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This is an **author produced version** of a paper published in:

British Journal of Educational Psychology 76.4 (2006): 709-725

DOI: <http://dx.doi.org/10.1348/000709905X67601>

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Children's Autobiographies As Learners of Writing ¹

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¹ This paper is based on a preliminary version in Spanish: Scheuer, N., Neira, S., de la Cruz, M., and Pozo, J.I. (2003). *La autobiografía de los niños como aprendices de la escritura*. Included in December 2003 in the Universidad Nacional del Comahue Web site: <http://crub1.uncoma.edu.ar>.

Abstract

In this work we study the history of the process of learning to write from the learners' insider perspective. Sixty children participated in an individual interview about the learning of writing. The main task was the request to write "*as you used to when you were just beginning to write*". This basic question was repeated for 1-year-intervals until the child's current age was reached. The anticipation of writing next year was also requested. Participants attended public schools in Bariloche, Argentina, and were equally distributed according to school level (Kindergarten, 1st Grade, 4th Grade), sociocultural environment (middle and marginate) and gender.

Response categories identified the products and changes children included to illustrate on paper and refer orally their history and future as learners of writing. A Multiple Correspondence Factorial Analysis was applied to study relations among response categories and inter-subject variables. On the basis of the results thus obtained, we grouped and ordered categories into a Guttman Scale. Finally, a two-factor independent measures ANOVA was performed to examine the effect of school level, sociocultural environment and the interaction between factors on the scores obtained in the Guttman Scale. Results show a developmental shift from a focus on easily identifiable, isolated products (characteristic of a direct theory of learning), to the integration of procedural and representational changes (indicating an interpretative theory of learning). Proposed intervening dimensions of change are growing internalization and complexization. Everyday sociocultural environments presented particularly noticeable influences at initial stages.

Keywords: learning to write – meta-knowledge – learning autobiography

BACKGROUND

In this work we study the history of the process of learning to write from an insider perspective: that of children who are learning to write. Despite literacy acquisition has deserved plenty of attention from developmental and educational psychological research, little is known about how children conceive their progress in this key area of learning. Achieving an understanding of which are the aspects children consider that change during this process presents doubtless educational relevance, since those aspects may implicitly operate as learning guidelines and parameters for self-evaluation.

Already two decades ago Pramling proposed that meta-knowledge is a context and content dependent process (1983). As they learn, children do not only acquire specific knowledge; they also generate conceptions regarding both how they learn and what they learn. According to Pramling's phenomenographical studies, in the age period extending from three to eight years, awareness of learning develops from an initial conception of learning as learning to do, to conceiving this process as learning to know and, successively, as learning to understand. In prior studies exploring four to six year olds' conceptions of learning a significant notational activity as is drawing (Scheuer et al., 2001a; Scheuer et al., 2002), it was found that younger children used to express their personal history in relation to this learning as a linear concatenation of successive, unconnected and absolute products leading to an accumulative expansion of the learner's graphic repertoire. Older children used to integrate other parameters as well, such as increasing complexity and refinement of already known graphic products, formal and procedural changes (as size, stroke control, intra-figural relations) and even the generation of new mental representations. In summary, older children did not reduce learning to draw to the increase of the graphic products they mastered. Rather, they expressed this process in terms of a set of change processes – procedural, formal and

mental. This developmental trend was interpreted as indicating a shift from a direct conception or theory of learning (a sort of naive behaviourism focussed only on objective, clear-cut learning results), to an interpretive theory of learning, focussed on learner's processes mediating learning not only from the outside, but also from the inside (Scheuer et al., 2002). The relatively few studies about the further development of theory of mind (Wellman, 1990; Schwanenflugel et al., 1996) show that during middle childhood, interpretative theories progress as regards the internalisation of agency, the growing complexity of the mental processes considered and the awareness that the results of such processes may be relatively uncertain.

From our point of view, awareness that learning has occurred and that things or aspects remain to be learned is elaborated on the basis of the perception of contrasts among the representation of results attained in the past, results perceived as being attained in the present, and those presumed to be achieved in the future. We view the versions children elaborate about their history as learners of writing as doubly specific autobiographies, since they refer to a particular process (i.e., learning) and to a particular content (writing). Just as autobiographies regarding other vital experiences (Bruner and Weisser, 1991; Damasio, 1999), learning autobiographies are dynamic reconstructions that proceed from a narrative activity that is constitutive of identity and are redescribed over and over again (Karmiloff-Smith, 1992). Nelson's studies have demonstrated that children engage in these narrative activities from a early age (Nelson, 1993).

