

## IMPLICATIONS OF MULTI-SENSORY APPROACH FOR CHILD L<sub>2</sub> VOCABULARY ACQUISITION

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**ABSTRACT.** Teaching a foreign language to young learners requires of the teacher a special ability to involve them in a variety of activities explicitly accommodating their need for whole-person enjoyment and implicitly fostering their L<sub>2</sub> knowledge. This complex pedagogic task is likely to be achieved with reliance on the multi-sensory approach which is recommended by the European Co-operation Programs as an alternative L<sub>2</sub> teaching trend encompassing universal, proactive qualities and educational diversity. Consequently, the following paper highlights the multi-sensory approach as the driving force of the lexically oriented syllabus designed by the author for young children learning English as a foreign language. The said syllabus design is presented through the empirical filter of knowledge claims and value judgements about its efficiency.

### **1. Multi-sensory approach as viewed by the European Co-operation Programs (ECPs)**

In the multi-sensory approach the emphasis is laid on the activation of the right-hemispheric emotional, motor and sensory aspects of human mind which are of special importance for children whose world perception is dominated by the non-verbal, receptive functions paving the way for a subsequent development of the left-brain, verbal, productive potentials. The multi-sensory approach occupies a significant place in the European Co-operation Programs (ECPs) legally supervised and sanctioned by the European Council for Cultural Co-operation. ECPs advocate the idea of incorporating L<sub>2</sub> learning into a broadly based, psychologically and interculturally relevant educational context likely to foster a sense of European citizenship manifested by the ability to communicate with members of different speech communities and by a positive attitude towards them. Correspondingly, ECPs proceed to the subsumption of L<sub>2</sub> education within a stress-free ambience of the young learner's visual, auditory and kinaesthetic experiences sprouting on the grounds of child-specific needs which are as follows:

- cognitive needs referring to the child's inherent desire to appease the overwhelming curiosity about the world connected, for instance, with the history or culture of other countries,
- affective needs revealing the child's desire to learn in the safety of fun,
- communicative needs relating to the semantic intention of message encoding and decoding (Conseil de la Cooperation Culturelle 1993).

These needs, if adeptly supplied by the teacher, might contribute to the growth of child self-esteem and self-awareness which are, in turn, a prerequisite for the emergence of intersubjectivity, i.e. a universal ability to 'read' other minds and thus recognise other minds' perspectives. Accordingly, ECPs focus on the proactive character of multi-sensory learning by doing where a diversity of carefully prepared and graded co-operative activities serve as confidence-builders meant to establish a link between language and movement. Initially, priority is given to body language and other forms of physical expression (e.g. acting out, dancing, drawing) to be gradually joined by verbal or semi-verbal activities (e.g. singing, rhyming, role-plays, guessing games, story-telling) (European Council 1992). It might be, therefore, asserted that multi-sensory L<sub>2</sub> pedagogy empowers the young learners as co-operative L<sub>2</sub> users profiting from the benevolence of non-verbal communication which permeates verbal competence and thus feeds into its informativeness.

## **2. The place of multi-sensory approach within the research scope**

Below the multi-sensory approach is presented as the pivot of the empirically tested and evaluated vocabulary-syllabus design also referred to as the lexically driven multi-sensory syllabus design. The research into its efficiency is an integral part of the author's doctoral thesis prepared under the supervision of professor Teresa Siek-Piskozub.

### **2.1. Research type**

The research method selected for the empirical verification of the lexically driven multi-sensory syllabus design was formal experiment aimed at providing answers to the initially posed focus questions referring to the control and experimental groups' post-test performance. The answers assumed the form of hypotheses which were supposed to be confirmed or refuted through the collection of quantitative, statistically inferential data (Nunan 1994).

## 2.2. Experiment duration

The experiment lasted for 6 months, i.e. from November 1999 to April 2000, and took place at the primary school in Zielona Góra. During that time the experimental subjects attended two 45-minute lesson units a week which altogether amounted to forty-five classes.

## 2.3. Subjects

The subjects included 2 experimental groups (E1=14 8-year-olds (2<sup>nd</sup> graders), E2=16 9-year-olds (3<sup>rd</sup> graders)), and 4 control groups (C1=18 9-year-olds, C2=20 9-year-olds, C3=21 8-year-olds, C4=24 9-year-olds). Thus, the experiment encompassed 113 subjects altogether, i.e. 30 experimental subjects and 83 control subjects. E1, E2, C1 attended the same school, while C2, C3, C4 were the students of another two schools. All the subjects were L<sub>2</sub> beginners, hence the experiment had not been preceded by a pre-test.

