California State University Monterey Bay

Masters of Science in Instructional Science & Technology

Streamlining Administrative Procedures at the Defense Language Institute:
The Strategic Impact Model in Action

Yaniv Oded

CSU Student Research Competition 2010
Advisor: Dr. Bude Su

Defense Language Institute (DLI)

Defense Language Institute - Foreign Language Center

Accredited language instruction institution - Monterey CA

About 1,600 instructors and 4,000 students - 24 lang.

European and Latin American Language School (UEL)

One of the largest schools at DLI - 14 buildings

About 200 faculty and stuff and 600 students - 8 lang.

Theoretical Framework

Human Performance Technology (HPT)

Human Performance Improvement (HPI)

Objective:

Enhanced Organizational Success via Improved Performance

- Return On Investment (ROI) - Front-end Analysis

- Instructional + Non-Instructional Solutions

People - Environment
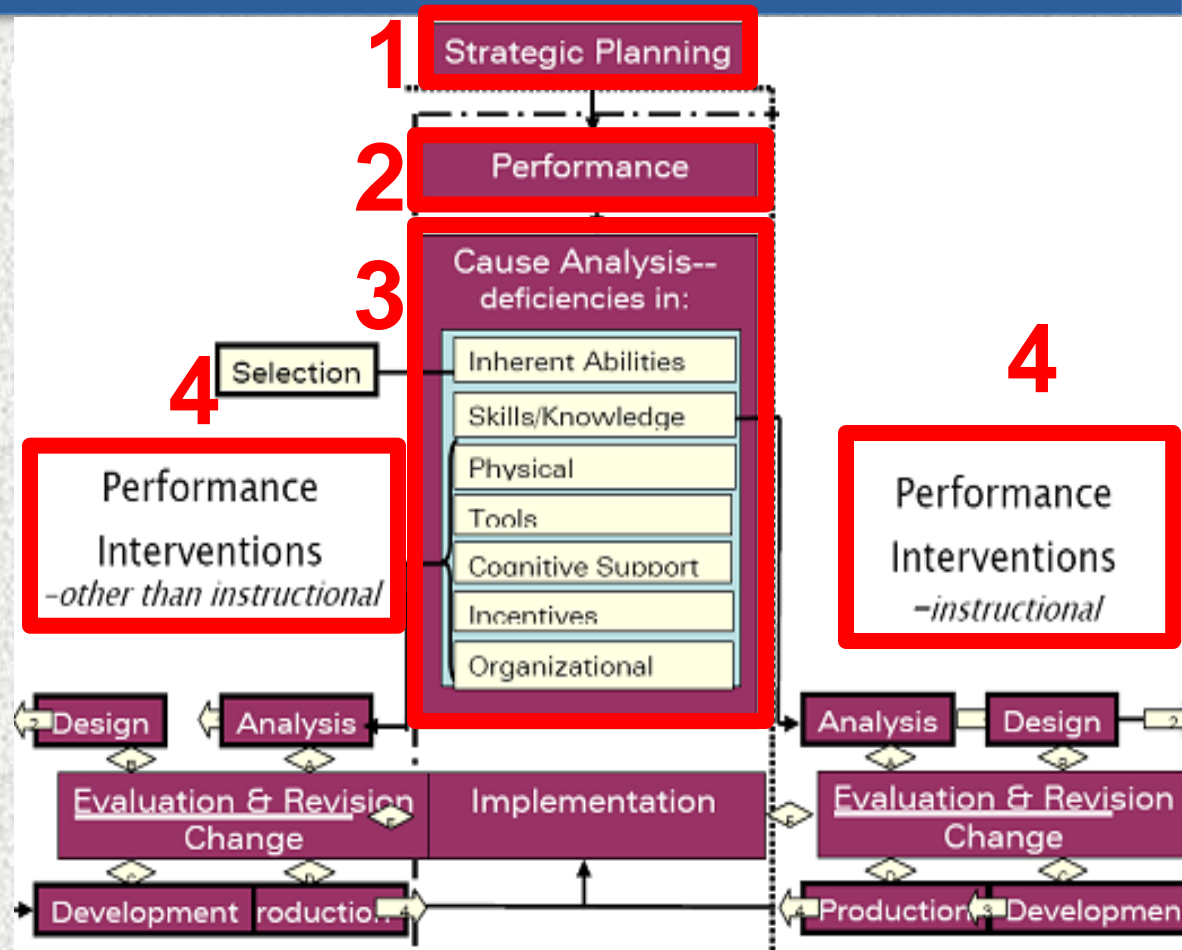
Identifying the Problem

Strategic Impact Model

(1) Strategic Goal:

Information sharing

(2) Problem:

Administrative disarray

(3) Caused by:

1) Lack of appropriate tools (Tools Deficiency)

2) Lack of unified procedures (Cognitive Support Deficiency)

Diagram labels:
- **1** Strategic Planning
- **2** Performance
- **3** Cause Analysis-- deficiencies in:
  - Inherent Abilities
  - Skills/Knowledge
  - Physical
  - Tools
  - Cognitive Support
  - Incentives
  - Organizational
- Selection
- **4** Performance Interventions –other than instructional
- **4** Performance Interventions –instructional
- Design, Analysis, Evaluation & Revision Change, Implementation, Development, Production
- Analysis, Design, Evaluation & Revision Change, Production, Development

Scope & time limitations:
One admin. form / process:
The CTAR Process & Form

Weekly-submitted form:
number and type of working
hours of all instructors
(teaching, training, AL)

CONSOLIDATED TEAM ACTIVITY REPORT

School: ELS — Code: 50052
Department: HE
TEAM: 3 — Sunday's Date

CLASSES ASSIGNED:
Class 21501HE50208 — Sections 3.0 — Grad Date 18 Jun 09

Hours of instruction provided students:
(Normally 40 X Number of Sections)

Hours students were available for instruction:
(Normally 30 X Number of sections)

Minimum requirement for a standard academic week is 120 hours of instruction per 3 section team.

