



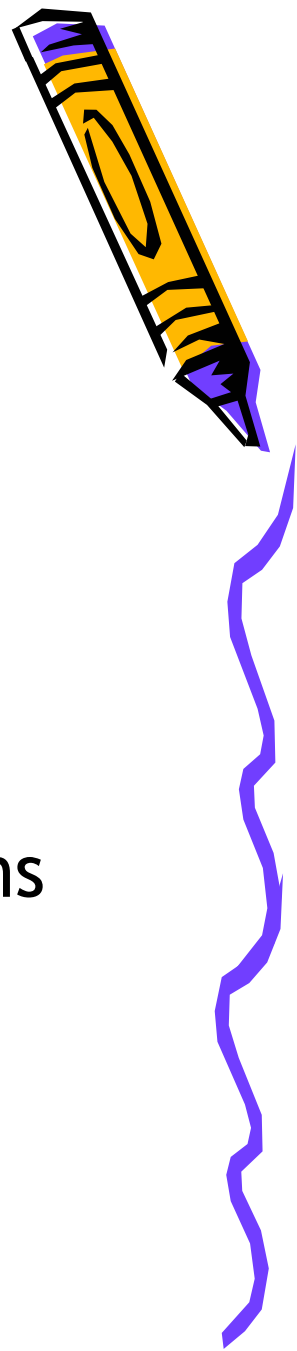
PROJECT LISTEN



Micah Alpern, Katie Minardo, Maureen O'Toole,
Amy Quinn, & Sean Ritzie

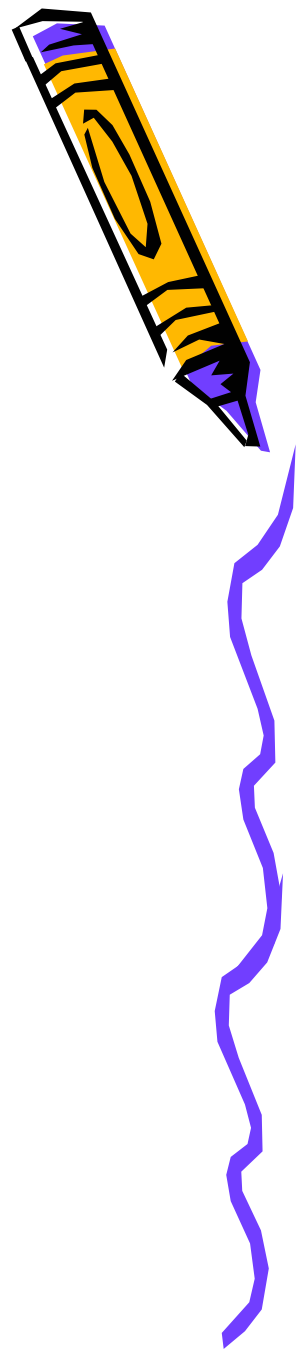
Introduction

- **The Project:** What is Project Listen
- **The Players:** The Users and the Context
- **The Problems:** What we found
- **The Rejects:** Initial Solutions
- **The Solution:** Redesign Recommendations
- **The Moral:** What we learned



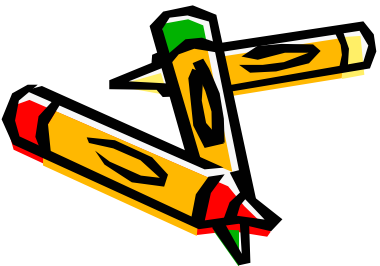
What is Project LISTEN?

- A reading tutor that displays stories and uses speech recognition to listen to students as they read
- Provides specific assistance when students encounter problems or click on help
- Led by Jack Mostow
- used in 9 schools

