

Experiential Perspective of Inner Speech in a Problem-solving Context¹

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Abstract: This study presents a phenomenological analysis of inner speech under two conditions: (a) the performance of a thinking-aloud task, contextualized by psychometric parameters, and (b) conscious experience of daily life. A total of 23 undergraduate students, aged between 18 and 28 years old, participated in the study. Three instruments were used: Raven Progressive Matrices, Rumination and Reflection Questionnaire, and a phenomenological interview. The following stood out: the structural triad of a voice (the Self) that talks to a third party (You) about an object (Me), according to the Peirce-Mead model of Norbert Wiley, the bi-dimensional intentionality that exists between the task and the self, and rumination disruptions during the performance of the Raven test. The phenomenological interviews revealed when, why and how inner dialogue occurs, as well as when it is inappropriate (circular thinking) or appropriate (productive and strategic thinking). This study also differentiated first and third person data in a cognitive phenomenon that was observed.

Keywords: Cognitive Processes, Language, Thinking, Phenomenology, Conscience.

Perspectiva Experiential da Conversa Interna no Contexto de Resolução de Problemas

Resumo: Trata-se de uma análise fenomenológica da conversa interna em duas condições: (a) desempenho de tarefa em voz alta contextualizada por parâmetros psicométricos, (b) experiência consciente da vida cotidiana. Participaram do estudo 23 estudantes universitários, com idade variando entre 17 e 28 anos. Três instrumentos foram utilizados: Teste Matrizes Progressivas de Raven, Questionário de Ruminação e Reflexividade, Entrevista Fenomenológica. Na análise destacou-se: a tríade estrutural de uma voz (eu) que fala a uma terceira parte (você) sobre um objeto (mim) conforme o modelo Peirce-Mead de Nobert Wiley, a intencionalidade bidimensional entre a tarefa e o *self*, as interferências da ruminação no desempenho do teste de Raven. As entrevistas fenomenológicas descreveram quando, para que, e como ocorre a conversa interna, e quando é inoportuna (pensamento circular) e oportuna (pensamento produtivo). A análise diferenciou a função de dados de terceira e de primeira pessoa na elucidação de um fenômeno cognitivo.

Palavras-chave: Processos Cognitivos, Linguagem, Pensamento, Fenomenologia, Consciência.

Perspectiva Experiential de Conversación Interna en un Contexto de Solución de Problemas

Resumen: Se trata de un análisis fenomenológico de la conversación interna en dos condiciones: (a) el desempeño de tareas en voz alta contextualizada por parámetros psicométricos, y (b) la experiencia consciente de la vida cotidiana. Los sujetos fueron 23 estudiantes universitarios, con edades comprendidas entre 18 y 28 años. Se utilizaron tres instrumentos: Test de Matrizes Progresivas de Raven; Cuestionario de Rumia y Reflexión; y entrevista fenomenológica. El análisis mostró que: la tríada estructural de una voz (Yo) habla con una tercera parte (Usted) acerca de un objeto (Me), según el modelo de Norbert Wiley, la intencionalidad de dos dimensiones existentes entre la tarea y el *self*, la interferencia de la rumia durante la ejecución del Raven. Las entrevistas fenomenológicas describieron cuando, por que y como ocurre la conversación interna, y cuando es inadecuada (pensamiento repetitivo) u oportuna (pensamiento productivo, estratégico). El estudio también diferenció la función de datos de la tercera y primera persona en la elucidación de un fenómeno cognitivo.

Palabras clave: Procesos Cognitivos, Lenguaje, Pensamiento, Fenomenología, Conciencia.

This study employs phenomenological analysis to examine, based on evidence, the manifestation of verbalized inner dialogue. The focus of the analysis is the flow of

consciousness, that is, the movement of intentionality between the task proposed and the consciousness of oneself concerning the task being performed.

In the last two decades, the human ability to reflect has been studied from two different perspectives: redefinition of the concept of self (Gallagher & Shear, 2005; Hermans, 2002; Wiley, 1994, 2006) and empirical verification of inner conversation (Archer, 2003, 2007; DeSouza, DaSilveira, & Gomes, 2008; DaSilveira, 2007; DeSouza, 2005). Reflexivity means the basic cognitive act of interpreting and making sense of something, that is, the process of semiosis that transforms experience (signs) into consciousness (meaning)

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(Owen, 1996). Meaning is the minimum act of specification, whether it is acknowledgment, designation or even creation (Gendlin, 1962). From this perspective, the self is seen as a phenomenological experience of acquiring knowledge, which is an ongoing interpretation, subject to review, of oneself, another, and of the world, and of preceding mediations that are immediate, and simultaneous or anticipatory. The emergent meanings are always temporary and require constant review. For this reason, the reversal between conscious experience (what appears - *phainómeno*) and consciousness of experience (which goes back to oneself) is a communicative action (Lanigan, 1997). Therefore, one might think that communicative action occurs in the form of conversation, and this internal conversation is what we understand by reflection. An internal conversation (or inner speech) is the activity of speaking silently with oneself (Morin, 2009; Zivin, 1979). It is seen as an integrating part of a greater process of intrapersonal communication (the flow of consciousness), which also includes mental images and other forms of signs (Wiley, 2006).

