

Vygotsky In The East And The West:

A Textual Analysis Of Key Words And Abstracts In Recent Psychology Journals (1974-  
1994)

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## INTRODUCTION

For readers of journals in developmental psychology there is no doubt that Vygotsky has become a main reference in recent years, notwithstanding the fact that he passed away more than half a century ago. Several reasons can be invoked for this current interest in his thinking.

An important reason is the fact that only from the beginning of the sixties with the publication of Thought and Language (Vygotsky, 1962) his ideas began to be diffused on the Western side of the Iron Curtain. Since this publication, and after various translations of Higher Psychological Functions in the seventies, his work has been more fully presented and discussed in the West, for instance in Italy (Mecacci, 1983), in the Netherlands (Van der Veer, 1984), in France (Schneuwly & Bronckart, 1985), in North America and Great Britain (Wertsch, 1985, Van der Veer & Valsiner, 1991). To some extent, Vygotsky's ideas can be considered new, although they are not yet equally accessible to readers of different languages in the West. But all new ideas have not the same impact and therefore the question remains: why became Vygotsky's ideas influential in contemporary developmental psychology?

In explaining Vygotsky's specific impact one cannot neglect the political setting in the Western world during the sixties. Compared to other Russian psychologists, such as Luria and Leontiev, he was considered less directly involved in the Soviet Regime, as he died in 1934. Initially, his works were not diffused by publishing companies associated with Western Communist parties. On the contrary, his introduction in the West by Jerome Bruner (1962) can be considered as a kind of political clearance by a scientific above suspicion. This introduction was immediately cautioned by another figure of infallible reputation, Jean Piaget (1962) who discussed his disagreements with Vygotsky in a text diffused with the first edition of Language and Thought. Paradoxically the Genevan psychologist, through this text admitting the scientific value of Vygotsky, drew the attention to a social explanation of language and cognitive development in Vygotsky's work that was unknown until then. Students of Piaget (for instance Gabriel Mugny, Anne-Nelly Perret-Clermont, Bernard Schneuwly) who had become disillusioned with the increasingly individualistic orientation of Piaget's own theory, will some years later, adhere to a more Vygotskian approach.

The implications of Bruner's initiative to introduce Vygotsky's (1962) thinking in post-war Western psychology are clearly expressed in the evolution of Bruner's own work that

has successively been organized about some central ideas that were also present in Vygotsky's work.

In the sixties, Bruner's works have made a decisive contribution to the study of the development of reasoning processes and cognitive development in children. By founding with G. A. Miller the Center for Cognitive Studies at Harvard, he was one of the main protagonists of the cognitive revolution (see Gardner, 1987). Thereafter, in going through educational psychology, he undertook a series of studies on language acquisition in which he emphasized, unlike Chomsky, the role of social interaction in this acquisition (Bruner, 1975). This certainly is a Vygotskian theme.

But gradually the protagonist of cognitive sciences became more interested in the cultural aspects of cognition, another of Vygotsky's main ideas. He expressed himself with some vexation concerning the current evolution of cognitive sciences: "It would make an absorbing essay in the intellectual history of the last quarter-century to trace what happened to the originating impulse of the cognitive revolution, how it became fractionated and technicalized. ... All we need to note now are a few signposts along the way, just enough of them to give a sense of the intellectual terrain on which we were all marching. Very early on, for example, emphasis began shifting from 'meaning' to 'information,' from the construction of meaning to the processing of information. These are profoundly different matters. The key factor in the shift was the introduction of computation as the ruling metaphor and of computability as a necessary criterion of a good theoretical model. Information is indifferent with respect to meaning." (Bruner, 1990, p.4).

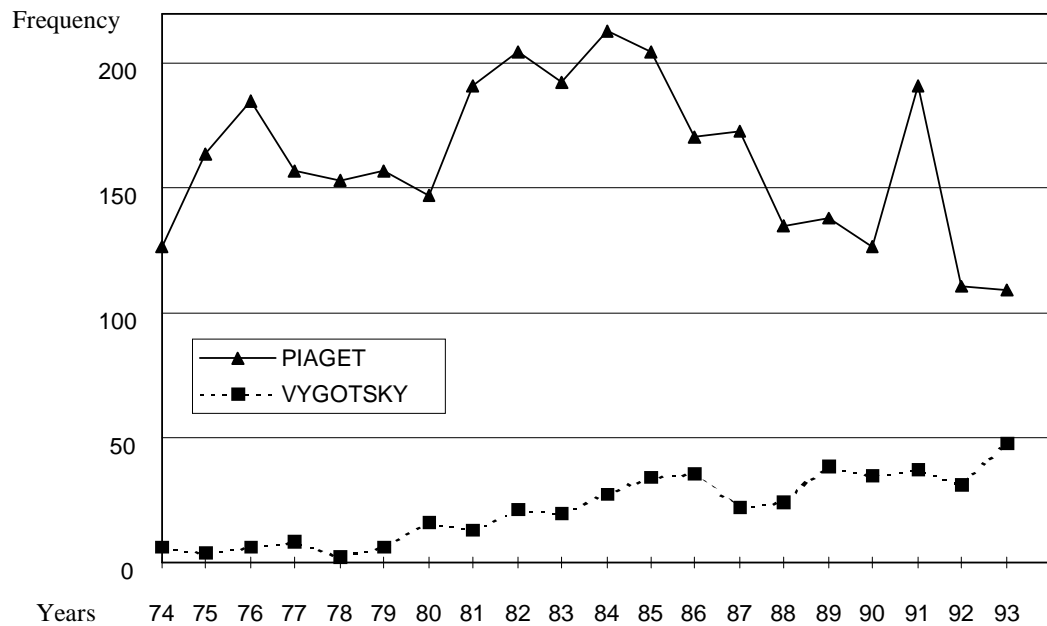
Bruner now investigates meaning systems by turning to cultural psychology whose central problem is defined in following terms: "... how to construct a mental science around the concept of meaning and the processes by which meanings are created and negotiated within a community. (...) Begin with the concept of culture itself, particularly its constitutive role. What was obvious from the start was perhaps too obvious to be fully appreciated, at least by us psychologists who by habit and by tradition think in rather individualistic terms. The symbolic systems that individuals used in constructing meaning were systems that were already in place, already 'there,' deeply entrenched in culture and language. They constituted a very special kind of communal tool kit whose tools, once used, made the user a reflection of the community." (ibid., p.11).