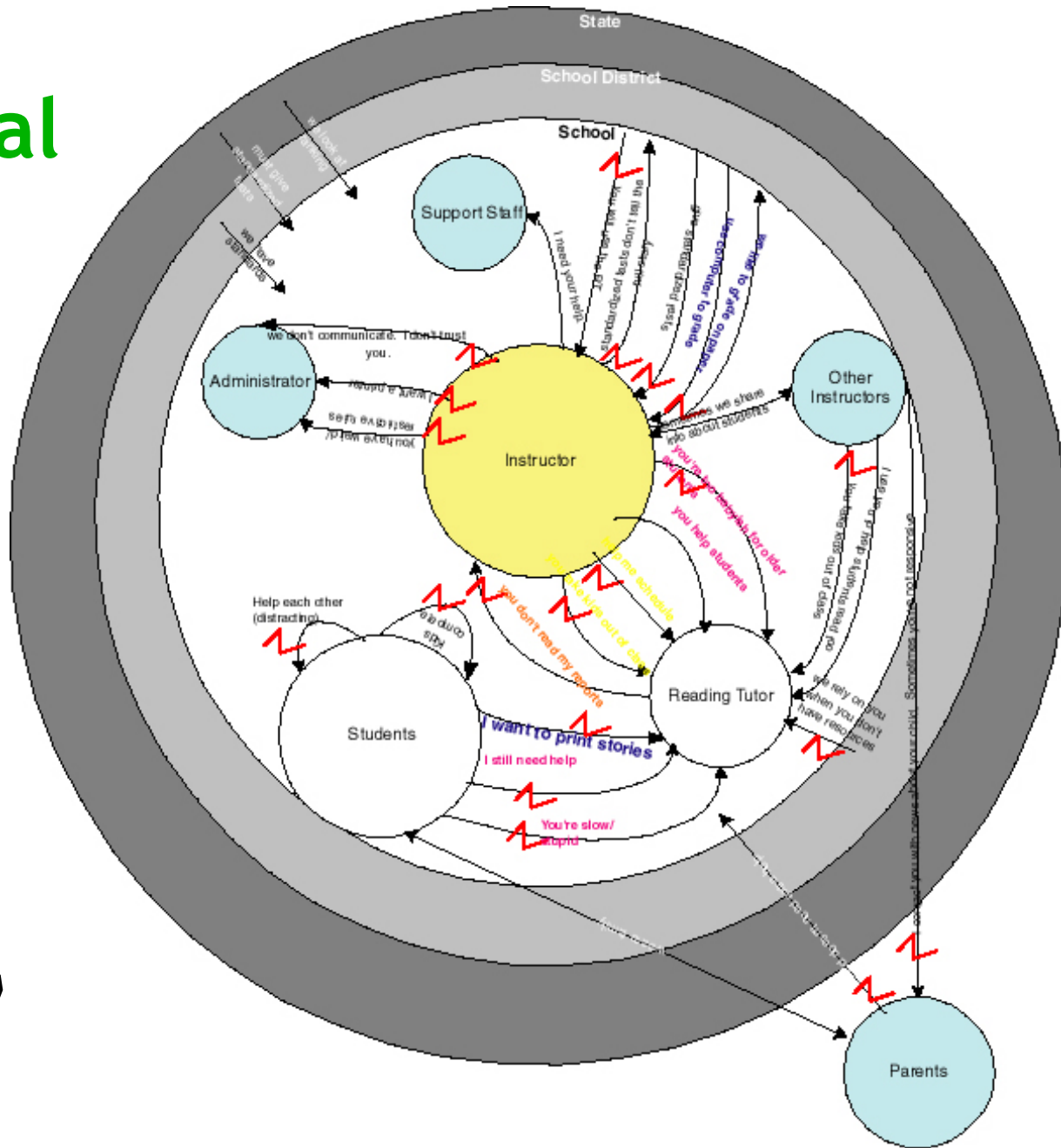


The users:

- Teachers and Reading Specialists are the target audience for the reporting tool
- Peripheral users or audiences for the reports include principals, school administrators, parents, etc.

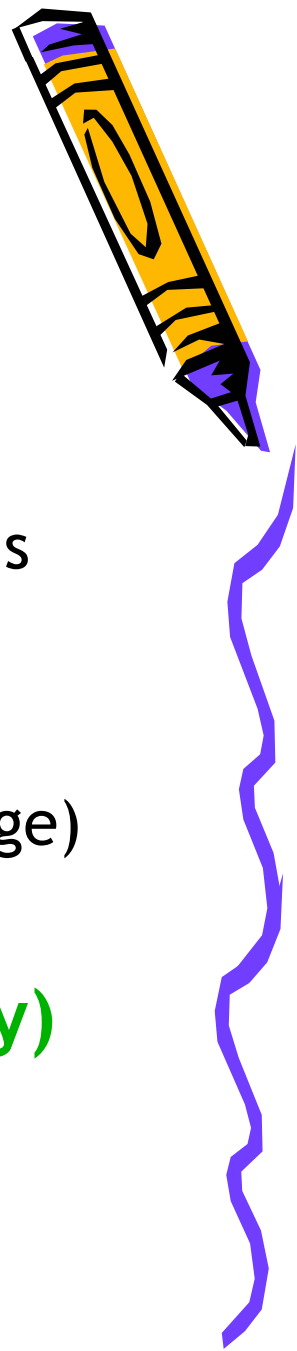


Cultural model



Overview of Methods

- **Contextual Inquiry / Contextual Design**
 - 4 urban and suburban public schools
 - 3 teachers and 2 reading specialists
 - Created work models to illustrate instructor's use of tutor
- **Heuristic Evaluation**
 - Main focus: teacher reporting tool (single page)
 - Secondary focus: main tutor interface
- **Think Aloud Evaluation (this Wednesday)**
 - Think aloud with teacher on the redesign



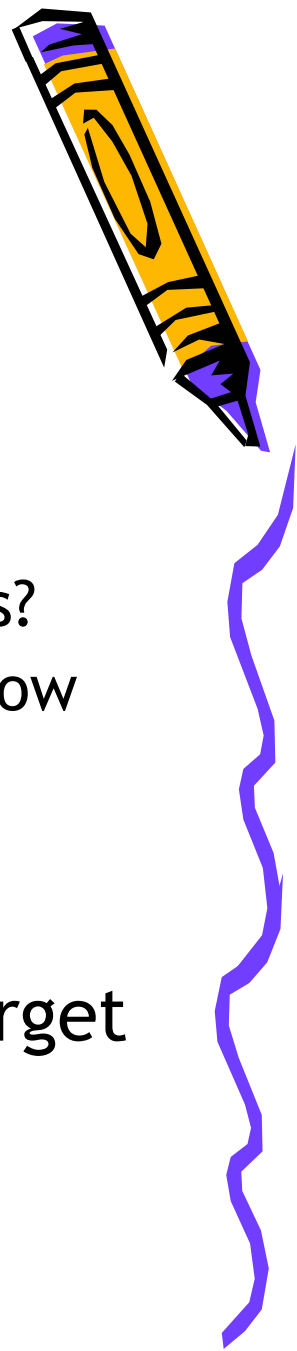
Where we started: our initial focus



- **The Goal:** to increase teacher support of RT
- Tutor is valuable vs. Tutor is another thing I have to manage
- **The Question:** Can we increase teacher support by providing an additional assessment tool?