Name	Teaching and ES Support			FLO TESTING					Academic			Hours not available for Teaching						Total should be 40	Team member Exit date REASON
	FULL SECT	SPLIT SECT	SPCL ASST	OPI	Perf	VTT	MTT	MLI INST	ADVS Acad Disp Advs	Support Grading, preparation, meetings	Service EEO, FPS, Accred.	Formal Training	Leave AL	SL	Other	HOLI			
DOITEL NOA																			
HOLZBERG DAVID																			
KOLERSTEIN MICHELLE																			
VAHL ZIPORA																			
YARKON HANA																			
YOELI IRIS																			
MLI: _____								■											
WAE: _____																			

NEW TEAM MEMBER(S): _____
Date joined team: _____

(Include new team and code if known)

Team Leader — Chairperson

Valid as of 23 March 06
Previous Forms Obsolete Date of last update: 4/20/2009

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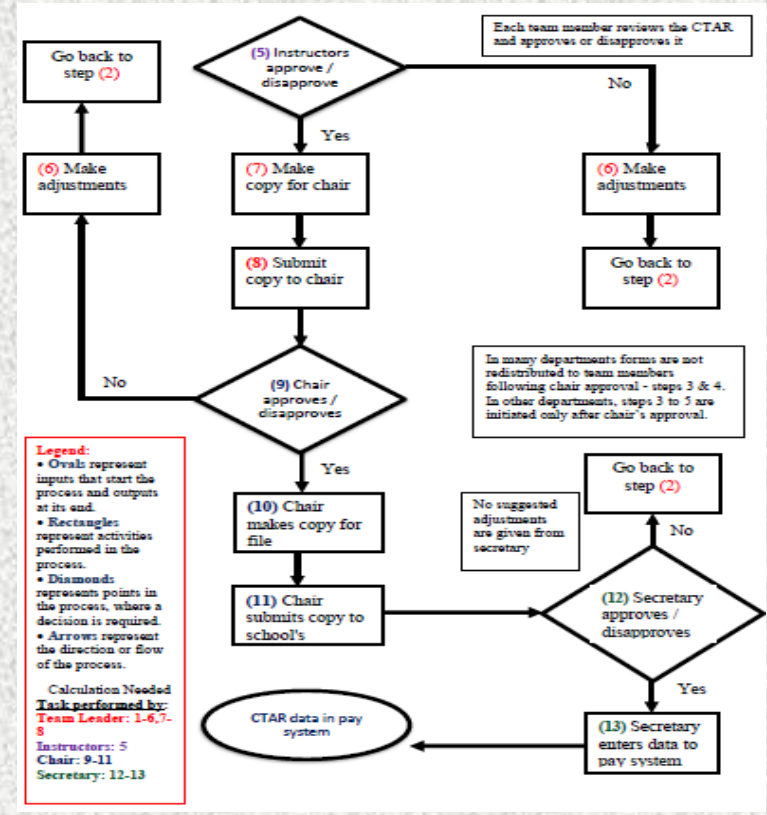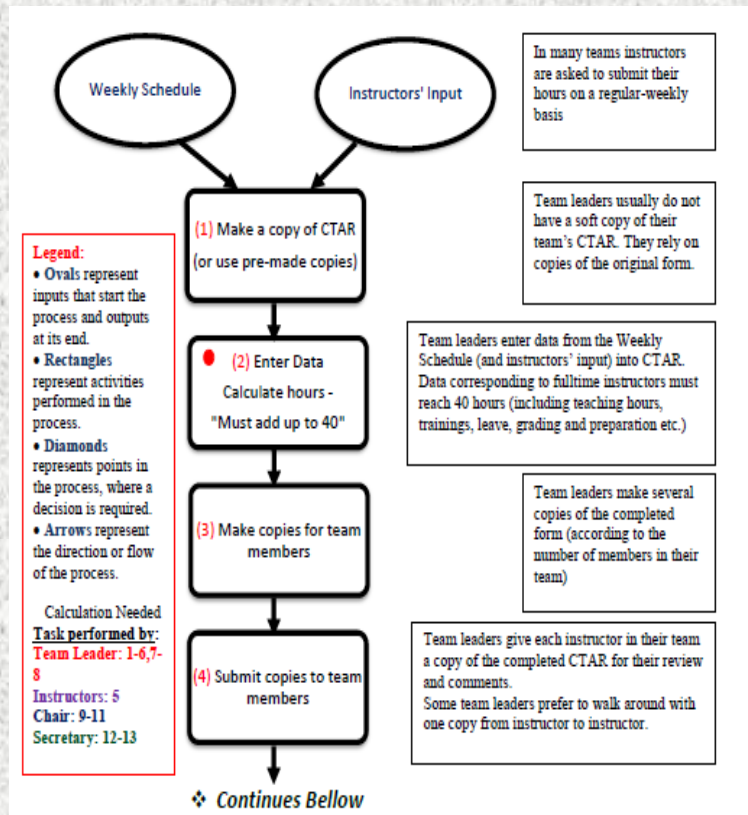Production Cycle: **ADDIE** Model + Rapid Prototyping (**RPD**):