Bruner thus shared concerns that were already those of Vygotsky. These are now shared by many psychologists, and this is partly due to Vygotsky's and Bruner's joint influence. But such concern in a cultural or societal psychology was already there before Vygotsky's and more recently Bruner's ideas were developed. Let us quote Baldwin (1913, pp.107-108), one of the founding fathers of developmental psychology: "The society into which the child is born is therefore not to be conceived merely as a loose aggregate made up of a number of biological individuals. It is rather a body of mental products, an established network of psychical relationships. By this, the new person is moulded and shaped to his maturity. He enters into this network as a new cell in the social tissue, joining in its movement, revealing its nature and contributing to its growth. It is literally a tissue, psychological in character, in the development of which the new individual is differentiated. He does not enter into it as an individual. On the contrary, he is only an individual when he comes out of it by a process of 'budding' or 'cell division' to pursue the physiological analogy. Society is a mass of mental and moral states and values, which perpetuates itself in individual persons. In the personal self, the social is individualized."

Thus, in a way, we have come to a full circle. At the start of the psychological reflection on the nature of reasoning, its social nature was asserted very firmly, and this assertion is repeated today just as forcefully as in the beginning. Because Vygotsky's ideas were in harmony with this continuing concern of at least some Western psychologists, they were well received by them and they helped them to develop their own thinking.

If one adopts the frequencies of quotations of an author's name in titles, keywords or abstracts of scientific papers then we observe that Vygotsky's influence has steadily been growing since the beginning of the eighties. A comparison with the same frequencies obtained by Piaget is very instructive. In the seventies such references to Piaget were about 30 times more numerous than mentions of Vygotsky, but since this superiority of Piaget has regularly declined. Nowadays mentions to Piaget are only between two and three times more numerous than mentions to Vygotsky. The former are also declining since the mid-eighties in absolute terms while the latter are still increasing (see Figure 1).

Figure 1:  
Annual frequency of papers mentioning Piaget or Vygotsky in title, abstract or keywords



*Note: The data-base was constituted by PsycLIT (for details see method section)*

Ideas circulate and undergo changes during this social process, especially when they become part of a research enterprise. This was for instance the case for the ideas of Lewin and of Sherif who attempted to integrate societal and psychological explanations in the field of social psychology. In that sense they belonged to the same lineage as Baldwin, Vygotsky and Bruner. However, if one considers main stream social psychology as practised in the United States in the sixties and the seventies, this aspect of their intellectual endeavour was not very successful. The following explanation was offered for this relative disappearance of the societal interest in North-American social psychology: "The experimental paradigm tends to isolate and reify elements of a more complex process. In some ways one might say that Sherif's experiments on intergroup relations and Lewin's on climates and social change were primarily simulations or scale models rather than experimental analyses of the dynamics of interdependence between artificially created situations and a social context. ... Finally, the reason for Sherif and Lewin's very relative lack of success may be an important characteristic of the experimental approach itself, which tends to eliminate all it cannot directly control. This has led to concentration on paradigms and neglect of the social context." (Doise, 1986, 10).

Experimental reductionism does not necessarily mean abandoning of general theories. In social sciences general theories often operate in the manner of grand theories, that is they point to general directions for research which allow other scholars to investigate more specific areas and to develop more local models of particular processes. A certain autonomisation can characterize such a specification resulting in the description of particular models. These models can still be compatible with the grand theory but they do not necessarily refer to general ideas as those handled by protagonists of such grand theories as structuralism, functionalism, historical materialism, evolutionism. It is our conjecture that Vygotsky as well in the East as in the West has functioned as a grand theorist directing the research effort of scholars to the study of interactional, societal and cultural factors in individual development but that, given the dominance of empirical research in Western academe, the specification processes have developed very rapidly, especially in the United States and that such a trend can be illustrated in a comparative study of keywords and abstracts in Journals of the East and the West. Knowing from the inside psychological production in West-European countries, we think that the use made there of Vygotsky's ideas consists at the same time of a more explicit elaboration of its orientation function especially, but not exclusively, in the area of psycholinguistics.

To conclude this introduction, our study wants to make a contribution to a debate that is now very lively on the interpretation of Vygotsky's impact. To some extent we deal concerns, as the one expressed by Iaroshevskii (1994), that Vygotsky sometimes is the victim of misinterpretations, or even that, according to Kozulin (1992, 510), some attempt to use his theory "as a fashionable label attached to research that has no inner connection to Vygotsky". We even go along with some of Garai and Kocski's (1995) ideas about the role Vygotsky's theory can fulfill in giving a more general orientation to a fragmented western psychology. But we want to place these observations and ideas in the frame of a debate on the role of general guiding ideas in orienting specific research and on the autonomisation processes that characterize such research.

## METHOD

In order to explore the conjectures about differences in the use of Vygotsky we chose to analyze scientific psychological papers, published over the last twenty years (January 1974 to December 1993), which use in a way or another the name of Vygotsky in the title and/or in the abstract (including keywords and keyphrase) of the paper.

The analyzed papers stem from the data base " PsycLIT ", edited by the American Psychological Association (APA). This data base is a subset of the full PsycINFO database and it is distributed in CD-ROM format. PsycLIT contains references to journal articles published since 1974 as well as book chapters and books with coverage beginning in 1987. Many changes occurred, of course, in the realm of psychological publication during this period. Some journals stopped publishing, others were newly introduced, and still others changed their name or their frequency of publication. Moreover Anglo-Saxon journals are better represented than journals from other countries.

We have tried to take into account all possible versions of Vygotsky's name, as well the adjective " Vygotskian ". Thus 422 articles corresponding to the criterion of mentioning the name of Vygotsky in title, abstract or keywords were retrieved.

The aim of our analysis is to draw a structure of word connections based on keywords and abstracts extracted from the database. Furthermore, as we are interested in the changes of the use and interpretation of Vygotsky and his thought, three supplementary variables are included in our analysis:

a) the publication year, classified in five distinct periods (74 - 79; 80 - 84; 85 - 87; 88 - 90; 91 - 93). These periods have been chosen essentially for statistical reasons, that is, as a function of the frequency of papers related to Vygotsky. The first period excepted (74 - 79), where there were little publications on the subject, all periods have a comparable number of papers on Vygotsky (see table 1).

b) the author's institutional affiliation, classified in three groups (Anglo-Saxon, Eastern and other). This classification is grossly based on the political organization prevailing during the years under study in the country where the author of the publication was affiliated to an institution. The division is therefore between so-called capitalist vs. communist countries;

with a further distinction between Anglo-Saxon countries and other West-European and remaining countries (see table 2).

c) the 19 journals which had five or more papers mentioning Vygotsky in the last 20 years (see table 3).