Hypothesis #1: Assessment



- How can we make assessment easier for teachers?
 - What are teachers using to evaluate students?
 - What kind of information do they want to know that Tutor can provide?
- Can the assessment the Reading Tutor provides help teachers plan lessons or target individual problems?



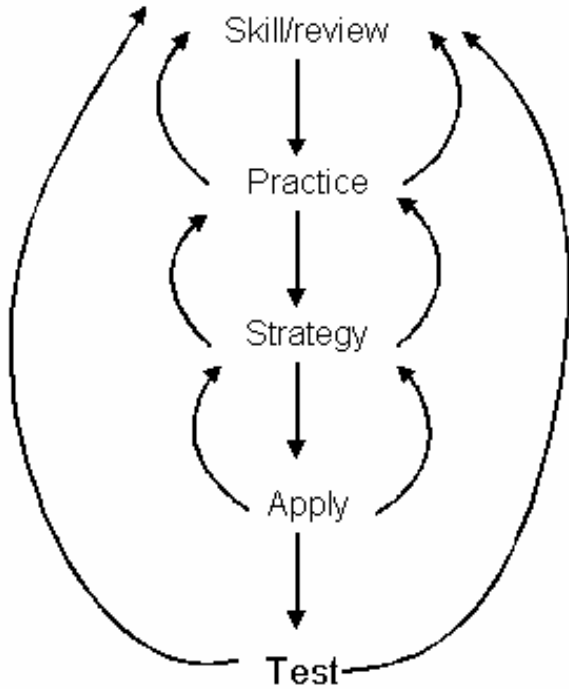
What we discovered about assessment



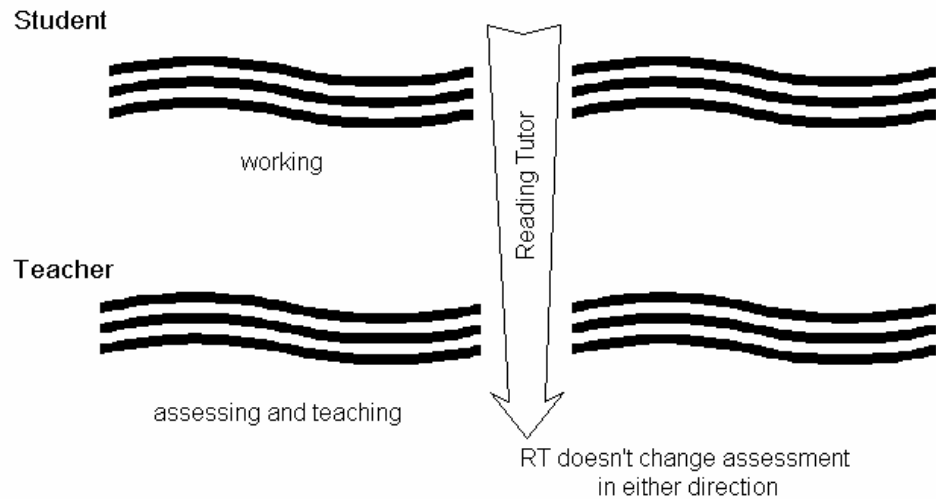
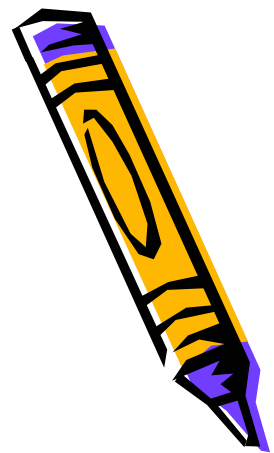
- Teachers are constantly assessing students progress
- Know their students and their abilities
- This is the part of the job teachers enjoy
- Assessment can be PART of the solution, but not the whole solution



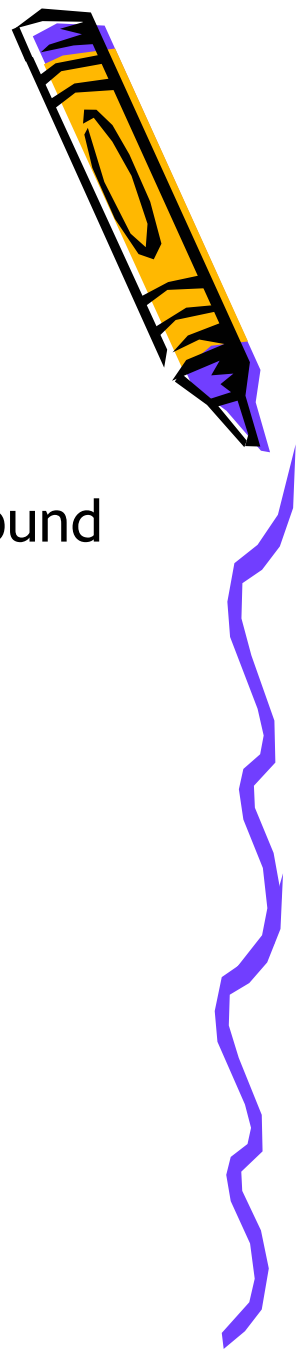
Consolidated Sequence Model



Sequence model



What the tutor can and cannot tell us:



