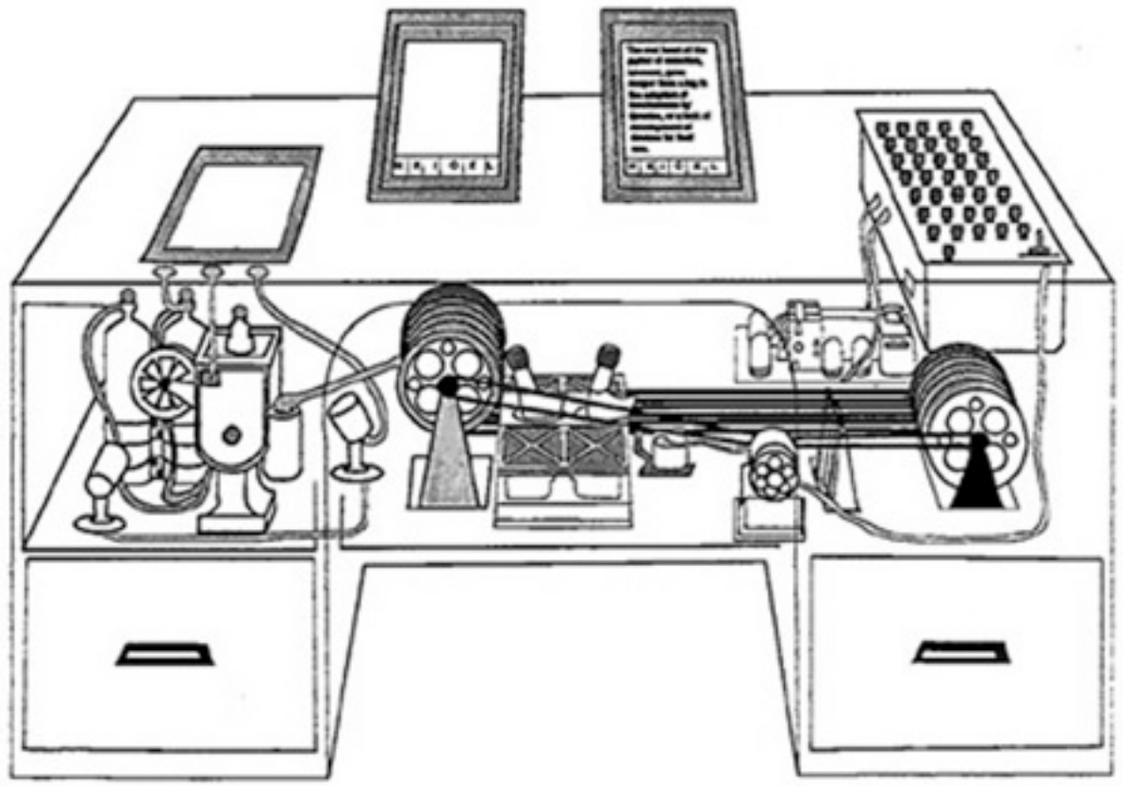
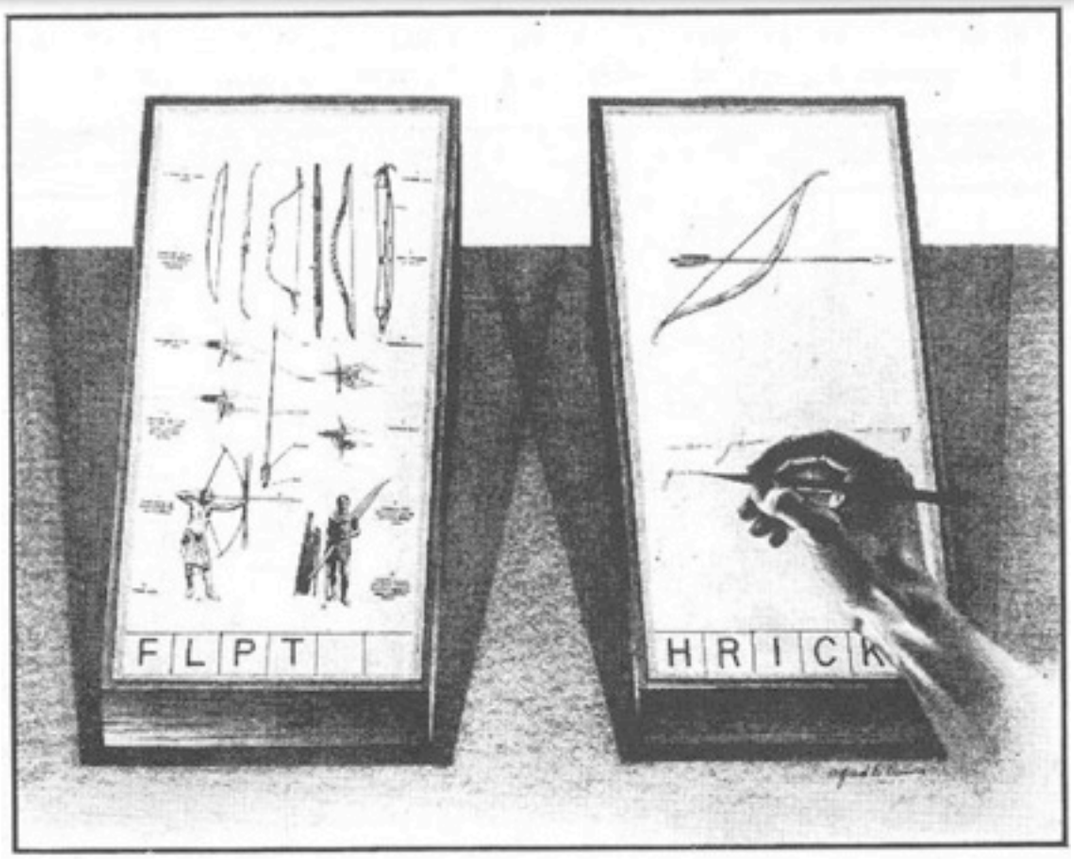