The interest in the relationships between inner speech and the self is not new. It has been addressed by authors such as James (1890/1950), Mead (1934/1962), Peirce (1931/1958), Piaget (1979), Vygotsky (1934/1986) and Wiley (2006) and such an interest reappeared at the end of the 1980s among neopragmatist sociologists. Colapietro (1989) wrote about self from the perspective of Peirce, and Wiley (1994) gave it continuity by including the perspective of Mead, proposing a theory for the semiotic self that became known as the Pierce-Mead Model. Archer (2007) conducted an extensive qualitative research concerning the relationships among inner speech, reflexivity, and decision-making styles. Psychological literature is limited to isolated and restricted contexts, using inner speech as a means to access certain constructs. Examples include: (a) the method of producing thinking protocols out loud used by cognitive psychology for problem-solving techniques (Ericsson & Simon, 1993); (b) questionnaires that require respondents to acknowledge the presence, intensity, and themes of inner conversation in their lives through Likert scales (Morin, Everett, Turcotte, & Tardif, 1993; Trapnell & Campbell, 1999). Inner speech is a central phenomenon for cognitive psychology, though it has been little explored.

Inner speech was studied by DeSouza et al. (2008) using the Peirce-Mead model as constructed by Wiley. The authors invited college students to answer Raven's Progressive Matrices Test (RPMT) (Raven, 1962/1965), saying aloud, at the same time, all the thoughts that came to mind. The objective was to observe the dialogical flow based on three semiotic instances of Wiley's Peirce-Mead model: a conversation with someone (present, *I*), talking about something (past, *me*), to a third party (future, *you*). Data were analyzed qualitatively based on the descriptive

and reductionist stages of the phenomenological method, as explicated by Gomes (2007). The method used in these circumstances requires careful attention because it is necessary to verify, at the same time, a preexistent pattern, that is, the instantiated flow as defined by Wiley's Peirce-Mead model, and the new emerging aspects. Consequently, the use of the phenomenological technique of "put into brackets" poses a tremendous challenge for the authors (DeSouza et al., 2008). The analysis indicated three patterns of inner speech: (a) visual description of the matrices' graphical forms; (b) logical reasoning in imaginative variations to fill in the matrices' gaps; (c) dialogical relationships in conversations in the form of exclamations (*Oh, how terrible!*), imperatives (*Stay calm, Maria, calm down!*) and even questions and answers (*Now, what am I doing? You get the square and add a ball*). Dialogical relationships are also evidence of the semiotic triad of the Peirce-Mead model.

This study advances the investigations initiated by DeSouza et al. (2008), looking at the convergent stability of qualitative data (Cho & Trent, 2006) and the third- and first-person perspectives (RPMT and interview data, respectively). The present study aims to understand the phenomenon of inner speech associated with the performance of a task and the experience of oneself in the conscious flow of completing a task. In the first situation, the verbalized manifestations of inner speech were compared with parameters of conscious activities such as reflection (elucidative thinking), rumination (redundant, repetitive thinking), and objective parameters provided by answers to the RPMT: duration, number of words, and performance. In the second situation, the experience of inner speech was grasped as an immediate, retrospective or prospective experience. The expectation was that the third-person indicators would provide parameters to demonstrate the variation in intentionality between the task and oneself, and that awareness of the experience would define and contextualize the relationship between inner speech and daily life.

Method

Participants

A total of 23 college students aged between 17 and 28 years old, an average of 19 years old ($SD = 6.8$), participated in the study: 15 women (63.63%) and eight men (36.36%). The study's interest was theoretical with no intention to compare populations or make general inferences.

Instruments

The three following instruments were used:
Raven's Progressive Matrices Test - Advanced Scale (RPMT) (Raven, 1962/1965), with application adapted to

the study of verbalized conversation (Bertau, 1999). The participants gave their responses to the test by speaking aloud all the ideas that came to their minds. The Series II test, composed of 36 items divided into three levels of 12 items each, was used.