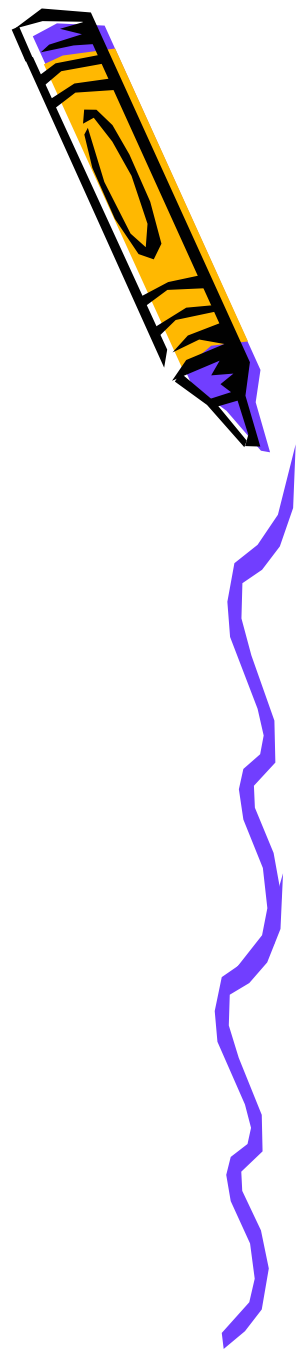
- **Limited accuracy in speech recognition**
 - speech recognizer can distinguish silence from sound
 - tutor can handle wide range of voices (accents, ages, genders)
- **We want our reporting to be ACCURATE**
 - cannot report fluency (teachers interest)
 - error rate is not accurate
 - If data isn't accurate to teacher, the tutor loses credibility



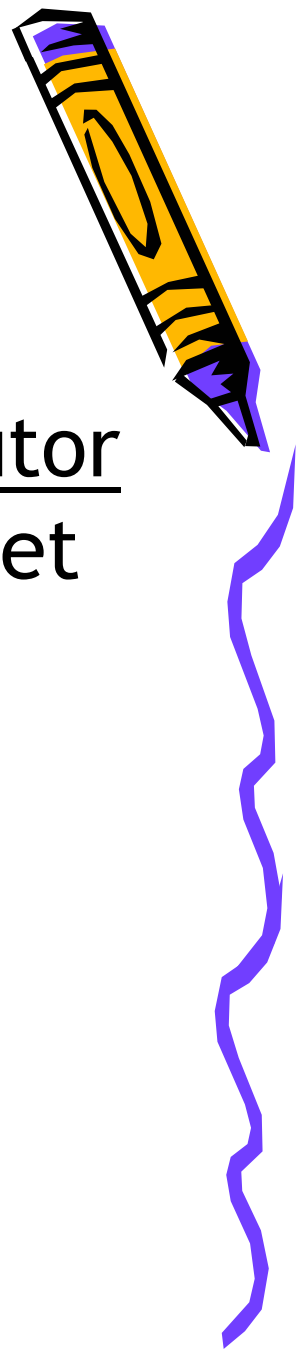
Other observations from Contextual Inquiry

(came from highlighted areas on the models)

1. Scheduling students on the Reading Tutor
2. Teachers not using teacher report
3. Paper is important
4. Minimize competition between students



#1 - Scheduling students on the Reading Tutor



- Students cannot use any Reading Tutor computer, only the one they were set up on (additional scheduling constraint)
- If a tutor is broken...
- Alleviate role strain on teachers



#2 - Teachers not using current teacher report

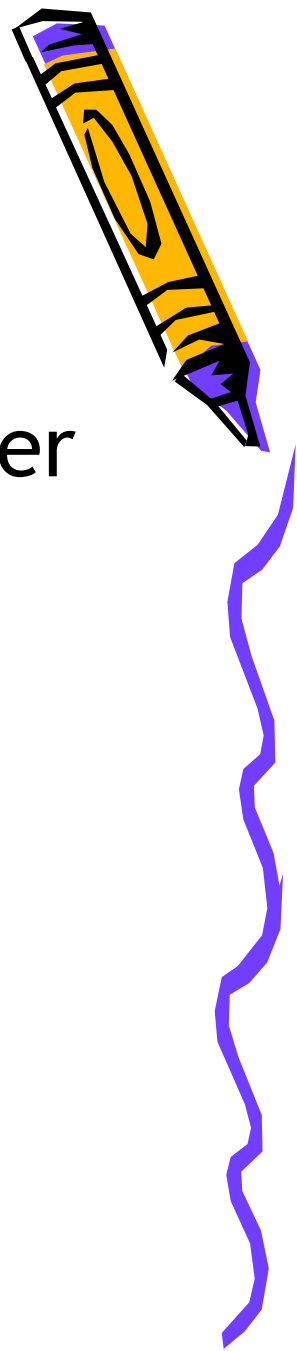


- Teacher report link hidden
- Network problems in displaying reports and roster
- Data in current report does not speak teacher's language