Following tables present the details of the distribution and classification according to these three variables:

Table 2:

Distribution of the publications according to author's national affiliation

ANGLO-SAXON (n=190)	EASTERN (n=59)	OTHER WEST EUROPEAN AND REMAINING COUNTRIES (n= 111)
USA	USSR (RUSSIA)	SPAIN
GREAT BRITAIN	CZECHOSLOVAKIA	NETHERLANDS
AUSTRALIA	POLAND	FRANCE
CANADA	HUNGARY	ITALY
IRELAND	EAST GERMANY	FINLAND
NEW ZEALAND	YUGOSLAVIA	MEXICO
	ESTONIA	GERMANY
	CHINA	SWITZERLAND
	CUBA	JAPAN
	VIETNAM	NORWAY
		SOUTH AFRICA
		ISRAEL
		BRAZIL
		BELGIUM
		DENMARK
		SWEDEN
		GHANA
		INDIA
		PORTUGAL

Note. 62 missing indications of institutional affiliation. Countries are ranked according to frequency. In the category " OTHER WEST-EUROPEAN AND REMAINING COUNTRIES " there are 22 non-European affiliations.



Table 3:

Distribution of the publications according to journals

JOURNALS	n	EDITING PUBLISHING COUNTRY FREQUENCY	PsycLIT COVERAGE since	
Voprosy Psikhologii	31	Russia	6	73
Human Development	21	Switzerland	6	73
Soviet Psychology	19	USA	6	73
(after 1992 " Russian and East European Psychology ")				
Anuario de Psicologia	14	Spain	4	73
Enfance	12	France	4	73
Developmental Psychology	10	USA	6	73
Creativity Research Journal	10	USA	4	88
Infancia y Aprendizaje	9	Spain	4	82
Child Development	9	USA	6	73
Psykologia	8	Finland	6	81
New Directions for Child Development	7	USA	collection	78
Vestnik Moskovskogo Universita-Seriya 14: Psikhologiya	6	Russia	4	82
Soviet Journal of Psychology	6	USA	6	90
Psikologicheskii Zhurnal	6	USSR	6	82-89
Contemporary Psychoanalysis	6	USA	3	73
Studi di Psicologia	5	Italy	collection	85
Learning and Instruction	5	Great Britain	3	91
Contemporary Educational Psychology	5	USA	4	76
Others	233			
N	422			

The data structure therefore consists in 422 scientific papers, each paper being associated with the three variables described above. However, note that the frequency of the different modalities of the variables is often reduced for the reason of missing or incomplete data.

Two textual sets were analyzed: the first one consists of the keywords of papers mentioning Vygotsky, the second one uses the abstracts of these papers. The keywords differ from the abstracts in that they consist of general notions developed in the paper (e.g. developmental-psychology, learning), and do not use specific terms related to empirical or theoretical paradigms (e.g. subjects, age-groups).

The textual corpus of the keywords has been prepared as follows: key-expressions are treated as a whole, and not as separate words (e.g. " childhood-play-development "). Thus, 241 different words or expressions have been retrieved. A frequency threshold of five identical keywords appearing in all papers was suitable for establishing the final corpus to be analyzed (82 keywords).

The preparation of the abstracts required more attention. Let us consider the different stages of the preparation of the final textual corpus that has been analyzed. The 422 papers totalize 4'901 different words, on a global amount of 38'864. In order to be able to carry out the statistical analyses, the next step consists in a reduction of these words. Auxiliary words ( $n = 58$ ) like " THE, OF, AND, IN, TO, A, THAT, IS, ON, AS, WHICH, MAY, RATHER, SEVERAL, SHOULD, SOME, THROUGH, THOSE, THERE, THEM, THEN, WHEN, WHILE, WILL, WITHIN " were deleted as well as all one-termed numbers and letters and PsycLIT specific terms (VOL., SEE). Furthermore 35 equivalencies were established between words which can be considered similar and close in meaning while having the greatest overall frequencies as well as a special relevance for writings about Vygotsky (i.e. ACTION-ACTIONS, ADULT-ADULTS, CONCEPT-CONCEPTS-CONCEPTION, CREATIVE-CREATIVITY, DEVELOPMENT-DEVELOPMENTAL-DEVELOPING, FUNCTION-FUNCTIONS-FUNCTIONAL-FUNCTIONING, IDEA-IDEAS, LEONTIEV-LEONTEV, MOTHER-MOTHERS, PIAGET-PIAGETIAN, PS-PRIVATE SPEECH, VYGOTSKY-VYGOTSKII-VYGOTSKIAN, YRS-YR-MO, ZPD-ZONE-PROXIMAL). One should consider that such a choice has always a part of arbitrary in it and that it is not possible to adopt universal criteria for the preparation of the corpus. Each modification of the original data is equivalent to a loss of information. That is the reason why we chose to leave the initial corpus as untouched as possible and we intervened mostly on the frequencies of the words. After eliminating auxiliary words and establishing equivalencies, 4759 different words persisted in the dictionary. In order to get a suitable number of words ( $n = 307$ ) for analysis, a frequency threshold of 12 words showed to be appropriate. The inconvenience with this method is that similar words with a cumulated frequency greater than 12 are not taken into account, but it is reasonable to think that most if not all significant words were retained.

The analysis was carried out with a statistical program used for treatment of textual data (SPAD-T; Système portable d'analyse de données textuelles; Lebart, Morineau, Bécue & Haeusler, 1993). This program treats also numerical variables associated with the textual corpus. Two main types of statistical procedures can be executed by this program: the first one is a " correspondence factor analysis ", the second one might be called " typicality analysis ". In the following section we describe briefly these two methods.