The Reflection and Rumination Questionnaire (RRQ) (Trapnell & Campbell, 1999) composed of 28 items and one five-point Likert scale was used. Half of the questionnaire refers to reflexivity (e.g. *I love to analyze why I do things*) and the other half refers to rumination (e.g. *My attention is frequently focused on aspects of myself I wish I would stop thinking about*). The version adapted by Zanon and Teixeira (2006) for Brazilian populations of college students was used, and evidence concerning factor and convergent validity was observed with $\alpha = 0.87$.

The Phenomenological Interview Protocol consists of a semi-structured script to collect self-reports concerning the conscious experience of inner speech within the participant's routine. The protocol is reproduced as follow.

You initially responded to a rumination and reflection scale and a questionnaire addressing emotions. Then, you completed this reasoning test by talking aloud to yourself: (a) Could you describe what it was like for you to answer these instruments? (b) What do you think of the last instrument called Raven? How do you think it would be to answer this instrument without talking aloud? (c) Have you ever paid attention to these issues concerning talking aloud to yourself before? (If the answer is affirmative, how? In what situations? In the case of a negative answer: What was it like for you to have this conversation? Listening to yourself talking? Etc.); (d) Do you normally talk like this in any specific situation in daily life? (e) Did other thoughts cross your mind while you took the test and talked? Do you remember any? (f) Would you like to say something to us, as researchers, about any of this study that we have developed? Any suggestions, critiques, etc.? Do you want to say anything else or ask a question? Thank you very much for your participation.

Procedure

Data Collection

Data were obtained in two stages. The first was a collective application of the RRQ in a classroom on a previously scheduled date. The study's objectives were explained and free and informed consent forms were signed at the time. Then, the participants were instructed on how to

complete the instrument. At the end, the second stage was scheduled. The interval between one stage and the next was one week. In the second stage, the RPMT was applied in individual sessions according to the manual's instructions, including the instructions for the tasks to be completed out loud. The participant remained alone in the classroom and was instructed to go to the next room as soon as the task was finished to talk with the researcher, which is when the phenomenological interview would take place. The individual encounter was recorded and then transcribed.

Data analysis

The analysis was organized in four stages: the first two were the third-person data collection, and the remaining two were the first-person data:

Stage 1 – Identification of measures that delimited inner conversation while solving the RPMT. For that, the time each participant spent to complete the instrument items was clocked, and the number of words verbalized while completing the test was counted based on the verbatim transcription of audio recordings, as well as the number of items the participant answered correctly.

Stage 2 – Identification of reflexivity and rumination indexes based on criteria of measurement suggested by the RRQ.

Stage 3 – Identification of extreme cases for the qualitative analysis of inner dialogue and classification of verbalizations. The criterion was to select the participants who obtained the lowest and the highest scores in the eight requirements of Stages 1 and 2: quantity of verbalized words, time spent, and performance (number of correct answers) on the RPMT, and reflection or rumination indexes based on the RRQ.

Stage 4 – Phenomenological analysis of the first- and third-person data. Such a procedure implies performing a sequence of qualitative analysis concerning data obtained through the instruments and interviews. The analysis is based on the phenomenological tradition of research (Campos & Engler, 2009; DeSouza, 2005; Giorgi, 2006, Gomes, 2007) and is guided by three reflexive stages. First, a qualitative description, in which parts are separated from the whole, is provided and units of meanings from the initial verbalizations are demarcated. Then, we proceed to the synthetic analysis of the data, known as reduction, in which one specifies and delimits the phenomenon into new parts (typologies). Final data are then compared to the meanings analyzed in terms of the whole again, in a procedure called phenomenological interpretation. Hence, we compare what was described and specified with other understandings concerning the phenomenon. In synthesis, the general conception of this study is phenomenological but it seeks, for descriptive rigor, explanations between third-person data (material obtained

through standard measures) and first-person data (self-reports provided during interviews).

Ethical considerations

The study was approved by the Ethics Research Committee at the Universidade Federal do Rio Grande do Sul (protocol No. 2006558). The participants provided written consent.

Results and Discussion

The phenomenological analysis focused on the extreme cases observed among the 23 participants who answered the instruments as indicated in Table 1. The results are presented in two parts: (a) description and reduction of extreme cases based on third-person data (*data*), (b) description and reduction of interviews, that is, first-person data (*capta*) (Lanigan, 1997).

