revealed more signs of lack of energy when relating to the world than subjects from Sample 1 (*Mdn* = 3.00), *U* = 115.00, *p* < .01, *r* = -.50.

Comparison Between Sample 1 and Sample 3

For the variables of the various chapters and constellations of CS, Tables 12 to 18 present the parametric and nonparametric results for the comparisons made between the sample of patients who spent excessive time playing videogames (Sample 1) and the sample of patients who were discharged from the institution (Sample 3).

Significant results for *control and stress tolerance* are shown in Table 12.

Table 12. Parametric significant differences for the CS's *control and stress tolerance* variables

| Variable | Samples | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> | <i>r</i> |
|----------|---------|----------|----------|-----------|----------|-----------|----------|----------|
| EA | 1 | 23 | 5.00 | 2.12 | -2.56 | 44 | <.05 | .36 |
| | 3 | 23 | 6.89 | 2.84 | | | | |

Explanation of results:

Variable EA: On average, participants in Sample 3 had more resources for coping with stress (*M* = 6.89, *SD* = 2.84) than participants in Sample 1 (*M* = 5.00, *SD* = 2.12). This difference was significant *t* (44) = -2.56, *p* < .05, and represented a medium-sized effect *r* = .36.

Significant results for *affective features* are shown in Table 13.

Table 13. Nonparametric significant differences for the CS's *affective features* variables

| Variable | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|----------|---------|------------|----------|----------|----------|
| Afr | 1 | 0.50 | 155.00 | <.05 | -.36 |
| | 3 | 0.60 | | | |

Explanation of results:

Variable Afr: Participants in Sample 3 (*Mdn* = 0.60) showed more capacity for exposure to emotionally triggering situations than participants in Sample 1 (*Mdn* = 0.50), *U* = 155.00, *p* < .05, *r* = -.36.

Significant results for *interpersonal perception* are shown in Table 14.

Table 14. Nonparametric significant differences for the CS's *interpersonal perception* variables

| Variables | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|-----------|---------|------------|----------|----------|----------|
| COP | 1 | 0.00 | 100.50 | <.01 | -.55 |
| | 3 | 2.00 | | | |
| SumH | 1 | 4.00 | 148.50 | <.05 | -.38 |
| | 3 | 5.00 | | | |

Explanation of results:

Variable COP: Subjects in Sample 1 (*Mdn* = 0.00) revealed more difficulty creating emotional connections outside the family in comparison with subjects in Sample 3 (*Mdn* = 2.00), *U* = 100.50, *p* < .01. The effect was medium sized, *r* = -.55.

Variable SumH: Participants in Sample 1 (*Mdn* = 4.00) revealed less interest in other persons than subjects in Sample 3 (*Mdn* = 5.00), *U* = 148.50, *p* < .05, *r* = -.38.

Significant results for *self-perception* are shown in Table 15.

Table 15. Nonparametric significant differences for the CS's *self-perception* variables

| Variable | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|----------|---------|------------|----------|----------|----------|
| FD | 1 | 0.00 | 171.50 | <.05 | -.33 |
| | 3 | 1.00 | | | |

Explanation of results:

Variable FD: Subjects in Sample 1 (*Mdn* = 0.00) were less involved in self-examination than subjects in Sample 3 (*Mdn* = 1.00), *U* = 171.50, *p* < .05, *r* = -.33.

Significant results for *information processing* are shown in Table 16.

Table 16. Parametric significant differences for the CS's *information processing* variables

| Variable | Samples | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> | <i>r</i> |
|----------|---------|----------|----------|-----------|----------|-----------|----------|----------|
| Zd | 1 | 23 | -1.00 | 3.37 | -2.81 | 44 | <.05 | .39 |
| | 3 | 23 | 2.13 | 4.13 | | | | |

Explanation of results:

Variable Zd: Subjects in Sample 3 (*M* = 2.13; *SD* = 4.13) had more efficient emotional functioning, devoting more effort and energy to exploring their environment in a more meticulous and less erroneous way than subjects in

Sample 1 ($M = -1.00$; $SD = 3.37$). The difference was significant $t(44) = -2.81$, $p < .05$, $r = .39$.

