

Implementing PSP/TSP Massively in Mexico

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Kernel Technologies



Proceeding's Objective

Share **Kernel's** experience on the implementation of PSP training as a first phase of our initiative to deliver PSP and TSP massively across the globe.

Discuss at the Panel Session.



Agenda

- **Background**
- **Kernel's Initiative**
- **Results**
- **Key Challenges**
- **Next Steps**



MoProSoft Support

¿What is MOPROSOFT?

- Mexican model/standard for software development process improvement
- It's based on CMMi process areas levels 2 and 3
- Inspired by ISO/IEC 15504 standard for its evaluation

MoProSoft fits VSEs and SMEs.

Mexican government supports organizations on the implementation and evaluation of the Mexican Standard.



Background

2002: Mexican government launched a National Development Plan called PROSOFT

- To improve the IT industry competitiveness
- MoProSoft, Mexican model/standard is created and supported by PROSOFT

2009: Kernel achieves to introduce MoProSoft massively to more than 200 organizations; implementing in 63% of the organizations certified in Mexico.

2010: Kernel has introduced PSP and TSP to 50 MoProSoft Organizations.



About Facts

- 83% of Mexico IT organizations are small enterprises*
*(2004 PROSOFT Report)
- Mexican Government is very supportive on becoming competitive.
- Lack of culture in good Software Development Discipline
- Engineers want to do better and compete globally
- MoProSoft as a base model to achieve maturity and growth on organizations



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Kernel's Training Project - GOALS

1. Induction to TSP
2. Implement MoProSoft and PSP Training
3. Deliverables were :
 - 50 audited MoProSoft enterprises under ML 1 or 2
 - 100 Mexican PSP Certified Engineers
4. Committed Schedule (PSP Training Phase):
 - Start Date: November 2009
 - End Date: July 2010



Our Historical Data!

Analyzing our data we observed that:

- 40% of the PSP Trained Engineers passed the exam.
- It takes 4.4 task hours for an Instructor to review ALL PSP Assignments! (Around 10 Working Hours)

Facts to consider:

- Some assignments were returned even 4 or 5 times!
- Some lack of support from top management for students to finish the course.



Our Strategy

Offer our clients MoProSoft together with PSP as a PROSOFT Project with Government Grants (70%).

- Target Organization → **50 VSSMEs**
- Target Developers → **250 Engineers**
- Target PSP Certified Developers → **100 Engineers**

- ❖ 5 developers from each company were to be PSP Trained
- ❖ 3/5 must certify (if not they return Gov. grants)
- ❖ Our team: 5 PSP Authorized Instructors + Project Leader



Building our Plan

Resource Requirements:

- ❖ 3 Instructors allocated to review PSP Student Assignments
 - $250 \text{ Eng} * 4.4 \text{ Task Hours} = 1108 \text{ Task Hours (TH)}$
 - $1108 \text{ TH} / 3 \text{ Instructors} = \underline{5.1 \text{ Months}}$ (assuming a Productivity of 18 TH/Week)
- ❖ 2 Instructors allocated to teach PSP

Groups Locations:

- MTY: Monterrey (40 Students)
- MEX: Mexico City (180 Students)
- QRO: Queretaro (30 Students)



Course Structure

	MTY	MEX	QRO
No. Companies	8	36	6
No. Engineers	40	180	30
On-Site Instructor(s)	1	2	1
Remote Instructor(s)		--- 3 Remote Instructors	---
No. Groups	2	5	1
Course Logistics	Friday for lecture and Saturday for lab (10 Weeks)	Same class five days of the week. Lecture and Lab on same day. (10 Weeks)	PSP Fund. on Week 1 and PSP Adv. on Week 5
Study Review Sessions	Yes	Yes	No
PSP Examined	Yes	Yes	No