Table 1
Participants Selected Based on Quantitative Results Concerning the Study's First Part

Cases	Criterion	Score	Participant	Gender
1	Longest time spent on the RPMT	7,310s	15	M
2	Shortest time spent on the RPMT	938s	2	F
3	Largest number of words on the RPMT	9,157 words	15	M
4	Smallest number of words on the RPMT	687 words	14	F
5	Best performance on the RPMT	97%	11	F
6	Worst performance on the RPMT	19%	10	F
7	High level of rumination/Low level of reflection	50 points/44 points	13	F
8	High level of reflection/Low level of rumination	59 points/31 points	12	M

Note. RPMT = Raven's Progressive Matrices Test

Description of Third-Person Data

Ten minutes of inner speech transcriptions were quantitatively analyzed. The interval chosen was between the first 5 and 15 minutes of the test, considering it to be a period of time common to all protocols and that the participants are more familiar with the task. The analysis focused on examination of informational statements and dialogical or communicative statements of the participants concerning the task (problem) and themselves (personal). The different forms of sentences were considered: exclamations, imperatives, personal questions and questions concerning the task, personal logical reasoning, logical reasoning concerning the task, personal verbal descriptions, and verbal descriptions concerning the task. The legend concerning the various forms of sentences identified are presented in Table 2. Communicative statements are placed in the extremes (upper and lower parts of the table, with values from +/- 3 and +/- 4) while informational statements are placed in the center (values +/- 1 and +/- 2). Informational statements are composed of sentences with action verbs (e.g. *I am going to see the two lists*) and sentences with verbs in the imperative form (e.g. *Try again!*). Communicative sentences, in turn, are composed of interrogative sentences and/or sentences with linking verbs, such as "to be" (e.g. *Is this the one that*

fits?) and also of exclamations (e.g. *How boring!*). Note that informational statements are binary, exclusive choices: it is or it is not, while communicative statements are analogical, inclusive: *this* or *that*.

Table 2
Classificatory criteria of Statements for the Seven Cases Selected from the Study

Object	Type of sentence	Graphical Legend ^a	Instance
Personal	Exclamation	+4	Communicative
	Personal Questions	+3	Communicative
	Personal logical reasoning	+2	Informational
Problem	Personal description	+1	Informational
	Description of the test	-1	Informational
	Test logical reasoning	-2	Informational
	Questions concerning the task	-3	Communicative
	Imperatives	-4	Communicative

Note. ^aIndicates only convention used for the types of dialogicity

Based on the classificatory criteria, a series of comparative graphics were obtained (Figures 1 and 2)

between the number of correct answers provided to the RPMT (indicator of performance) and number of words (indicator of verbalizations). The participants solved 12 items of the RPMT, on average, in the 10-minute interval. The participant who completed the lowest number of items was the one who scored highest in rumination (participant 13, who solved eight items on the RPMT). Note that the correlation between rumination and performance was negative ($-0.239, p < .001$). The participant who solved the highest number of items was also the one who concluded the task in the shortest time in the general sample (participant 2, solved 19 tasks on the RPMT) (Figure 1). The predominant object of the inner speech was the task (an average of 73% of the verbalizations). Case 13, in contrast, produced 64% of personal statements and only 36% were statements concerning the task. We also observed that the participants with the highest number of correct answers (performance above 70%) were more focused on the task. Case 14, though, presented a very low number of words, verbalized very little during the task and did not present any

“personal” statement in the interval observed, presenting a performance of 50% (Figure 2).

Figures 1 and 2 illustrate the verbalizations of the cases with the best and worst performances on the RPMT, respectively. The first illustration in Figure 1 presents the results concerning Participant 2, who answered 80% of the answers correctly on the RPMT, 19% of verbalizations was classified as personal and the remaining 81% of verbalizations concerned the task. Participant 11 obtained the best general performance on the RPMT, with 97% of answers correct; 25% of her verbalizations were classified as personal statements and 75% concerned the task. Participant 12 presented the same quantity of personal verbalizations and verbalizations concerning the task as Participant 11 and presented a good performance on the RPMT, with 89% correct answers. Participant 15 (represented in the last illustration at the right of Figure 1) also correctly answered 89% of the RPMT questions; 15% of his verbalizations were personal and 85% referred to the task.