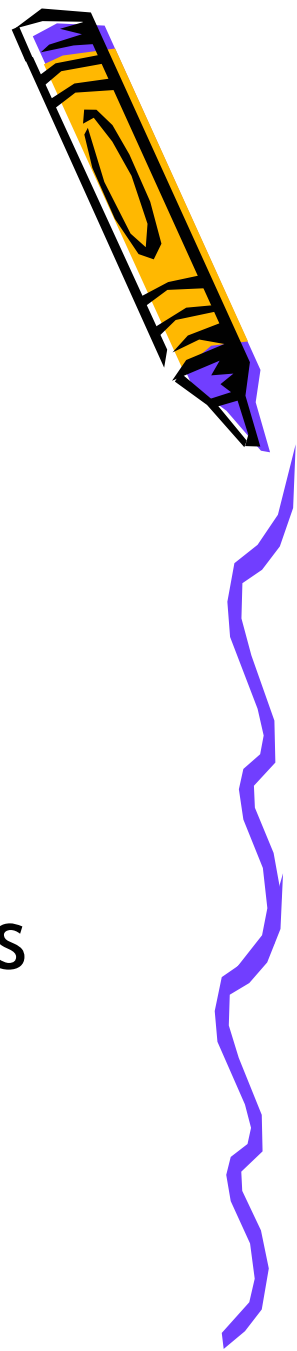


#3 - Paper is important

- Even tech-savvy teachers made paper copies of everything
- All used required e-gradebooks but kept paper gradebook as backup
- Student work and posters



4 - Minimize competition

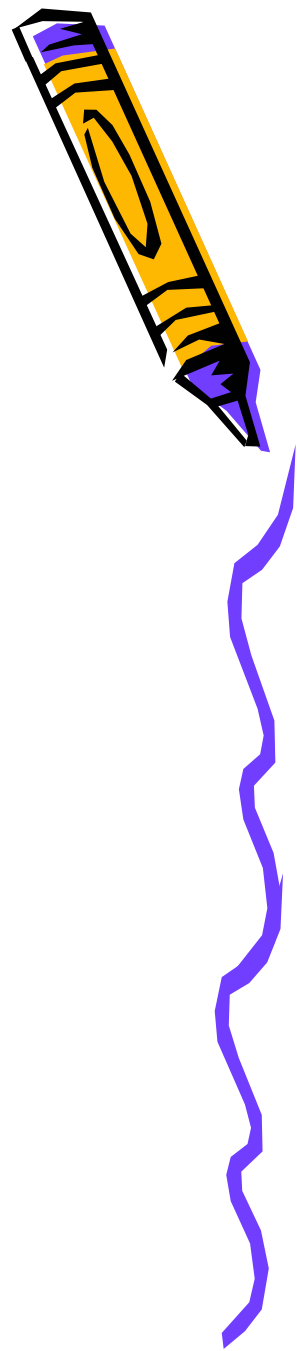


- Students using Reading Tutor competed (story level, how many stories read, etc.)
- Teachers wanted to minimize competition so students would focus on practicing their reading



Design ideas explored

- **Detailed assessment reports**
 - Tutor can't provide all the data teachers want
- **Poster showing students progress**
 - Drives further student competition
- **Emails to teachers**
 - Teachers rely on paper copies, not email
 - Formatted tables/graphs not possible
- **Paper reports to teachers**
 - Mailing costs, setup costs
 - Limits teacher freedom
 - Not scalable
- **Online reports that can be printed**
 - Allows teacher to ignore them
 - Must be secure



Problems we addressed in prototype:



- Unnecessary information on roster
- “hidden” teacher system
- Unclear information in teacher report
- Existing graphs that do not speak teachers language
- Shifted focus from grading to tracking progress (schedule and assessment)



Welcome to the Reading Tutor! Please put on the headset and click

Hello



Exit

Version: Nov 28 2001 11:12:57 F d:\listentutor\client\listen.org



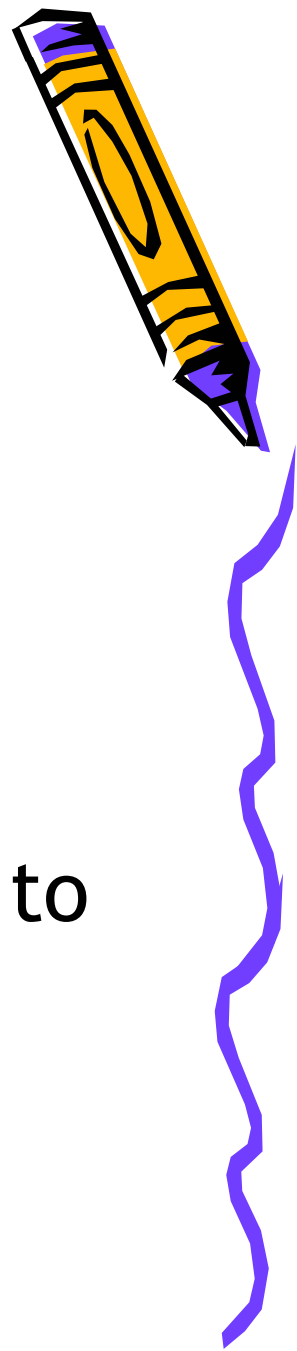
Welcome to the Reading Tutor! Your internet is working.

