Appendix One In Search of Vygotsky's Blocks: Scoring Sheet

Coded Number	Date	Time commenced	Time ended
Opening remarks:			
1 First move			
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other
1 Second move			
Justification/comment:			
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other
Abandon hypothesis	Ask for further assistance	Researcher's comments	
1 Third move			
Justification/comment:			
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other
Abandon hypothesis	Ask for further assistance	Researcher's comments	
1 Fourth move			
Justification/comment:			
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other
Abandon hypothesis	Ask for further assistance	Researcher's comments	
1 Fifth or more moves			
Justification/comment:			

Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
Reaction to upended block:					
2 First move					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
2 Second move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
2 Third move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
2 Fourth move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	

Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
2 Fifth or more moves					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
Reaction to upended block:					
3 First move					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
3 Second move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
3 Third move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
3 Fourth move					

Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
3 Fifth or more moves					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
Reaction to upended block:					
4 First move					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
4 Second move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping	
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other		
Abandon hypothesis	Ask for further assistance	Researcher's comments			
4 Third move					
Justification/comment:					
Syncretic	Colour	Shape	Height	Size	Pattern

Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other	
Abandon hypothesis	Ask for further assistance	Researcher's comments		
4 Fourth move				
Justification/comment:				
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other	
Abandon hypothesis	Ask for further assistance	Researcher's comments		
4 Fifth or more moves				
Justification/comment:				
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other	
Abandon hypothesis	Ask for further assistance	Researcher's comments		
Reaction to upended block:				
5 First move				
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other	
5 Second move				
Justification/comment:				
Syncretic	Colour	Shape	Height	Size	Pattern
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other	
Abandon hypothesis	Ask for further assistance	Researcher's comments		

5 Third move						
Justification/comment:						
Syncretic	Colour	Shape	Height	Size	Pattern	
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping		
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other			
Abandon hypothesis	Ask for further assistance	Researcher's comments				
5 Fourth move						
Justification/comment:						
Syncretic	Colour	Shape	Height	Size	Pattern	
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping		
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other			
Abandon hypothesis	Ask for further assistance	Researcher's comments				
5 Fifth or more moves						
Justification/comment:						
Syncretic	Colour	Shape	Height	Size	Pattern	
Maximum similarity	Colour and shape	Trial-and-error	Other combination	More than one grouping		
Representative allocation – colour	Representative allocation – shape	Rep. allocation: colour & shape	Other			
Abandon hypothesis	Ask for further assistance	Researcher's comments				
Reaction to upended block:						
6 First move						
6 Second move						
Justification/comment:						

Abandon hypothesis	Ask for further assistance	Researcher's comments
6 Third move		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments
6 Fourth move		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments
6 Fifth or more moves		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments
Reaction to upended block:		
7 First move		

7 Second move		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments
7 Third move		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments
7 Fourth move		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments
7 Fifth or more moves		
Justification/comment:		
Abandon hypothesis	Ask for further assistance	Researcher's comments

Repetition, transfer, and description		
Repetition: Ability to resort blocks: noted here but scored below		
No mistakes = 3;	Some mistakes = 2;	Unable = 1
Make a note of the time ended now		
Ability to describe what blocks have in common: Noted here but scored below		
Two descriptions per group = 8 ranging in number of descriptions provided down to one for all groups; no description = 0		
Ability to transfer to glasses: Noted here but scored below		
No mistakes = 4;	Some hesitation = 3, 2, and 1;	Unable = 0
Ability to transfer to candles: Noted here but scored below		
No mistakes = 4;	Some hesitation = 3, 2, and 1;	Unable = 0
Any additional comments		

Overall scoring: Hanfmann-Kasanin (1937/1942) and Towsey (2006)			
Interpretation of the task:			
Principle: Classification = 3; One characteristic = 2; Trial-and-error = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1
Names: Means properties = 3; Means put together = 2; Merely lettering = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1
Sample Block: Representative = 3; Nucleus = 2; No particular function = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1
Totality: Four classes = 3; Doesn't always remember = 2; Not considered = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1

Levels of Performance: (see my adaptation of this scoring in Appendix Two: Notes for Scoring)														
12	11	10	9	8	7	6	5	4	3	2	1	-1	-2	-3

Finding and mastering the solution: (Italics are where I score subjects who are being perceptually guided, alongside Hanfmann & Kasanin's original scoring)			
Solution: Insight = 3; Partial/*perceptual* = 2; Mechanical = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1
Formulation: Size principle = 3; Size description/*perceptual* = 2; Not mentioned = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1
Dichotomy: Size and height = 3; Size / height description/*perceptual* = 2; Not mentioned = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1
Repetition: Resort blocks: No mistakes = 3; Some mistakes/*perceptual* = 2; Unable = 1	Conceptual = score 3	Intermediate = score 2	Unable = score 1

Transfer scoring (Towsey, 2006):			
Ability to describe what blocks have in common:	Two descriptions per group = 8 ranging in number of descriptions provided down to one for all groups; no description = 0		
Ability to transfer to glasses:	No mistakes = 4;	Some hesitation = 3, 2, and 1;	Unable = 0
Ability to transfer to candles:	No mistakes = 4;	Some hesitation = 3, 2, and 1;	Unable = 0
Total scores from previous page per column			
Total scores from previous page added			

Supplementary Scoring (Hanfmann & Kasanin, 1937/1942): Time and number of blocks:	
Time in minutes: 1 point per minute	
Number of incorrectly upended blocks (blocks x 5)	
Number of correctly upended blocks (score x 3)	
Total score	

Appendix Two In Search of Vygotsky's Blocks: Notes for Scoring

Hanfmann and Kasanin (1942) write that within each phase of the experiment wide variations in performance were observed. A: Interpretation: Classification – 1 Looks for unknown principle; 2 Does not grasp nature of required grouping – full significance of 4 groups, names, turned sampled not fully appreciated; 3 Does not relate the names at all to the properties of the blocks