Our PSP Training Schedule

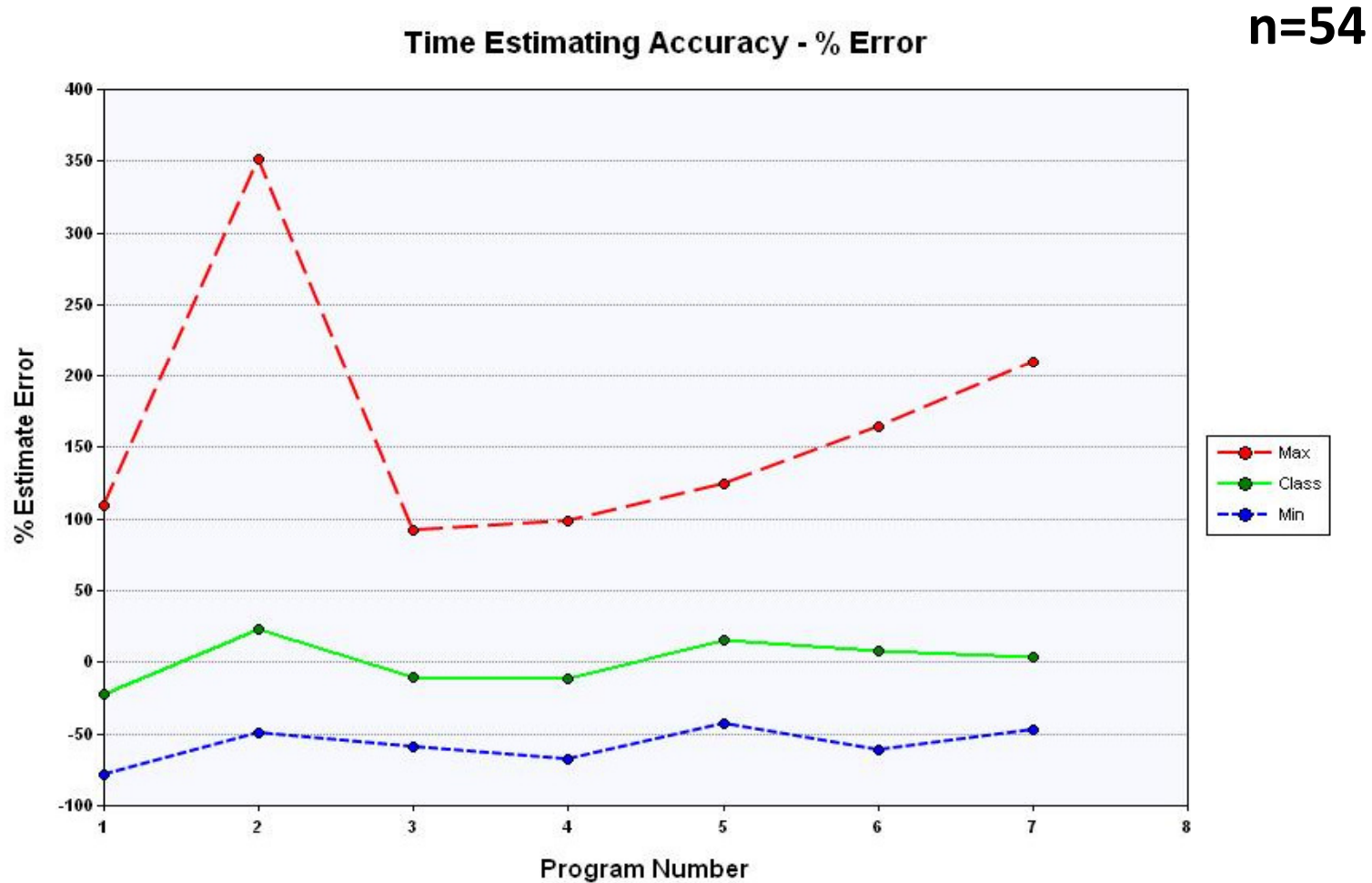
	NOV-09		DEC-09		JAN-10		FEB-10		MAR-10		APR-10		MAY-10	
MEX: Mexico City (180 Students)														
Kick-Off														
PSP Fundamentals														