(1) **A**nalyze problem & set objectives
(2) **D**esign blueprint
(3) **D**evelop
(4) **I**mplement
(5) **E**valuate

The better the tool
The simpler the process
The less intensive the training

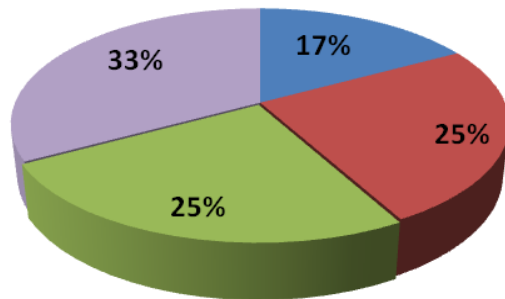## Identifying Performance Constraints **Process-Mapping**

ADDIE: (1) <u>Analysis</u>

a. Most repeated actions: "Make Copy" (33%), followed by "Submit Form" (25%) & "Dis/Approve" (25%)

b. Task burden mainly on TL (54%) & Chairs (24%)
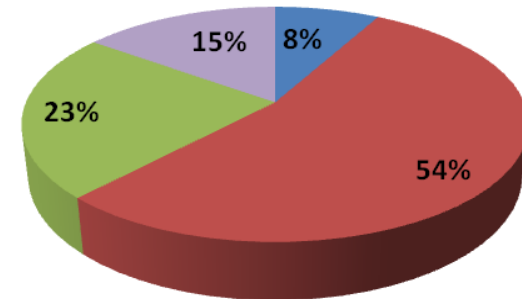
c. Recurrent calculations -> Recurrent Errors

ADDIE: (2+3) <u>Design & Development</u>

<u>Objectives</u>:   **-** Eliminate photocopying and hand-delivering

- Prevent calculation errors

- Secure and robust tool

- Minimal Training: Cognitive + Affective

<u>Course of action & Technology</u>:

- Digitize the CTAR process - transform into **e-Form**

- Adobe Live Cycle Designer / Adobe Reader

<u>Process</u>:   **-** Rapid Prototyping (RPD):

Usability Testing

Prototype	Testers	Problems Identified	Actions Taken
Version 1	Team Leader Team Leader Chair	• Design and coloring confusing and unappealing • Outline and separation of rubrics did not correspond to actual workflow • No Submit to Secretary button • Document auto-naming upon submission is confusing	➤ Coloring generally tuned down ➤ Change rubrics outline (separation of frames) to better fit usual workflow ➤ Change document auto-naming: CTAR HE Team X ➤ Add "Submit to Secretary" button
Version 2	Team Leader Chair Tech. Specialist	• Certain fields are obligatory and users should not be able to send the form without completing them • Secretary and chair computers do not support the import data option	➤ Form cannot be submitted prior to completion of obligatory fields – Red marking and notice appear ➤ "Send data as XML file" option canceled – Form will be sent as an attachment
Version 3	Team Leader Team Leader Secretary Assistant Dean	• Data entered should be secured to prevent changes • Users should have a "Save As" and "Clear Form" button	➤ Form completion is password secured. ➤ "Clear Form" and "Save As" buttons added
Version 4	Team Leader Secretary Tech. Specialist	• Password system is confusing • DLI security system blocks password-secured documents • "Submit to secretary" button will result in the sending of each document separately and should be canceled	➤ Password requirement canceled – Signatures fields for Team Leader and Chair added ➤ "Submit to Secretary" button canceled
Version 5	Team Leader Team Leader Chair Assistant Dean	• Document auto-naming upon saving and submission should correspond to team's number	➤ Auto-naming unified: CTAR HE Team 2 / 3 / 4 Dean approves version for a two-week trial in one Dept.

Following Dean's approval:
Full-scale beta testing
Version 15-A

➤ Two-week trial period (two cycles)

➤ Three parallel forms - Three teams (12 Faculty members)

ADDIE: (5) Evaluation

Paired Test - Retest: Paper vs. e-Form (Time Saved?):

Compared to an "ideal" paper-form-process

➢ Process completed: **15% faster** [about 5 min per employee]

➢ No photocopying: **100% savings** on paper + cartridge

* Enhanced Transparency : Copies sent / Information shared "simply because it's easier"

Production

➤ Successful beta-testing - Cost Effectiveness: **Unified, adaptable version**

➤ Basic procedures embedded into the e-Form (JavaScript)

Procedures: maintained & enforced by tool itself

Summative Evaluation (One Month)