In this work we study children's autobiographies in relation to writing, i.e. a particularly significant area for persons' cognitive and social development (Olson, 1994). Inasmuch writing is an external representation system (Donald, 1993; Martí, Pozo, 2000), it produces relatively permanent visible and hence retrievable tracks,

which may offer children a patent basis to think about and to express the progression implied in learning in this field. The educational interest of children's writing autobiographies resides in that they play a part in children's construction of their identity as learners and producers of writing (Vélez, 2004).

From scholars' view of the process of learning to write, to children's autobiographies of learning to write

From an early age, children who make part of a literate culture use to participate in diverse notational practices (Sulzby and Barnhart, 1992; Borzone de Manrique, 1994). Around the age of two or three, children begin to deliberately produce traces on the different surfaces they have near at hand, as paper, walls, sand, or, in the case of digitalized contexts, to press keys to produce prepackaged forms on computer's screens. As hand-made forms give way to recognizable figurative drawings, attempts to write names of persons and of objects tend to become distinct as well. By the age of four or five, children use to become increasingly interested in writing and begin to integrate pertinent production principles (Ferreiro and Teberosky, 1979). Young children use their writing -even if it is not conventional- to mark their drawings, to communicate with others and influence their behavior, to represent aspects of situations, etc. Despite the precocious distinction between iconic and alphabetical forms (Martí, 1999), children frequently combine both in varied ways: writing is used to title and identify drawings, and drawing is used to complete writing (MacLane, 1993; Sulzby and Barnhart, 1992). Centrality of drawing as a notational resource generally declines as mastery of technical-notational aspects of writing improves during the first years of elementary school (Teberosky and Tolchinsky, 1995). It seems that the internalization of the alphabetical code makes it possible to shift towards new learning focusses (Fitzgerald

and Shanahan, 2000), basically from the focus on code acquisition according to conventional grapheme - phoneme correspondence rules, to concern with orthography (Matteoda, 2000), conventional formats and even some aspects of the intra-textual relations of coherence and cohesion (Castedo, 1995; Kaufman, 1994; Teberosky and Tolchinsky, 1995).

The process of acquiring writing is doubtlessly shaped by the ways in which writing is used, transmitted and valued in the particular sociocultural context children develop (Borzone de Manrique, 1994; Ferreiro and Teberosky, 1979). According to a study in our region, in middle-class communities writing permeates everyday and school practices. Instead, in socioeconomically marginal environments writing is an occasional practice responding to external demands coming basically from school or from social services (Scheuer et al., 2001b). Besides affecting the rhythm of initial learning, these differences may have a bearing on the ways children perceive the sense of such learning and the ways they appreciate their own learning competence. According to Goodman's studies in USA, children of socioeconomically poor communities tend to adopt societal attitudes about their own capability to learn to write and read, and thus consider that they are not good candidates for learning in this area. In contrast, children from middle-class families use to acquire the notion that literacy learning is an expected, natural process that occurs as part of their participation in a literate society (Goodman, 1996, p. 353). In this scenery, it is worth asking whether children's autobiographies about learning to write vary according to sociocultural environments and, in that case, what do such variations consist in.

AIMS

We aimed to study the autobiographies that children in different ages/educational levels and living in different sociocultural environments elaborate in relation to their learning of writing, in terms of their versions about what is it that progresses as learning in this area proceeds. We were specially interested in analyzing how such versions change with development and, in particular, if the developmental shift found in relation to children's conceptions of learning to draw -from a focus on the accumulative expansion of a repertoire of unconnected products to the integration of changes in the ways of producing such products and representing them on paper and mentally- is also evident in a highly conventional notational field that requires deliberate social transmission processes as is writing, and how such developmental trend evolves in middle childhood.

METHOD

Participants

Sixty children attending public schools in Bariloche (a 100,000 inhabitant town in Patagonia, Argentina). Schools were located in quarters with different sociocultural and economic characteristics. Twenty children (mean age: 5 years 3 months) attended Kindergarten, i.e. an educational level that prepares children for learning of writing, and corresponds to a developmental period during which we may expect that children's understanding of learning is mediated by a direct theory; 20 children in first grade in elementary school, when the systematic teaching of writing begins (mean age: 6 years 5 months) and an interpretative theory of learning emerges; and the remaining 20 attended fourth grade, when they are expected to master technical-notational aspects of writing,

are beginning to focus on organizational aspects of texts and conceive the mental world according to an increasingly complex and mediational interpretative theory (mean age: 9 years 8 months). Half the children in each educational level attended a school located in a very poor and marginal quarter, located in the farthest outskirts of the city, where the presence of street print was rare. These children's parents or tutors had not completed primary studies. Most of them were unemployed. The other half attended a downtown school. These children's parents or tutors had completed primary studies at the very least (many of them having completed also high school and a few university studies). In each educational and sociocultural group, half the children were girls and half boys. Consent to participate was obtained in writing from parents.