## 2.4. Research goal

The aim of the research was to examine and evaluate the efficiency of the lexically driven multi-sensory syllabus design applied to the experimental groups whose post-test results were to be compared with the control groups' L<sub>2</sub> post-test performance.

## 2.5. Focus questions

Focus question → experimental vs control 2<sup>nd</sup> graders

Do the post-test results gained by the experimental 2<sup>nd</sup>-grade learners, taught through the lexically driven multi-sensory syllabus, differ from the post-test results obtained by the control 2<sup>nd</sup>-grade learners as regards:

- (a) vocabulary differentiation?
- (b) vocabulary comprehension?
- (c) vocabulary divergent use?

H0 (the null hypothesis): The results do not differ significantly.

H1 (the alternative hypothesis): The results differ significantly.

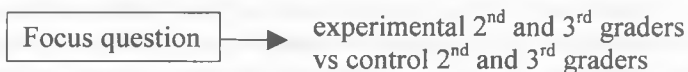
Focus question → experimental vs control 3<sup>rd</sup> graders

Do the post-test results gained by the experimental 3<sup>rd</sup>-grade learners, taught through the lexically driven multi-sensory syllabus, differ from the post-test results obtained by the control 3<sup>rd</sup>-grade learners as regards:

- (a) vocabulary differentiation?
- (b) vocabulary comprehension?
- (c) vocabulary divergent use?

H0: The results do not differ significantly.

H1: The results differ significantly.



What is the effect of the lexically driven multi-sensory syllabus on the experimental 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners' basic L<sub>2</sub> vocabulary knowledge compared with the knowledge displayed by the control 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners?

H0: The experimental 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners' basic L<sub>2</sub> vocabulary knowledge does not significantly surpass that of the control 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners.

H1: The experimental 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners' basic L<sub>2</sub> vocabulary knowledge significantly surpasses that of the control 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners.

## 2.6. Teaching procedures

### 2.6.1. Experimental groups

The experimental course was conducted by the present author with reliance on the previously designed lexically driven multi-sensory syllabus aiming to enable the child to switch from the right-brain non-verbal L<sub>2</sub> potential to the left-brain verbal activities. The focus was, therefore, on the transition from the prolonged listening-and-comprehension phase to speaking skills. Listening and speaking were to be followed by a range of carefully selected, reasonably dosed reading and writing activities. The teacher applied the **Observe-Hypothesise-Experiment** paradigm (O-H-E) (Lewis 1994) allowing the learners to co-operatively infer meanings from context and creatively experience them on a trial-and-error basis. The syllabus design was a hierarchical, tripartite structure including the following components:

- J. J. Asher's Total Physical Response (TPR) referred to as a right-brain tool for L<sub>2</sub> instruction and based on the utilisation of the kinaesthetic sensory system as a starting point for L<sub>2</sub> learning (Asher 1996). The children's psychomotor potential was to be released by acting out a variety of teacher-given commands. When the learners

felt safe enough with the language, they reversed the roles with the teacher, thus issuing the commands on their own.

- J. Bertrand's *flannelgraph technique* encouraging a further development of verbal communication through the integration of visual and auditory channels of perception. The flannelgraph served as a means for placing, displacing and finally combining a limited set of figurines into an unlimited number of real-world situations likely to attract the young learners' attention and evoke spontaneous verbal responses (Bertrand, Frérot 1967). Flannelgraph technique was meant to transfer from TPR-based imperatives to affirmatives used in the children's attempts to exchange messages by interpreting different configurations of figurines.
- The present author's supplementary textbook entitled "Pat & Rhett" and planned to serve as a written accompaniment to Asher's psychomotor TPR and Bertrand's visual-auditory flannelgraph technique. The book's crucial part was a series of exercises varying in the degree of difficulty and meant to involve the children in a number of imaginary situations playing to their need for entertainment.

The syllabus design complied with the child's natural desire to convey maximum information with minimum linguistic resources, hence it primarily drew on the semantic, high-content rather than syntactic, low-content items. It was intended to introduce 145 lexical items throughout the whole experimental course, i.e. about 3 items at a time as recommended by TPR. It should be added that vocabulary was approached holistically, with a special regard to prepositional phrases worth practising as highly informative language chunks. L<sub>2</sub> activities were supported by a range of L<sub>1</sub> relaxation exercises aimed at affective and physical charging the children's L<sub>2</sub> potentials (Revell and Norman 1998). It was expected that a relatively modest range of vocabulary covered during the course would optimise the learners' chance to practise the new language in a variety of lexical configurations and integrate it, therefore, into the framework of prior knowledge for the sake of meaningful retention and retrieval.