13 Team Leaders + 2 Chairs - 6 departments: 5 Likert Scale / 2 Open-ended Ques.

- **Overall Satisfaction:**   **4.7 out of 5 (SD .45) - 94.6%**
- **Most appreciated aspects:**   **Saves: time- 46%, paper- 27%**
- **What could be improved?**   **Expand / Enhance**
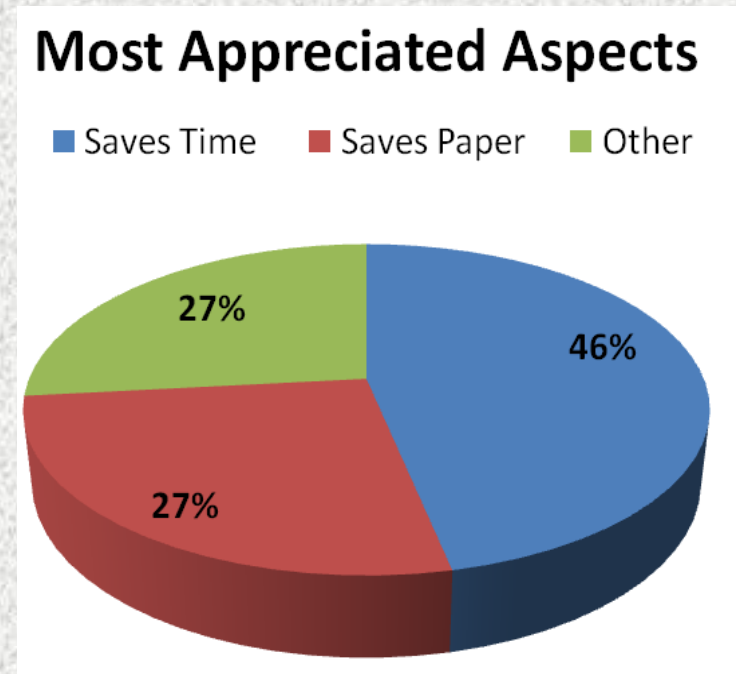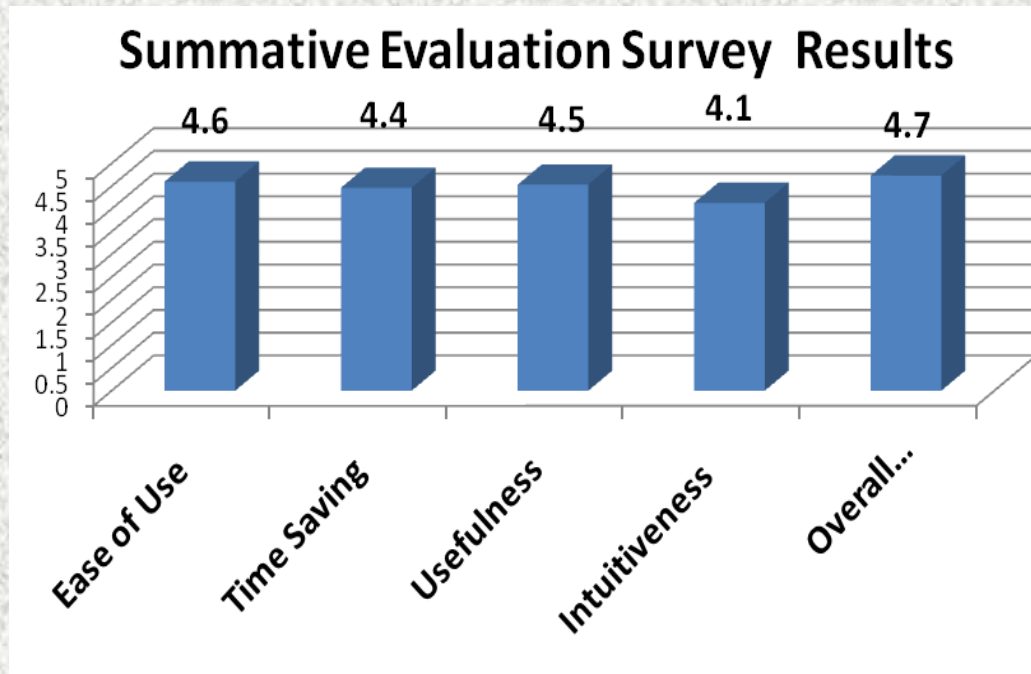
Conclusion (ROI)

The move to electronic CTAR (e Forms) - feasible & cost effective:

Return: - **Saves Time** (at least 15%)

                               - **Cuts Costs** (possible 100% paper & cartridge savings)

Possible $5,000 annual savings (30%)*

                               - **Free of Errors** (accurate) & **Secure**

                               - **Convenient** (94.6% satisfaction) + "Equal Opportunity"

