

# Revisiting the Dynabook concept

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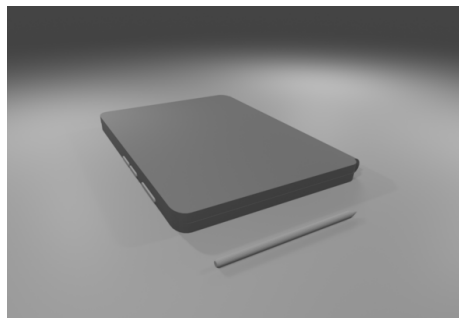


# About me

- Educator in public school, Geneva, B.Math, Ma.Ed
- Computer scientist, Ma.CS, PhD.CS
- Free software enthusiast and user since 1998
- And of course, Smalltalk user since 2002

# Contents

- 1 Why this presentation?
- 2 In essence, what is Dynabook?
- 3 Changing the Point of View
- 4 Where are we?
- 5 How to get involved?



# The cashier register of education

- The Dynabook is a concept
- In school, dynamic numeric tool mostly not used
  - ⇒ compare to the other sectors of the society

# Not this cashier register



# But more like this one



⇒ We need a dedicated hardware and software environment for a meaningful use in education

# To get you involved

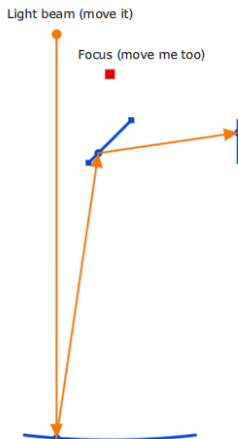
- Educator, professor
- Benefactor
- Student at university
- Economist
- Software developer
- Project manager
- Hardware specialist
- Designer
- System administrator
- ...

Dynamic model of knowledge  
the user can design and/or operate



# Dynamic model of the *Newton Telescope*

The learner can operate a different level of knowledge light beam, focus point (change the mirror curve)



# Teacher

What is a teacher?

- Yes, an educator. Manipulating, designing, sharing knowledge.  
⇒ Library of dynamic knowledge models, scriptable with a DSL and/or GUI (think **Dr. Geo**, keynote **Tuesday 9/11 at 11:00**)
- ... but also a manager
  - managing student
  - managing assignment
  - managing grade
  - managing meeting
  - managing parents
  - ...

Any realistic Dynabook revisit should take these aspects in consideration.

# Kid

Can we reduce the bag wight?

I have seen lightweight students assigned with mountain of materials:

- >10 binders
- >10 books
- >10 activity files
- numerous notebooks

Any realistic Dynabook revisit should take theses aspects in consideration.

# Software environment

What do we need?

- Free software from the basement (OS) to the attic (end user applications)
- Rapid prototyping
- A malleable environment to develop knowledge models with state of the art visual representation
- Easy to implement DSL to script knowledge models
- Portable to different hardware architecture

⇒ Cuis-Smalltalk to develop end user applications and knowledge models

# Free Hardware

Design there  
Manufacture anywhere

# Economic

Large scale adoption in one place, also require local economic benefits on that place:

- Software support
- Assembling/Manufacturing
- Repairing
- Training

⇒ Free software & hardware as prerequisites

# Is there any plan?



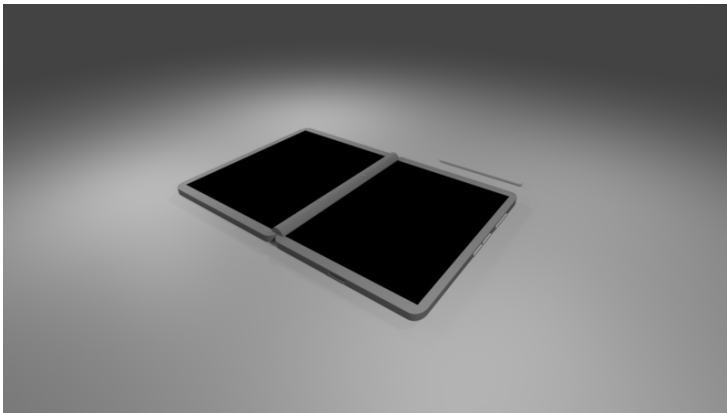
# Roughly

## Iterations

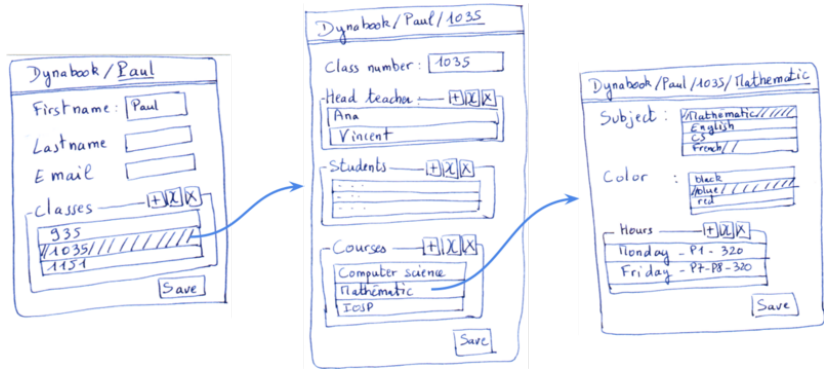
- ➊ **Develop the Dynabook app** (me, but join!)
- ➋ Test Dynabook app in school and iterate with the development (1 or 2 teachers)
- ➌ Develop hardware prototype with existing hardware
- ➍ Develop Dynabook operating system
- ➎ Test Dynabook app in school and iterate with the development (tenth of teachers)
- ➏ Test Dynabook in school and iterate on the hardware and software (1 or 2 teachers/students)
- ➐ Test Dynabook hardware and software with one classroom (30 users, students and teachers)



