



Simulate to Stimulate

Lowering the Cost of Print Teaching

Knowledge Management meets the **NIP**

GATF Teacher's Conference: 10/08



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Simulators and Print Training : FAQs

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)



Can Simulators REPLACE Presses ?

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



Do Simulators Accelerate the Learning Curve ?

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.



What are the Comparative Advantages ?

- **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*



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	<i>As separate press type</i>
4 color	1,000,000	\$ 10,000 (1% of press) Included in 6 color	<i>6 units, with 4 active</i>
6 color/coater	2,000,000	\$ 10,000 (0.5% of press)	<i>6 units & coater</i>

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



We have a press, Why should we use a Simulator ?

- You learn by making mistakes

- *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**

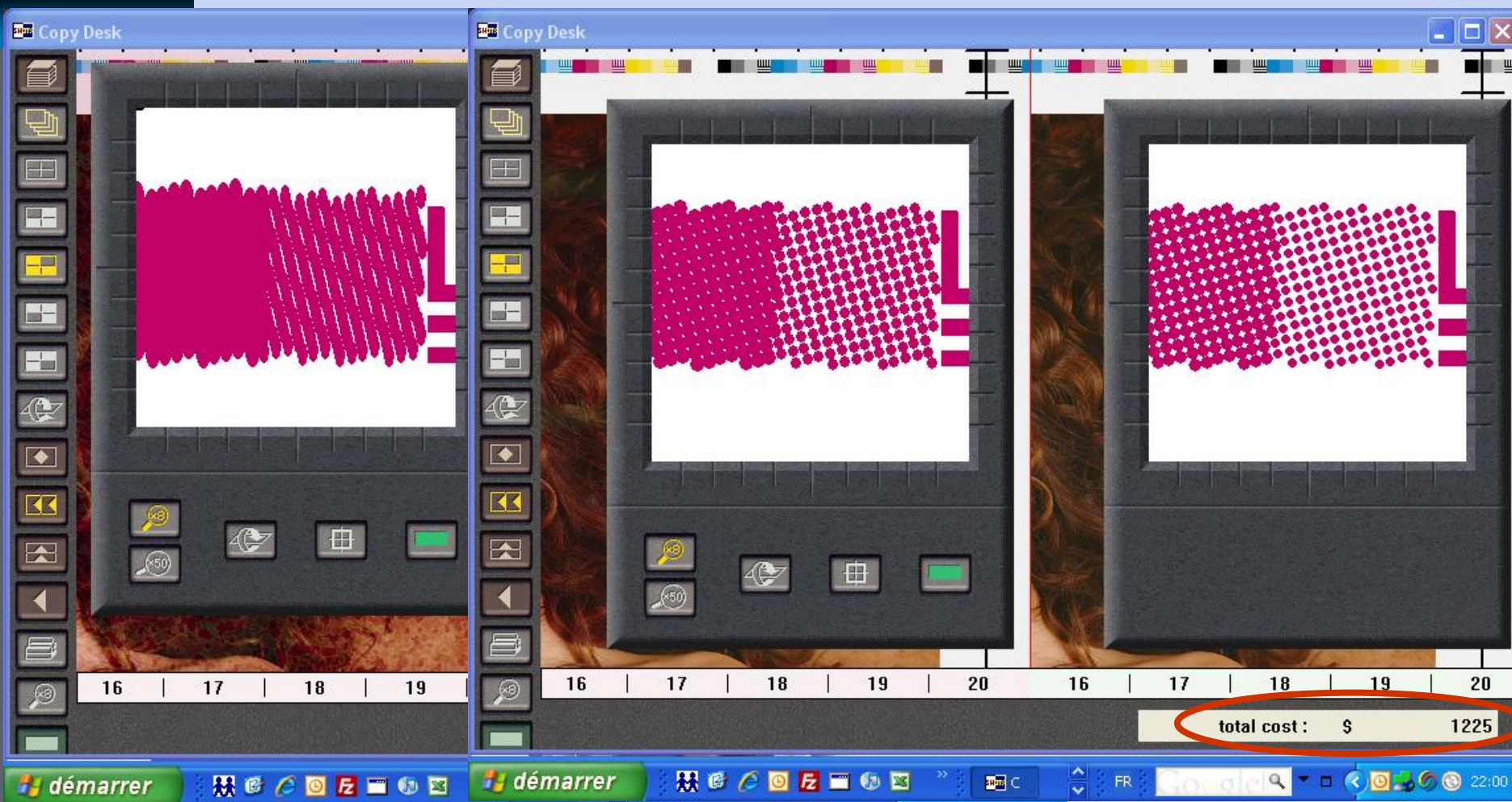


How do I Use Simulators to Teach Problem Solving ?