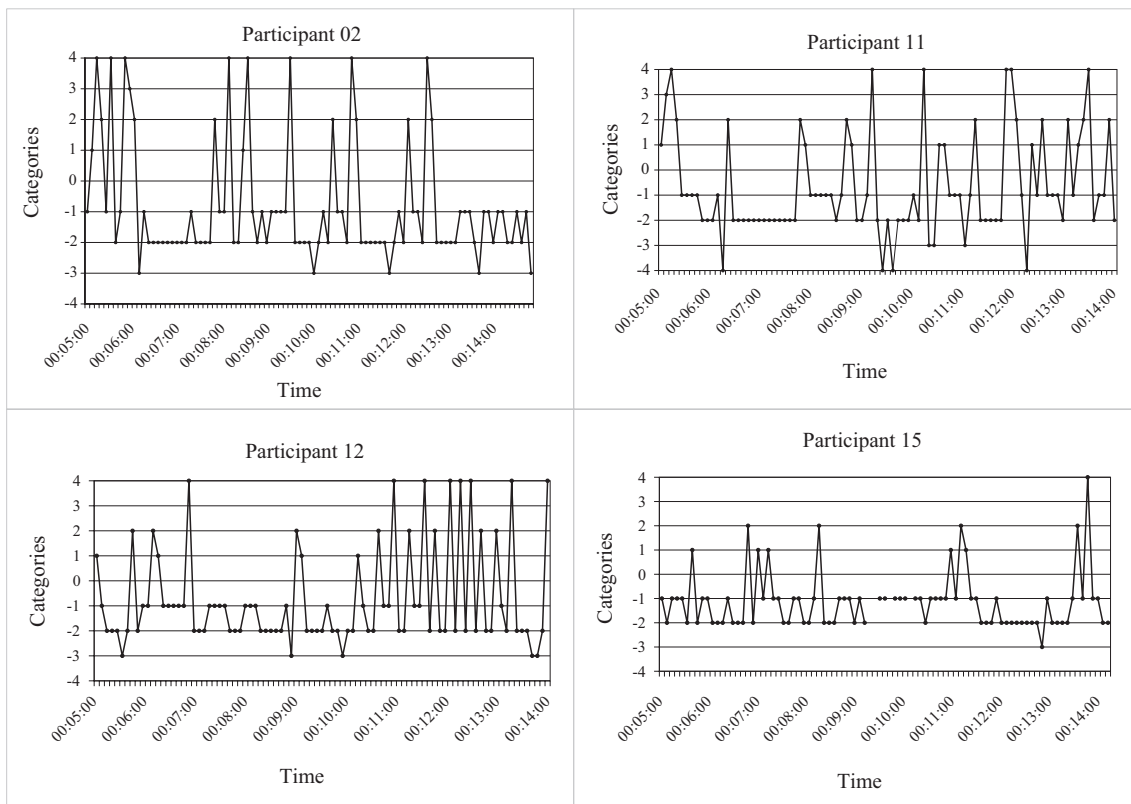


Figure 1. Verbalizations of the participants with the best performances on Raven’s Progressive Matrices Test.

Figure 2 first presents the results of participant 10, who performed weakly on the RPMT, with 22% correct answers. Her results indicated 41% of personal verbalizations and 59% of verbalizations concerning the task. The following illustration refers to Participant 13, whose general performance

was not satisfactory, with 64% correct answers, 54% personal verbalizations and 46% verbalizations concerning the task. Finally, data from Participant 14, who did not perform very well on the RPMT (50% correct answers), reveal that all verbalizations during the analyzed period concerned the task and none were personal.