Procedure

We interviewed children individually at school, out of the classroom. The complete interview included a few introductory questions aimed at establishing contact with the child, directing his/her attention towards writing and reconstructing autobiographical aspects in relation to this learning. In the main task children were asked to illustrate on paper and to describe orally how they used to write in the past, and to anticipate how they would write in the future. The instruction was simple and direct: *What did you do on paper when you were just beginning to write? How would it be? Would you show me?* (a piece of paper was provided for a graphic demonstration). *And before that, had you tried to write sometime?* (if the answer was yes) *What did you do?* The basic question was repeated for 1-year-intervals until the child's current age was reached. The final request was oriented to the future (*as you will write next year*). In other words, children were invited to elaborate graphically and orally a sort of brief, indicative annals of their own written production. We assume that the products and changes children mark in their sequence of graphic productions from the earliest to the

latest requested ages provide information about children's current criteria underlying their ways of appreciating and ordering the results of learning to write and hence, about their conception about what that this learning process consists in.

Procedure of analysis

We elaborated a system of descriptive categories to identify the products and changes children included to illustrate on paper and refer orally their history and future as learners of writing. Two researchers categorized all responses independently; agreement was high (> 90%). A Multiple Correspondence Factorial Analysis (MCFA) was applied (Benzécri, 1973) in order to study relations among response categories, school level, sociocultural environment and gender. On the basis of the ordering of categories along the first axis in the factorial plane resulting from MCFA, we grouped and ordered categories into a Guttman Scale. The aim of this analysis was to establish whether the products and changes identified by means of the category system maintained an order relation and, in that case, to characterize it. Cornell's technique was applied (Briones, 1985). Finally, a two-factor independent measures ANOVA was performed to examine the effect of school level, sociocultural environment and the interaction between factors on the scores obtained in the Guttman Scale.

Response categories

We analysed both the *products* children produced in order to illustrate their writing for *each* of the requested ages and the *procedural and representational changes* they introduced *among* writings for successive ages.

--- Insert Table 1 around here ---

Products

These categories specify the kind of product that each child produces to illustrate his/her writing at *each* requested age.

Non-representational graphic products (Table 1, Fig. a). One or more strokes suggesting motor rehearsals that developmentally precede figurative drawing or recognizable writing (*when I was three I only made strokes*).

Drawings (Table 1, Figs. b, c, f). One or more graphic products oriented to conventional figurative representation. In their verbalizations, children mentioned the action of drawing by means of terms with different grades of pertinence and specificity: do, draw, write (*I first wrote a doll (...), at four I made cars (...), at five I made houses and now, now I make suns*).

Mock-letters (Table 1, Figs. b, i). Isolated characters resembling letters despite recognizable configurations are not achieved. Younger children used to present mock-letters as if they were authentic letters, whereas older children explicitly presented them as early, definitely unconventional attempts (*before, I made them letters like this, that one doesn't understand a thing, but now, now I write them*).

Letters (Table 1, Figs. b, d, i). One or several conventional letters, in unconnected or serial displays (*now I'm learning the alphabet, but I don't know it yet*). Inversions and deformations that do not interfere the recognition of the corresponding letter are included here.

Mock-names and mock-words (Table 1, Figs. e, f, i). Combinations of letters and/or mock-letters in unrecognizable displays (*I did as if I was writing*), most frequently respecting the minimal quantity and variety restrictions children use to consider in early phases of learning to write (Ferreiro and Teberosky, 1979).

Mock-numerals. A single character resembling conventional numerals as regards composing traits and spatial display, despite it is not recognizable.

Numerals and calculations (Table 1, Fig. h). Some children included conventional numerals (i.e., written numbers) or written calculations as an achievement in the process of learning to write (*next year I'd write other things. Divisions, take away, sort of*).

Names (Table 1, Figs. b, c, f, g). Writing the own name, that of other persons or parental appellatives (*at four I learned to use the pencil and to write Dad*).

Words (Table 1, Fig. g). They correspond exclusively to nouns (*Now I am writing other new things I'm being taught (...), for example, words about flora and fauna*). As with other categories, some children produce a repertoire of words (*next year I want to learn to write stick, house, I'll learn everything 'cause I like to write*). Words with inversions, omissions or orthographical mistakes that do not prevent the recognition of the corresponding word are included here.