                               - **Procedural effectiveness** and transparency

                               * **Environment** and **Community**

Investment: Software - $170 / Work 30 Hrs **(per form)**

Future Prospects: Other documents/procedures & Database
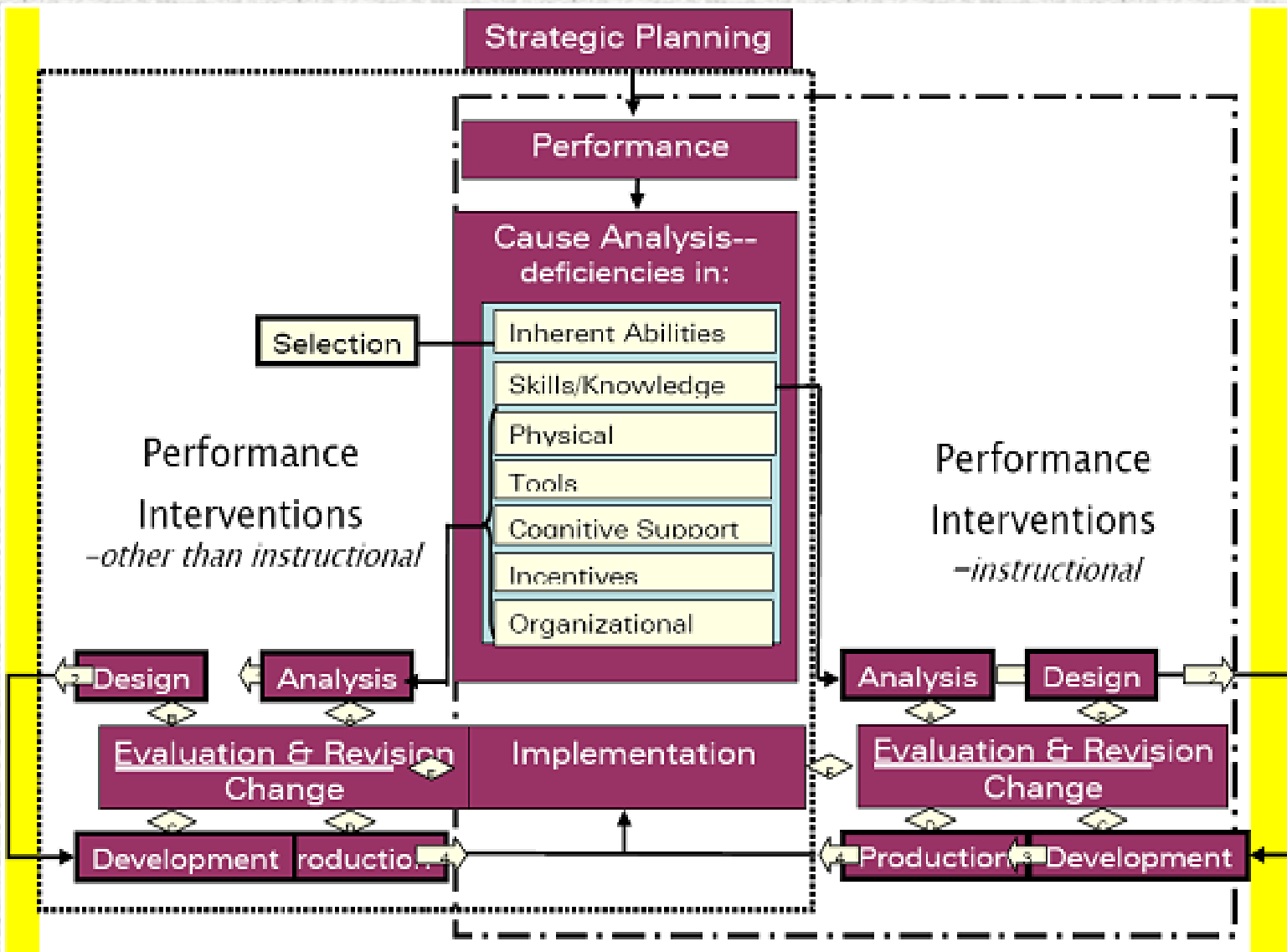
                  Rely on HPT/HPI procedures and tools (EPSS, Mentoring)
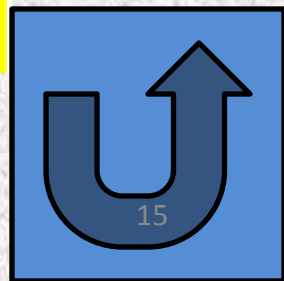
Thank You!

Questions?

"Performance analysis is a form of action research.... its purpose is to assist people in extending their understanding of their situation and thus resolve problems that confront them" (Pershing, 2006, p. 21).

The Strategic Impact Model (2004 J. Pershing & M. Molenda)

CONSOLIDATED TEAM ACTIVITY REPORT

School: ELS

Department: HE

TEAM: 3

Code: 50052

Sunday's Date _____

CLASSES ASSIGNED:

Class	Sections	Grad Date
21501HE50208	3.0	18 Jun 09

Hours of instruction provided students:
(Normally 40 X Number of Sections) [ ]

Hours students were available for instruction:
(Normally 30 X Number of sections) [ ]

Minimum requirement for a standard academic week is 120 hours of instruction per 3 section team.

The CTAR

Name	Teaching and ES Support								Academic			Hours not available for Teaching					Total should be 40	Team member Exit date REASON
				FLO TESTING					ADVS	Support	Service		Leave					
	FULL SECT	SPLIT SECT	SPCL ASST	OPI	Perf	VTT	MTT	MLI INST	Acad Disp Advs	Grading, preparation, meetings	EEO, FPS, Accred.	Formal Training	AL	SL	Other	HOLI		

MLI: _____

WAE: _____

(Include new team and code if known)

NEW TEAM MEMBER(S): _____
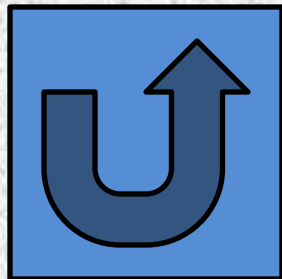
Date joined team: _____

_____   _____

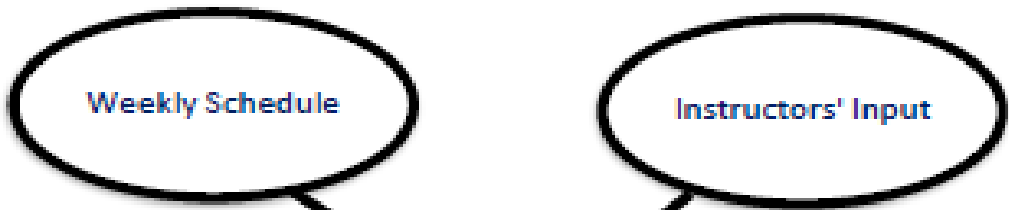Team Leader   Chairperson

Valid as of 23 March 06
Previous Forms Obsolete   Date of last update: 4/20/2009

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Weekly Schedule

Instructors' Input

In many teams instructors are asked to submit their hours on a regular-weekly basis

(1) Make a copy of CTAR (or use pre-made copies)

Team leaders usually do not have a soft copy of their team's CTAR. They rely on copies of the original form.