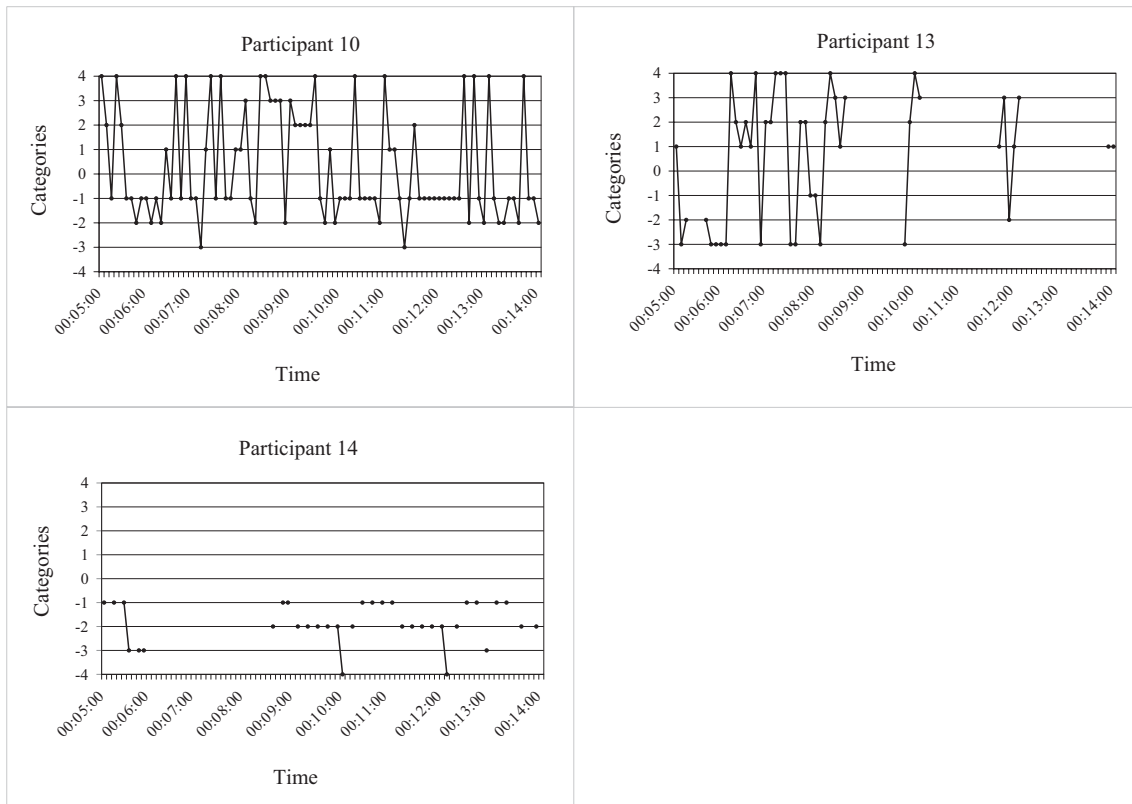


Figure 2. Verbalizations of the participants with less satisfactory performances on Raven’s Progressive Matrices Test.

Third-person data suggest that the quantity of personal statements does not influence one’s performance on a reasoning test such as the RPTM, though we still should take into account the proportion of personal statements and statements focusing on the task. Statements concerning the task and informational statements (verbal descriptions and logical reasoning related to the test) predominated among those who performed better on the test (participants 2, 11, 12 and 15). However, in contrast with the findings of Bertau (2004), those who asked more questions did not necessarily do better on the test.

Third-person data reduction

Differentiation between verbalizations focused on personal issues or on issues related to the task was important to classify inner speech into ruminative or reflective. The distinction between informational and communicative statements suggested by DeSouza et al. (2008) took into account to whom the conversation was directed (*I* who talks to *itself* in the future) but it seems the authors did not consider the classification of the conversation in relation to the object (*me*) according to Wiley’s Peirce-Mead synthesis (1994). Note that the movement between the statement

related to the problem-solving context and the instant in which the participant changes the focus of conversation to questions related to the self (*I’m not getting it*) or the environment (*What a cold room!*) are unrelated to the task. Hence, these verbalizations are not characterized as metacognitive sentences (Schooler & Melcher, 1995). Yet, such verbalizations should not be disregarded, even when the objective is the evaluation of the problem-solving context. The sentences whose focus is on the *self* can influence adaptive behavior and, consequently, how the participants perform the proposed task (Rohrkemper, 1986). The distinction between communicative and informational statements illustrated in Figures 1 and 2 incisively reveal the dimension and dynamics of the inner speech and will be the object of analysis from the first-person perspective that follows.

Description of First-Person Data

At the end of the application of scales and questionnaires, the 23 participants were invited for an interview. Topics were about the experience of having responded to various instruments and the experience of having an internal dialogue. The participants’ answers were synthesized into nine

qualitative assertions as enunciated below. A typical excerpt of each assertion is provided for illustrative purposes.

(1) Inner speech assists the organization of thought to solve problems here and now: “It is easier to organize if I can express what I have inside. Because, sometimes, it’s a mess, then I can’t organize myself” (participant 1).

(2) It reassesses one’s daily events: “I say like, oh, ‘why did I do this?’ Why didn’t I do it differently?’ and then ‘I should have stayed quiet’ you know? Like ‘I should not have stuttered so much’ you know?” (participant 3)

(3) It helps to organize logical reasoning when solving specific tasks: “It’s that whenever I solve mathematic problems, exercises, I talk to myself, otherwise I’m not able to do it” (participant 1).

(4) It works as a rehearsal for situations when external dialogue is imminent (a reflection about some event that will happen in the future): “When I have something to do, like some presentation, I go over everything out loud (...). I use my inner voice to feel more secure” (participant 18).

(5) On the one hand, it can be an unwanted intrusion to be avoided, because it seems to be an obstacle to the solution of problems in everyday life: “You know I haven’t been able to sleep lately because of thinking too much? Sometimes, I feel fast, like, you know? – It’s that, like, there’re things that are so obvious, that I can’t even speak. If I talk about it, I won’t be able to solve it” (participant 4).

(6) It points out feelings and emotional aspects to oneself: “Sometimes, some problem, like, I don’t know. Say, suppose I’ve discussed something with someone, and it makes me worried, you know? Then, I end up thinking (...) and sometimes I end up talking, expressing myself like this” (participant 12).

(7) It is expressed in private and avoided in public; the experience of talking out loud is part of private life. Talking to yourself in the presence of other people has the connotation of “being crazy”, of something “ridiculous/funny”: “Like, wow, at the exact moment I said it, I heard it, you know? I guess it was almost at the same time: I realized that I said it out aloud and she asked me. And I got ashamed, you know ‘Wow, Gosh, if she knew, like, she’d think I’m crazy, talk to myself, like this” (participant 16).