### 2.6.2. Control groups

As for the control groups, they were taught by three different teachers who complied with the *Present-Practise-Produce* paradigm (P-P-P) where the emphasis was laid on the explanatory presentation of the new material followed by practice activities consisting in doing textbook exercises or in performing repetitive drills which mainly required reproduction-level abilities. It has to be mentioned that a textbook was the only and thus permanently used educational aid engaging the learners in the individual, written work or exposing them to the cassettes reproducing particular lesson units. The subjects attended to the language in an atomistic way, inserting separate, semantic as well as syntactic words into ready-made L<sub>2</sub> structures or combining disarranged items into a full sentence. The learners were not, therefore, encouraged to play with the lan-

guage, i.e. to create their own, high-content, not necessarily formally correct messages. Conversely, grammatical accuracy seemed to be regarded as an L<sub>2</sub> priority, hence the teachers' immediate correction of structural imperfections. However, it has to be admitted that C2 teacher made certain efforts to transfer the passive, book-inspired L<sub>2</sub> knowledge to the classroom learning contexts fostering intersubjective competence.

### 2.7. Data gathering instrument

The data were collected through the three-fold vocabulary test administered to the experimental and control subjects immediately after the language course with the aim of examining the young learners' basic L<sub>2</sub> knowledge. And so, the test consisted of the following, interdependent parts:

- The first part measuring the ability to use L<sub>2</sub> vocabulary on the differential level (vocabulary differentiation), i.e. the ability to create meanings by contrast as an overt result of the learners' perception of 'here-and-now' phenomena in terms of the basic differential details they include;
- The second part measuring the ability to use L<sub>2</sub> vocabulary on the comprehension level (vocabulary comprehension), i.e. the ability
  - to transpose oral instructions to the graphic plane as an overt manifestation of the intersensory (auditory-visual) integration,
  - to utilise extralingual cues in the service of decoding L<sub>2</sub> messages;
- The third part measuring the ability to manipulate L<sub>2</sub> vocabulary on the divergent level (vocabulary divergent use), i.e. the ability
  - to exploit L<sub>2</sub> prior knowledge for the sake of discovering new lexis,
  - to approach a variety of concepts with an open mind ready to combine the ordinary with the bizarre, the known with the unknown as an overt manifestation of organisational and adaptive functions governing the process of global child development.

### 2.8. Knowledge claims about the research

#### 2.8.1. Test results

Knowledge claims were arrived at through the analysis of variance testing for significant differences between the means of test results. The maximum score for the whole test was 48 ((a) vocabulary differentiation = 17, (b) vocabulary comprehension = 8, (c) vocabulary divergent use = 23).

ad Focus question 1

(see: 2.5)

The means of results obtained by E1 for (a), (b), (c) turned out to significantly surpass C3 mean results (see: Table 1).

ad Focus question 2

(see: 2.5)

The means of results obtained by E2 for (a) and (c) appeared to be significantly higher than C1 + C2 + C4 means, whereas E2 vs. C1+C2+C4 means did not differ significantly as regards (b) (see: Table 1).

ad Focus question 3

(see: 2.5)

The analysis of variance indicated that E1+E2 whole test mean ((a)+(b)+(c)) was significantly higher than C1+C2+C3+C4 mean (see: Table 1).

**Table 1. Vocabulary test mean results as a statistical support of the responses to focus questions**

2 <sup>nd</sup> graders	3 <sup>rd</sup> graders
<p style="text-align: center;"><b>Focus question 1</b></p> <p>Do the post-test results gained by the experimental 2<sup>nd</sup>-grade learners, taught through the lexically driven multi-sensory syllabus, differ from the post-test results obtained by the control 2<sup>nd</sup>-grade learners as regards:</p> <p>(a) vocabulary differentiation?                      E1 = <u>12,89</u> vs. C3 = <u>3,43</u>  <b>H1: The results differ significantly.</b></p> <p>(b) vocabulary comprehension?                      E1 = <u>6,39</u> vs. C3 = <u>3,12</u>  <b>H1: The results differ significantly.</b></p> <p>(c) vocabulary divergent use?</p>	<p style="text-align: center;"><b>Focus question 2</b></p> <p>Do the post-test results gained by the experimental 3<sup>rd</sup>-grade learners, taught through the lexically driven multi-sensory syllabus, differ from the post-test results obtained by the control 3<sup>rd</sup>-grade learners as regards:</p> <p>(a) vocabulary differentiation?                      E2 = <u>12,75</u> vs. C1 + C2 + C4 = <u>7,46</u>  <b>H1: The results differ significantly.</b></p> <p>(b) vocabulary comprehension?                      E2 = <u>5,81</u> vs. C1 + C2 + C4 = <u>4,81</u>  <b>H0: The results do not differ significantly.</b></p> <p>(c) vocabulary divergent use?</p>