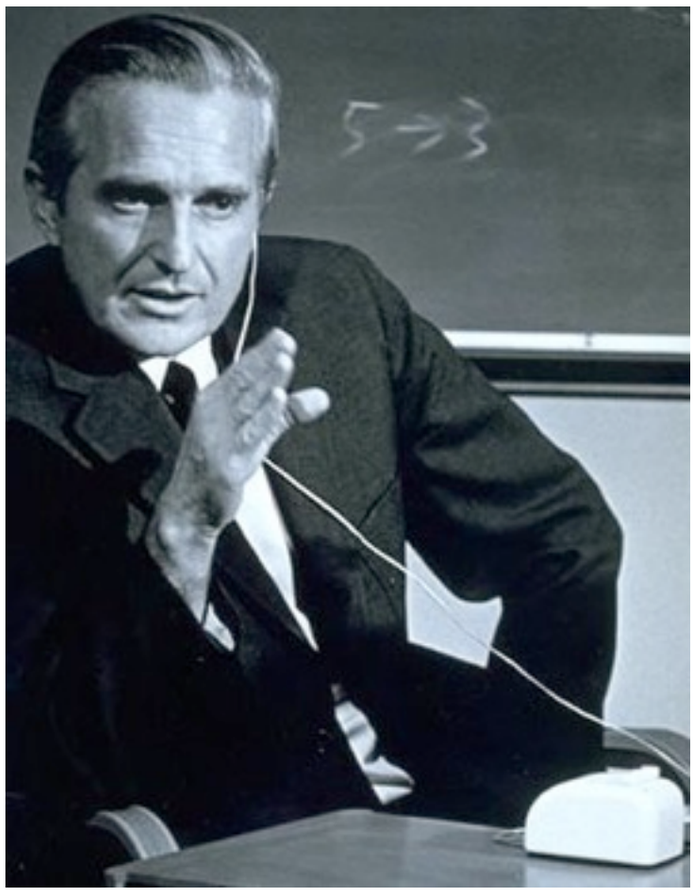
Advanced One-to-One Computing: Context and Introduction