Roster for December 4, 2001

Usage Today	Reader Name	Level	Stories Read	Words Read	Number of Sessions	Session Duration	First Session	Last Session
	Amy Quinn	G	55	2194	15	28.6 min.	10/03/2001	12/04/2001
	Maureen O'toole	D	1	292	1	22.5 min.	11/06/2001	11/06/2001
	Ima Reader	A	5	120	2	8.1 min.	10/02/2001	11/28/2001
	Kermit Frog	C	2	116	1	15.7 min.	10/15/2001	10/15/2001

Roster page:

- Eliminated the unnecessary information
- Added quick link to teacher system (simplify and remind)
- Created [✓] column to facilitate scheduling
- Remove the levels on roster (visible to students) to minimize competition
- Alphabetical order by last name

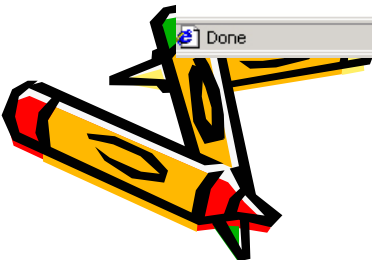
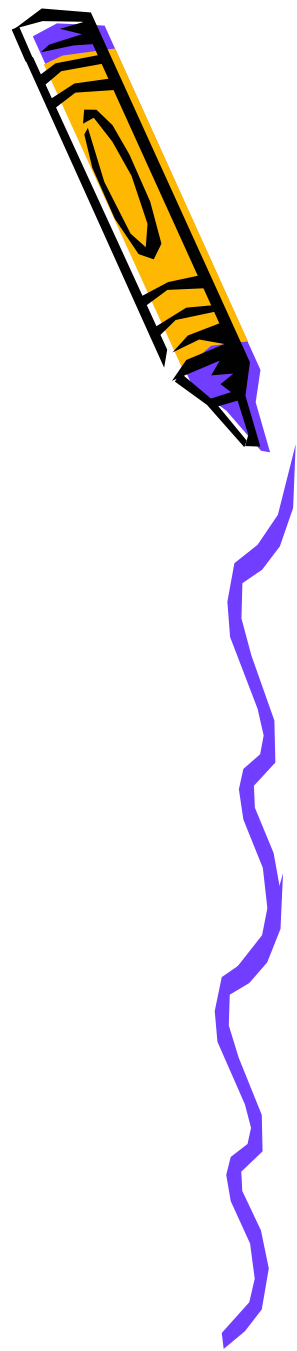


READING TUTOR ROSTER

TEACHER
report

STUDENT
tutor

used today	name	days since used	date last used
✓	Micah Alpern	0	Tuesday December 4
✓	Jim Altman	0	Tuesday December 4
	Lisa Auslander	1	Monday December 3
✓	Christie Brinkley	0	Tuesday December 4
	Tom Cruise	1	Monday December 3
	Penelope Cruz	3	Friday November 29
✓	Matt Damon	0	Tuesday December 4
	Farrah Fawcett	1	Monday December 3
	Lyle Lovett	1	Monday December 3
✓	Katie Minardo	0	Tuesday December 4
✓	Jack Mostow	0	Tuesday December 4
	Maureen O'Toole	3	Friday December 29



Welcome to the Reading Tutor! Please put on the headset and click



Exit

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<< [Previous Week: SEPTEMBER 16TH, 2001 TO SEPTEMBER 22ND, 2001.HTM](#)

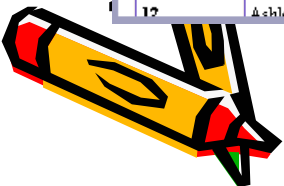
>> [Next Week: NOVEMBER 4TH, 2001 TO NOVEMBER 10TH, 2001.HTM](#)

>> [Most Recent Weekly Report](#)


Summarize

October 28th, 2001 to November 3rd, 2001

	Full Name	Days Used	Minutes Used	(Last)	Average Reading Level	(Last)	Number of Stories Completed	(Last)	Number of New Words Seen	New Words Seen
1	Test Reader	0	.	.0	.	B.0	.	0	.	
2	Test Too	0	.	.0	.	K.0	.	0	.	
3	Rich Jammal	0	.	18.3	.	C.0	.	2	.	
4	Matthew Sabol	1	23.2	23.2	G.0	G.0	2	2	42	Do Meant Kindergartens Neighborhood Suffrage Visiting Laws Care Gates Work Chicago Others Services Figure Center Urged Nurses Vice Addams Mothers Individual's Children Such Chbs Joined Child Kitchen Ellen Movement Contacted Outside Sought Vote Legislator
5	Michael Mcelroy	1	21.8	21.8	G.0	G.0	1	1	7	Carnegie's True Blow Stand Stranger Coward Replied
6	Kayla Wyckoff	1	20.4	20.4	G.0	G.0	2	2	8	Top Upside Yellow Bright Pale Colors Pale Flowers
7	Ryan Caligiuri	1	18.3	18.3	G.0	G.0	1	1	1	Teenager
8	Erica Semenick	1	14.6	14.6	G.0	G.0	1	1	5	Inspires Bernstein's Names Ray Amanda
9	Ashley Queen	1	22.6	22.6	F.0	F.0	0	0	8	Fraud Taxes Literacy Tests Intimidation Polls Poll Vote
10	Alexis Worthington	1	19.0	19.0	F.0	F.0	2	2	9	Rob Rip Roll Would Amount Choose Huge Lot Fund
11	Machine Average	1	18.4	12.3	F.0	C.8	1	1	12	
12	Ashley Ansell	1	7.1	7.1	F.0	F.0	0	0	22	Her Are Both Girls Blamed Lecture Elder-sisterly You Meg Said Really Beginning Fashion Little Women Girl Behave Little Women Environment