The correspondence factor analysis (CFA) (Doise, Clémence & Lorenzi-Cioldi, 1992) is a technique for treating various types of data matrices such as contingency and frequency tables. It is based on the hypothesis that the table's rows and columns are independent of each other. Treatment is based on the break-up of the table that enable us to account for deviations from independence expressed by the chi-square method. CFA reclassifies the rows and columns (the modalities of the variables) so as to arrange those that match best each other and then ranks each of them. This procedure makes it possible to maximize the association between the two systems (rows and columns) - an association whose closeness is indicated by a correlation coefficient. This procedure makes it possible to determine the position of each variable and its modalities on the factor (or the dimension). The results can be interpreted by using the graphs on which the coordinates of the rows and columns appear on two dimensions. To make it easier to read the figure (and avoid certain traps inherent in the objectification of spatial representations) CFA provides the absolute contribution of all the modalities to each factor (i.e., the contribution of each modality to the amount of variance explained by the factor). This latter information enables the dimensions to be interpreted and named. An additional feature characterizes this analysis, namely the possibility to locate the modalities of supplementary variables which are associated with data on the factorial space. These supplementary variables do therefore not contribute actively to the semantic structure based on word associations, but are merely projected on the factorial space defined by the frequencies of words.

In our analysis we have crossed the 422 papers (rows) with the 307 selected words (columns). The procedure described above generates the factorial structure. In this kind of analysis the part of variance explained is usually quite small. The reason is that the data table is larger (in our case  $307 * 422$ ) than in other factor analyses. Each word is defined by the coordinates on each of the factors included in the interpretation as well by its specific contribution on each factor. The result is a factorial space crossing two factors at a time.

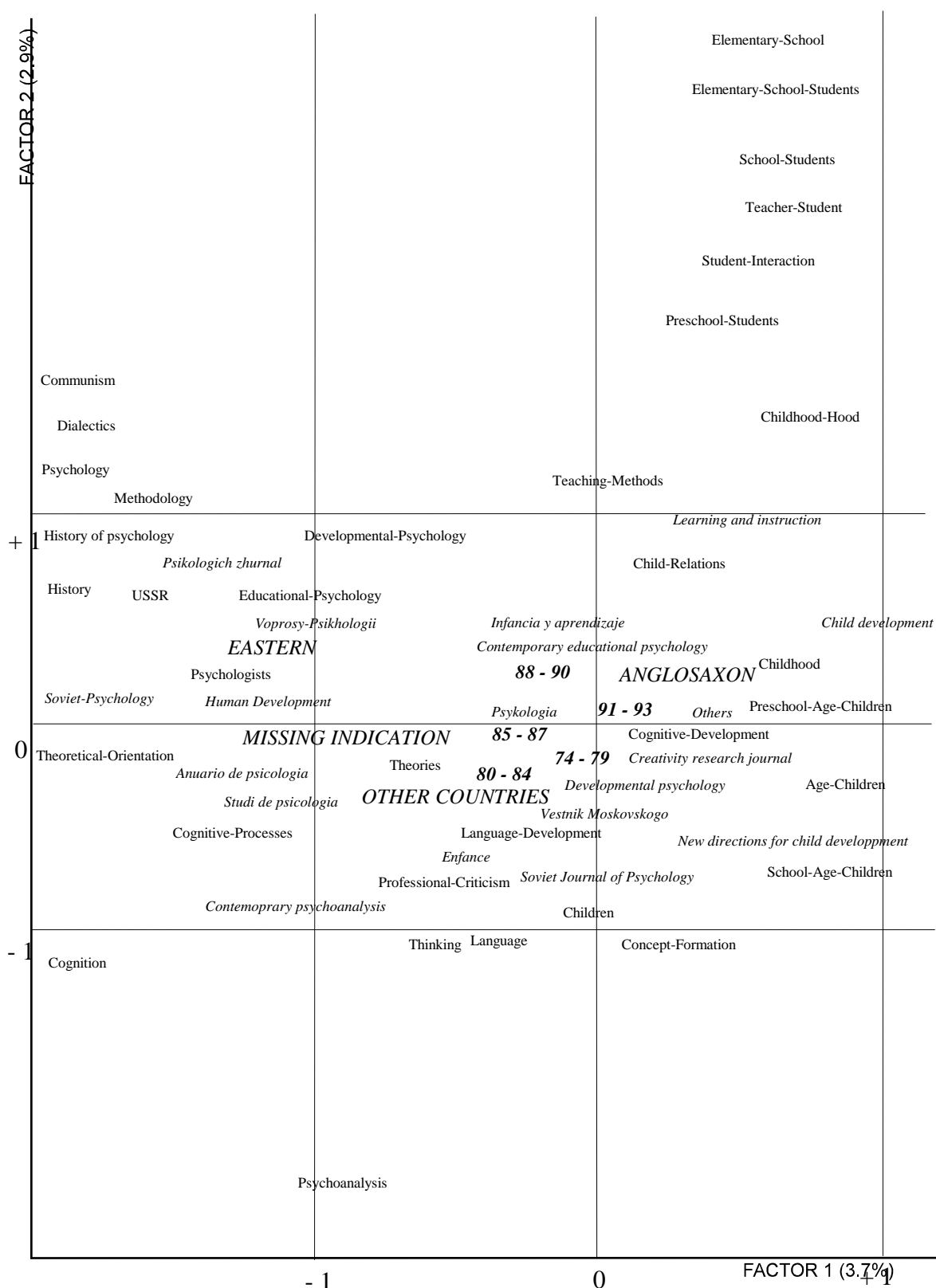
The typicality analysis is based on the relative proportion of the inner and the global frequency of the words occurring in the textual corpus. " Inner frequency " designates the number of occurrences within one modality of one of the supplementary variables, e.g. the publication period 1980 to 1984. " Global frequency " is the overall frequency of the word

across the whole corpus. The textual corpus is crossed with one of the independent variables. It follows that each article is classed in one of the categories defined by these variables. A word is considered " typical " or " characteristic " for a category (e.g. publication period 1980-1984 or Eastern European affiliation of the author) if the word occurs relatively more frequently in this category rather than in the other categories of the same variable. A criterion of independence is used (chi-square method). If the frequency of one word were distributed randomly, it would not be typical for any of the categories.