(8) A verbalized inner speech is different from thought, because it expresses things “beyond” thought: “Oh no, by then if the person says what she figures out, it’s not quite what she thinks. ‘You’ll say it and it won’t come out the same, I don’t know” (Participant 4).

(9) A verbalized inner speech goes through some kind of “filter”; you do not always say what you actually think: “Like those papers you handed me, there’re sometimes many things like ‘I won’t answer this, because they’ll think like, no, you know, that I did it wrong’. But then you end up ‘no, let’s be honest’ you know? (...). You end up thinking a little about things, of how you act in certain situations, it’s cool” (participant 2).

Reduction of First-Person Data

Inner speech was characterized and interpreted differently, in accordance with the participant’s beliefs and theories. Therefore, we provide an understanding of the various dimensions of inner speech, whether related to content (internal or external), to the time (past, present and future), to the context (verbalize to other people or alone), and also variations of evaluative character (whether it hinders or helps the individual). Hence, the nine descriptive assertions previously presented can be reduced to three basic structures or assertions.

Structure 1 – Inner speech has its own nature that exceeds the system of signs used in external language, that goes beyond thinking, and which is preferably expressed privately.

Structure 2 – Inner speech is experienced as a cognitive resource to organize thought, related both to concrete and objective issues (to solve logical-mathematical problems for instance) or related to one’s understanding and interpretation of organic indications or subjectivity (naming feelings).

Structure 3 – Inner speech is different in terms of temporal context in which it occurs and can be an adjuvant tool to aid thinking in issues from the past (as it involves reflections concerning memories), in the present (as it follows the resolution of problems that are presented to the individual in real time), or in the future (as it reconciles ideas and the planning of events that will happen).

Phenomenological Interpretation of Third- and First-Person Data

Reduction revealed a bi-dimensional structure of reflective action both in the demonstration of the third- and first-person expressions of experience: the verbalizations sometimes were directed to the task, sometimes to oneself. This debate between inner speeches, whose object is directed to the *self* or to the object, is analogous to the debate between reflexivity and pre-reflexivity. Husserl (1964) defined the flow of consciousness in the bi-dimensionality of taking oneself as object (noetic analysis) and taking one’s own experience as object (noematic analysis). Both instances appear in data reported here as reflective action directed to oneself and also underlying the experience of mundane objects.

The effect of reflexivity is similar to placing a flat mirror in front of another flat mirror: infinite projections of the *self* can be observed and the action of inner speech can frame each of these projections, describing the various impressions the *self* generates on itself at different points in time. It seems to be in accordance, for instance, with the focus of the therapeutic work of some psychotherapies based on verbalized reflection, in which reflexivity put into words seems to work as a precise tool to clarify issues related to self-conception, self-image, identity, etc. (Morin & Everett, 1991; Pedersen, 1999).

Instances of inner speech occurring pre-reflexivity, that is, related to objects of experience, are observed in situations of interaction with the world in real time, as is the case of the use of inner speech in problem solving. An interesting debate within the literature takes place when one considers problem-solving that involves insight, in which the inner speech hinders the production of creative solutions in problem solving contexts (Fiore & Schooler, 1998). We note the contact between Items two and three of the phenomenological reduction of first person: inner speech that both helps and disturbs.

The characteristic of inner speech as a phenomenon whose production is desirable or undesirable by the subject also refers to the distinction between reflection and rumination (Trapnell & Campbell, 1999): inner speech may ground the exercise of self-knowledge of individuals who are pleased in thinking about themselves or may highlight incessant and circular thoughts characteristics of rumination, whose occurrence is usually observed in depressive patients, for instance.

The temporal dimension, presented in the third point of the analysis, also proved to be relevant to the debate concerning the nature of inner speech. The perception concerning inner speech, according to the reports, does not occur part by part, as compartmentalized fragments, but as a whole, as synthetically integrated moments. We perceive the incompleteness of perspective in the description of this experience: one never perceives an object as a whole, entirely, because the dimension of time is part of the experience.

The formal characteristics of inner speech were also highlighted by the participants from a different point of view: inner speech is perceived as structure in which one part (some word, subject) is the focus and the other is shadow. Considering the relationship between consciousness and experience, inner speech materializes perception as something emergent that appears with the certification of what is seen and felt in what is apparent that gains form and meaning. The experience is, at the same time, the testimony of my inclusion in the real world, punctuated by my memories, feelings, present and temporary feelings, and future perspectives. Inner speech emerges as communicability that is felt, said and recordable between the consciousness that goes back to experience in the form of perception and answers to it in the form of expression. Inner speech can be understood as the expressivity of this perception of things and of oneself as the part of the semiotic, reflective self, or simply the self.