With regard to *cognitive mediation*, no statistically significant differences were found between Samples 1 and 3 on all variables.

Significant results for *ideation* are shown in Table 17.

Table 17. Nonparametric significant differences for the CS's *ideation* variables

| Variables | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|-----------|---------|------------|----------|----------|----------|
| M | 1 | 2.00 | 159.50 | <.05 | -.36 |
| | 3 | 4.00 | | | |
| Ma | 1 | 1.00 | 157.50 | <.05 | -.36 |
| | 3 | 3.00 | | | |

Explanation of results:

Variable M: On average, subjects in Sample 1 ($Mdn = 2.00$) made less use of ideation than subjects in Sample 3 ($Mdn = 4.00$), $U = 159.50$, $p < .05$, $r = -.36$.

Variable Ma: On average, participants in Sample 3 ($Mdn = 3.00$) reported more active ideation than participants in Sample 1 ($Mdn = 1.00$), $U = 157.50$, $p < .05$, $r = -.36$.

Significant results for the *psychopathology constellations* are shown in Table 18.

Table 18. Nonparametric significant differences for the CS's *psychopathology constellations*

| Variable | Samples | <i>Mdn</i> | <i>U</i> | <i>p</i> | <i>r</i> |
|----------|---------|------------|----------|----------|----------|
| CDI | 1 | 4.00 | 93.50 | <.01 | -.57 |
| | 3 | 2.00 | | | |

Explanation of results:

Constellation CDI: Subjects in Sample 3 ($Mdn = 2.00$) revealed less difficulty confronting situations than subjects in Sample 1 ($Mdn = 4.00$), $U = 93.50$, $p < .01$, $r = -.57$.

Discussion

The data suggest that the personality structure of patients who spent too much time playing videogames was significantly different from that of patients who did not play videogames and of patients discharged from the institution. The most significant differences came from the dimension of control and stress tolerance, specifically in the variables related to various sources of stress. Patients who reported spending excessive time playing videogames showed lower stress levels than patients in the second sample. The levels of those in Sample 1 came only from some elaboration of everyday situations and from excessive maintenance of their vital space and

avoidance of interpersonal relationships. Their relationships were characterized by superficiality and caution. This characteristic may create vulnerability to stress because the patients do not feel the support and proximity of others (Exner, 1993, 1995). Patients in the second sample, however, exhibited different sources of stress than the subjects in the first sample. Already revealing conservation of their living space—that is, a necessity of touch from others (Quintino Aires, 2009a)—within the clinical-reference value range, they had greater difficulty verbalizing emotions and a greater focus on the negative aspects of their self-image.

One can raise the hypothesis that these sources of stress could have originated in confrontation with demands from their increased focus on relationships. Therefore, subjects in the second sample were faced with newer developmental requirements than were patients in the first sample. In the interpersonal perception dimension, despite the fact that subjects from both samples demonstrated difficulties creating emotional connections and being assertive, they revealed an important difference: the patients who played videogames showed less interest in other persons than did patients in the second sample. Patients who played videogames did not yet reveal a significant level of need for autonomy from others, feelings of injustice in relation to their peers, or pessimism, as did patients in the second sample. Rather, those in the second sample revealed making an effort to withstand the demands of others; they manifested a tendency toward opposition and pessimism—that is, the belief that no one can change what is wrong. These differences, expressed in different dimensions of personality in the CS, emerged from the type of interpersonal relationships that patients of both groups could establish in accordance with the level of socioemotional development they had reached (Leal, 1995). Patients who spent most of their time exclusively playing videogames did not have an opportunity to deal with the adversities that come from relationships with one another; such difficulties are essential for the development of personality. Thus, they were prevented from trying out new formats for relationships, which have specific requirements: mourning parents, investing in and losing friends, and seducing and confronting them. For example, in socioemotional development, when an individual relates sufficiently often with other humans who have different needs and desires, she eventually has to create a representation of the other as a psychological other, not only as a physical other. This landmark in development enables the emergence of new relational needs—in particular, the need to capture the attention of others. These others are the first and second caregivers successively, who now may or may not like her (Quintino Aires, 2009b).