## RESULTS

### CORRESPONDENCE ANALYSIS OF TEXTUAL DATA ON KEYWORDS

Figure 2: Correspondence analysis of textual data on keywords

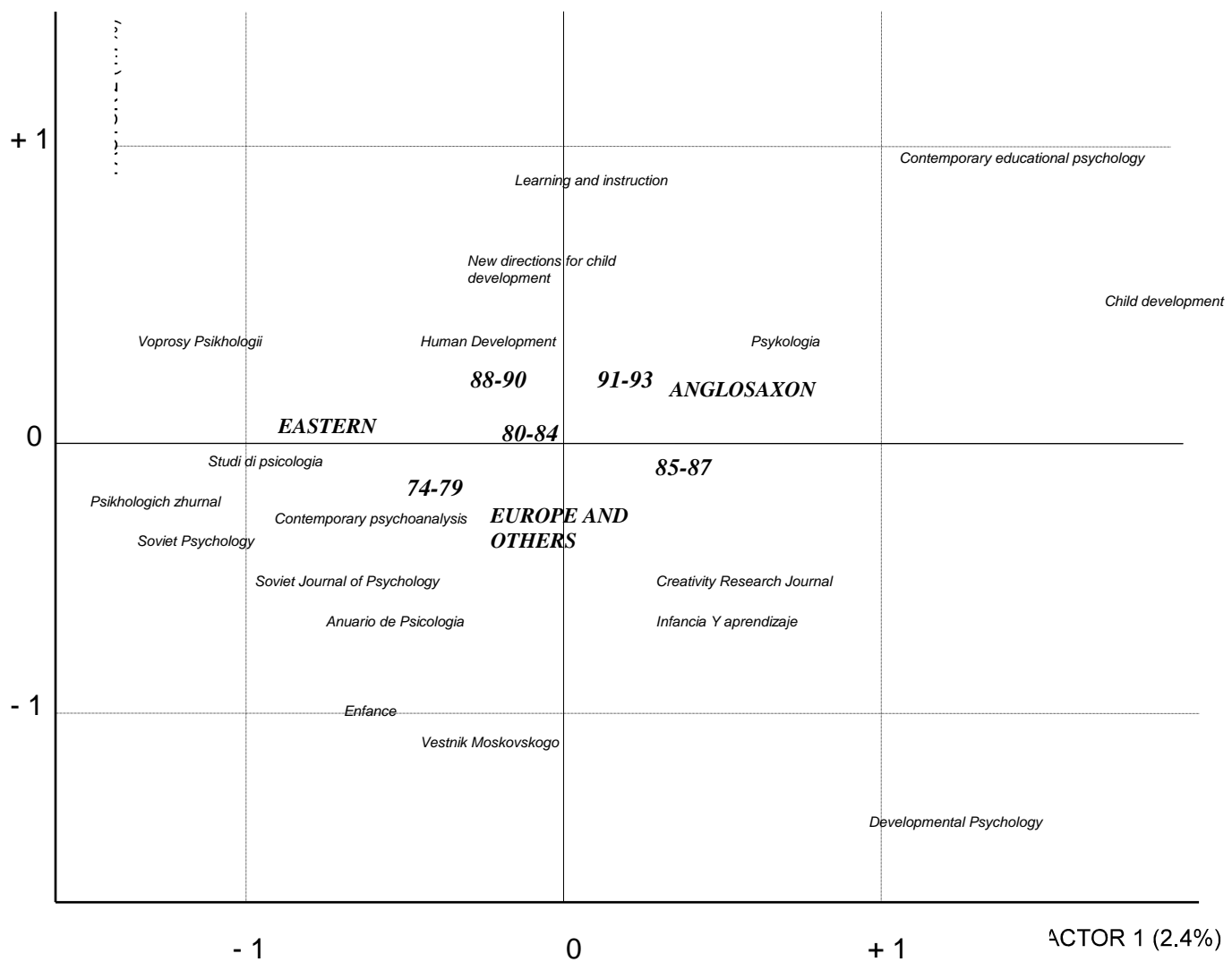


Note: Terms (active variables) having an absolute contribution on one of the first two factors superior to mean contribution (100% / n = 1.22) are displayed in the graphic. Percentages indicate part of explained variance.

Scale is in standard deviation. Supplementary variables are in italics: journals, NATIONAL

AFFILIATION, Publication period

*Figure 2b: Correspondence analysis of textual data on abstracts: projection of supplementary variables (period of publication, author's affiliation, journals)*



*Note: Percentages indicate part of explained variance. Scale is in standard deviation. Supplementary variables are in italics: journals, NATIONAL AFFILIATION, **Publication period***