Texts (Table 1, Fig. g). Organized texts as messages, phrases or literary pieces (*before I did not write poems, nothing, but now I do*).

Procedural and representational changes

These categories record the variations each child establishes *among* ways of producing on paper or representing graphically or mentally at two or more successive ages. These categories are not mutually excluding.

Non-graphic stage. Child explicitly refers to a early period when he/she did not perform any graphic production yet.

Stroke control (Table 1, Fig. d). Advances in the execution of the graphic strokes, which appear as irregular or weak in products proposed for early ages and become increasingly regular and/or firm for successive ages.

Size (Table 1, Fig. b, g). Oral and/ or graphic reference to the reduction of the size of products for later ages.

Writing extension (Table 1, Figs. e, i). Extension increase within the same kind of written product for successive ages, i.e. notoriously greater quantity of letters or mock letters, longer words or mock words, longer texts (*in first grade I wrote a page and a half, the I added more and more pages and now I write three or four pages, so I fill in much more*).

Name/word completeness (Table 1, Fig. c). Oral and/or graphic reference to advance from the incomplete to the complete writing of a word or name.

Typography (Table 1, Figs. b, f, g). Changes in the kind of letters employed. Most children showed the passage from capital block letters to lower case cursive writing.

Orientation and intra-figural proportion. Changes in orientation (Table 1, Fig. g) regarded the passage from letters, names or words presenting horizontal or vertical inversions, to products which are conventionally oriented (*before I wrote crooked and now I write straight. When I just began, I made the 'A' upside down*). Changes in proportion (Table 1, Fig. b) regard advances in the homogeneity of the relative sizes of the characters composing a name or word.

Dexterity. Oral reference to advances regarding neatness (*when I just began to write I made everything untidy (...) next year I'll write better, tidier*) and speed (*when I pass to fifth grade I'll write fast*).

Adjustment to conventional writing rules (Table 1, Figs. b, f). Oral and/or graphic reference to the mastery of conventional aspects of writing, including adjustment to orthographical rules and the explicit passage from mock-letters, mock-names or mock-words letters, names or words.

Meaning and understanding. Oral reference to the meaning of written texts or to the processes of understanding implied in writing or reading (*at first I didn't know to write anything, but then I got to understand letters*).

RESULTS

The diversity of sequences obtained almost equals the number of participants (52 different versions for 60 children). We interpret this fact as an indicator of the singularity that characterizes the elaboration of personal history, that is, the different ways in which self is invented in a frame of relative consensus (Bruner and Weisser, 1991). Despite the remarkable variety in the ways children assembled their “waybill” in relation to the learning of writing, the successive analysis we performed allowed to identify consistent and interpretable regularities and differences.

With the aim of studying the associations between response categories and inter-subject variables, a Multiple Correspondence Factorial Analysis (MCFA) was carried out. The 20 response categories described in the previous section were considered active variables. Each active variable presented two mutually excluding modalities: child expressed the product or change by graphic and/or oral means (+), or child did not express the product or change by either means (-). School level, sociocultural environment and gender were considered illustrative variables. We selected the two first axes (see Fig. A). The school grade variable achieved test value in both axes (Kindergarten and 4th Grade on both axes; 1st Grade only on Axis 1); the sociocultural variable did so only in Axis 1 and gender did not in either axis.

--- Insert Figure A and Table 2 around here ---

The position of contributive modalities to Axis 1 (i.e. with a contribution over the mean one) show a developmental-educational order in children's graphic and oral representation of their own history as learners of writing. This first axis distinguishes Kindergarten and 1st Grade from 4th Grade, which is associated to a set of response modalities specifying types of products that correspond to the domain of writing (words+, texts+) or expressing either procedural (typography+, stroke control+, size+, dexterity+, orientation and proportion+) or representational changes (adjustment to conventional writing rules+, meaning and understanding+). Instead, Kindergarten and 1st Grade are associated to negative modalities, indicating that these children's learning history in this domain presents both less punctuations and gradual changes than that of children who have already achieved a basic mastery of writing. With respect to the sociocultural variable, a tendency of the children from middle sectors to consider representational and procedural aspects involved in writing as well as complex writing products is observed. The position of contributive response modalities to Axis 2 reveals differences regarding the adjustment to the conventionality of written or numerical products. Mock-notations (mock numerals+, mock letters+, mock names/words+), located in the negative side of Axis 2, are associated to Kindergarten. Instead, conventional notations (numerals and calculations+, texts+) appear in the positive side of this axis. The proximity of adjustment to conventional writing rules+ and meaning and understanding+ to 4th Grade may be interpreted as the explicitation of the sense of the passage from mock-notations to conventional notations by the part of older, more advanced writing learners. Modalities close to the intersection of both axes (i.e. those that most children have presented) correspond to early stages in the learning of writing: non-graphic stage+, drawings+, letters+, names+. Two main groups were distinguished on the Factorial Plane.