2 <sup>nd</sup> graders		3 <sup>rd</sup> graders	
E1 = <u>16,32</u> vs. C3 = <u>1,48</u> <b>H1: The results differ significantly.</b>		E2 = <u>14,78</u> vs. C1+C2+C4 = <u>7,11</u> <b>H1: The results differ significantly.</b>	
<b>Focus question 3</b> <b>(a) + (b) + (c)</b> <b>2<sup>nd</sup> graders + 3<sup>rd</sup> graders</b>			
<p>What is the effect of the lexically driven multi-sensory syllabus on the experimental 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners' basic L<sub>2</sub> vocabulary knowledge compared with the knowledge displayed by the control 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners?</p> <p>E1 + E2 = <u>34,00</u> vs. C1 + C2 + C3 + C4 = <u>16,52</u></p> <p><b>H1: The experimental 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners' basic L<sub>2</sub> vocabulary knowledge significantly surpasses that of the control 2<sup>nd</sup>- and 3<sup>rd</sup>-grade learners.</b></p>			

## 2.8.2. Test performance

### (a) vocabulary differentiation

- It was noticed that E1 and E2 managed to holistically manipulate a variety of picture-illustrated lexical items, thus using them as a high-content basis for the creation of descriptive sentences. However, E1 sentences turned out to be simpler and less informative than the ones made by most E2 members which might be developmentally explained by the fact that the latter were more advanced in decentration, i.e. the ability to proceed from one detail to another rather than focus on particular details separately (Papalia, Wendkos Olds 1995).
- In the control groups the learners either made oversimplified sentences devoid of adjectives and prepositional phrases or used single words as key-labels attached to particular pictures. There was an exception referring to some C2 members who managed to produce nicely formed sentences. Besides, many control subjects displayed problems with differentiating between 'who'/'what' and 'this is'/'it's'. C1, C3, C4 also had difficulty in operating directives which they confused with infinitives and gerunds.

### (b) vocabulary comprehension

Vocabulary comprehension was the domain in which the difference between E2 vs. C1 + C2 + C4 mean results appeared to be insignificant (see: Table 1: Focus question 2) which might be accounted for by the fact that the control groups (especially C1 and C2) were exposed to a certain amount of listen-and-comprehend exercises in L<sub>2</sub> classroom, some of them resembling the ones included in the vocabulary test.



**(c) vocabulary divergent use**

- E1, E2, C1 and C2 properly used inferencing strategies for decoding new lexis, whereas C3 and C4 displayed evident problems with the inferring of meanings despite the provision of extralingual cues.
- E1, E2 and C2 appeared to creatively operate newly inferred lexical items which they used as part of self-made rhyming verses.
- E1, E2, C1, C2 contrived to write short picture-based stories, though they differed in quality. And so, E1, E2, C2 stories were more coherent and they included at least 2 of 4 pictorially suggested topics (house, family, pets, school), whereas C1 learners mostly focused on one or two topics or wrote their own stories without paying attention to the instructions. In C3 and C4, the subjects either gave up the story or limited it to one aspect which usually related to the enumeration of family members or to a self-introducing sentence.

Figure 1 shows in percentages how E1 + E2 vs. C1 + C2 + C3 + C4 performed in the test. Consequently, it can be seen that in E1 + E2 test performance average and high levels had an equal share which considerably surpassed low-level performance. Conversely, in C1 + C2 + C3 + C4 low-level performance remarkably exceeded average- and high-level performance.