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.

An Example : Blanket packing vs Cylinder Pressures



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

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

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Print Simulators



How about Integrating Simulation – What Curriculum ?

- **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**



How do we Check Progress ?

- 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”

Automated Session Analysis (ASA)

File

Directories

D:\Multiweb

Students list:

demo

Exercises list:

demo goss biweb

Show the reference file.

Date: mardi 8 avril 2008

Quittus ● Status ●

Waste copies: (+29 %) ●

Total time: (+0 %) ●

Total cost: (+6 %) ●

Search | Action filters | Exo filters

Reporting | Comparison

Summary

Situation1

Faults résolution order

Final result

Final result

Reporting

Summary

Current session: **tutorial GOSS**
Language: **English**
Current Exercise: **demo goss biweb.LST**
User name: **demo**
Date: **mardi 8 avril 2008**
Status: **(+11%) Average**
Waste copies: **(+29%) Bad**
Total time: **(+0%) Good**
Total cost: **(+6%) Average**

Situation1:

Faults résolution order:

- Inking
- Cross Fold crooked
- Dog-ear

Faults résolution order (Reference):

- Cross Fold crooked
- Dog-ear
- Inking

Result of Situation 1: The current exercise is finished. (Student - Reference (%))

Copies:
Number of copies saved (delivery): **1 - 1 (+0 %)** of wich **0 - 0 (0%)** are no good
Number of copies scrapped (waste): **226 - 173 (+30 %)** of wich **17 - 14 (+21 %)** are of acceptable quality

Time:
Run time: **00:01 - 00:01 (+0 %)**
Web break and folder jam time: **00:00 - 00:00 (0%)**
Checks and actions time: **00:06 - 00:06 (+0 %)**
HelpLevelTime: **00:00 - Situation1:00 (0%)**
TOTAL TIME: **00:07 - 00:07 (+0 %)**
Multimedia Time: **00:00 - 00:00 (0%)**

Costs:
Delivered copies cost: **\$0 - \$0 (0%)**
Wasted copies cost: **\$33 - \$0 (0%)**
Web break and folder jam cost: **\$0 - \$0 (0%)**
Checks and actions cost: **\$10 - \$10 (+0 %)**
Material Machine cost: **\$87 - \$87 (+0 %)**

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

Certificates validate Progress

Schools already have diplomas, but

Certificates are great for Outreach work,

and can give students a « progress report »

The certificate is for the SHOTS (Sheetfed Offset Training Simulator) Level 1 course. It is issued by Sinapse Print Simulators and the Printing Industries of America. The certificate recognizes the student's completion of introductory exercises and problem-solving tests. It includes a section for the trainer's signature and the training institute's signature, along with fields for the student's name, date, and title.

PRINTING INDUSTRIES OF AMERICA
Advancing Graphic Communications

SHOTS
SHEETFED OFFSET TRAINING SIMULATOR

Sinapse
Print Simulators

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
Thierry Mack
Product Support Manager

For Training Institute: _____
Sinapse Certified Trainer:
Name: _____
Title: _____
Date: _____



What is this *Simulate to Stimulate* slogan ?

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



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



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



How about Outreach and Distance Learning ?

- 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

On-Line Training

Tomorrow's Training Room





How many simulators, how many computers ?

- 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*

What is the Best Computer Configuration ?



