Simulate to Stimulate
Lowering the Cost of Print Teaching

Knowledge Management meets the NIP

GATF Teacher's Conference: 10/08

Peter Herman,

How/Why do Simulators Fit in a Training Program ?

130 institutions in 25+ countries use simulators as a learning tool
Some have 1 simulator, some have >20

Over 1500 simulators installed worldwide
(in education and industry)

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No:

A minimum of "Hands-on" work on a press is essential,

handling plates and ink; setting rollers and fitting blankets;

running up to color and control of ink/water balance.

Yes:

Schools that cannot invest in a new press find that the simulator is a very good alternative.

Many schools keep a 2/4 color press and add Simulators

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Yes:

- Simulators increase familiarisation and confidence of press operation - before and after using a real press.

- Follow-up simulation sessions reinforce practical press exercises.

This means less "real"press operating hours are required per student.

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- **A simulator allows using "simple" 2-color press**
  - *Learn basics, practice problem solving on simulator*

- **Extend useful life of an existing training press**
  - *Don't need to add 4/6 color presses*

- **Less operating hours per student :**
  - *increased capacity to train more people on press*

- **Less press costs**
  - *Less cost for energy, paper, ink, other consumables, parts and maintenance*

- **Lower risk of accident, injuries and damage**
  - *Breaking a press part costs less on a simulator*

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What are the Comparative Costs ?

Press Type	Press Cost $/€	Simulator Cost (% of press cost)	Comments
Sheetfed 2 color	250 000	$ 10,000 (4% of press) Included in 6 color	*As separate press type*
4 color	1,000,000	$ 10,000 (1% of press) Included in 6 color	*6 units, with 4 active*
6 color/coater	2,000,000	$ 10,000 (0.5% of press)	*6 units & coater*

Flexo 6-8 Color	500,000- 2,000,000	$16,000 (1-3% of press) *(3x less if you consider all 3 press types)* Wide,Narrow,Corrugated	*Simulator includes all 3 press types*
Heatset 1 Web	2-8,000,000	26,250 (0.3-1% of press)	*Schools often have several sheetfed or flexo and 1 heatset*

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- **<u>You learn by making mistakes</u>**
  - *They cost less on a simulator*

- **Simulators increase overall learning efficiency**

- **Simulation exercises reinforce printing "experience"**

- **Problem occurrence and resolution more available**

  Many occur only rarely on a real press : these can be created easily on a simulator

- **Reduced press operating hours per student**

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An example (from users)