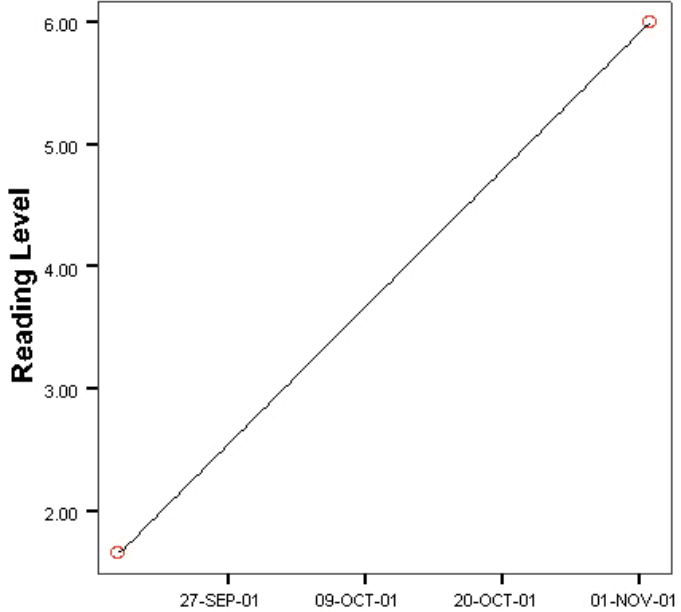




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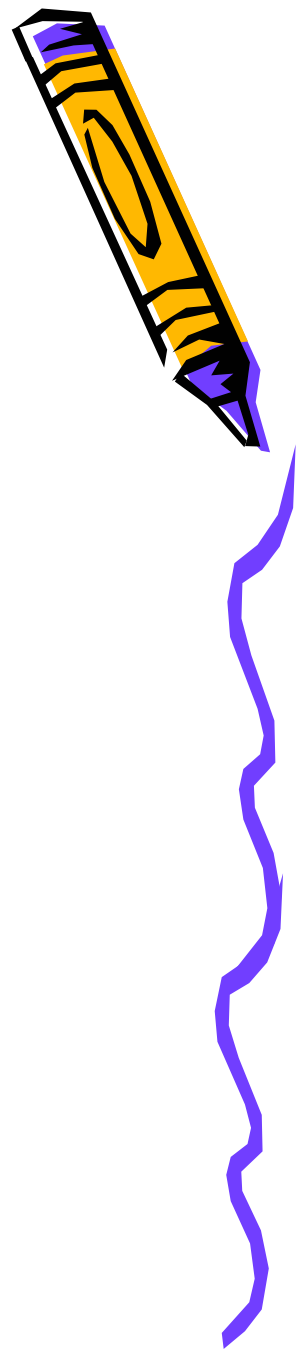
Interactive Graph

Change in Reading Level by Week

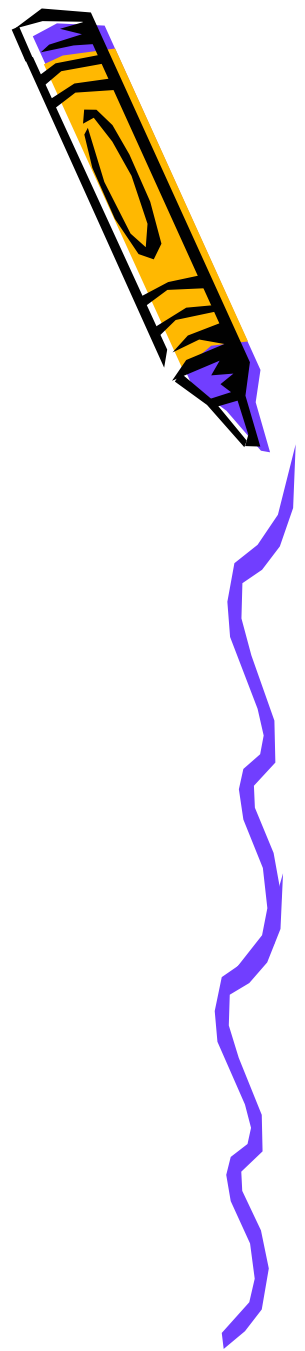


Teacher Report

- **Shift the focus of the information**
 - Relate information to existing teacher norms
 - Support scheduling by highlighting time information
- **Limit the overview to a single page**
- **Allow teachers to PRINT**
 - One child summary for parents'
 - Whole class summary for administrators



New teacher report



Internet Explorer browser window showing the URL: <http://www.andrew.cmu.edu/~kminardo/LISTEN/report.html>