Interpretation of the task (*Italics=H&K discussion/further clarification in 1942 paper*); 4. Effect of additional instructions: Not scored, just noted as H&K do not provide scoring for this						
A	Interpretation of what is required	Principle	Name	Sample	Totality	4. Effect of additional instructions
1.	Score	3	3	3	3	
	Task seen as classification	The subject looks for the unknown basis of classification.	Name is taken as designating some as yet indefinite common property of the blocks. *classes to be found*	Sample is seen as a representative of the class; an added sample ("correction") may prove that the attempted classification was wrong. *a particular quality (not the concrete); turned sample alters hypothesis completely*	Subject chooses the basis of classification that will yield four classes. *reviews and discards, systematic planned*	Minimum instruction
2.	Score	2	2	2	2	
	Nature of required grouping not grasped (most difficult to define by researcher)	Subject looks for a near-arbitrary method of procedure, the "rule of the game". *guessing, hesitancy, uncertainty; mixture of hypotheses and trial and error or only one possibility seen – shape, colour, no. of sides and able to give exact description of these but blocks grouped because of what they are – naming is related to concrete and not to a specifically abstracted characteristic*	Name designates merely the blocks that should be place together; or it designates only one definite quality, e.g., shape. *some realisation – ie, same word together and for some reason but lack of clarity revealed because does not understand need for conceptual classification as above or can't move blocks to other groups because name is revealed but uncertainty as to why it has that name – the name designates only one definite quality – shape or colour or height or size*	Sample is seen as the nucleus or merely as part of the group; correction leads to removal of the corrected block alone. *sample represents concrete characteristics turned sample modifies hypothesis to some degree but not to totality*	Subject remembers that he has to make four groups, is concerned about the number of blocks in each. *some measure of requirement of totality is taken into consideration*	Able to benefit from more, even slight hint
3.	Score	1	1	1	1	
	Does not relate names to properties of the blocks	Subject anticipates no rule of any kind, utilizes trial and error. *tries to turn blocks; then* random or groups blocks but pays no attention to requirement of names or the use of them as a criterion	Name is merely "lettering", one among other characteristics of the blocks. *names not related to properties or not seen as standing for some common property – disregarded or seen as merely lettering These two subgroups both fail to grasp the naming function of the words*	Sample has no particular function, may be simply disregarded. *sample block function totally disregarded or serves merely as starting point turned block simply means it must be put with the others*	The blocks are grouped without any consideration for the four-fold division. *totality not entertained or groupings made without any regard to implications for totality or four-fold division*	Unable to benefit from additional instructions

B	Levels of performance (Hanfmann & Kasanin scoring; *italics=my interpretation of discussion in paper of Hanfmann & Kasanin (1942)*)						
Conceptual and abstract	Presence of a system Conceptual –, remembers four-fold, thinks No exceptions allowed Bothered by contradictions/inconsistencies Need for consistency of principles across four groups	Classes – approaches conceptually with colour or shape or no. sides but not with red blocks or square ones or no. of sided blocks – *happening inside head* – abstract and consistent classification of attributes	12				Conceptual engagement in relation to qualities of blocks and hierarchical
Intermediate – lack conceptual basis of classification – not just one block to another but concrete rule – some degree but allows exceptions	Presence of some kind of system – emerging 'rules' Perceptual and attempts at conceptual Need for four groups but consistency not applied or needed Exceptions allowed *Movement inconsistently between preconceptual and concrete/perceptual* *Contradictions explained away* *Inconsistencies explained away*	Collection complexes describe a multitude of qualities of the blocks & yet they don't need this if they approach conceptually – justifications/explanations rather than principles. Combined with similarities & dissimilarity – conscious but similarity unformulated or inconsistent	8	8	10	6	*Hanfmann and Kasanin raise collections above chains and diffuse complexes in a reversal of Vygotsky's writings*
		Pseudo-classes – colour or shape but not consistent – one red group, one round – concrete – general concept not instrumental – does not deal with colour or shape, but with red blocks or triangular blocks – *descriptions but not consistent*					
Hanfmann and Kasanin's 'primitive' complexes	Hanfmann and Kasanin's 'primitive' complexes cannot result in a system	Early complexes – similarities between individual blocks – pairs, first block merely starting point or families; conglomerate pairs together but not to whole group	4				
		Constructions – patterns or put together to form shape based on shape or height – solution accidental					
		Physiognomic – impressions and descriptions					
Syncretic – no bonds – subjective plus Hanfmann & Kasanin's random but not subjective		Individual placements - *post hoc, 'dunno', one by one, no system*	0	Hanfmann and Kasanin write that they do not score these modes (pp.32-33), yet include "random groups, individual placements" later in their 1942 monograph (pp.51-52 and p.55).			
		Random Groups – trial and error; vaguely perceived similarity					
		Combination of the first two stages		*Syncretic Stage Three*			
		Proximity or other perceptually compelling ties		*Syncretic Stage Two*			
		Subjective, guesses		*Syncretic Stage One*			

C	Finding and mastering the solution	Solution	Formulation	Dichotomy	Repetition
	Score	3	3	3	3
1.	Bears totality in mind all the time – engagement is conceptual/abstract with the perceptually abstracted qualities	Solution is accompanied by insight.	Size is clearly seen and named as the principle of achieved grouping.	Subject formulates the size difference of the blocks in terms of double dichotomy.	Subject reconstructs the destroyed groups quickly and without errors (or no need if principle is mentioned)
2.	Score	2	2	2	2
	Grouping achieved by mainly consistent principles across the four groups on a concrete level. *My insert here is 'guided by the perceptual' (H&K – 'most difficult for researcher to define')*	Solution is accompanied by partial insight only.	Size is used to describe the group but not given the outstanding role of a principle (noticed but not given specific attention or role or principle).	Subject mentions differences of blocks both in height and in top area, but does not combine these two characteristics into a system of a double dichotomy. *or does so because perceptually guided*	Subject orders the blocks with hesitation and occasional errors. *or does so because perceptually guided*
3.	Score	1	1	1	1
	Creates groups by trial and error or inconsistent principles across the four groups	Solution is reach mechanically without insight.	Size differences of groups are not mentioned.	Subject does not seem to realise that size of blocks is varied in two directions (doesn't grasp double dichotomy)	Subject is unable to reconstruct the destroyed groups.