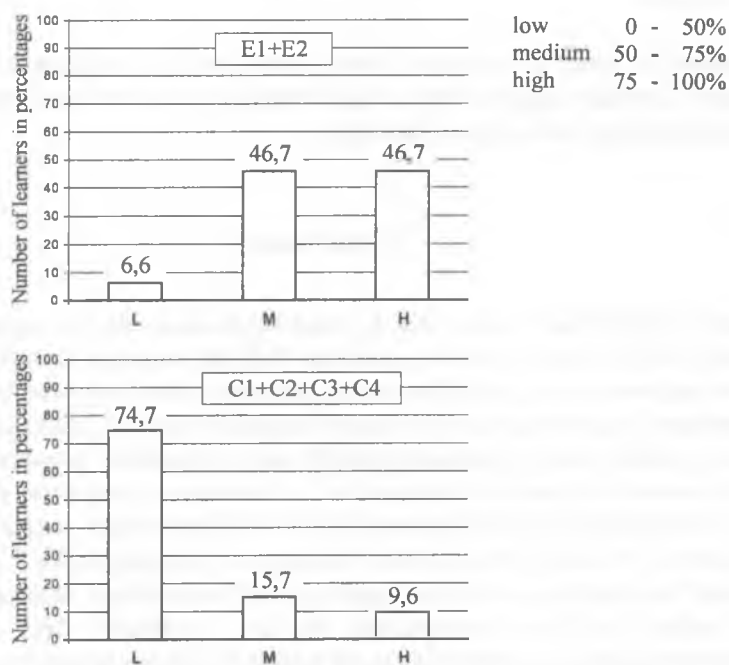


Fig. 1. The percentage-measured number of experimental and control subjects with low, medium and high test results computed on the total level

## 2.9. Value judgements about the research

In general, it might be assumed that a significant difference between the experimental and control groups' post-test results arises from the following factors as constituent parts of the L<sub>2</sub> curricula utilised by the control groups' teachers:

- a wide application of the P-P-P paradigm;
- an excessive use of repetitive drills;
- a reliance on the textbook as the only L<sub>2</sub> knowledge source likely to result in the monotony rather than diversity of lesson activities;
- the enhancement of the reproduction-level, individually oriented non-communicative activities;
- the insufficiently encouraged and scaffolded transition from the intrapersonal to the interpersonal level of L<sub>2</sub> classroom behaviour;
- the dearth of relaxation activities likely to foster the psychomotor aspect of global child development relevant to the extension of the learners' concentration span;
- the dearth of L<sub>2</sub> material recycling crucial for meaningful learning and retention;
- a random use of imperatives and affirmatives, whereas the former's simplicity should be treated as a facilitative introduction to the latter's structural complexity;
- the offering of assistance directed to the child's weakness rather than to his strength.

A greater or lesser existence of these factors within the scope of the control groups' curricula suggests that a highly desirable link between child SLA and child psychology was, at best, indistinct.

## Conclusions

It seems reasonable to assert that L<sub>2</sub> teaching process can be successfully transformed into the learning effect, provided that the language programme applied by the teacher accords with the young children's developmental cycle, sensory preferences and semantically coloured learning needs. Consequently, the author's syllabus design, methodologically and evaluatively presented above, set out to ensure the learners a stress-free, informatively organised flow from the right, non-verbal, imaginative hemisphere to its left, verbal, logical counterpart. A diversity of classroom activities feeding into intersubjective L<sub>2</sub> involvement through the integration of visual, auditory and kinaesthetic channels of perception seems to have extrapolated to the vocabulary test performance. Correspondingly, the above discussed research findings appear to highlight the multi-sensory approach as facilitating child L<sub>2</sub> learning via the efficient bridging of the gap between receptive and productive domains of the language.

## REFERENCES

- Asher, J.J. (1996): *Learning Another Language Through Actions*. Cal.: Sky Oaks Productions, Inc.
- Bertrand, J.; Frérot, J.L. (1967): *Frère Jacques – méthode de langage pour enfants*. France: B.E.L.C. Hachette.
- Bogdanowicz, M. (1997): *Integracja percepcyjno-motoryczna; teoria – diagnoza – terapia*. Warszawa: Centrum Metodyczne Pomocy Psychologiczno-Pedagogicznej Ministerstwa Edukacji Narodowej.
- Bruner, J.S. (1996): *The Culture of Education*. Cambridge, Massachusetts: Harvard University Press.
- Conseil de la Cooperation Culturelle (1993): *Apprentissage et enseignement des langues vivantes à l'école primaire*.
- European Council for Cultural Co-operation (1992): *Language Learning for European Citizenship*.
- Lewis, M. (1994): *The Lexical Approach*. London: LTP.
- Novak, J.D. (1998): *Learning, Creating and Using Knowledge: Concept Maps as Facilitative Tools In Schools and Corporations*. N.J.: Lawrence Erlbaum Associates, Publishers.
- Nunan, D. (1994): *Research Methods in Language Learning*. Cambridge: Cambridge University Press.
- Nunan, D. (1996): *Syllabus Design*. Oxford: Oxford University Press.
- O'Connor, J. and Seymour J. (1993): *Introducing NLP*. Thorsons-Harper Collins.
- Papalia, D., Wendkos Olds, S. (1995): *Human Development*. U.S.: Mc Graw-Hill.
- Revell, J. and Norman, S. (1998): *In Your Hands. NLP in ELT*. London: Saffire Press.