Group 1. Characterized by mock numerals+, mock letters+, mock names/words+, writing extension+ and by the absence of graphic or oral references to procedural or representational aspects pertaining specifically to the conventional writing system. Kindergarten and 1st Grade are associated to this group, as is the marginate sociocultural environment. Kindergarten is particularly close to the three mock-notational response modalities. The association of mock-notations and writing extension indicates the cohabitation of quantitative specific writing aims with the temporary lack of capability to achieve them, since the alphabetic code is not mastered yet. Mock-notations indicate the intervention of an emulation process (Tomasello, 1999) in the learning of writing, since they represent unfulfilled attempts to reproduce conventional notational forms.

Group 2. Characterized by adjustment to conventional writing rules+, meaning and understanding+, dexterity+, orientation and proportion+, stroke control+, size+, typography+, texts+, words+, non-representational products+. As for the illustrative variables, 4th Grade and marginate sociocultural environments lie close to this group.

In a second step, a Guttman Scale was built in order to systematize the developmental ordering resulting from the interpretation of Axis 1 in the Factorial Plane (Fig. A) and to establish whether response categories were accumulatively related. Categories were ordered into four successive levels on the basis of the position of their positive response modalities (e.g., words+, texts+, but not words- or texts-) on Axis 1 (see Table 3). A Guttman Scale with C.R.=0.913 was thus obtained. We considered that a child fulfils a level if he/she has referred orally and/or graphically to one or more of the categories that compose the corresponding level. Each child was assigned a point for the fulfilment of each level. The maximum score (4) indicates that the child has referred to categories included in all four levels, whereas the minimum score (1) indicates the

child has referred to categories included in one level only, independently of which this level is.

--- Insert Table 3 around here ---

Levels defined in the Scale corroborate and precise the developmental progression evidenced by MCFA. The two initial levels mainly include categories regarding products. The fact that the first level is composed by writing precursors and by exclusively quantitative approaches to print indicates that almost all the children in our study referred to steps implying what Vygotsky has called the “prehistory of writing” (1978). That is, they expressed that there was a time when they did not produce any graphic marks whatsoever, they drew, or they produced unconventional writing. It seems that solely the few children whose answers account for this first level only had not entered the conventional world of writing yet (e.g., Table 1, Fig. e). Instead, the second level includes products that mark the entrance to writing by means of an analytical-generative pathway (letters, mock-letters) or a global one (names). Levels 3 and 4 include categories that refer specific writing products, as well as procedural and representational changes. In particular, Level 3 includes the writing of categorical lexical units (words); the completion in the writing of words/names and aspects engaging fine motor coordination, as size, stroke control and typography. Notice that it is only in this rather advanced level that the very early achievement consisting of non-representational products is included, despite that in standard writing development these predate products included in Levels 1 and 2. The inclusion of non-representational graphic forms as illustrating an early step in one’s own writing history might be interpreted as an emergent explicitation of the representational nature of writing, albeit

manifested in negative terms. Finally, Level 4 includes the most complex writing products that have been referred by the children in this study (texts); procedural changes that imply behavioural mastery (Karmiloff-Smith, 1992), as dexterity, or that are required to ensure the correct decoding of written products, as orientation and proportion; and representational changes capturing aspects at the very core of writing, as the adjustment to conventional writing rules (necessary for the stability and socialization of writing), as well as meaning and understanding (notice that in Level 4 the meaningful nature of writing is explicated in positive terms, in contrast to Level 3). Overall, Level 4 indicates a conception of writing as a tool to produce and communicate meanings in the frame of an established code and requiring fine motor coordination and procedural mastery.

The construction and validation of the Guttman Scale reveals an ordering within the products and changes that children included when they reconstructed their past and anticipated their future as writers. As a child included products and/or changes corresponding to more advanced levels, it is expected that he/she has also included those products/changes composing prior levels. Since the Scale was built by considering the developmental–educational progression evidenced by MCFA, we may conclude that, as development in a schooled context proceeded, children in this study did not replace one version of their writing autobiography with a completely different one. Rather, the most advanced versions showed the expansion and complexization of prior versions.