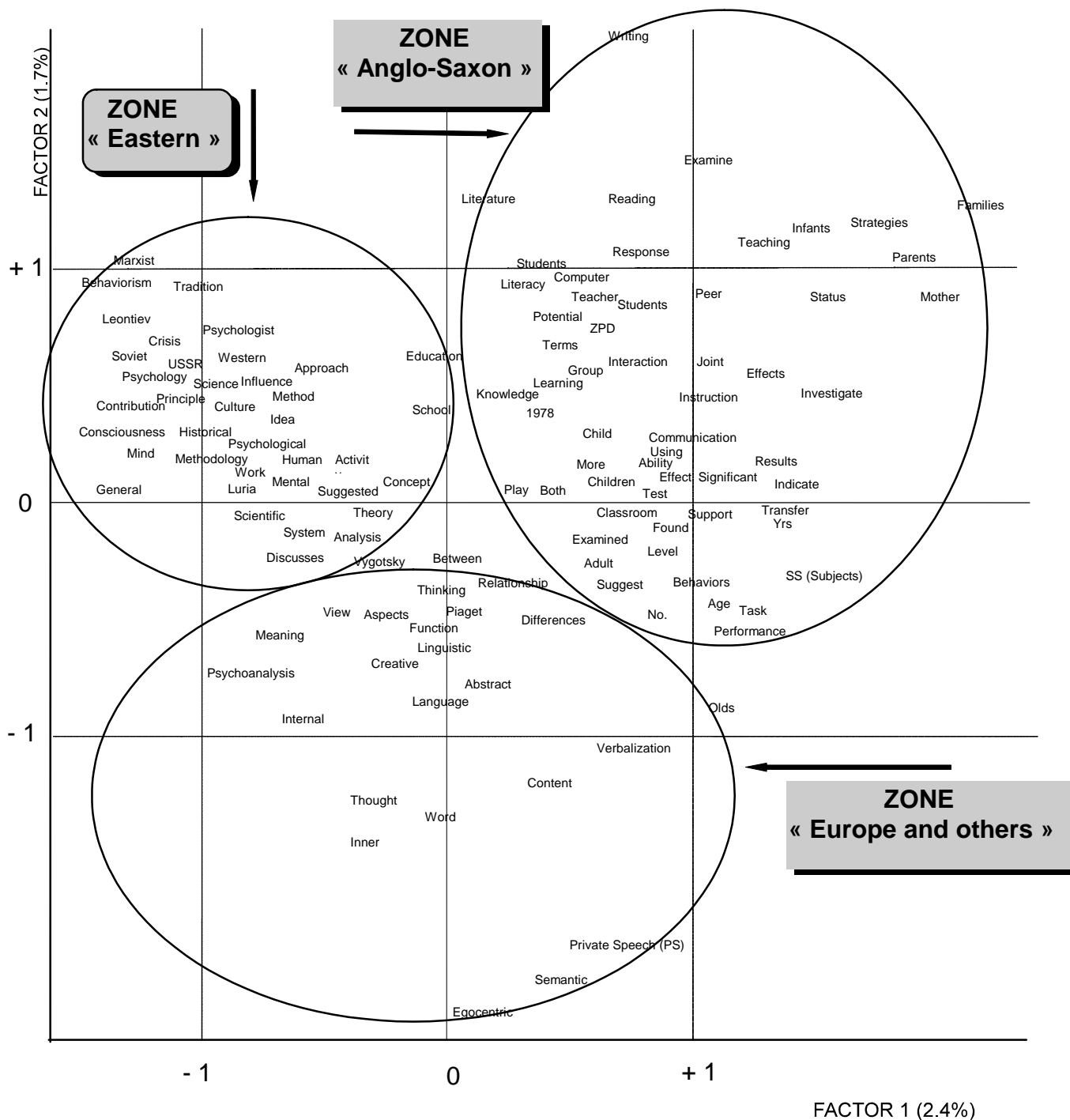
A complementary analysis (hierarchical cluster analysis) has been realised on the basis of the factorial structure. The purpose of this analysis is to resume the information contained in the factor analysis, by establishing a classification of the terms in the factorial space. The analysis divides the space in five "zones": the first one refers to notions like "Elementary-School", "Teacher-Student-Interaction", "School-Students", the second one is characterized by "Childhood", "Age-Children", "Child-Relations", the third by "Psychoanalysis" and "Cognition". The fourth is in the middle of the graphic and is the most general category ("Thinking", "Language", "Cognitive-Processes", ...). The fifth is made up by terms like "Communism", "Dialectics", "History of Psychology".

Inspection of figure 2 and results of the HCA clearly show that the first dimension is characterized by a pole related to areas and populations of empirical investigations (students, children, student-interaction, child-relation) opposed to a pole with general societal or scientific notions (Communism, USSR, psychology, history, cognition, dialectics). The second dimension opposes words related with educational settings (Elementary school, school students, teacher-student, etc.) to the term psychoanalysis and notions related with cognitive psychology (concept-formation, thinking, language, cognition).

The projection of supplementary variables shows that the three journals nearest to the empirical pole of the first dimension are published in the States and Great Britain, whereas the pole of general ideas attracts a Russian Journal and a Journal edited in the West but aimed at providing a platform for authors of the East. Other journals of European origin are nearer to the center. This orientation of the projections of the supplementary variables is also clearly reflected in the projections of authors' affiliations on the first dimension: Anglo-Saxon authors are nearer to the empirical pole and Eastern authors nearer to the opposed pole with the other authors in the middle. On the whole projections of supplementary variables on the second dimension are less contrasted.

#### CORRESPONDENCE ANALYSES OF TEXTUAL DATA ON ABSTRACTS

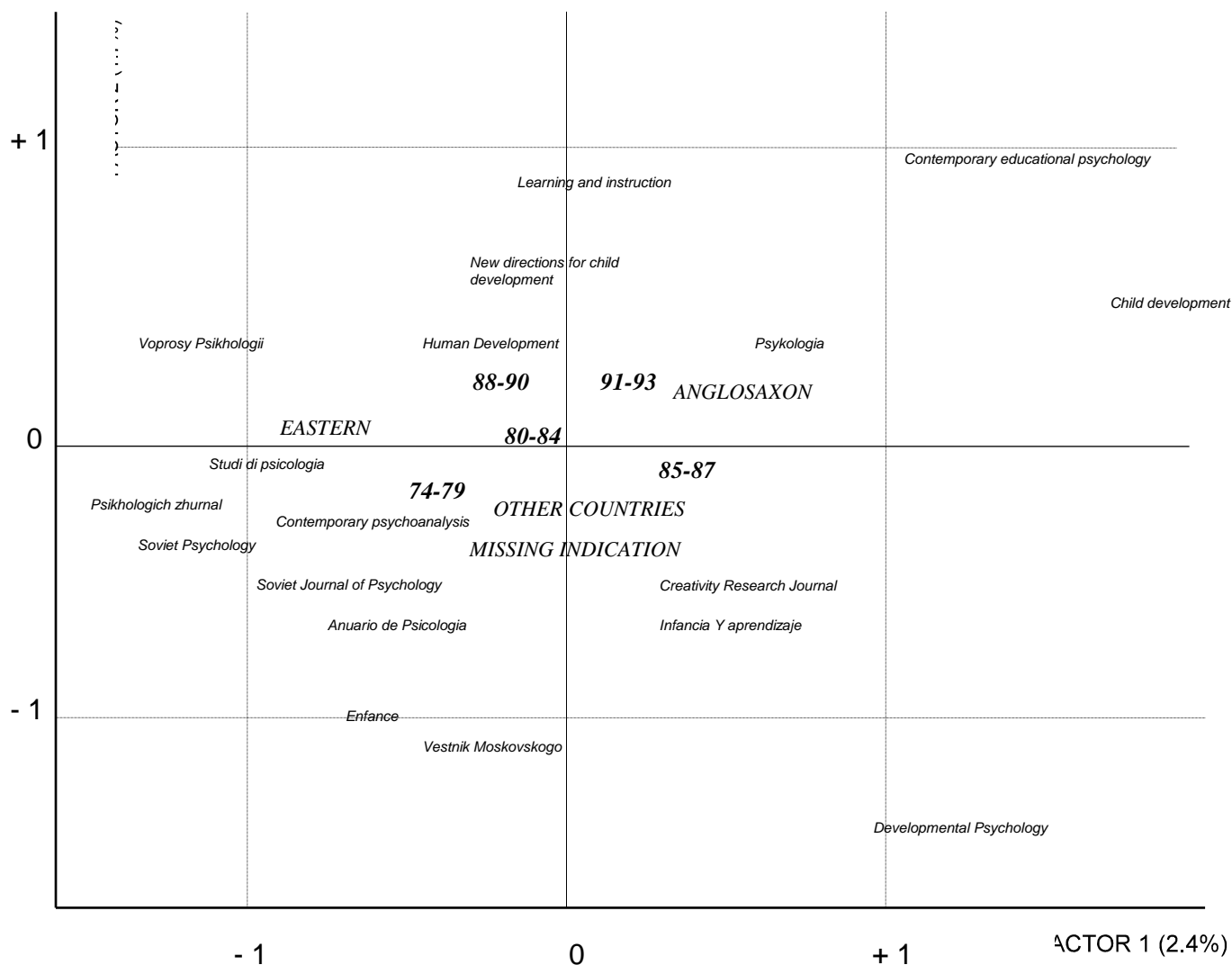
**Figure 3a: Correspondence analysis of textual data on abstracts: projection of active variables**