PSP Advanced														
PSPBOK Study Review														
PSP Examinations														
QRO: Queretaro (30 Students)														
Kick-Off														
PSP Fundamentals														
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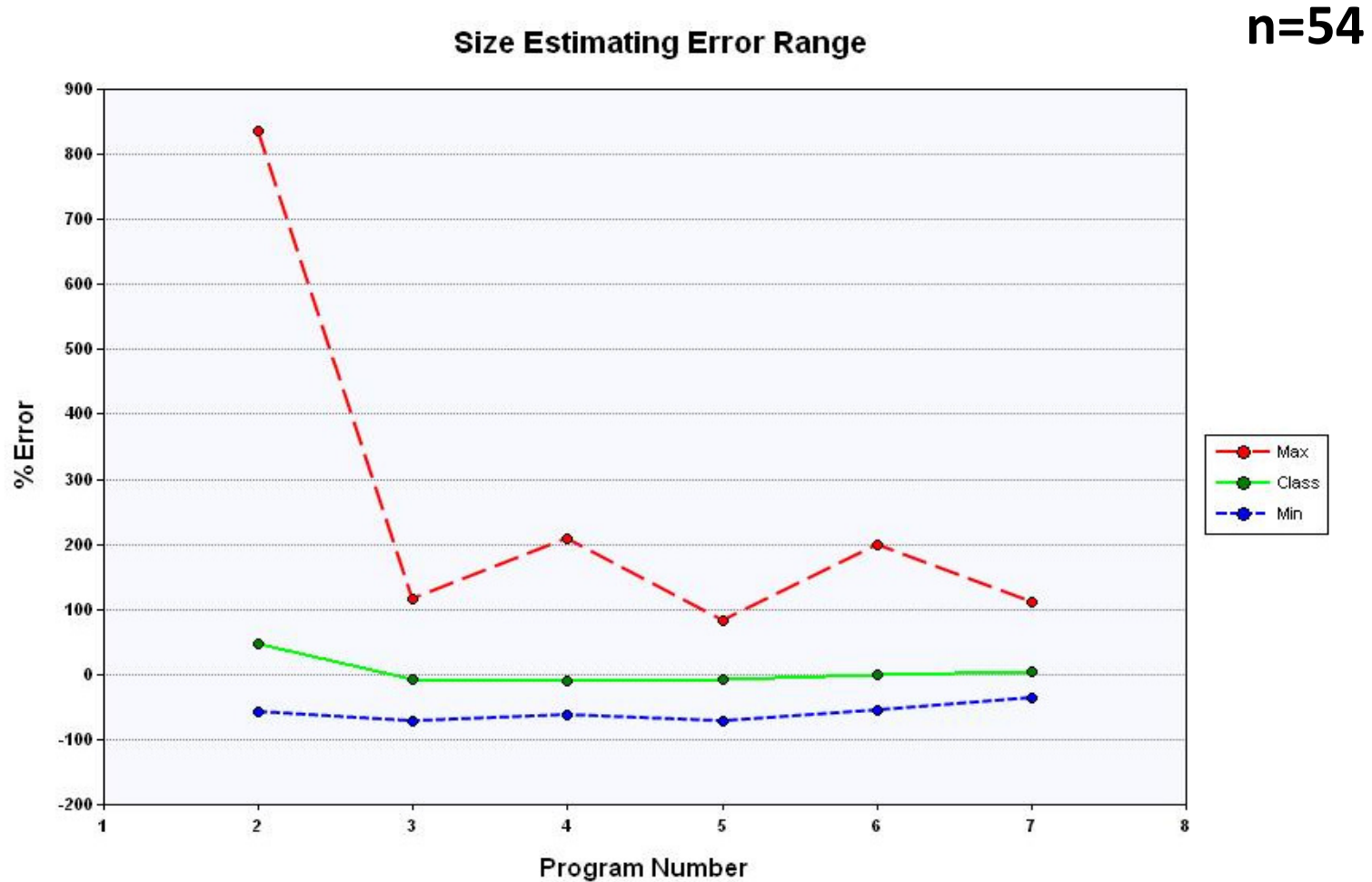
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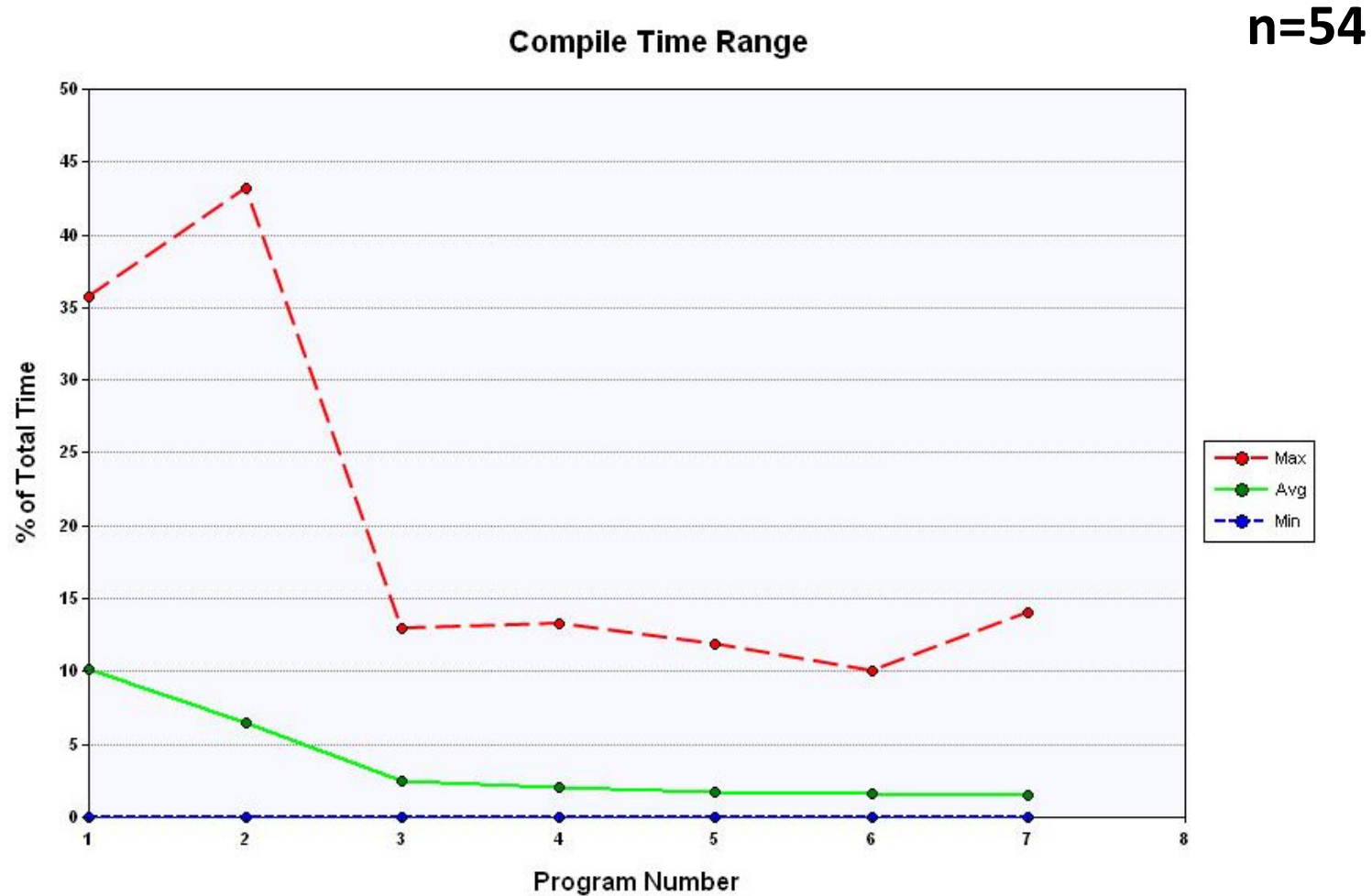
Time Accuracy close to Cero