Hanfmann and Kasanin abbreviated here to H/K.
There are 3 sections to the H/K scoring method. Each of the 3 sections of the H/K scorings totals 120 for a group of 10 subjects. The first H/K scoring is for "Interpretation of the task" (scores between 1 and 3 for 4 sub-categories); the second is for "Levels of Performance" (scores as 4, 6, 8, 10 and 12); the third is for "Finding and mastering the solution" (scores between 1 and 3 for 4 sub-categories). The H/K Sections 1 and 3 have been scored as per their writings in this study.
Levels of Performance is abbreviated here to "LoP". The LoP is the middle section (number 2) of Hanfmann and Kasanin's scoring.

Groups in this study	H/K Sections 1-3 scores out of 240 (120+120) in this study	H/K LoP scores as is would exclude the 3s and most of the 4s, so calculation taken at theoretical average of HK LoP per range (ie, half the subjects scoring top of range and half the subjects scoring bottom range)	Theoretical H/K LoP at average scores of top & bottom of each range	Theoretical H/K LoP scores as percentage of 120	LoP at my scoring suggestion for this study	My LoP scores as percentage of 120	**Percentage difference between theoretical H/K LoP and my LoP**	Totals of H/K Sec 1-3 with my LoP scores in this study (out of 360)
3	80	Between -1 and -3 = -2 x 10	-20	-16.66%	-22	-18.33%	**+1.67%**	58
5	93	Between 0 and 4 = 2 x 10	20	16.66%	22	18.33%	**+1.67%**	115
8	126	Between 4 and 6 = 5 x 10	50	41.66%	43	35.83%	**-5.83%**	169
11	161	Between 6 and 8 = 7 x 10	70	58.33%	67	55.83%	**-2.5%**	228
15	217	Between 8 and 12 = 10 x 10	100	83.33%	102	85%	**+1.67%**	319
Adults	232	Between 10 and 12 = 11 x 10	110	91.66%	112	93.33%	**+1.67%**	344

My scoring for levels of performance for this cross-sectional study (2006). Departure from Hanfmann & Kasanin scoring for adults of not more than +1.67% to -5.83% per age group for 10 subjects in each age-group. (Vygotsky did not score these modes of thinking) I have followed Hanfmann & Kasanin's (1942) note to score subjects at the highest level of performance displayed during their sessions.

Overall description	Mode	Description	Score	Vygotskian Phases and Stages
Syncretic or no meaningful psychological links made	Phase One – Syncretic; names of blocks does not serve to organise activity; syncretic relationships to 'same kind'	Totally subjective – ignores instructions altogether	-3	Syncretic Images: found in this study in responses of three-year-old subjects but NOT in relation to words *cev*, *bik*, *mur*, and *lag*, but in relation to 'same' in regard to either colour or shape of blocks or their names (eg, triangle or orange)
		Syncretic but introduces story or some other grouping and pays some attention to initial instruction	-2	
		Some awareness of labels and able to sort colours or shapes but not in relation to labels, only according to shape or colour	-1	
	No meaningful psychological links made; but name is cue of some kind	Individual placements - , post hoc, 'dunno', one by one, no system, 1 to 1; difference explains all	1	Syncretic Stage One: T&E, guessing + repeats same strategy
		Random Groups – trial and error; vaguely perceived similarity, prompting to engage and complete activity	1	Syncretic Stage Two: proximity + other perceptually compelling
				Syncretic Stage Three: combination of the first two
Concrete and factual. Chains combined with early diffuse complexes. Diffuse Complexes & Pseudo-solutions. Cross-referencing back to exemplar and other blocks takes place – inconsistently applied	Early Complexes	Pairs and early associations	2	
		Associations or only one possibility seen	3	Phase Two, Stage One
		Collections, fluid, guessing, early chains	4	Phase Two, Stage Two
	Exceptional subjects – notice height or size	Guided by the perceptually obvious – notes height or size immediately and groups by perceptual association	5	
	Intermediate Complexes	Chains, unstable, chain-like reasoning, chains across groups	6	Phase Two, Stage Three
		Diffuse complexes; unstable	7	Phase Two, Stage Four *What Hanfmann and Kasanin call collections, I refer to here as diffuse complexes*
		Pseudoconceptual: concrete but more consistent; looks like real concepts, but turned blocks or ignoring inconsistencies shows; can combine 2 traits of blocks; sometimes no approach advanced before or post hoc but not totality of 4	8	Phase Two, Stage Five. Coupled with emergence of Potential Concepts 'proper'. A combination of the emerging ability to abstract (potential concepts) along with increasing ability to apply approaches consistently. The crossroads between thinking in complexes and concepts.
Emergence of ideas. Advanced & sophisticated complexes	Potential Concepts 'proper' merging into true concepts	Elaborations, advanced and sophisticated diffuse complexes; pseudo-reasons not consistent; emergence of possible ideas; concrete and some conceptual to fit approach	9	
		Representative allocation; mirroring; sophisticated use of 2 or 3 combinations; more consistent	10	
Logical and abstract	Fully mature conceptual approaches	Hypothesis testing; tries out moves and abandons if not compatible with totality	11	Phase Three - True, fully mature, abstract and logical thinking; formulates double dichotomy and sorts accordingly
		Mathematical, analytical, statistical sometimes in middle of board; analyses characteristics and thereby finds commonalities; defines parameters of problem (counting upfront – totality)	12	

Transfer scoring (Towsey, 2006):			
Ability to describe what blocks have in common: (If subjects were prompted, their scores were halved.)	Two descriptions per group = 8 ranging in number of descriptions provided down to one for all groups; no description = 0		
Ability to transfer to glasses: (If subjects were prompted, their scores were halved.)	No mistakes = 4;	Some hesitation = 3, 2, and 1;	Unable = 0
Ability to transfer to candles: (If subjects were prompted, their scores were halved.)	No mistakes = 4;	Some hesitation = 3, 2, and 1;	Unable = 0

Appendix Three In Search of Vygotsky's Blocks: Subject Information Sheets

Following on from the discussion in the main Research Report on the differences in approach between Sakharov and Hanfmann and Kasanin (1937 and 1942), a further point needed to be mentioned. This was in relation to how this procedure was introduced to the subjects in terms of ethical consent forms. For subjects under the age of fourteen the procedure was introduced as a game, and for adolescent and adult subjects, as a problem-solving task. However, as the subjects under the age of fourteen did not sign the consent forms, or read what the 'game' is about (because the consent forms and information were sent to their parents), below are my methods for imparting some of this information to subjects during the 'icebreaker' part of the session, before the procedure actually commenced.