Ruben R. Puentedura, Ph.D.

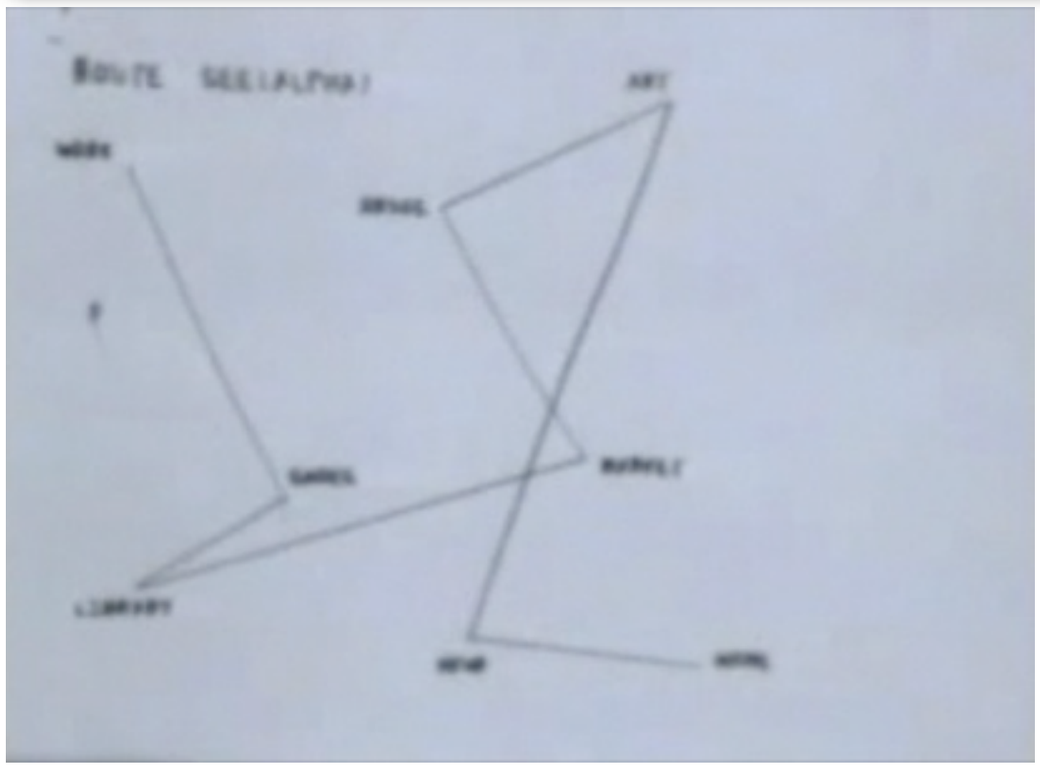


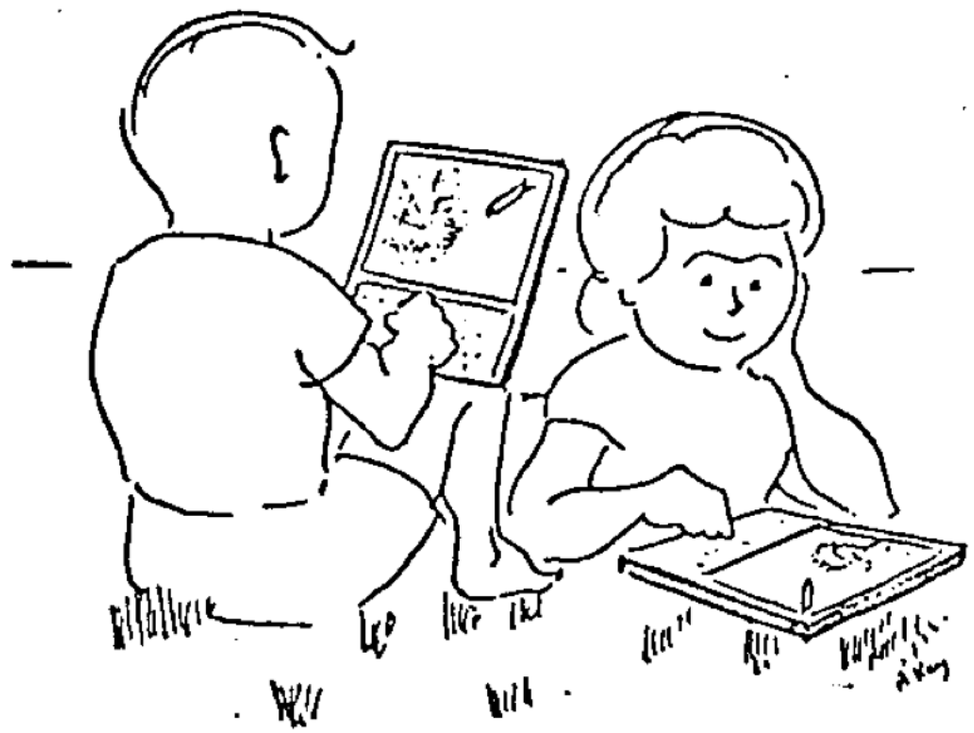
AS WE MAY THINK



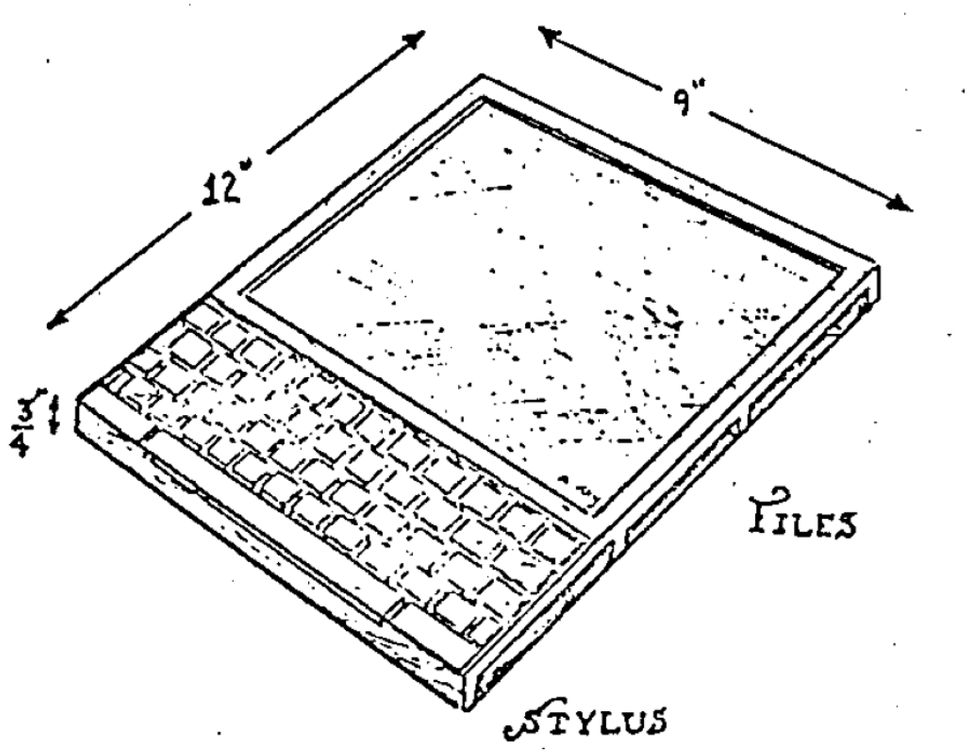


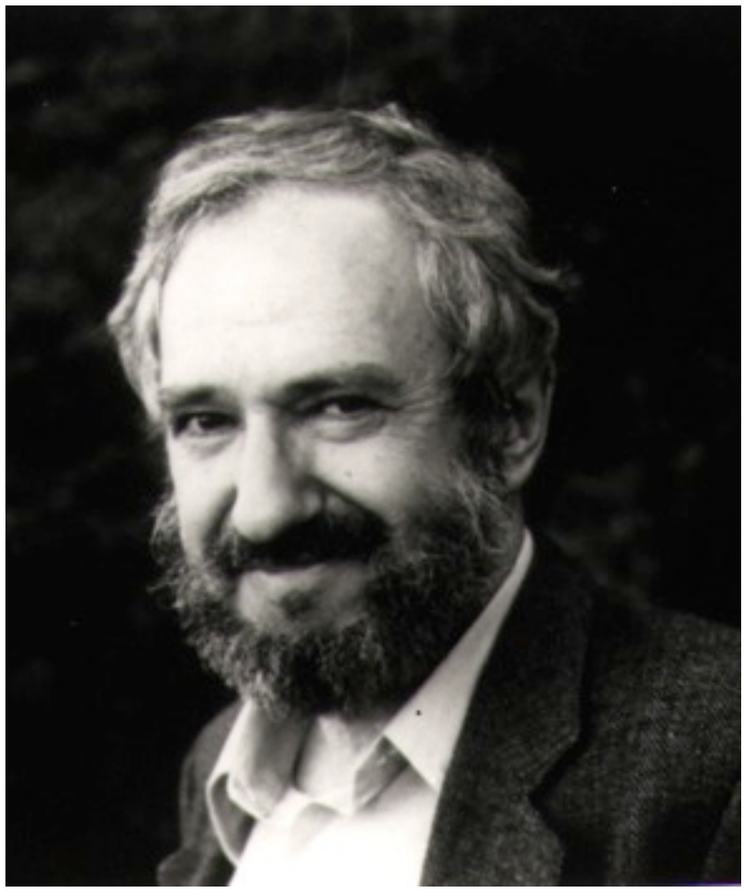
a research center for augmenting human intellect





A Personal Computer for Children of All Ages