Legend:
- **Ovals represent inputs that start the process and outputs at its end.**
- **Rectangles represent activities performed in the process.**
- **Diamonds represents points in the process, where a decision is required.**
- **Arrows represent the direction or flow of the process.**

Calculation Needed
Task performed by:
Team Leader: 1-6,7-8
Instructors: 5
Chair: 9-11
Secretary: 12-13

(2) Enter Data Calculate hours - "Must add up to 40"

Team leaders enter data from the Weekly Schedule (and instructors' input) into CTAR. Data corresponding to fulltime instructors must reach 40 hours (including teaching hours, trainings, leave, grading and preparation etc.)

(3) Make copies for team members

Team leaders make several copies of the completed form (according to the number of members in their team)

(4) Submit copies to team members

Team leaders give each instructor in their team a copy of the completed CTAR for their review and comments.
Some team leaders prefer to walk around with one copy from instructor to instructor.

❖ *Continues Bellow*

The CTAR Process: Frequency of Actions
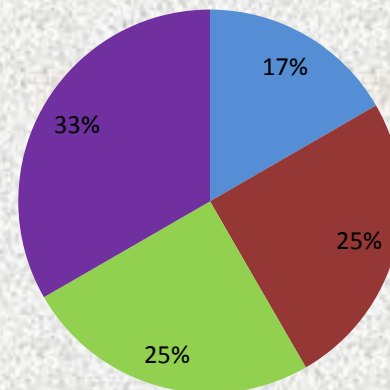
The CTAR Process: Division of Labor

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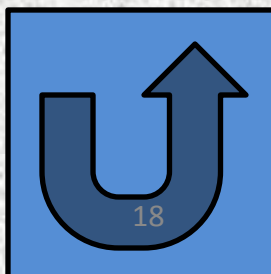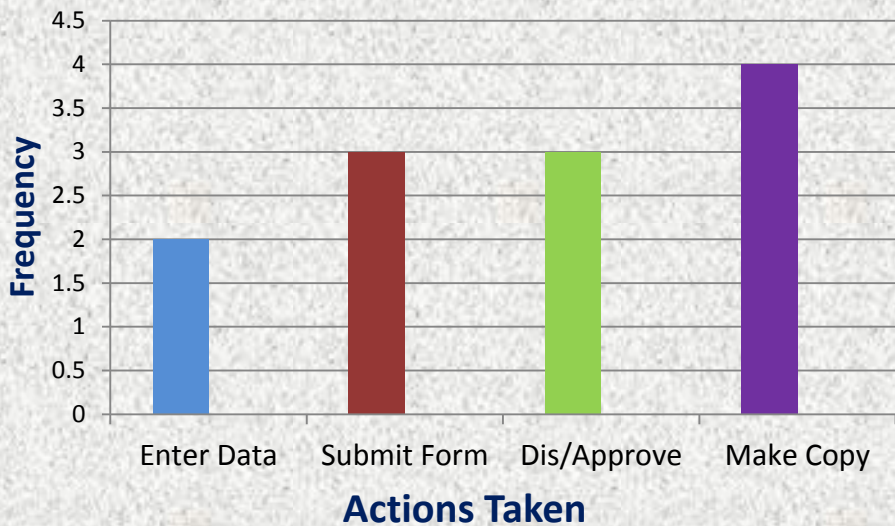| Prototype	Testers	Problems Identified	Actions Taken
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CONSOLIDATED TEAM ACTIVITY REPORT

School: **UEL**
Department: **Language**
Team:

Date

Hours of Instruction provided students: (Normally 40 X Number of Sections)

Hours students were available for Instruction: (Normally 30 X Number of Sections)

Minimum requirement for a standard academic week is 120 hours of instruction per 3 section team. / Name	Teaching and ES Support								Academic			Hours not available for teaching					Total should be 40	Team member Exit Date REASON
	FULL SECT	SPLIT SECT	SPCL ASST	FLO TESTING OPI	FLO TESTING Perf	VTT	MTT	MLI INST	ADVS Acad Disp Advs	Support Grading, preparation meetings	Service EEO, FPS, Accred	Forml training	Leave AL	Leave SL	Leave Other	HoLI		
Holzberg David	10	5	5	5						10					5		40	
Kolerstein Michelle	10																10	
Vahl Zipora	5																5	
Yarkon Hana																		
Yoeli Iris																		
MLI: _____								■										(Include new team and code if known)
WAE: _____																		

NEW TEAM MEMBER(S)
Date joined team

Team Leader

Chair

Print Form   Clear Form   Prototype - Number 15, Version A Prepared April 2009   UEL School   Submit to Chair   Save As

"Version 5" (15 - A) - Used for Beta-Testing in the Hebrew Department
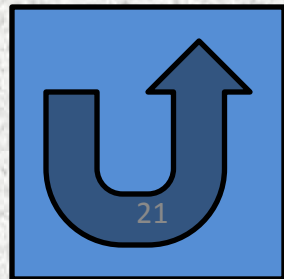
Team	PAPER FORM Time Engagement in Dissemination (min)	ELECTRONIC FORM Time Engagement in Dissemination (min)	Change (min)	Change %
Team 109	2.84 min	1.04 min	1.8 min	36.62%
Team 208	2.86	1.15	1.71	40.21
Team 308	5.03	1.77	3.26	35.19
Total	10.73	3.96	6.77	
SD	1.027694	0.321351		

On average 37% faster dissemination

Time Engagement in Form Dissemination - Paper Vs. Electronic Form

Team	Time to completion (minutes) – PAPER FORM	Time to completion (minutes) – ELECTRONIC FORM	Change %
Team 109	7.1 min	5.47 min	22.96 %
Team 208	10.41	9.02	13.35
Team 308	14.03	12.26	12.62
Total	31.54	26.75	
SD	2.83	2.77	