Now, because Vygotsky is so very clear about transference; and because Hanfmann and Kasanin did not expect their subjects to transfer these newly acquired words to different objects; and because I wished to use a procedure with adults and children in a way which allows both groups to be introduced to this procedure as it was originally intended, I used a combination of the Hanfmann-Kasanin approach and the Vygotsky-Sakharov approach as outlined below. In each case, I have underlined the text which differs from the Hanfmann-Kasanin procedure. The original Hanfmann and Kasanin standard instructions are:

> These are four different kinds of blocks. Each kind has a name. This kind of block, for instance (turning up the triangular mur), is called mur. Your task is to find these four kinds and to put them into those four spaces (showing the four corner fields of the board). You might start by picking out all the blocks that you think might belong to this kind, mur, and putting them in this space. (Hanfmann & Kasanin, 1937, p. 535)

For this study, the 'icebreaker' script for adult and adolescent subjects read as follows:

> This is a thinking and talking activity. As mentioned to you in my letter, it is about the thinking strategies that people of all ages use to solve problems. There are no 'right' or 'wrong' ways of going about this. There is also no time limit. What we need you to do is to 'think aloud' as you go, and please feel free to ask me questions at any time.

I then uncovered the blocks, and the subject could inspect them. While they were doing this, the subject was told the following:

> There are four different kinds of blocks here. Each kind has a name. This kind of block, for instance (turning up the triangular *mur*), is called *a mur block*. Your task is to find the four kinds of blocks and to put them into these four spaces (showing the four corner fields of the board). You might start by picking out all the blocks that *you think* might belong to this kind, *mur*, and putting them in this space. (from Hanfmann & Kasanin, 1937, p. 535)

For subjects under the age of fourteen, I believe that the way in which the information for the task was presented needed to be interspersed with 'actions' – like looking at things, and giving the subjects the opportunity to ask questions – so that children were not given a barrage of information which could potentially overwhelm them. My procedure for introducing the subjects of this age-group was as listed below. For subjects under the age of fourteen, the 'icebreaker' script read as follows:

> What we have here are some toys that belong to children from a far-away country (perhaps somewhere near the North Pole?). The children in this country speak a different language.

I touched the cloth covering the blocks, made eye-contact with the subject, and said:

> This is a talking and thinking game. While we are playing it, I would like you to talk to me about what you are thinking about, okay? You can tell me all sorts of things about the game as we play it. You can ask me questions too.

The blocks were uncovered and the subject could inspect them. While they were doing this, the subjects were told that these blocks can be sorted into four groups (indicating each of the four corners) and that each of these groups has a name that means something in the language of these foreign children. The way the game works is to put the blocks into groups that the subject thinks belong together.

> There are four different kinds of blocks here. Each kind has a name. Each name means something in the language of these children from the North Pole. What we need you to do is to find these four different kinds of blocks and to put them into these four spaces (showing the four corner fields of the board).

I picked up the first sample block, turned it over so its label was clear, and put the block into the bottom left-hand corner, face up, saying:

> Let's start with this block, (turning up the triangular *mur*). See, its name is *mur* in the North Pole language. Now what you can do is pick out the blocks that *you think* are the same kind as the *mur* block, and put them here.
>
> The subjects were asked if they were ready to start.
>
> Let's start by asking you to pick out all the blocks that *you think* might belong to this kind, *mur*, and put them in this space. Take your time. You can talk to me as you go; you can tell me what you are thinking about, like why you think a block is a *mur* block. (from Sakharov, 1994, pp. 94-95; Hanfmann & Kasanin, 1937, p. 535)

As the game progressed, for the very young subjects (those from three to eight or nine years old) who gave an indication that they were tiring or that their attention span was lagging, I said: "If you are tired and don't want to carry on playing with these blocks, we can stop, okay?". If the subject agreed, the game was terminated and the subject was thanked for playing the game.

SUBJECT INFORMATION SHEET FOR SUBJECTS THREE YEARS OF AGE

1. The researcher will spend a short time as a visitor in the preschool of these age groups of children, to allow them to become accustomed to her presence. The researcher will be introduced as "Paula" from Wits University who is here as a visitor.

2. Each of the 10 three-year-olds will be approached by the child's teacher and the researcher. The researcher will tell the subject that she has a game she'd like them to play with, and will invite the subject to play the game with her. If the subject declines, then another subject will be approached.

3. In a designated area, the researcher will tell the subject that she has some blocks that they will be playing with (the blocks at this stage are covered over).

4. The researcher will introduce the research assistant by first name, and will tell the subject that she is here to watch us play the game.

5. The subject's attention will be drawn to the camera and subjects will be invited to look into the camera to see that it is focused on the game board. The subject will be told that the camera will film the board as we play the game.

6. For subjects of this age, the 'icebreaker' script will read as follows:

> What we have here are some toys that belong to children from a far-away country (perhaps somewhere near the North Pole?). The children in this country speak a different language.
>
> This is a talking and thinking game. While we are playing it, I would like you to talk to me about what you are thinking about, okay? You can tell me all sorts of things about the game as we play it. You can ask me questions too.

7. The blocks will be uncovered and the subject can inspect them. While they are doing this, the subject will be told that these blocks can be sorted into four groups (indicating each of the four corners) and that each of these groups has a name that means something in the language of these foreign children. The way the game works is to put the blocks into groups that the subject thinks belong together.

> There are four different kinds of blocks here. Each kind has a name. Each name means something in the language of these children from the North Pole. What we need you to do is to find these four different kinds of blocks and to put them into these four spaces (showing the four corner fields of the board).