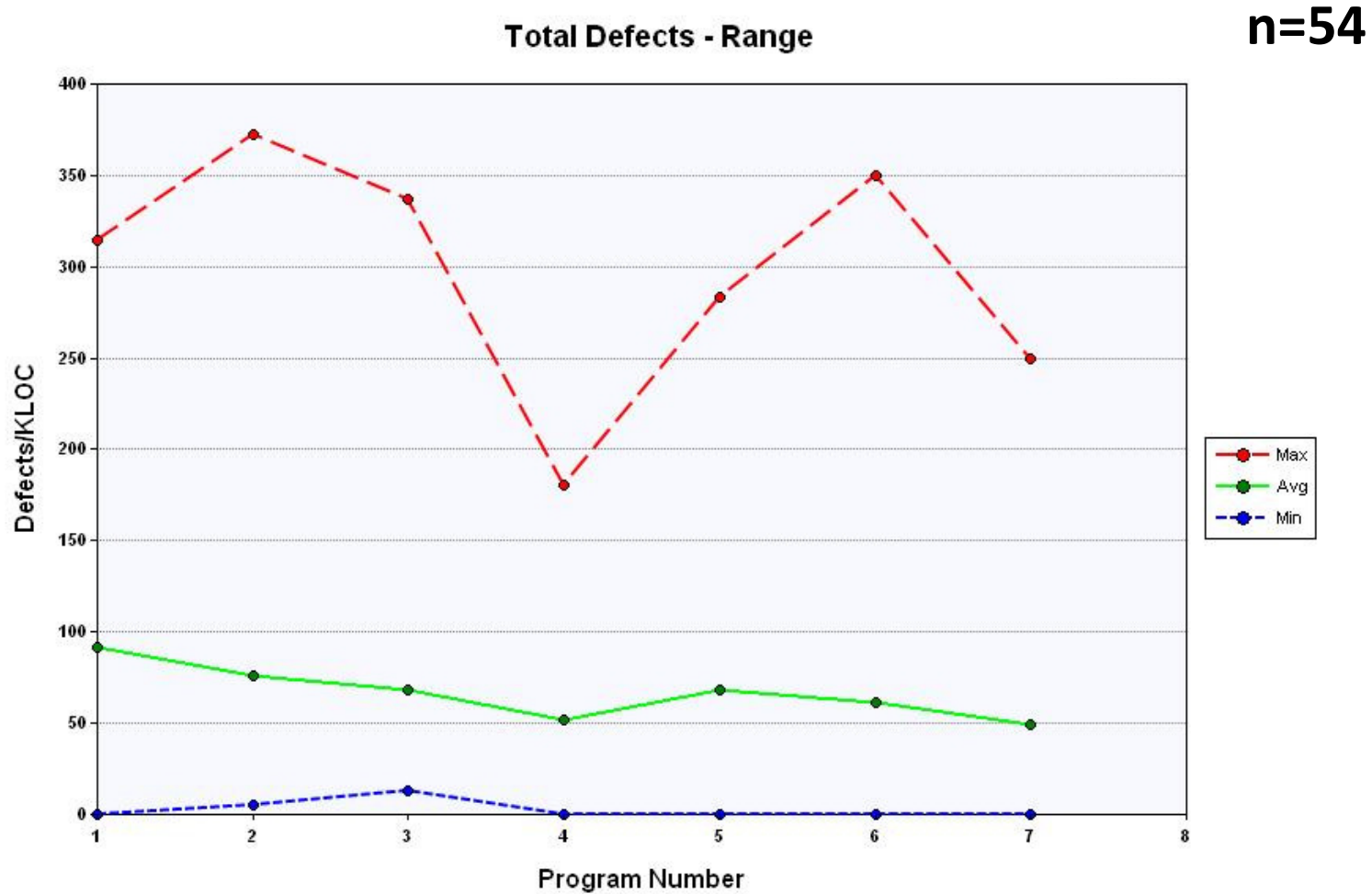
Size Estimation was Cero!