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TO POLY :ANGLE :STEP
1.   FORWARD :STEP
2.   RIGHT :ANGLE
3.   POLY :ANGLE :STEP

END
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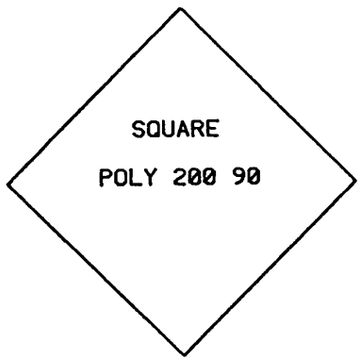
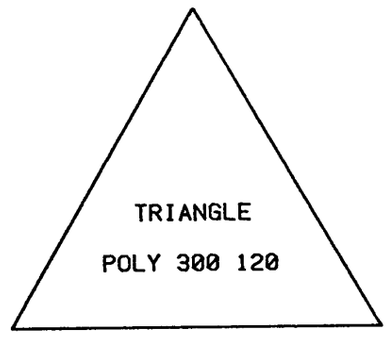
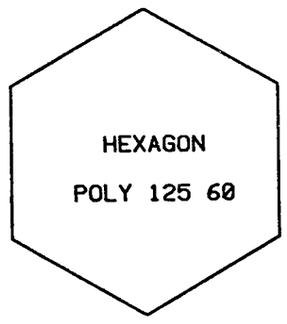
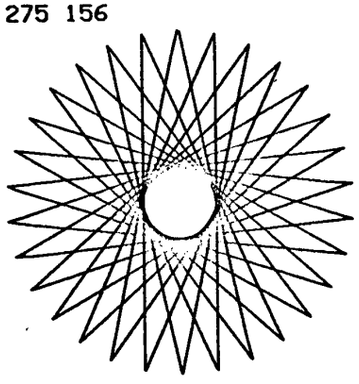
ON MAKING A THEOREM FOR A CHILD