8. The researcher will pick up the first sample block and turn it over so its label is clear. The researcher will put the block into the bottom left-hand corner, face up, and say:

> Let's start with this block, (turning up the triangular *mur*). See, its name is *mur* in the North Pole language. Now what you can do is pick out the blocks that you think are the same kind as the *mur* block, and put them here.

9. The subjects will be asked if they are ready to start.

> Let's start by asking you to pick out all the blocks that *you think* might belong to this kind, *mur*, and put them in this space. Take your time. You can talk to me as you go; you can tell me what you are thinking about, like why you think a block is a *mur* block. (from Sakharov, 1994, pp. 94-95; Hanfmann & Kasanin, 1937, p. 535)

10. As the game progresses, should any of the very young subjects give an indication that they are tiring or that their attention span is lagging, the researcher will say: "If you are tired and don't want to carry on playing with these blocks, we can stop, okay?". If the subject agrees, the game will be terminated and the subject will be thanked for playing the game.

SUBJECT INFORMATION SHEET FOR SUBJECTS UNDER THE AGE OF FOURTEEN

1. The researcher will spend time as a discrete observer in the classrooms of these age groups of children, to allow them to become accustomed to her presence. The researcher will be introduced as "Paula" from Wits University who is here as a visitor.

2. Each of the five children from each school in each particular age category will be approached by the child's teacher and the researcher. The researcher will tell the subject that she has a game she'd like them to play with, and will invite the subject to play the game with her. If the subject declines, then another subject will be approached.

3. In the designated area, the researcher will tell the subject that she has some blocks that they will be playing with (the blocks at this stage are covered over).

4. The researcher will introduce the research assistant by first name, and will tell the subject that she is here to watch us play the game.

5. The subject's attention will be drawn to the camera and subjects will be invited to look into the camera to see that it is focused on the game board. The subject will be told that the camera will film the board as we play the game.

6. For subjects of this age, the 'icebreaker' script will read as follows:

> What we have here are some toys that belong to children from a far-away country (perhaps somewhere near the North Pole?). The children in this country speak a different language.
>
> This is a talking and thinking game. While we are playing it, I would like you to talk to me about what you are thinking about, okay? You can tell me all sorts of things about the game as we play it. You can ask me questions too.

7. The blocks will be uncovered and the subject can inspect them. While they are doing this, the subject will be told that these blocks can be sorted into four groups (indicating each of the four corners) and that each of these groups has a name that means something in the language of these foreign children. The way the game works is to put the blocks into groups that the subject thinks belong together.

> There are four different kinds of blocks here. Each kind has a name. Each name means something in the language of these children from the North Pole. What we need you to do is to find these four different kinds of blocks and to put them into these four spaces (showing the four corner fields of the board).

8. The researcher will pick up the first sample block and turn it over so its label is clear. The researcher will put the block into the bottom left-hand corner, face up, and say:

> Let's start with this block, (turning up the triangular *mur*). See, its name is *mur* in the North Pole language. Now what you can do is pick out the blocks that you think are the same kind as the *mur* block, and put them here.

9. The subjects will be asked if they are ready to start.

> Let's start by asking you to pick out all the blocks that *you think* might belong to this kind, *mur*, and put them in this space. Take your time. You can talk to me as you go; you can tell me what you are thinking about, like why you think a block is a *mur* block. (from Sakharov, 1994, pp. 94-95; Hanfmann & Kasanin, 1937, p. 535)

10. As the game progresses, should any of the very young subjects (those of five to nine years old) give an indication that they are tiring or that their attention span is lagging, the researcher will say: "If you are tired and don't want to carry on playing with these blocks, we can stop, okay?". If the subject agrees, the game will be terminated and the subject will be thanked for playing the game.

11. Should the subjects not tire, and manage to solve the problem of the blocks successfully, they will be asked to resort the blocks again, now that they 'know' what the four groups are. The subjects will be asked if they can tell the researcher what each of the four groups *cev*, *bik*, *mur*, and *lag* have in common.

12. The blocks will then be removed and four glasses will be presented. The subjects will be asked if they can use the words *cev*, *bik*, *mur*, and *lag* to describe the glasses, and if they can, how they are able to do so.

13. The subjects will next be presented with four candles and asked if they can use the words *cev*, *bik*, *mur*, and *lag* to describe the candles, and if they can, how they are able to do so.

14. The subjects will be thanked for playing the game and asked to keep the game a secret until the other children who will be playing the game have played it too.

SUBJECT INFORMATION SHEET FOR ADOLESCENT SUBJECTS

1. Each of the five adolescents from each school will be approached by the subject's teacher and the researcher. The researcher will tell the subject that she has the problem-solving game that she wrote to them about, and the subject will be invited to play the game with her. If the subject declines, then another subject will be approached.

2. In the designated area, the researcher will introduce the research assistant by name, and will tell the subject that she is here to observe us playing the problem-solving game, which involves a number of wooden blocks.

3. The subject's attention will be drawn to the camera and subjects will be invited to look into the camera to see that it is focused on the game board. The subject will be told that the camera will film the board as we play the game, and that because the camera is focused on the board, the identity of the subject will be protected.

4. The researcher will tell that there are no right or wrong ways to solve the problem (the blocks at this stage are covered over). The subject will be told that the purpose of the game is that people go about solving problems in many different ways and what is important about it is to see the different ways that different people solve problems. The 'icebreaker' script for adult and adolescent subjects will read as follows:

> This is a thinking and talking activity. As mentioned to you in my letter, it is about the thinking strategies that people of all ages use to solve problems. There are no 'right' or 'wrong' ways of going about this. There is also no time limit. What we need you to do is to 'think aloud' as you go, and please feel free to ask me questions at any time.

5. The blocks will be uncovered and the subject can inspect them. The subject will be reminded that should they wish to withdraw from the research exercise, they are free to do so at any time.

6. The subject will be told that these blocks can be sorted into four groups (indicating each of the four corners) and that each of these groups has a name. The way the problem-solving task works by putting the blocks into groups that the subject thinks belong together.