Overall process was completed 15% faster

Total Time for completion - Paper Vs. Electronic Form

Table 1a - Team 109: 2 Team Members (Including the Team Leader)

Hand Completed Form

Task	Action Taken for Completion	Cumulative Time Engagement	Time Engagement	%
	Take copy from drawer	0.1	0.1	1%
Enter "Sunday's Date"	Examine Calendar	0.24	0.14	2%
Enter Data from weekly schedule and team members' input + Calculate hours for each instructor	Examine weekly schedule and team member report (email) + Calculate hours (pen and paper)	1.55 / 2.3	1.31 / 0.75	18% / 11%
Disseminate form to team members	Scan, Name and Save document / Attach to email and send	4.34 / 5.14	2.04 / 0.8	29% / 11%
Receive Approval/Disapproval from Team Members	Phone Call	6.4	1.26	18%
Submit to Chair	Attach to email and send to Chair	7.1	0.7	10%
Total			7.1	100%

Table 2a - Team 208: 5 Team Members (Including the Team Leader)

Hand Completed Form

Task	Action Taken for Completion	Cumulative Time Engagement	Time Engagement	%
	Take copy from drawer	0.09	0.09	1%
Enter "Sunday's Date"	Examine Calendar	0.2	0.11	1%
Enter Data from weekly schedule and team members' input + Calculate hours for each instructor	Examine weekly schedule and team member report (email) + Calculate hours (pen and paper)	7.55	7.35	71%
Disseminate form to team members and Chair * Team members' feedback is calculated to next week CTAR	Walk to copy machine / Make copies	9.16	1.61	15%
	Deliver to team members & Chair / File document	10.41	1.25	12%
Total			10.41	100%

Table 3a - Team 308: 4 Team Members (Including the Team Leader)*

Hand Completed Form

Task	Action Taken for Completion	Cumulative Time Engagement	Time Engagement	%
	Take copy from drawer	0.10	0.1	1%
Enter "Sunday's Date"	Examine Calendar	0.3	0.2	1%
Compare team members input to weekly schedule * Each instructor submits is input for CTAR — Enter Data + Check Calculations	Resolve discrepancies with team members (phone or in person) — Enter Data + Calculate	9	8.7	62%
Submit form to Chair * Team members do not get a copy of the final CTA	Walk to copy machine / Make copy	12.58	3.58	26%
	Deliver to Chair / File document	14.03	1.45	10%
Total			14.03	100%

* Approximate times.

Table 1b - Team 109: 2 Team Members (Including the Team Leader)

Electronic Form

Task	Action Taken for Completion	Cumulative Time Engagement	Time Engagement	%
	Find and Open Document	0.27	0.27	5%
Enter "Sunday's Date" + Dept. name & team number	Click Calendar / Click drop down menu	0.42	0.15	3%
Enter Data from weekly schedule and team members' input + Calculate hours for each instructor	Examine weekly schedule / Examine reports from team members (paper notes / emails) / Calculate	2.07 / 2.38	1.65 / 0.31	30% / 6%
Disseminate form to team members	Click Save, Name document & Save / Attach to email and send	3.42	1.04	19%
Receive Approval/Disapproval from Team Members	Phone Call	4.39	0.97	18%
Submit to Chair	Click sign, Name document & Save / Click send	5.47	1.08	20%
Total			5.47	100%

Table 2b - Team 208: 5 Team Members (Including the Team Leader)

Electronic Form

Task	Action Taken for Completion	Cumulative Time Engagement	Time Engagement	%
	Find and Open Document	0.29	0.29	3%
Enter "Sunday's Date" + Dept. name & team number	Click Calendar / Click drop down menu	1	0.71	8%
Enter Data from weekly schedule and team members' input + Calculate hours for each instructor	Examine weekly schedule / Examine reports from team members (paper notes / emails) / Calculate	7.87	6.87	76%
Disseminate form to team members and Chair * Team members' feedback is calculated to next week CTAR	Sign, Name document & Save / Attach to email and send	9.02	1.15	13%
Total			9.02	100%

Table 3b - Team 308: 4 Team Members (Including the Team Leader)*

Electronic Form

| Task	Action Taken for Completion	Cumulative Time Engagement	Time Engagement	%
	Find and Open Document	0.14	0.14	1%
Enter "Sunday's Date" + Dept. name & team number	Click Calendar / Click drop down menu	0.56	0.42	3%
Compare team members input to weekly schedule * Each instructor submits is input for CTAR — Enter Data + Check Calculations	Examine weekly schedule / Examine reports from team members (paper notes / emails) / Calculate	10.49	9.93	81%
Submit form to Chair And team members	Sign, Name document & Save / Attach to email and send to Chair and team members. This team leader did not used to send the CTAR to his team members with the paper form	12.26	1.77	14%
Total			12.26	100%

* Approximate times.

t-Test: Paired Two Sample for Means

	Variable 1	Variable 2
Mean	10.51333333	8.916666667
Variance	12.01423333	11.53403333
Observations	3	3
Pearson Correlation	0.998639249	
Hypothesized Mean Difference	0	
df	2	
t Stat	14.39016035	
P(T<=t) one-tail	0.002397213	
t Critical one-tail	2.91998558	
P(T<=t) two-tail	0.004794427	
t Critical two-tail	4.30265273	