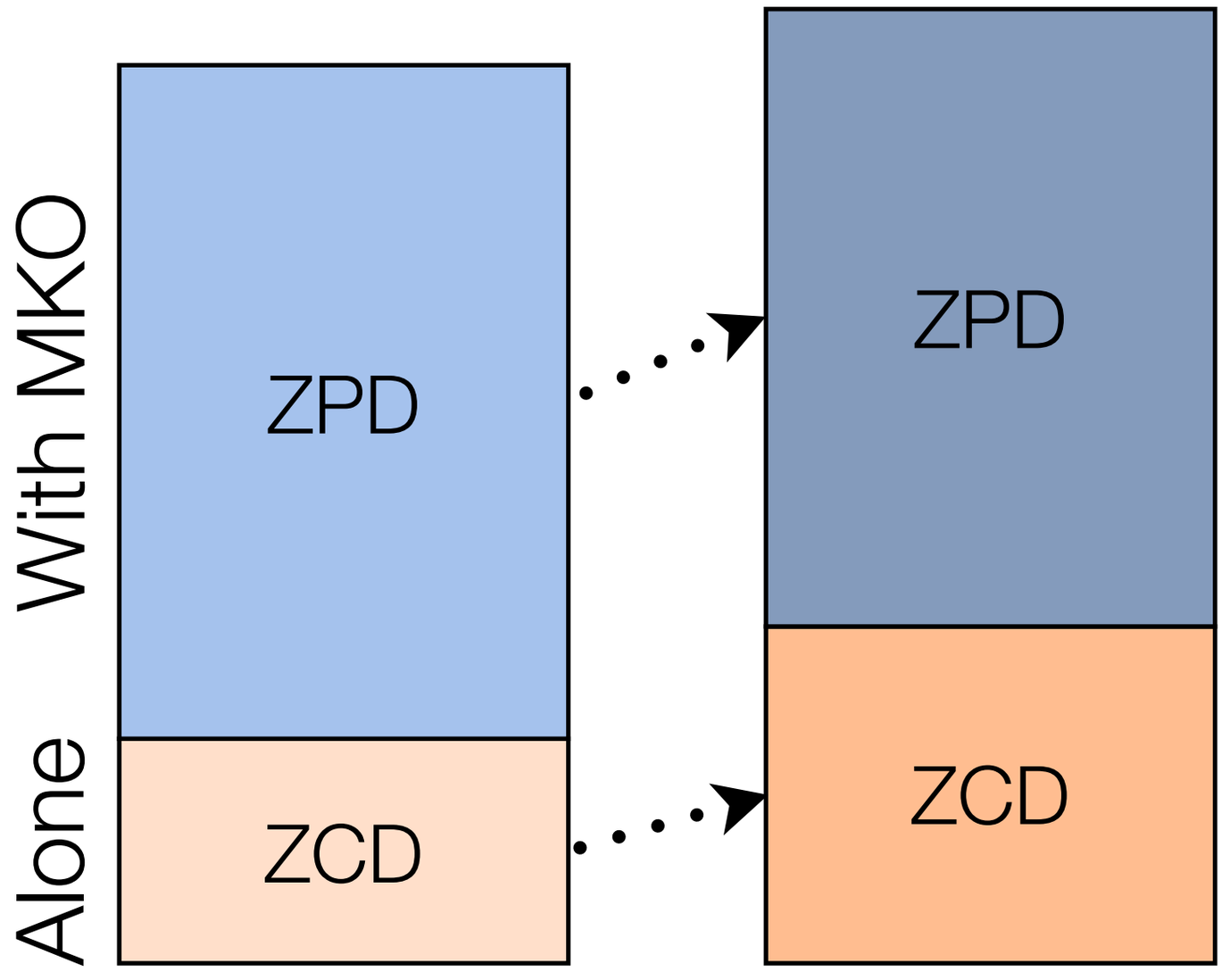






POLY 275 156




With MKO
Alone
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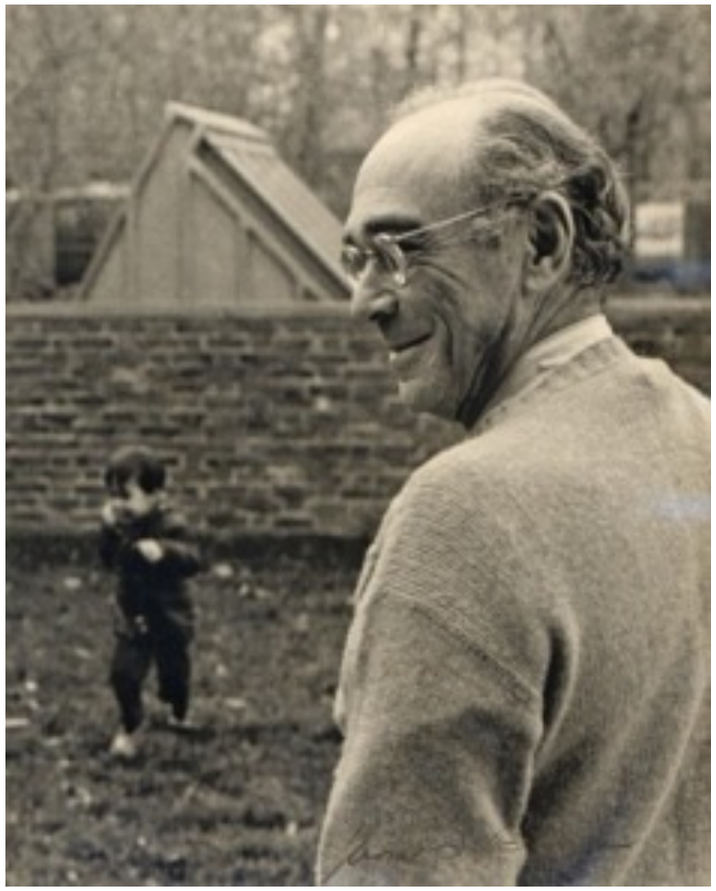
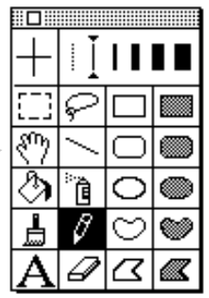
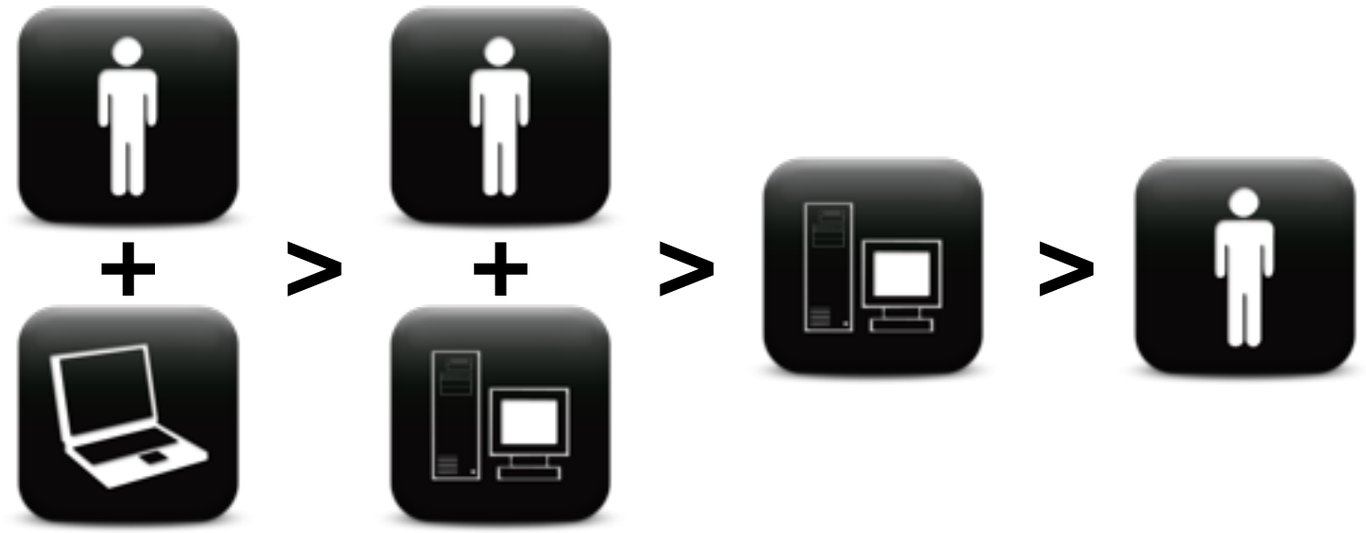
ZCD
ZPD
ZCD



Enactive Iconic Symbolic




COMPUTER
SCHACH UND SPIELE
Freestyle
Chess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A B C D E F G H

TABLE I

Effect of selected alterable variables on student achievement (see Appendix)

		Effect size	Percentile equivalent
D[a]	Tutorial instruction	2.00	98
D	Reinforcement	1.20	
A	Feedback-corrective (ML)	1.00	84
D	Cues and explanations	1.00	
(A)D	Student classroom participation	1.00	
A	Student time on task	1.00[b]	
A	Improved reading/study skills	1.00	
C	Cooperative learning	.80	79
D	Homework (graded)	.80	
D	Classroom morale	.60	73
A	Initial cognitive prerequisites	.60	
C	Home environment intervention	.50[b]	69
D	Peer and cross-age remedial tutoring	.40	66
D	Homework (assigned)	.30	62
D	Higher order questions	.30	
(D)B	New science & math curricula	.30[b]	
D	Teacher expectancy	.30	
C	Peer group influence	.20	58
B	Advance organizers	.20	
	Socio-economic status (for contrast)	.25	60

Note. This table was adapted from Walberg (1984) by Bloom.

[a]*Object of change process*—A-Learner; B-Instructional Material; C-Home environment or peer group; D-Teacher.

[b]Averaged or estimated from correlational data or from several effect sizes.

Pre- and Post-Assessment Results					
Group	**Pre-Assessment**		**Post-Assessment**		
	Mean of Student Scores	Standard Deviation	Mean of Student Scores	Standard Deviation	Post-Assessment Effect Size
Group A	52.38%	20.52	81.25%	15.94	.61
Group B	42.36%	19.93	90.97%	12.03	

Retention Assessment Results			
Group	**Retention Assessment**		
	Mean	Standard Deviation	Effect Size
Group A	63.08%	17.02	1.42
Group B	87.27%	9.04	