Since the data were normally distributed, a two factor independent measures ANOVA was computed to examine the effects of school level (Kindergarten x first grade x fourth grade) and sociocultural environment (marginate x middle) on scores obtained in the Guttman Scale (see Figure B). A significant effect was found for

sociocultural environment ($F(1,54) = 4.742, p = .034$), but not for school level ($F(2,54) = 2.614, p = .083$) or for interaction between factors ($F(2,54) = .253, p = .777$). Despite school level was not significant on the whole, a significant pair-wise difference was found between means in the extreme levels (Kindergarten and fourth grade). The score that children from middle environments obtained in the Guttman Scale excelled, in all three educational levels, that of their peers from marginate environments. The greatest difference appeared in first grade, and the smallest one in fourth grade, indicating schooling's homogenizing effect. Mean scores obtained by fourth-graders are considerably higher than those obtained by Kindergartners in both sociocultural environments, as well as by first-graders in the marginate environment. In a lesser extent, fourth-graders' mean scores are higher than that of first-graders from middle environments. Within children from marginate environments, first graders' mean score equals kindergartners' one, suggesting that for children developing in environments where writing is scarcely functional, the expansion of a writing autobiography requires of systematic and specific instruction.

CONCLUSIONS

The various analyses performed in this study show that children who are beginning to participate of formal literacy instruction, as well as those who have completed basic stages, are capable of elaborating a historical perspective in relation to their learning of writing. In the context of the elaboration of a specific and guided autobiography expressed by graphic and oral means, most of the children in this study identified a sort of prehistory of writing, by expressing that there was a time when they were not dedicated to produce any kind of marks on paper; rooted writing activities in figurative drawing and marked analytical and global ways to enter the domain of writing itself.

With development and specific instruction, progressive explicitation of learning results in the frame of hierarchical integration (Werner and Kaplan, 1963; Pozo and Gómez Crespo, 1998) seems to take place. Advanced versions of children's own history as learners of writing do not substitute prior ones, but expand them through complexization, in a process resembling representational redescription (Karmiloff-Smith, 1992) which in this case is mediated by the learning of cultural notational systems. Logically, annals of personal writing history elaborated by older children included products and changes corresponding to relatively late achievements. However, it is particularly interesting to notice that older children's annals also included an early achievement, i.e. non-representational products, that younger children have included only rarely. As happens with personal autobiographies referring to other vital experiences (Bruner and Weisser, 1991), the ways children accounted for their writing history is redefined on the basis of their current position, conception and knowledge.

In general lines, the development of children's conceptions about their learning history in the area of writing is congruent with the trend that was identified as regards children's theories about learning to draw (Scheuer et al., 2001a, Scheuer et al., 2002). As in that case, and also in agreement with Olson and Bruner's view (1996), two fundamental and related dimensions of change intervene here: *complexization* and *internalization*. These dimensions are evidenced through the shift from the focus on easily identifiable, isolated products (characteristic of a direct theory of learning), to the integration of procedural and representational changes (indicating an interpretative theory of learning). This shift seems to proceed according to a recurrent phase model (Karmiloff-Smith, 1992), whether it is the own history of drawing or of writing that is being reconstructed – probably due both to children's differential experience in each of these notational fields and to the societal ways in which children's learning is organised.

In support for this idea, we have found that the integration of procedural and representational aspects was evident earlier in reconstructing the learning of drawing than that of writing. In this latter area, the present study has also allowed to view a shift within the kind of products children accounted for, from a focus on products corresponding to other notational activities or systems, or revealing children's attempts to appropriate writing even when it still remains a quite unfamiliar notational system (revealed by drawings and numerals in the first case, and by mock-notations and isolated letters in the second), to a focus on conventional and complex products that carry the seal of the alphabetical writing system (evidenced by words and texts).

The effects of everyday sociocultural environments were particularly noticeable influences at initial stages. Children from marginate environments attending Kindergarten or first grade elaborated a briefer version of their writing history than their middle class peers. Besides, children from marginate environments used to include in their writing autobiographies products that do not succeed in complying with notational conventions, or that do not correspond specifically to writing.

Due to the instruction used in this study, our access to children's reconstruction of their learning history was mediated by the formulation of memories, reconstructions and anticipations on paper and through words. It seems that the request to illustrate early moments of their writing history was somewhat disquieting for the children, perhaps due to the pleasure that is usually experienced when learning is recalled and progress is verified, together with the uneasiness that is generated when already overcome stages (and thus images of oneself as inexperienced learner) are recovered. On the other hand, going ahead in time to delineate future writing put children in joyful and uncertain situation at a time (*Where am I going to? Will I be capable of achieving such a goal?*). By putting children in an active position as regards their resources and

goals, this request seemed to extend the zone of proximal development (Vygotsky, 1978) and make it visible to the children themselves. In some cases, paradoxically, children were able to go beyond their current mastery by putting resources at hand to new uses (e.g., Table 1, Figs. f and j). Other children, instead, specified the new goal at the time they explained their current incapability to achieve it. In this way, awareness or explicitation of learning did not regard only the objects of learning, but learners' epistemic attitudes as well (Dienes and Perner, 1999).