2 screens is Better, 3 screens for Web Offset

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

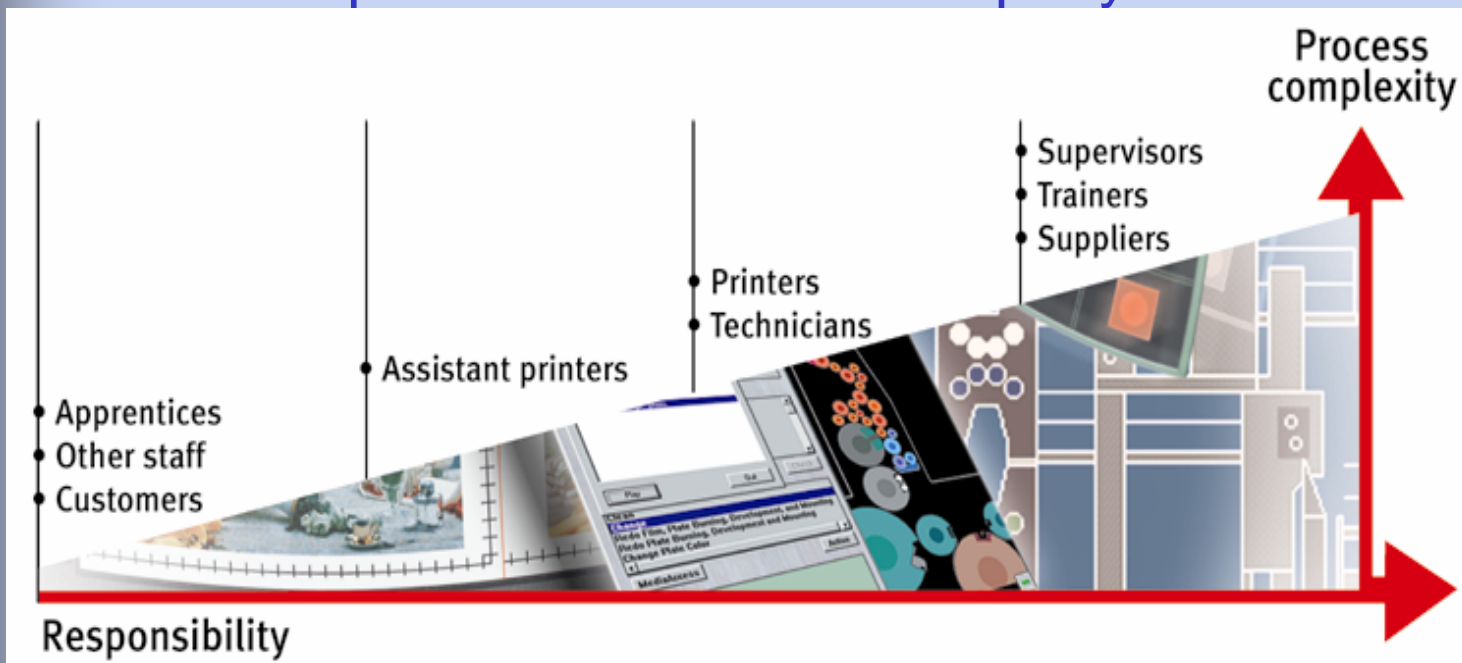
This is a Beijing Classroom with 24 Sheetfed Simulators

Windows™ Only

Sinapse
Print Simulators

What about X-Training & Different Skill Levels ?

- 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





What about training « non » printers ?

- **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*



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

What was that « Productivity Contest » ?



SHOTS heard round the world

WorldWide Productivity Contest
for Educational SHOTS Users

**ENTER Your SCHOOL NOW for
this prestigious contest :**

sponsored by PIA/GATF and Sinapse Print Simulators

Sinapse
Print Simulators

Competition

3 months of competitive problem solving (same problems for all school teams)

Three additional months for the 8 finalists : 8 schools , each represented each by 1 individual

"Live" Finals at a major international print show for the two best competitors

Prizes

Each School qualifying for the final rounds, receives 7500 Euros credit for simulator versions or updates.

Each Individual entering the final rounds receives a PIA GATF Certificate of Merit, and a letter of recommendation from PIA GATF and Sinapse

Each Individual finalist will receive an invitation from Sinapse for an expense- paid trip to the "live" finals at a major international print show.

Recognition

Results published monthly on Sinapse web site, Press releases issued every two months.

Final results published in GATF Print Points

Top 8 schools and teams receive certificates and letters of recommendation from PIA-GATF/Sinapse.. The winning individual and school also receive special recognition...

Travel

The two finalists (from different schools) will receive an expense-paid trip to the final round. If they are unable to attend, they will compete "live" over the internet

To enter the "SHOTS Heard Round the World" contest : Ask for your Entry Form

- Pre-register your school at **DRUPA** and you will be sent the formal registration forms for entering your team in September 2008
- Use the Sinapse internet site (www.sinapseprint.com) to enter your team (starting in September 2008)
- **The competition will start in December 2008.**



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



Driver Ed for Printing

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 ?