Research Process

Writing Process

Digital Citizenship

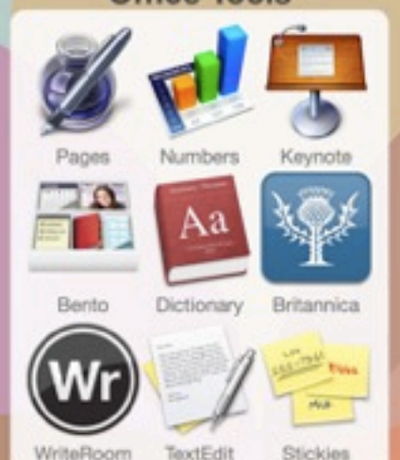
Making Meaning

Digital Storytelling

UDL/Accessibility

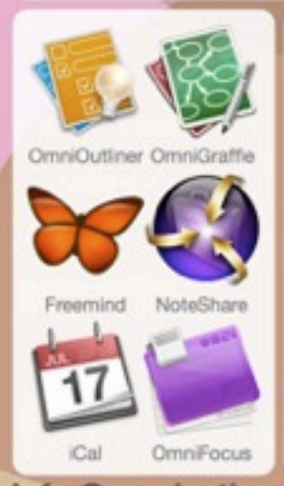
Internet Tools

Office Tools



Math & Science Tools

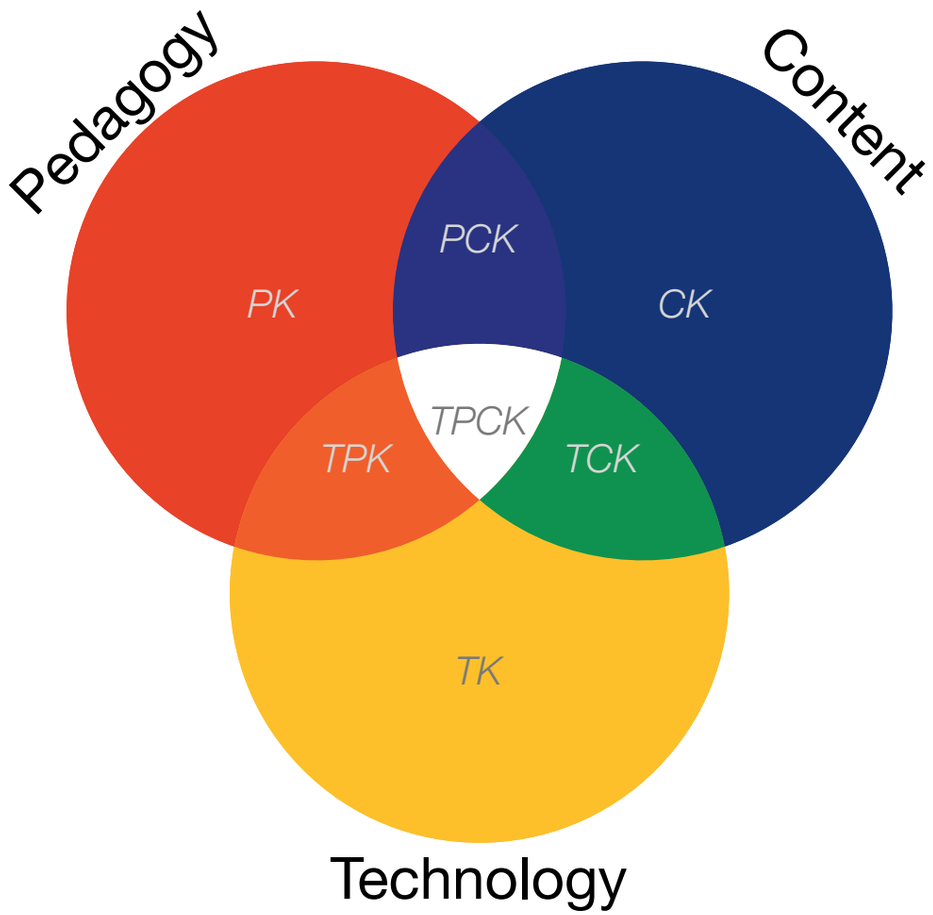
Info Organization

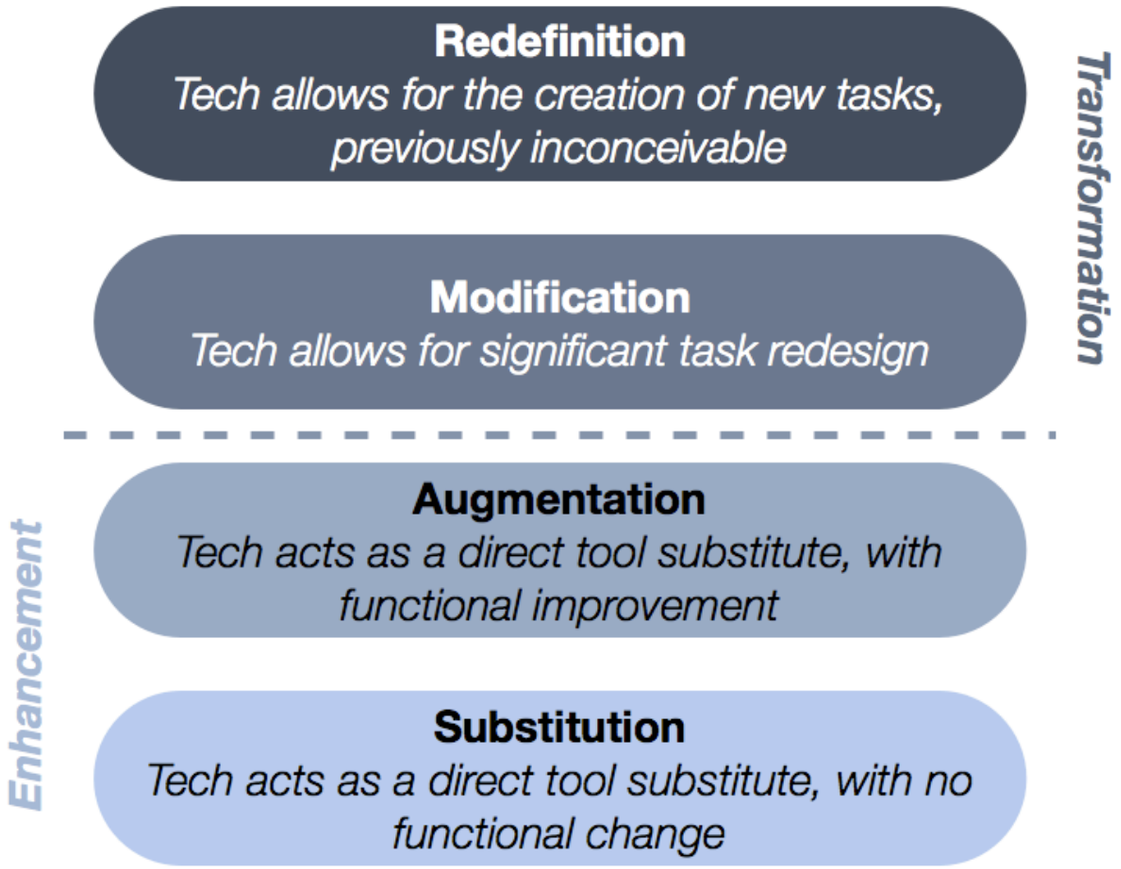


Media Tools

Educational Games

Utilities


Pedagogy
Content
PK
PCK
CK
TPCK
TPK
TCK
TK
Technology


Redefinition
Tech allows for the creation of new tasks, previously inconceivable
Modification
Tech allows for significant task redesign
Transformation
Augmentation
Tech acts as a direct tool substitute, with functional improvement
Substitution
Tech acts as a direct tool substitute, with no functional change
Enhancement

Social Computing

Digital Storytelling

Social

Narrative

Transformation

Visual

Play

Visualization and Simulation

Educational Gaming

Curricular Development and Assessment

- Curricular Development
  - The Connected Approach to Learning
    - Connections between subject areas