- Set a problem on the press

  - *Show the students the results*

- Set the same problem on the simulator

  - *Let the students make their mistakes and find the best solution – no cost.*

  - *Have them explain their solution in terms of the printing process*

- Go back and solve the problem on the press.
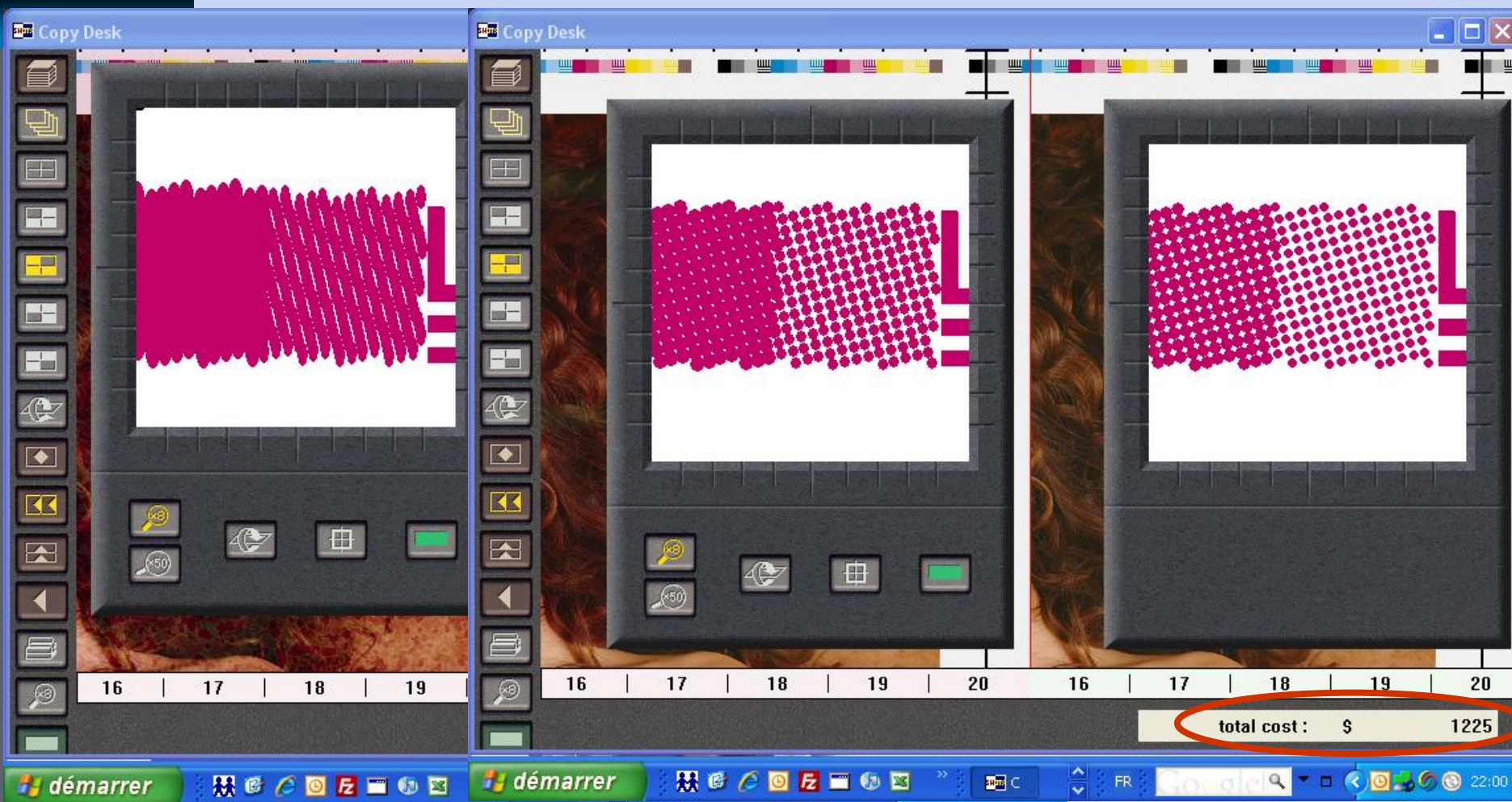
Check the cost at the right of the screens: you can set your own.

Every Action (or inaction) has a cost –

and trying to fix these with ink flow certainly wouldn't work

Sinapse Print Simulators

Simulators & Software for the Graphic Arts – www.sinapseprint.com

- **Simulators act as a "practice press"**

- **A full set of student and administrator workbooks.**

  Student workbook to learn press and simulator

  > *50 problem scenarios to get used to press settings, quality control tools, and problem solving*

  > *150 additional scenarios to take them further*

  > *All cross referenced to GATF Training Program (Sheetfed)*

  Administrator versions show both problems and solutions

- You decide the best way to integrate this at your site

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- Full set of "trace files" for each student and session

  The problem, the actions, the costs, the results

- Automatic Trace Analysis

  Compare what the student did, against the "good" solution

  Highlight the differences in checks, actions, results, costs

Use the Workbooks to follow progress

  they are "proof of training"

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Automated Session Analysis (ASA)

The ASA compares the trainees session history to a "reference solution", and shows the results in different ways.