# Visual Concepts







# Management - Concept



# Management Viewer

Untitled Window

Hilaire's Dynabook CO Foron 932 Mathématiques

Periods—

Monday (315)  
Tuesday (315)  
Wednesday (315)  
Friday (315)

Teacher—

Unknown person





Topics—

Rational Number  
Triangle

Edit Save

# Management Editor

Untitled Window

Hilaire's Dynabook CO Foron 932

Information

Number

Accept

Head teacher

Firstname

Lastname

Email

Accept

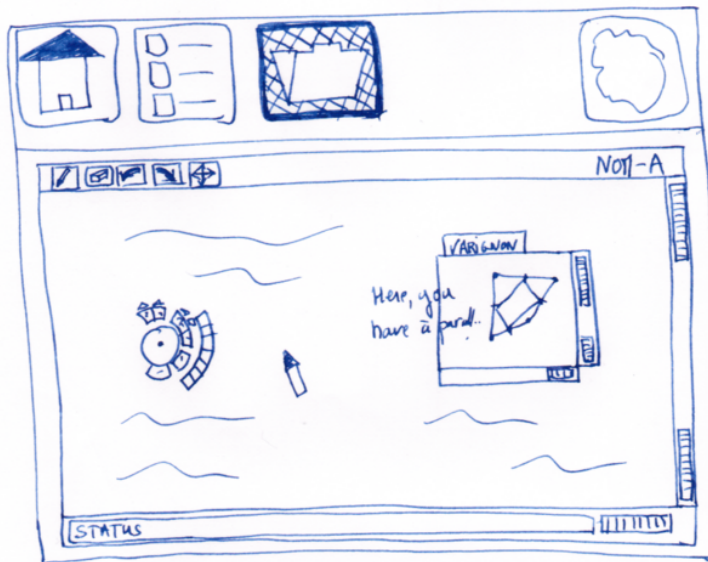
Lessons

Histoire

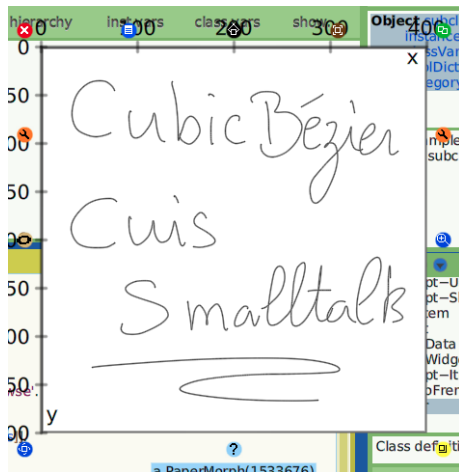
Mathématiques

Students

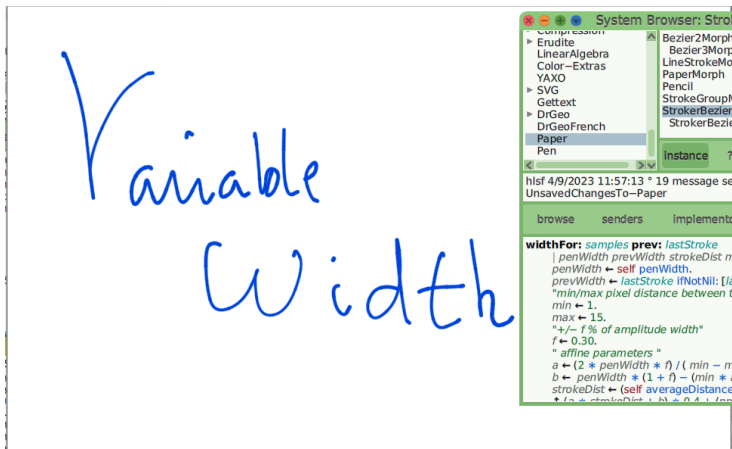
# Knowledge environment



# Paper Morph



# Paper Morph – Pressure emulation



# 1. Who & What?

- Educators
  - ⇒ Write the specifications of interactive knowledge models in your domain
  - ⇒ Review, compile existing pedagogical resources – under free license
- Software developers
  - ⇒ Participate to the Dynabook.app design
  - ⇒ Code with Cuis-Smalltalk interactive knowledge model and DSL
- Professors
  - ⇒ Student projects



## 2. Who & What?

- Economists
  - ⇒ Prospective on economic benefits
  - ⇒ Environmental impacts
- Hardware specialists
  - ⇒ Participate to the Dynabook hardware specification and design
- Benefactors
  - ⇒ Set up a foundation to support the software and hardware specifications, design and development

*If everything you try works. You aren't trying hard enough.*

– Gordon Moore

`http://github.com/hilaire/dynabook`