Another significant difference between the two groups was the impact of the emotional function on the intellectual function of the subjects in the information processing dimension. Our data suggest that the emotional function in the excessive users of videogames was wearing out their intellectual function. This process did not take place in subjects in the second and third samples. Being deprived most of the time from performing an activity on the world in a relationship with others, either in play in early in childhood or later in adolescence through a relationship with a third caregiver—that is, in a loving relationship—these patients can manifest blocks in their emotional, intellectual, and moral development (Quintino Aires, 2009b; Vigotsky, 1933/1976).

In addition, the subjects in the first and second samples were patients who checked into the institution, and therefore the differences found still represent an overall maladaptation of their personality structure to external demands. However, when comparing the personality structure of discharged patients and patients who spent too much time playing videogames, we can see that the differences were even more expressive. Contrary to the patients in the first sample, the patients who received a clinical discharge had more resources for coping with stress, reported more use of active ideation, had more capacity for exposure to emotionally triggering situations, were more involved in self-examination, had more efficient emotional functionality, and in the interpersonal perception dimension revealed no difficulty creating emotional connections outside their family and more interest in other persons. In general, subjects who were discharged from the clinic revealed less difficulty confronting situations. Although the quantification of the specific causes that led to the results reported by discharged subjects was not within the scope of this research, one can hypothesize that these results were due to the effect of psychotherapy. Only through a contingent relationship with a competent veteran trained to promote social relationships did psychological development retake its normal route (Quintino Aires, 1999, 2009b).

Thus, what happens when an individual plays videogames? Is the need for social relationships satisfied? Given the need that humans have for interpersonal and social relationships, we argue that playing videogames is closer to being an action rather than an activity, according to the conceptualization of Leontiev (1945/1981). The motive (and object) of this activity would have to be social relationships themselves, and that relationship is not verified. While playing videogames, the individual is only performing an action because what she is using as an object does not satisfy her need for social relationships. Playing videogames becomes only an action with a goal in itself and not a transforming activity. Such an activity would be constituted by these elements: need, the social/contingent relationship with others; motive, the relationship with another person; object, the relationship with another person. However, playing videogames is an action that is constituted by these elements: need, the social/contingent relationship with another; goal, playing videogames; object, playing videogames. What keeps the subject invested in the action of playing videogames is the indirect connection that this action has to the original need for social relationships. However, this action will never be sufficient for the subjects in the first sample because they will never be truly performing an activity and therefore their original need for social relationships will never be satisfied. Another characteristic linked to the use of videogames is that, unlike play, it does not promote the use of imagination because the developing person must submit to the framework and rules of the videogame software. Thus, it does not contribute actively to the creation of the kind of imaginary situation that emerges spontaneously from play activity (Vigotsky, 1933/1976). Without the promotion of social relationships, the transformation of higher nervous functions and the socioemotional development of personality, as postulated by cultural-historical psychology, are compromised.

Conclusion

The personality structure of the patients who frequently used videogames was significantly different from that of the patients who didn't play them and the patients who were discharged after psychotherapy. The data show that the patients who frequently used videogames manifested excessive caution and conservation of their vital space, avoided getting into meaningful relationships, and showed little interest in others. Thus, in accordance with the theoretical framework of cultural-historical psychology, they were deprived of experiencing relational sources of stress that are necessary for the socioemotional development of their personalities.

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