*Note: Terms (active variables) having an absolute contribution on one of the first two factors superior to mean contribution (100% / n = 0.3%) are displayed in the graphic. Percentages indicate part of explained variance. Scale is in standard deviation*



**Figure 3b:** Correspondence analysis of textual data on abstracts: projection of supplementary variables (period of publication, author's affiliation, journals)



Note: Percentages indicate part of explained variance. Scale is in standard deviation. Supplementary variables are in italics: journals, NATIONAL AFFILIATION, **Publication period**

In order to be able to give the complete results, two separate figures (Fig. 3a and 3b) are presented. They represent the same factorial space (dimensions 1 and 2). Figure 3a shows words (active variables) appearing in abstracts, figure 3b gives the location of the supplementary variables on the two dimensions.

The first dimension (3a) revealed by this analysis opposes names of Soviet psychologists (Leontiev, Luria), grand theories in psychology (behaviorism, psychoanalysis), general cultural notions (crisis, Western, science, mind, principle, culture) in association with ideological references (Marxist, Soviet, Western) to terms in relation with populations studied (families, mother, parents, years, age) and terms in relation with techniques of empirical investigations (performance, effect(s), task, subjects, No.).

Projections of supplementary variables (Figure 3b) on this dimension evidence a structure homologous to the one obtained for the previous analysis.

The second dimension opposes terms directly related to the school setting (writing, reading, teaching) to terms in relation with psycho-linguistics (egocentric, semantic, private speech, inner thought, word, content). Supplementary variables nearer to the first pole are journals of educational psychology (Contemporary educational psychology, Learning and instruction). However nearest to the opposed pole are five research journals from four different countries (Developmental Psychology, Vestnik Moskovskogo, Enfance, Anuario de psicología, Infancia Y aprendizaje).

### TYPICALITY ANALYSES

In order to complete the preceding analyses we have also effected typicality analyses with the three kinds of variables. Again, analyses based on journals and authors' affiliations have produced the most contrasted results.

The ten most typical words for the abstracts according to the institutional affiliation of the authors are presented in table 4.

Table 4:

Ten most typical words appearing in abstracts citing Vygotsky, by national affiliation of the author

	ANGLOSAXON	EASTERN	OTHER WEST-EUROPEAN AND REMAINING COUNTRIES	COMMON
1	STRATEGIES	PSYCHOLOGICAL	LEARNING	DEVELOPMENT
2	READING	PRINCIPLE	POTENTIAL	BE
3	TEACHING	SOVIET	DISCUSSES	WORK
4	1978	MENTAL	LANGUAGE	PROBLEM
5	1962	MARXIST	1979	ROLE
6	PLAY	CRISIS	LINGUISTIC	NOT
7	BEHAVIORS	PSYCHOLOGY	RELEVANT	ANALYSIS
8	ASSUMPTIONS	MEANING	MODEL	GROUP
9	TEACHER	GENERAL	DISTINCTION	PERSPECTIVE
10	CHILDREN	MIND	TEST	DURING

Note. For the first three columns ranking according to probability of typicality (based on relative proportion between inner and global frequency of the word and frequency of modalities; criteria:  $p < .05$ ). 1979 in the data base refers to following authors: Chomsky, Christensen, Conrad, French, Gibson, Harré, Luria, Martin, Piaget, Rommetveit, Vygotsky, Wertsch and Leontiev's year of death. Words listed in the column " COMMON " are those with highest frequencies that are not treated differently in relation with the national affiliation of the authors ( $p < .05$ ).

The words most typical for the Anglo-Saxon authors confirm their specific interest in psychology of education, their reliance on the first English-language translations of Vygotsky (1962, 1978), and their concern about behaviors and confirmation of assumptions. Furthermore, the importance of general ideas for the Eastern group is again confirmed and this analysis, more clearly than the previous ones, reveals the specific interests of the other West-European and remaining authors for Vygotskian contributions in the field of psychology of language. These typicalities are confirmed by the same kind of analysis carried out on keywords (see table 5).

Table 5:

Five most typical words appearing in keywords citing Vygotsky, by national affiliation of the author

	ANGLO-SAXON	EASTERN	OTHER WEST-EUROPEAN AND REMAINIG COUNTRIES	COMMON
1	Childhood	History of Psychology	Language	School-Age-Children
2	Special Education	USSR	Vygotsky-Lev	Childhood-Development
3	Child Relations	Communism	Concept Formation	Cognitive-Processes
4	Age Children	Dialectics	Learning	Language-Development
5	Teaching Methods	Methodology	Psychologists	Childhood-Play

Note. For the first three columns ranking according to probability of typicality (based on relative proportion between inner and global frequency of the word and frequency of modalities; criteria:  $p < .05$ ). Words listed in the column " COMMON " are those with highest frequencies that are not treated differently in relation with the national affiliation of the authors ( $p < .05$ ).