> There are four different kinds of blocks here. Each kind has a name. This kind of block, for instance (turning up the triangular *mur*), is called a *mur* block. Your task is to find the four kinds of blocks and to put them into these four spaces (showing the four corner fields of the board). You might start by picking out all the blocks that you think might belong to this kind, *mur*, and putting them in this space. (from Hanfmann & Kasanin, 1937, p. 535)

7. The researcher will put the *mur* block into the bottom left-hand corner, face up. The subject will be told that if they have any questions, they are free to ask them.

8. The researcher will say:

> Take your time. You can talk to me as you go; you can tell me what you are thinking about, like why you think a block is a *mur* block.

9. Should the subjects not tire, and manage to solve the problem of the blocks successfully, they will be asked to resort the blocks again, now that they 'know' what the four groups are. The subjects will be asked if they can tell the researcher what each of the four groups *cev*, *bik*, *mur*, and *lag* have in common.

10. The blocks will then be removed and four glasses will be presented. The subjects will be asked if they can use the words *cev*, *bik*, *mur*, and *lag* to describe the glasses, and if they can, how they are able to do so.

11. The subjects will next be presented with four candles and asked if they can use the words *cev*, *bik*, *mur*, and *lag* to describe the candles, and if they can, how they are able to do so.

12. The subjects will be thanked for playing the game and asked not to discuss the problem-solving task with their peers until they have played it too.

SUBJECT INFORMATION SHEET FOR ADULT SUBJECTS

1. Each of the adult subjects will be approached by the HR manager and the researcher. Arrangements for participation will be made with the subjects to diarise a time for them to participate in the research exercise. At the appointed time, the subject will once again be invited to participate and informed that should they wish to decline, they are free to do so.

2. In the designated area, the researcher will introduce the research assistant by name, and will tell the subject that she is here to observe us with the problem-solving task, which involves a number of wooden blocks.

3. The subject's attention will be drawn to the camera and subjects will be invited to look into the camera to see that it is focused on the game board. The subject will be told that the camera will film the board during the session, and that because the camera is focused on the board, the identity of the subject will be protected.

4. The researcher will tell the subject that there are no right or wrong ways to solve the problem (the blocks at this stage are covered over). The subject will be told that the purpose of the game is that people go about solving problems in many different ways and what is important about it is to see the different ways that different people solve problems. The 'icebreaker' script for adult and adolescent subjects will read as follows:

> This is a thinking and talking activity. As mentioned to you in my letter, it is about the thinking strategies that people of all ages use to solve problems. There are no 'right' or 'wrong' ways of going about this. There is also no time limit. What we need you to do is to 'think aloud' as you go, and please feel free to ask me questions at any time.

5. The blocks will be uncovered and the subject can inspect them. The subject will be reminded that should they wish to withdraw from the research exercise, they are free to do so at any time.

6. The subject will be told that these blocks can be sorted into four groups (indicating each of the four corners) and that each of these groups has a name. The way the problem-solving task works by putting the blocks into groups that the subject thinks belong together.

> There are four different kinds of blocks here. Each kind has a name. This kind of block, for instance (turning up the triangular *mur*), is called a *mur* block. Your task is to find the four kinds of blocks and to put them into these four spaces (showing the four corner fields of the board). You might start by picking out all the blocks that you think might belong to this kind, *mur*, and putting them in this space. (from Hanfmann & Kasanin, 1937, p. 535)

7. The researcher will put the *mur* block into the bottom left-hand corner, face up. The subject will be told that if they have any questions, they are free to ask them.

8. The researcher will say:

> Take your time. You can talk to me as you go; you can tell me what you are thinking about, like why you think a block is a *mur* block.

9. Should the subjects not tire, and manage to solve the problem of the blocks successfully, they will be asked to resort the blocks again, now that they 'know' what the four groups are. The subjects will be asked if they can tell the researcher what each of the four groups *cev*, *bik*, *mur*, and *lag* have in common.

10. The blocks will then be removed and four glasses will be presented. The subjects will be asked if they can use the words *cev*, *bik*, *mur*, and *lag* to describe the glasses, and if they can, how they are able to do so.

11. The subjects will next be presented with four candles and asked if they can use the words *cev*, *bik*, *mur*, and *lag* to describe the candles, and if they can, how they are able to do so.

12. The subjects will be thanked for participating and asked not to discuss the problem-solving task with their colleagues until they have played it too.

Appendix Four In Search of Vygotsky's Blocks: Intervention Success with the Five-year-old Subjects

The range of actions and types of performances from these subjects varied considerably from the subject (S502F) who established size very early on, to the subjects (S508M and S505F) whose actions were almost completely random and whose attention spans were rather short. The two most imaginative subjects (S503F and S510M) varied in performance in that the first subject, whose attention meandered and frequently had to be brought back to the task at hand (back from Jack-in-a-boxes, boats, lamps, and dresses), was perceptually able to notice size and to resort the blocks successfully. The second subject (S510M) had a mind (and a game) of his own which took his attention away from the task at hand, and which I did not score as subjective and therefore syncretic, because of the collections he constructed at the beginning of his session. One subject was quite destructive with the blocks, throwing and flicking them around (S508M), whereas two subjects in particular (S506M and S504F) were extremely obliging, with the female subject having a great sense of humour and an astonishing attention span for so young a subject.

Only two subjects did not receive additional information, the first (S502F), because, in addition to her visual acuity skills, she was able to focus on the factor of size with a remarkable degree of consistency, and the second (S510M) because he was too intent on his own game. Of the eight subjects who did receive additional instruction, two benefited (S503F and S509M), in that they were able to resort the blocks successfully. For two of these eight subjects (S505F and S508M), additional instruction did not seem to benefit them, as the game was terminated before a resorting of the blocks could take place (yet even so, there was no noticeable difference in their engagement with the blocks after discussion and intervention).

This meant that the four remaining subjects who were given additional instruction were unable to benefit from it (S501F, S504F, S506M and S507M) because they were still not able to resort the blocks successfully. This result seems to confirm Hanfmann and Kasanin's (1942) observation that in the majority of cases (with adult subjects):

> the initial interpretation of the task could not be altered by any amount of detailed explanation. It is, in fact, one of the most striking experiences in giving the test, that one may explain the "correct" method of solution over and over again, and yet not achieve the desired change in the subject's procedure (p. 21).