The Green, Orange and Red lights indicate whether the trainee results were within 'n' % of the reference

SHOTS
SHEETFED OFFSET TRAINING SIMULATOR

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PRINTING INDUSTRIES OF AMERICA
Advancing Graphic Communications

Technical Training

Certificate of Completion N°_____

Level 1 - *Introductory Sheetfed printing, color and quality control, and problem-solving*

We recognize that in completing the Level 1 (introductory SHOTS workbook) exercises and successfully resolving the problem-solving tests on the SHOTS simulator,_____student name to be filled in_____ has acquired a basic knowledge of Sheetfed press functions, color and quality control and has started to apply good problem-solving techniques.

I_____name of trainer_____ from_____name of training institute_____ certify that_____student name to be filled in_____ has submitted solutions for all the workbook exercises, and has, in my presence on_____date_____, successfully completed the review and test exercises for this level.

SHEETFED OFFSET TRAINING SIMULATOR

For Printing Industries of America

James A. Workman

J. Workman
Vice President, Training

For Sinapse Print Simulators

Thierry Mack
Product Support Manager

For Training Institute:_____

Sinapse Certified Trainer:
Name:_____
Title:_____
Date:_____

Schools already have diplomas, but

Certificates are great for Outreach work,

and can give students a « progress report »

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Print-oriented Computer Game

the lowest cost and best quality are the winners.

"Self-driven, technology-based training" (RRD)

- Simulators make training more interesting **and effective**

  The "Fun" motivates students (Nintendo Generation)

- Training can include informal competitions and awards

  Associating a "game" with an analysis is not possible on a real press *(We'll talk about the Global Productivity Contest later)*

- *Companies like to focus on **real** production Problems*

  Use SPC and Production Logs to "tune" the training

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Can we integrate the simulator with other courses ?

- **Put in your own images**

  have the design students get involved

- **Integrate MultiMedia on How & Why**

  Ex: Video of "How" for procedures,
  Clip in existing course material
  Make the simulator the "graphic interface" for other material

- *Build problems from Prepress/Bindery, etc.*

  for many of these: just take them from the workbooks

- *Teach the Economics of Print*

  Change costs and times, compare results
  show students the Economic Consequences of their actions

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What about improving quality control skills and use of tools?

Simulators encourage systematic use of built-in quality control tools —

> including spectrophotometer, densitometer, gloss meter & magnifier

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- Act as Trainers for Smaller Companies

  They learn the simulator and get a training program

  The company runs the simulator on site

  They need their own license

  The school gets the results over internet

  The instructor verifies the results and helps the trainees

  Internet lets you « look over their shoulders »

- The companies can train « in slack time »

  There are is almost no travel time and cost

  They use the same workbooks and have the same proof of training and possibility of Training Certificates

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On-Line Training

Tomorrow's Training Room

- Can we have flexo & sheetfed on the same machine ?

  YES – and heatset, gravure and newspaper too.

- How many students per simulator ?

  Experience shows that 2 is a practical maximum
  (and often better than one)

  10 students per class + 1 instructor = 6 simulators

  20 students per class $+$ $1\ instructor$ = 11 simulators

  Generally schools start with 1-3 simulators

  To get used to using them in the curriculum

  then come back for more as necessary

- Is there a network version?

  Yes, A network license server permits installation on all computers, and allows "n" simultaneous users

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2 screens is Better, 3 screens for Web Offset

If your budget won't run to it, start with 1 screen.

This is a Beijing Classroom with 24 Sheetfed Simulators

Windows™ **Only**

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- Excellent for retraining people entering the job market.

- Good predictor of ability to adapt to new technology,

- Excellent predictor of problem-solving and communication skills in the pressroom