Compile time improved



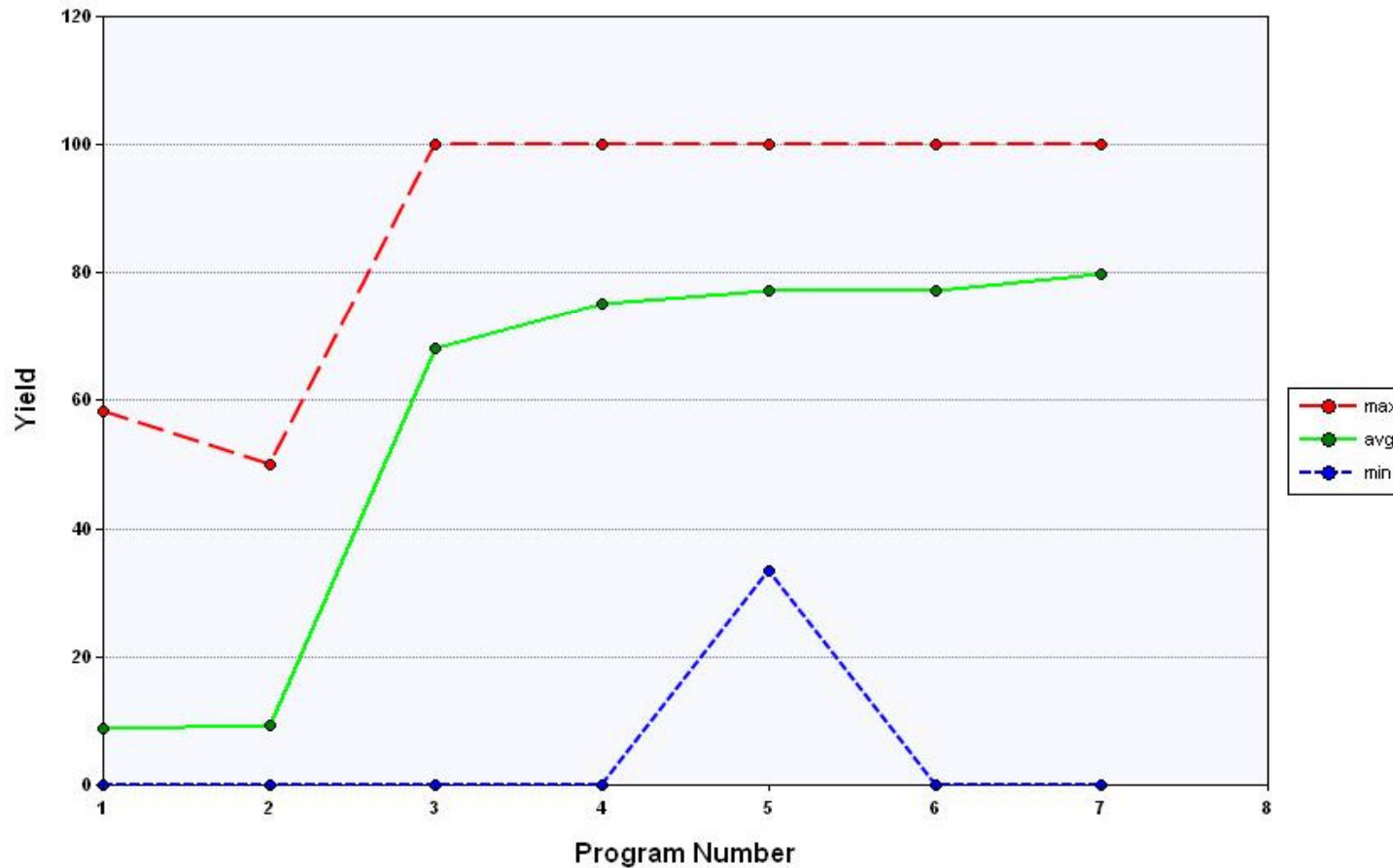
Defects went down



Yield above 70%

Yield - All Students, All Programs

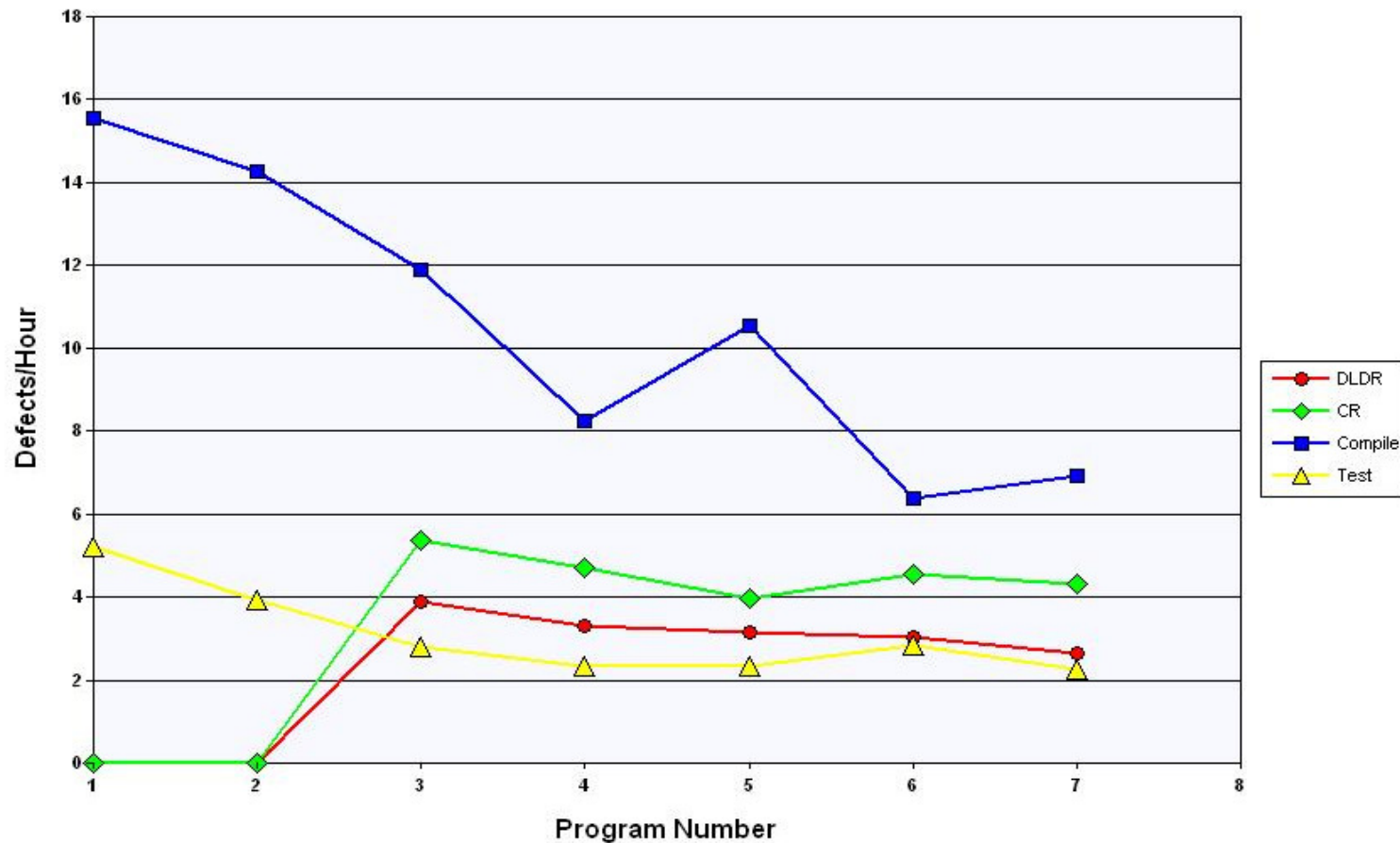
n=54



Efficient Appraisal Activities

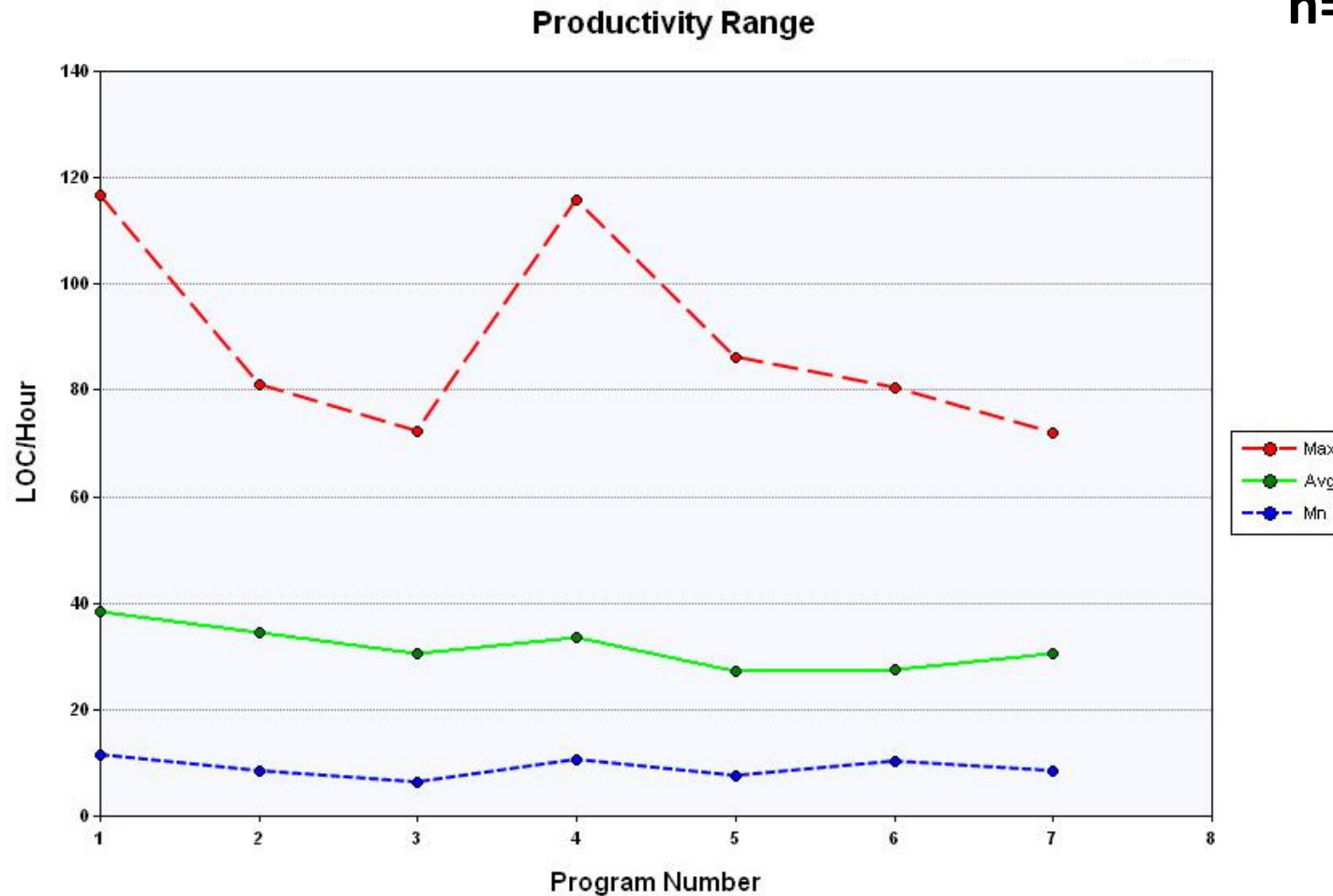
Defect Removal Rates - Class

n=54



Stable Productivity

n=54



Performance Summary

n=54

Mexican Engineers are convinced that
PSP is key to be prepared to **success** in a global
competitive environment.



	First Program	Last Program	Last/First
Average LOC	98.9	116.4	1.18
Time Accuracy	-22.7%	3.2%	-0.14
Productivity (LOC/Hr)	39.1	36.1	0.92
% of design time	11.2%	21.1%	1.88
% Failure COQ (% Time in Compile and UT)	26.3%	10.5%	0.40
% of compile time	10.10%	1.80%	0.18
% of test time	16.20%	8.73%	0.54
Defect Density per KLOC	91.5	49.9	0.55
Defect Density at UT	23.8	9.3	0.39
Defect Density at COMP	53.2	6.1	0.11
% of defects removed before Copile	8.6%	80.0%	9.30