The finding in terms of the efficacy of addition instruction has implications, I believe, for education, particularly with children of this age. Two of eight of them benefited from the additional instruction which ranged in the case of the first subject (S503F) from brief discussion on comparing the blocks, to quite intensive discussion and demonstrations with comparing the heights and sizes of all four sets of blocks. It would seem that, despite demonstrations on the concrete objects right in front of them, and involving the subjects in making these comparisons themselves, the conceptual mode that the children were operating within had a direct effect their ability to allow 'the word' to direct and focus their attention effectively (as Vygotsky noted over 70 years ago).

In addition to the function of 'the word', it would seem from the two subjects who were able to benefit from intervention that visual acuity skills and the ability to make the connections of the relationships between objects and words are also necessary prerequisites. All eight subjects used the

words (big and tall, small and flat, small and tall, and big and flat) during the intervention in a way which *seemed* to demonstrate that they had indeed managed to form a relationship between the perceptual, concrete objects and the words used to describe these; however, six of the subjects were unable to form a stable image of these concrete demonstrations, despite their use of these terms in the interventions. So, the children appeared to 'understand' during the intervention by their use of these words, but when asked to resort the blocks, four who did attempt to resort the blocks were not able to do so (as mentioned, the game was terminated for the two subjects whose attention spans had reached their limit). Of the two subjects who did resort the blocks correctly with intervention, the first had established some notion of size (S503F), whereas the second, because of his focus on colour and shape and his 'logical' way of describing what the groups had in common, had attempted to construct four groups from the outset (S509M).

Whilst it could be argued that attempting a demonstration, intervention, or 'learning experience' with four new concepts at the same time might be too great a challenge for children of this age, the finding here seems to me to be very much in line the findings of Hanfmann and Kasanin (even if mainly with adults) and with Vygotsky's reasoning as follows:

> At the same time, the role played by the word in complex thinking by no means coincides with its role in conceptual thinking. On the contrary, the very difference between the complex and the concept lies in the different functional uses of the word. The word is a sign, and as such it may be used in different ways depending on what kind of intellectual operation it is involved in. From this difference in the intellectual operations with the word springs the difference between complex thinking and conceptual thinking. (1986, pp. 139-140)

Appendix Five In Search of Vygotsky's Blocks: Zalkind, Inggs and Van der Veer (1930 and 2006)

Universiteit Leiden

Faxmessage

Faculty of Social and Behavioral Sciences
Faculty of Social and Behavioural Sciences
Department of Education

To	Paula Towsey
Attn.	
Faxnr	+2711 267 4295
Date	April 5, 2006
From	Rene van der Veer
Phone	+31 71 527 3441
Subject	Xerox paper
Page(s)	4 (this frontpage included)

Dear Paula Towsey,

On behalf of Rene van der Veer I send you a xerox of the paper in Russian.

Cordially,

Reineke Mom
Secretary

Pieter de la Court building
Wassenaarseweg 52
P.O. Box 9555
2300 RB Leiden The Netherlands
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ПСИХО-НЕВРОЛОГИЧЕСКИЕ НАУКИ в СССР

(Материалы I Всесоюзного съезда по изучению поведения человека)

Ответственный редактор —
А. Б. ЗАЛКИНД

ГОСУДАРСТВЕННОЕ МЕДИЦИНСКОЕ ИЗДАТЕЛЬСТВО
МОСКВА ★ 1930 ★ ЛЕНИНГРАД

ментом и определяется качественное отличие психики человека, как субъективной стороны процесса поведения человека; ее объективным субстратом является поведение человека, строющееся на основе социально организованного труда или в связи с социально-организованным трудом. Именно на этой основе развивается членораздельная речь, без которой невозможно абстрактное мышление. Именно на этой основе возникает способность к образованию понятий, без которых невозможно предвидение, ибо без них невозможно познание о т н о ш е н и й между вещами, причинно-следственных связей между ними. Сознание определяется общественным бытием не только в смысле с о д е р ж а н и я сознания, но и в смысле самой с п о с о б н о с т и сознания.

8. Диалектико-материалистическая постановка проблемы сознания в настоящее время полностью подтверждается данными этнологии, педологии, палеонтологии языка, сравнительной психологии и физиологии высших отделов центральной нервной системы. Дальнейшее развитие научной психологии человека невозможно без учета этих данных. Проблема сознания является центральной проблемой научной психологии человека. Основным методом к разрешению этой, а равно и других проблем научной психологии человека является метод социологический, вскрывающий закономерности социальной детерминации поведения человека — его активности во взаимоотношениях со средой. Научная психология оперирует методами физиологическим, объективного наблюдения и связанного с ним эксперимента. Под контролем этих объективных методов она применяет и метод интроспективный. Однако, применение этих трех рабочих методов направляется и регулируется методом социологическим. Центральная проблема научной психологии — проблема сознания и ставится и разрешается только в условиях применения социологического метода.

Экспериментальное исследование высших процессов поведения.

Л. С. Выготский.

1. Изучение высших процессов поведения, ставящее перед собой задачу анализа этих процессов, адекватного их психологической природе, и пытающееся раскрыть специфическую функциональную структуру высших форм поведения человека, необходимо должно опираться на специальную методику экспериментального исследования, соответствующую объекту и целям исследования. Функциональная методика двойной стимуляции является опытом построения подобного экспериментального анализа высших процессов поведения.

2. Экспериментальное исследование процесса образования понятий показало, что функциональное употребление слова или другого знака, в качестве средства активного направления внимания, расчленения и

и необходимой частью всего процеса в целом; образование понятия (или приобретение словом значения) является результатом сложной активной деятельности (оперирование словом или знаком), в которой участвуют все основные интеллектуальные функции в своеобразном сочетании.