- Custom problem scenarios adapt system to skill levels
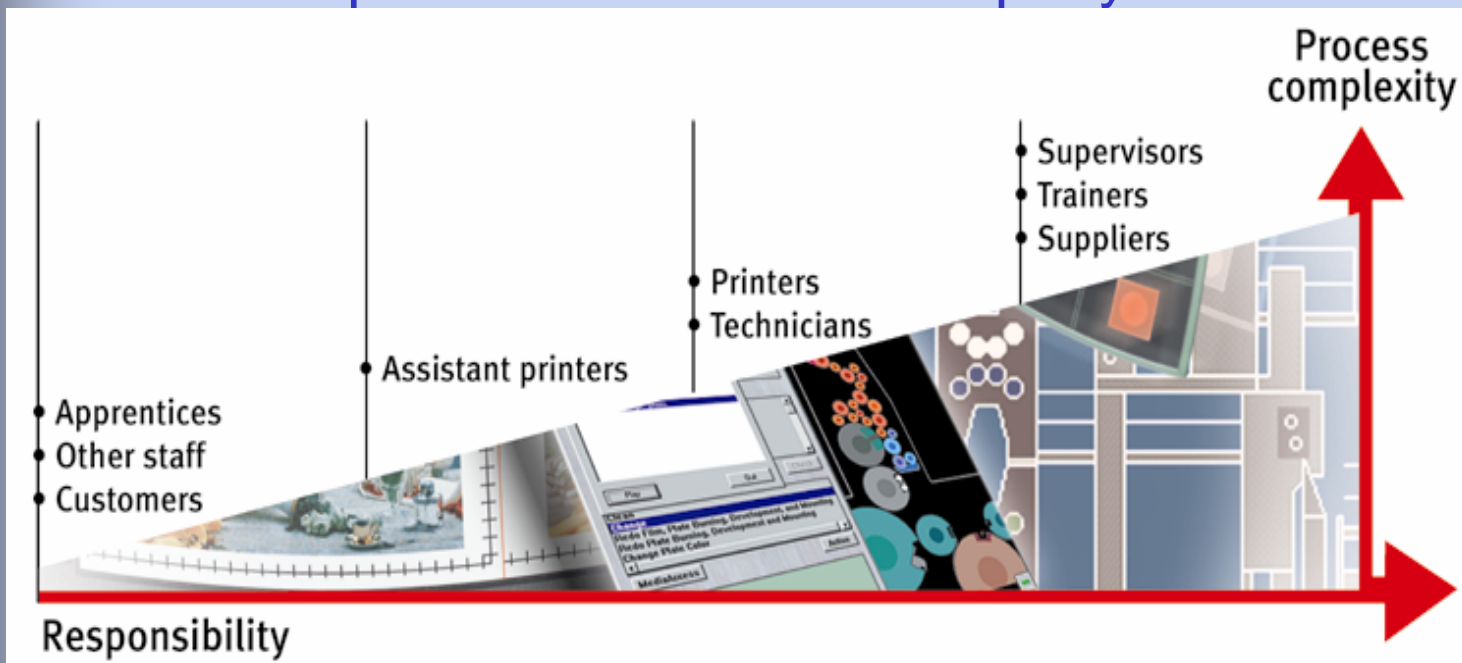
- **For companies: cross-train :**

  prepress, postpress, customer and sales staff

- **For management trainees :**

  better awareness of the printing process

  learn how processes can be optimised & impact on costs from multiple variables

  "Hands-on" understanding of multiple printing processes

Example:

Stuttgart HdM (trains print & media management)
reports combination of "Fun & Learning" has :

- *Doubled enrollment in subject &*

- *Improved Grades in related exams since introducing simulator*

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Why Use a Print Simulator ?

1. **Learn by doing and by making mistakes**
    Much Less expensive on a simulator, costs are virtual not real

2. **Active learning, not passive**
    Highest retention rate of learning methods

3. **Accelerated learning**
    Condensed experience

4. **Structured, progressive, repeatable, documented**
    Common approach to problem-solving

5. **Objective criteria & method for evaluation**
    Get baselines, set training goals, evaluate progress

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1st International

Print Productivity Contest

for

SHOTS Educational Users

(from around the world)

Those who produce the best quality at the lowest price will win.

(win a trip to the « live » final round)

(**and** a free simulator license)

Check with the Demonstrator outside

Before you hand over the **keys**, what should the driver know ?

There is a reason that insurance is cheaper for students who've gone through Driver Ed;

Perhaps a Print Ed workbook ?

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