The temporal dimension implied the intrapersonal communicative perspective. Inner speech, in this case, underlines reflective movements ancillary to individual cognitive processes related to episodic memory (reflections about past events) (Tulving, 2002), problem solving (present), and planning and episodic future thinking (Atance & O'Neill, 2001).

First-person experience of the bi-dimensionality of inner speech reveals the reflexive subject in the action of thinking about oneself and about the world. The action is one that moves toward getting farther from or closer to one of the two poles: oneself or the world, the private or the public. This movement houses the desirability of inner speech, and of the organism as a whole, which is its semiotic power in the attraction of affections. The movement focuses more intensively on what is of interest at a given time. We face the possibility that inner speech is a tool that sometimes helps the participants in daily activities and sometimes hinders them, as an unwanted thought that emerges.

In summary, inner speech seems to mediate the rich and rapid flow of thought with full semiotic freedom and its structural limits. By structural limits we mean the psychobiological, social, and cultural conjunction associated with individual styles. Inner speech is a privileged means of recording communication that an individual has with him/herself and with the world.

Final Considerations

Two functional aspects of inner speech occupied the attention of this phenomenological analysis: (a) verbalization out loud, concerning the resolution of a task; (b) verbalization concerning oneself competing for attention with verbalization concerning the task. Additionally, two other aspects were verified: (c) the relationship between verbalization and performance; (d) manifested flow as temporality of consciousness.

With regard to the verbalization of inner speech out loud, the results offered a systematic and detailed description of experience as phenomenal apprehension of the experience concerning the bi-dimensional intentionality between the task and oneself. In this sense, inner speech was an essential tool to relate to the world, to indicate, and guide performance of the task.

With regard to the relationship between verbalization and performance, the third-person data showed patterns of attitude in a problem-solving context. The individuals most successful in the task necessarily used inner speech that sometimes addressed the problem, sometimes themselves, in a relatively evenly distributed manner. Obviously, increased verbalization about oneself or unrelated to the task compromised performance.

In relation to the conversational flow, this study's findings and interpretations exemplified the temporality of consciousness as indicated by the descriptions concerning the ongoing meaning, still incomplete and difficult to grasp, and seeking its completion. The constitution of meaning makes a movement toward the whole that is outlined and vanishes in the flow of consciousness. It should be noted that the graphical proposition of conversation, not only specified

informational (either... or) and communicational (both... and) manifestations (Lanigan, 1997), but also indicated the direction of intention, that is, of what inner conversation was occupied with, being self-consciousness or simply the semiotic self (Wiley, 2006).

When Wiley (1994) proposed the Pierce-Mead model, evidence came from daily experience, not characterized as an empirical systematic survey. This survey was performed by DeSouza et al. (2008) and is confirmed in this study. The model configures the basic structure of a conversation that can be expanded depending on the dynamics of the content, or on what one says to someone. An example of such expansion, cited by Wiley himself, is the change in the number or status of the party(ies) to whom one talks, for instance, the *I* talking of an object (*me*), to close parties (relatives, friends), or distant parties (boss, authorities) (*you*). However, this study's findings show that the process in which content becomes explicit is gradual; in the case of solving the RPMT, from the implicit in the visual description and logical reasoning, to the explicit in dialogical relationships.

The negative and significant correlation between rumination and performance is an important indication that this relationship should be examined with greater detail and specification. However, according to this study's findings, no clear relationships were established between the participants' verbalizations and the profiles of rumination and reflection. This lack of evidence may be due to the reduced number of participants used in the analyses (10-minute verbalizations recording).

Currently, neuroscientists and psychologists (Gallagher & Zahavi, 2008) are seeking explanations for the relationships between the subject and his/her world when they seek dynamic, neural models or models of information processing. A phenomenological, systemic, and systematic analysis is a good start for third-person research. Additionally, first-person studies aggregate emergent meaning that lacks the level of interpretation of third-person data. For instance, the way an inner conversation was perceived as a real experience by the participants (first-person data) and defined as a strategy of focalization, nomination, organization, evaluation and anticipation. Specifically, it is a private experience that occurs between the rapid transition of thought and public verbalization. Indeed, one of this study's contributions was the offering of results from this combination of data, a process using various perceptions, reinforcing triangulation strategies, and seeking to ensure the validity of the communication of researchers.

Further studies are needed to develop more sensitive strategies to observe verbalized inner speech, in which it is possible to obtain data that is clear evidence of the ruminative or reflective characteristics of inner speech. Additionally, it is necessary to perform the same type of analysis using other reasoning tests and/or problem-solving contexts, especially in relation to those that actively involve the subject, such

as daily tasks, to evaluate the balance between inner speech addressing the subject and inner speech addressing the task.

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