3. Экспериментальное исследование процессов сложного выбора (свободного и связанного) показало: а) что сложная реакция выбора строится по типу мнемотехнической операции, опирающейся на вспомогательные стимулы (знаки, слова), в) что реакция свободного выбора включает в себя процесс образования мотивов и процесс решения, также опирающиеся на вспомогательные стимулы.

4. Экспериментальное исследование других высших форм поведения (т. наз. активного запоминания, активного внимания) показало, что функциональная структура этих процессов родственна по типу и динамической конструкции опосредствованным интеллектуальным операциям, включающим функциональные использование знака в качестве средства овладения процессами собственного поведения, как свою необходимую и центральную часть.

5. Таким образом, ряд исследований приводит к выводу, что вскрытая с помощью экспериментального анализа сигнификативная (связанная с активным употреблением знаков) структура является общим законом построения высших форм поведения. Центральная роль в динамике процессов этого типа принадлежит речи.

Деятельность и побочное раздражение.

И. М. Соловьев

1. Среда, в которой протекает деятельность человека, едва ли когда нибудь вполне свободна от сторонних для данной деятельности раздражений и ограждена от возможности их появления. Наше исследование направлено на изучение влияния, которое оказывает на поведение раздражение не принадлежащее к группе раздражений, определяющих данную конкретную деятельность и требующее несовместимой с ней реакции.

2. Проделанные ранее по интересующему вопросу экспериментальные работы, обычно группирующиеся под общим именем «исследований отвлечения внимания», установили лишь то, что стороннее раздражение может не оказать никакого действия, но обычно приносит ущерб деятельности, а порою даже улучшает выполнение деятельности «к большому удивлению экспериментаторов». Однако мы не находим сколько-нибудь глубокого анализа как условий, которые порождают столь, различный результат действия стороннего раздражения, так и зависимости эффекта от характера воздействия

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Paula M Towsey
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To **Ms Reineke Morr**
Secretary to Professor René van der Veer
University of Leiden
Faculty of Social and Behavioural Sciences
Department of Education

Fax **+31 71 527 3945**

Subject **Xerox papers (sent to me 5th April 2006)**

Dear Ms Morr

I apologise if I have spelt your surname incorrectly, but it was not easy to read from your fax.

Thank you very much for sending me the Xerox copies of the paper A.B. Zalkind / L.S. Vygotsky, but I need to ask if you could resend it to me because there appears to be text missing from the bottom of page 70 (the second sheet of text), and my translator needs to be clear about this. In the copy you sent me, page 70 ends with point number 2 having three lines of text – is this how it is in the original or is there a line of text that did not get copied or faxed properly and is therefore missing?

I apologise for inconveniencing you, but I really would appreciate it if you could help me with this query.

Thank you very much

Paula Towsey
(Fax Number +2711 267 4295)

Dear Miss Towrey,

on my copy the last line is hardly legible but it can still be reconstructed as follows:

2. _____ 1st line
_____ 2nd line
в качестве средства активного направления } 3rd line
внимания, расселения и

выделения признаков их абстрагирования и } 4th line
синтеза является основной

и необходимой _____ next page

) hope this solves your problem!

Best wishes,

(René van der Veer)

(Translation by Dr Judith Inggs, University of the Witwatersrand, in combination with recommendations from Professor René van der Veer, University of Leiden, 15 May, 2006.)

Psycho-neurological science in the USSR

(Material from the 1st All-Soviet Conference on the study of human behaviour)

Editor: A. B. Zalkind
State Medical Press
Moscow 1930 Leningrad

Experimental research on higher behavioural processes

L. S. Vygotsky

1. The study of higher behavioural processes, which involves finding a method of analysis appropriate to their psychological nature, and seeking to discover the specific functional structure of higher forms of human behaviour, has to be grounded in a special method of experimental investigation corresponding to the object and aims of the research. The functional method of double stimulation is an attempt to create such an experimental analysis of higher behavioural processes.

2. Experimental research into concept formation processes has shown that the functional use of a word or another sign, as a tool for actively directing attention to specific characteristics, separating and isolating them, and then abstracting and synthesising these characteristics, is a fundamental and essential part of the entire process; the formation of a concept (or the acquisition of meaning through a word) is the result of a complex activity (an operation using a word or a sign) in which all the fundamental intellectual functions are involved in a specific combination.

3. Experimental research into complex choice processes (free and combined) has shown: a) that the complex choice process is built on a type of process that has similarities with mnemotechnical operations, based on auxiliary stimuli (signs, words), and b) that the reaction of free choice includes the process of motive formation as well as the process of decision-making, which also rests upon auxiliary stimuli.

4. Experimental research into other higher forms of behaviour (so-called actively remembering, actively paying attention) has shown that the functional structure of these processes is related by type and dynamic construction to mediated intellectual operations, which involve the functional use of a sign as a means of mastering processes of one's own behaviour as its essential and central part.

5. Thus, a number of investigations have led to the conclusion that the signifying (i.e., linked to the active use of signs) structure, revealed through experimental analysis, is the general law of the construction of higher forms of behaviour. Language plays a central role in the dynamics of these kinds of processes.

(Input received from Professor René van der Veer, University of Leiden, 08 May, 2006.)

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3. Experimental research into processes of complex selection [complex choice processes] (free and combined) has shown: a) that the complex reaction of selection [the complex choice process] is built on a type [AS a type, meaning: it has similarities with mnemotechnical operations] of mnemotechnical operation, based on auxiliary stimuli (signs, words), and b) that the reaction of free selection [free choice] includes the process of motive formation as well as the process of decision-making, again based on the [which also rest upon] auxiliary stimuli.

4. Experimental research into other higher forms of behaviour (so-called actively remembering, actively paying attention) has shown that the functional structure of these processes is related by type and dynamic construction to mediated [opsredstvovannym] intellectual operations, which include/involve the functional use of a sign as a means of mastering processes of one's own behaviour as its essential and central part.

5. Thus, a series/number of investigations have led to the conclusion that the signifying [signifikativnaya] ([i.e.,] linked to the active use of signs) structure, revealed through experimental analysis, is the general law of the construction of higher forms of behaviour. Language plays a central role in the dynamics of these kinds of processes. [The central role in the dynamics of these kinds of processes belongs to speech]

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