% of people with less than 5 total defects/KLOC	1.8%	16.6%	9.22



The Project Outcomes

MoProsoft was not a problem and PSP Neither!

PSP Phase started in November 2009 (6 months duration)

- 199 engineers assisted actively to the courses (80%) from 250
- 24 dropped from the course (9%)
- 186 finished until program 4 (74%)
- 178 presented the certification exam (71%)
- 109 passed the certification exam (64%)

Currently from all the PSP certified engineers in the World, Kernel has contributed with the 20% of those.



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Key Challenges for PSP Training

- VSEs limited availability of resources
 - Balance Important Meetings with Clients vs. Lectures
 - We gave option to assist to another days lecture
- Exam in an English language format
 - Some students even traduced and shared the PSPBOK
 - We had 2 day session - Study Review (in English)
- Limited availability of Testing Centers
 - Implement web proctored exams

Conclusions

- What worked well
 - Assignments pre-approval by onsite instructor(s)
 - PSP BOK two day review session + one day for questions and answers
 - Switching between Different Groups (at MEX)
 - 3 out of 5 must certify (if not they return gov. grants)
- What did not work well
 - Course scheduled in a long format (1 day per week)

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Next Steps

- Build an initiative to achieve a higher ML for MoProsoft/CMMi through TSP
- Kernel-Mexico First 2010 Program:  Train and Coach at least 10 Organizations in TSP
- Kernel & Procesix 2010 Partnership Alliance: Implement PSP/TSP and CMMi Globally 
- Seek an Strategic Partnership with the SEI



Contact Information

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Thanks!

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