Paired Test-Retest & t-Test Analysis

t-Test for paired samples (p= 0.0023)
Differences are not transitory

August 2009

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23
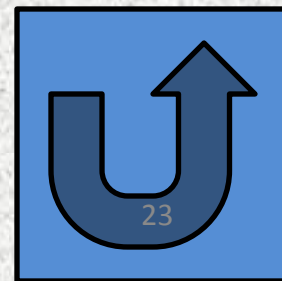
Summative Evaluation Survey Results
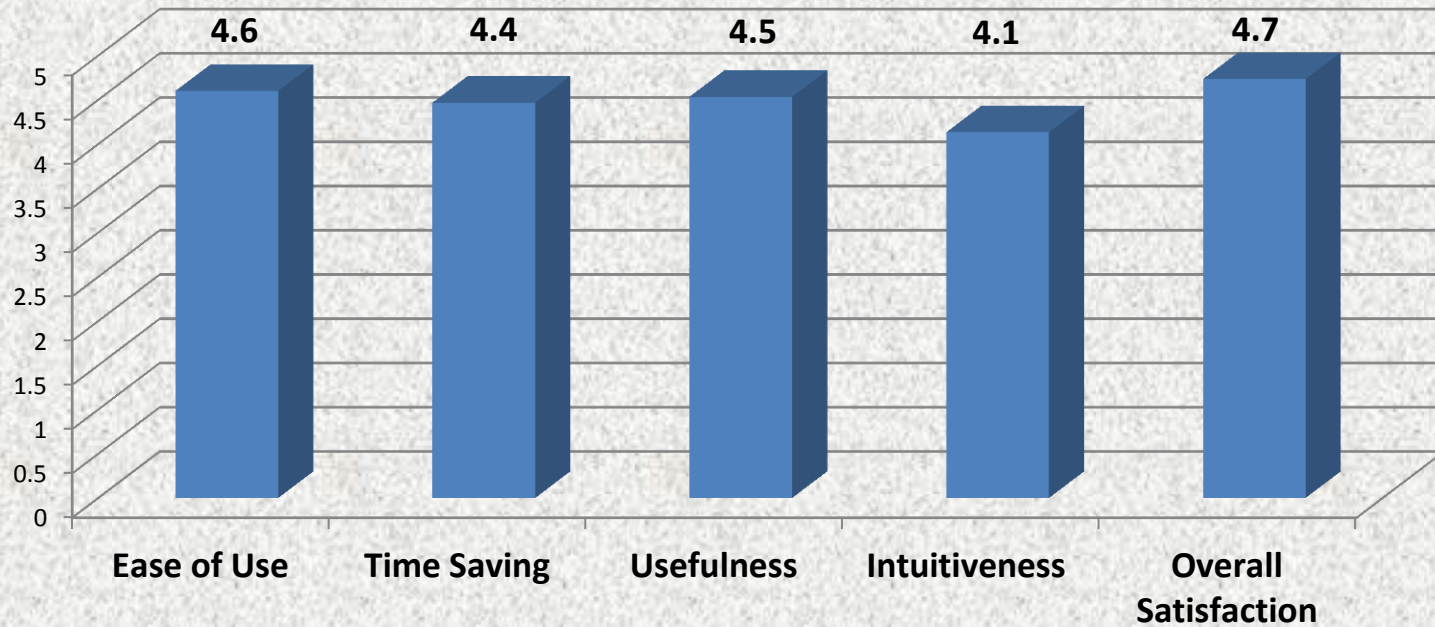
Most Appreciated Aspects

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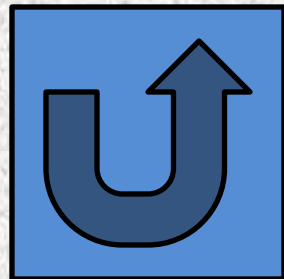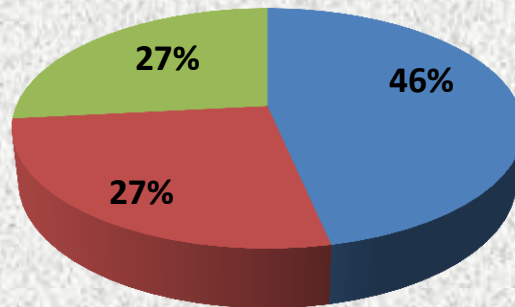
CONSOLIDATED TEAM ACTIVITY REPORT

School: **UEL**

Department: [▾]

Select [▾] [ ]

Code [ ]

Sunday's Date [ ]

Class [ ]

Sections [ ]

Grad Date [ ]

○ Support? | No. of Pages | 1

Hours of instruction provided for students: (Normally 40 X Number of Sections) [ ]

Hours students were available for instruction: (Normally 30 X Number of Sections) [ ]

FULL SECT Total [ ]

Minimum requirement for a standard academic week is 120 hours of instruction per 3 section team.

NO	Delt.	Name	FULL SECT	SPLIT SECT	SPCL ASST	FLO TESTING OPI	FLO TESTING Perf	VTT	MTT	MLI INST	Grading preparation meetings	EEO APS Accred	Formal Training	AL	SL	Other	HOLI	Total should be 40	Team member Exit Date REASON
								Teaching and ES Support			**Academic** Support	Service		**Leave**			**Hours not available for Teaching**		
1	-																		
+	-	MLI								■									
+	-	WAE																	

Add | Created By [ ]

Team Leader [ ]

Chair [ ]

Clear Form | Print Form | UEL School: Electronic CTAR, April 2010 - Yaniv Oded | Save Form | Send Form