To conclude with, the integration of an autobiographical perspective into the study of learning conceptions was especially favourable to approach the tacit curriculum children elaborate in relation to the learning of writing, which is an acquisition that traverses and sustains the entrance into contemporary culture and configures the constitution of an identity as a cultural learner and producer. Reflecting on children's tacit curricula implies recognising that children not only learn on the basis of previous knowledge, but that their learning is oriented by personal goals. From an educational perspective, we think it would be necessary to promote educators' awareness about the importance of knowing, integrating and enriching children's tacit curricula, which still remains quite unknown to the educational research community.

ACKNOWLEDGEMENTS

We thank the public Kindergartens and primary schools in Bariloche that participated in this study for their helpful collaboration; R. Ayastuy, A. Bengtsson, P. Cortondo, M.F. Huarte and Graciela Sola for assistance in data collection and transcription. This research was supported by Universidad Nacional del Comahue (B-093) and a grant of ANPCYT (04-10700) in Argentina, and by Ministerio de Ciencia y Tecnología in Spain to a project directed by J.I. Pozo (BSO2002-01557).

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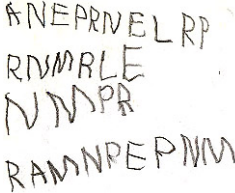

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Table 1. Illustration of response categories.

Note: Children's productions have been reduced to 50% or 40% .

	<p>Fig. a. <i>Brenda (first grade), fragment.</i> Brenda included a non-representational product to illustrate her earliest writing, which she situated at age 2.</p>
	<p>Fig. b. <i>Naila (fourth grade), complete production.</i> Naila included a variety of products in her history of learning to write: mock-letters and letters located close to the right border, upwards (for early ages), drawings (age 4) and names (ages 4, 6 and 10). She also marked the following changes among her productions for successive ages: size (names for subsequent ages are progressively smaller), typography (block letters for age 4 and cursive writing for successive ages), intra-figural proportion (confront name for age 4 with appellatives for subsequent ages), adjustment to conventional writing rules (appellatives for ages 6 and 7 do not carry accent mark despite they should, whereas those for ages 8, 9 and 10 do).</p>
	<p>Fig. c. <i>Gina Melisa (first grade), fragment.</i> Gina illustrated her earliest writing (age 4) by drawing. The incomplete writing of her own second name illustrates her writing for age 5 and the complete writing of her double name anticipates next year's writing.</p>
	<p>Fig. d. <i>Nadia (first grade), fragment.</i> Writing for ages 3,5 and 6 (center, right and left respectively) show progressive stroke control.</p>
	<p>Fig. e. <i>Sergio (Kindergarten), complete production.</i> Second and third lines illustrate writing for age 4, first line illustrates current writing (age 5) and fourth line anticipates next year's writing.</p>
	<p>Fig. f. <i>Catalina (Kindergarten), fragment.</i> Catalina illustrated her writing for age 3 by drawing, that for age 4 with a mock-name (CAO), the one for current age by writing her name in block letters and her future writing (next year) with her name written in cursive typography.</p>

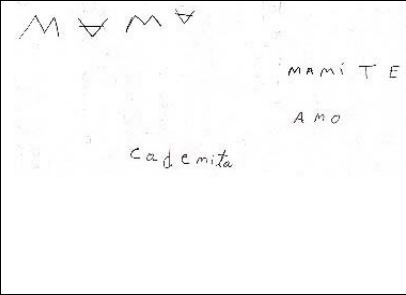


	<p>Fig. g. <i>Gabriela (fourth grade), complete production.</i> Gabriela wrote an appellative containing two inverted letters to illustrate her earliest writing, which she situated at age 5. A brief text including the prior appellative written without any inversion anticipates next year's writing. She illustrated her current writing with a word in tiny letters in a carefully done typography.</p>
	<p>Fig. h. <i>Mariano (fourth grade), fragment.</i> Mariano proposed a division calculation to illustrate his next year writing (age 11).</p>
	<p>Fig. i. <i>Angel (Kindergarten), complete production.</i> Angel illustrated his writing for prior ages by writing more and more letters and mock-letters on the line he himself had traced horizontally on the lower border of the paper. He anticipated that next year he would be able to cover more space, reaching the lowest dash he marked mark on the vertical line close to the left border, that the subsequent year he would reach the next dash and so on. Note that Angel used his written name as letter source.</p>

Figure A. Factorial Plane resulting from the Multiple Correspondence Factorial Analysis.