According to this analysis Anglo-Saxon authors focus more specifically on children and their education. Eastern authors however use Vygotsky in a much broader sense: he is more often related to the history of psychology, to USSR and Marxism and to methodology in general. The perspective is clearly more historical and political. European authors more often use Vygotsky in the field of language and constructions of cognition, using his name as an explicit reference among the keywords who also deal with psychologists as such.

For both typicality analyses we have also listed the terms with highest frequencies but which are not treated differently by authors of different affiliation. If anything characterizes these common uses besides some banality in the case of words from the abstracts (be, not, during) it is their overall resemblance with the typical words for authors from the Anglo-Saxon and the other Western-European and remaining countries groups. This analysis illustrates again the change undergone by Vygotsky's ideas when they move to the West. On the other hand the quantitative importance of these common terms offers also an explanation for the relatively low amount of variance explained by the factors of the factorial correspondence analysis.

### A COMPLEMENTARY ANALYSIS.

The writing of abstracts and choice of keywords, as well as their preparation for the textual analysis can be subject to various biases. Therefore we proceeded with a complementary analysis based on the names of authors referred to in the bibliographies of another set of articles. The reasoning is that the differential use of Vygotsky should not only appear in the words authors use in abstracts and keywords, but also in their lists of references at the end of their articles. We have retrieved all papers published between January 1990 and December 1994 from the database "Social Sciences Citation Index", edited by the Institute of ..... , for which Vygotsky appears in the bibliographical references. Reviews, book chapters, and other publications are excluded from the analysis. Overall, 1204 articles contain references to Vygotsky in their bibliographies. The distribution over the years under study is as follows: 1990 (N: 212), 1991 (N: 209), 1992 (N: 223), 1993 (N: 277), 1994 (N: 283).

In order to simplify treatment of these data and to take political changes into account, two more specific institutional affiliations have been used: USA (n=705), USSR (90 - 91),RUSSIA (92 - 94)(n=101), and the remaining affiliations have been classified as OTHERS (n=398). The same typicality analysis as above has been realised on the names (first authors) mentioned in the bibliographies of the articles. Table 6 shows striking differences for the authors more specifically associated to Vygotsky by authors from the United States and Russia, the former are predominantly researchers who are still (or until very recently) active in different fields of psychology, whereas those typical for the Russians, with the exception of Pellegrini, were important key figures for Russian psychology in a more or less distant past. The typical references for the remaining set go to authors who represent a rather wide spectrum of past or contemporary contributions at different levels of generality, some of them only relevant for psychology, and others with a relevance that clearly goes beyond. However, typicalities should not prevent us from seeing what the three groups have in common. Therefore we have also mentioned in table 6 the names of the ten authors who obtained the highest overall scores for the total of the three groups and whose frequencies did not differ significantly between the groups. At the exception of Freud, all of these most frequent common references can be considered American, some of them (Wertsch, Cole, Scribner) specialized in cross-cultural psychology and/or Soviet psychology, others having developed their own approach in the area of symbolic and moral interaction (Mead, Kohlberg) or in specific fields of cognitive and educational psychology (Palincsar,

Flavell, Lave, Johnson). That such important figures as Piaget or Bruner, Luria or Leontiev are not listed among them is due to the differential treatment they receive in the States and in Russia, the former two being respectively less frequently quoted in Russia and the latter two receiving the same sort in the USA.

Table 6:

Ten most typical authors associated with Vygotsky in papers quoting Vygotsky between 1990 and 1994 (all authors  $p < .05$ ), according to author's affiliation and common references

	TYPICAL REFERENCES FOR			COMMON
	USA	USSR/RUSSIA	OTHERS	REFERENCES
1	Pressley-M 106/115	Vygotsky-L 151/1482	Shanon-B 34/34	Wertsch-JV 354
2	Corsaro-W 57/58	Leontiev-A 46/108	Stern-W 27/27	Palincsar-AS 139
3	Englert-C 57/58	Rubinshtein-S 28/40	Popper-K 24/27	Flavell-JH 133
4	Graham-S 44/45	Davydov-V 19/36	Fodor-J 42/64	Freud-S 94
5	Fivush-R 37/37	Lomov-B 17/31	Doise-W 34/53	Mead-GH 77
6	Tharp-R 64/69	Luria-A 17/206	Gibson-J 33/51	Cole-M 76
7	Poplin-M 35/35	Bakhtin-M 8/64	Keating-D 21/27	Kohlberg-L 76
8	Cazden-C 85/96	Pellegrini-A 6/81	Hobson-R 22/29	Lave-J 75
9	Goodman-K 69/76	n.s.	Driver-R 23/31	Scribner-S 75
10	Paris-SG 60/66	n.s.	Wittgenstein-L 30/49	Johnson-DW 71

Note. Pairs of numbers indicate proportion of inner and global frequency; in the COMMON REFERENCES column the number refers to overall frequency (see text for details). Vygotsky's first place for Russian authors is due to the fact that there are numerous writings that have not been translated in English and are therefore only used by Russian speaking authors. In western writings there is usually one reference to Vygotsky, whereas in the East there are often two or more references to Vygotsky.

## CONCLUSION

The significance of Vygotsky for psychology is of a pluralistic nature. He certainly offers broader perspectives than contemporary cognitive psychology offers us. In that sense his writings have oriented research in different areas. He certainly was important in offering to researchers a societal view on mankind which was elaborated in a Marxist context but which has also origins outside this historical, political and cultural tradition. More often than their American colleagues, European authors from the East and the West have dealt with this general aspect during the last twenty years. East Europeans remained more concerned about societal aspects of Vygotsky's theory, while some West-Europeans typically sought for general ideas on the psychological (cognitive and linguistic) functioning. A good description of the use Western authors in general, and Americans more specifically, have made of Vygotsky's writings is offered by Kazulin (1992, 511-2): "It took many years for Vygotskian ideas to reach the Western reader. Not until the 1980s had a sufficient number of his works been translated so that one could speak about Vygotskian influence on American psychology (...). Gradually, a definite set of Vygotskian themes has emerged as representative of this influence. Among them are the notion of 'psychological tools', the role of literacy in cognitive development, the notion of the 'zone of proximal development', the problem of inner speech as a tool of self-regulation, and the issue of 'scientific' versus 'spontaneous' concepts in the child's reasoning". And indeed a common frame of reference between the East and West has been developed, but our analysis of quotations has shown that currently this common frame is to a large extent "westernized".

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