    - Connections within subject areas
  - Asking how we know what we know
    - Ways of knowing in the humanities, arts, sciences, and mathematics
    - Nonsense detection filters
  - Integrating theoretical domains with applied practice
    - Micro theory into macro observation
    - Macro theories into micro observation
- Assessment
  - Assessment for Learning
  - Assessment of Learning
  - Assessment of Technology in Learning

Three Additional Key Elements

- Triage Approach
- 80/20 Rule
- Shift from "school + homework" to "continuum of learning environments"

Resources – Part 1

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Resources – Part 2

- Benjamin S. Bloom, “The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Thinking”. *Educational Researcher*, Vol.13, No. 6, pp. 4-16. (June-July 1984) Online at: http://web.mit.edu/5.95/readings/bloom-two-sigma.pdf
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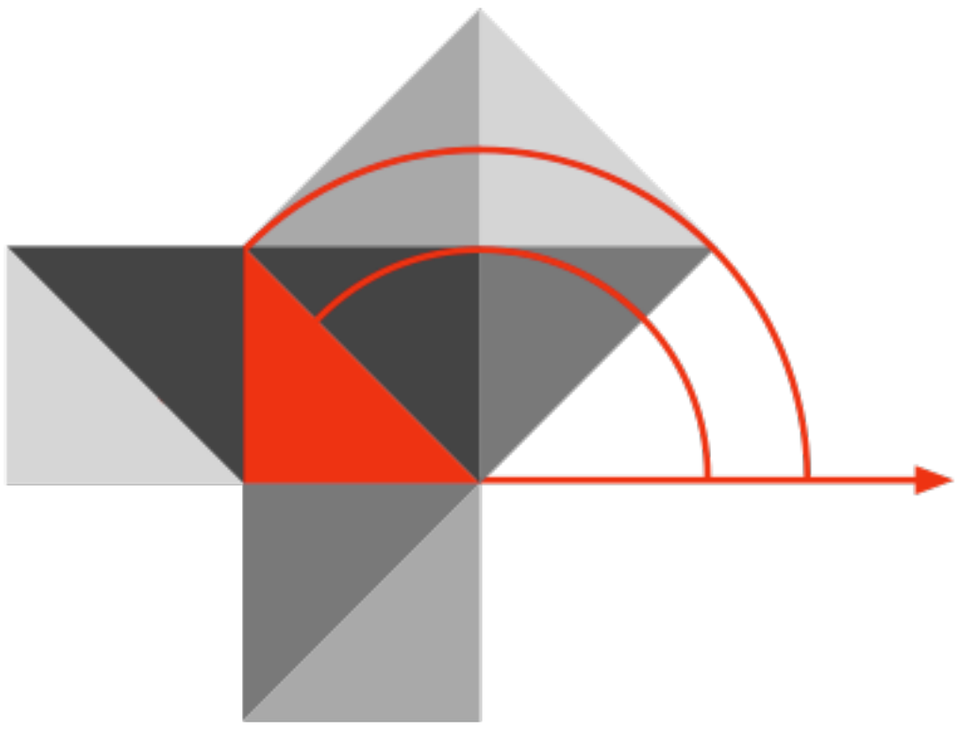
Hippasus



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