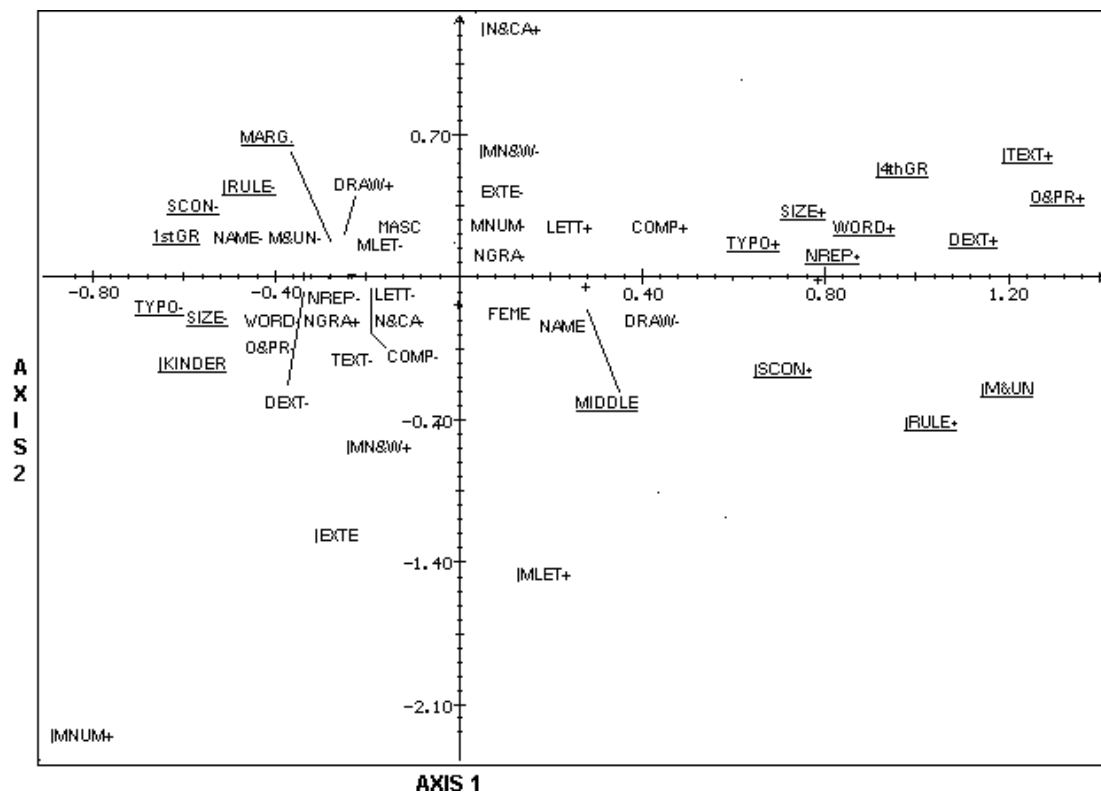


Table 2. Response categories and abbreviations used for the in the Factorial Plane presented in Fig 1. The inclusion in Figure 1 of an + or – sign at the end of the abbreviation indicates the corresponding modality. For example, LETT+ indicates the position of the modality inclusion of letters as a product for at least one of the requested ages, whereas LETT- shows the position of the absence of letters for any age.

Products		Procedural and representational changes	
Non-representational products	NREP	Non-graphic stage	NGRA
Drawings	DRAW	Stroke control	SCON
Mock-letters	MLET	Size	SIZE
Letters	LETT	Writing extension	EXTE
Mock-names and mock-words	MN&W	Name and word completeness	COMP
Mock-numerals	MNUM	Typography	TYPO
Numerals and calculations	N&CA	Orientation and proportion	O&PR
Names	NAME	Dexterity	DEXT
Words	WORD	Adjustment to conventional writing rules	RULE
Texts	TEXT	Meaning and understanding	M&UN

Table 3. Grouping of categories into levels and ordering of levels into a Guttman Scale.

Level	Component categories
1	Non-graphic stage, drawings, mock-names and-mock words, mock-numerals, writing extension.
2	Mock-letters, letters, names.
3	Words, name and word completeness, non-representational products, typography, size, stroke control.
4	Texts, dexterity, orientation and proportion, adjustment to conventional writing rules, meaning and understanding.

Note: The single category that is not included in the Scale is numerals and calculations, since some children located this product as prior to specific writing products whereas for others it was subsequent.

Figure B. Results of Anova.