Mrs. Eaton's READING TUTOR report

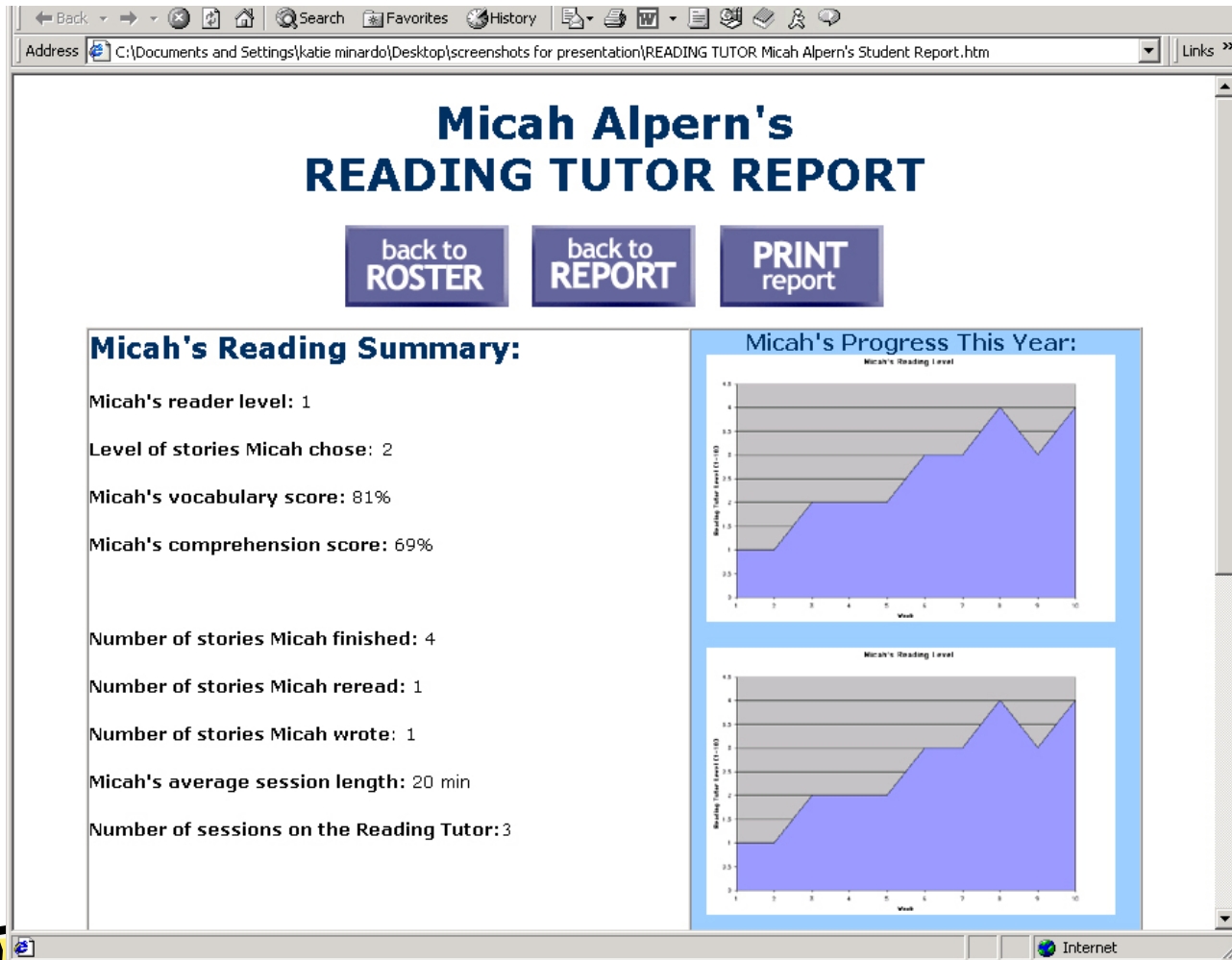
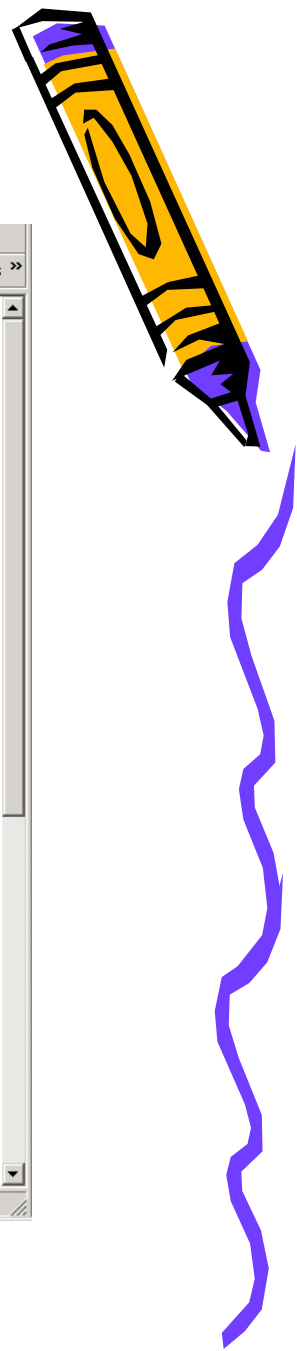
[back to ROSTER](#) [PRINT report](#)

	reader level	level student chose	vocabulary score	comprehension score	number of stories finished	number of stories reread	wrote new stories	average session length	number of sessions
Micah Alpern	1	2	81%	69%	4	1	✓	20 min	3
Jim Altman	4	3	45%	97%	5	2		22 min	2
Lisa Auslander	6	4	23%	36%	3	3		21 min	3
Christie Brinkley	4	5	49%	35%	2	0	✓	20 min	1
Tom Cruise	3	3	35%	25%	4	4		22 min	3
Penelope Cruz	3	3	67%	25%	6	3		21 min	3
Matt Damon	5	5	34%	57%	4	2		17 min	3
Farrah Fawcett	1	3	81%	25%	2	2		20 min	3
Lyle Lovett	1	1	32%	86%	3	1		22 min	3
Katie Minardo	2	2	98%	46%	2	0		21 min	3
Jack Mostow	4	3	91%	25%	1	0	✓	23 min	2
Maureen O'Toole	6	5	87%	57%	1	0		24 min	3

Done Internet

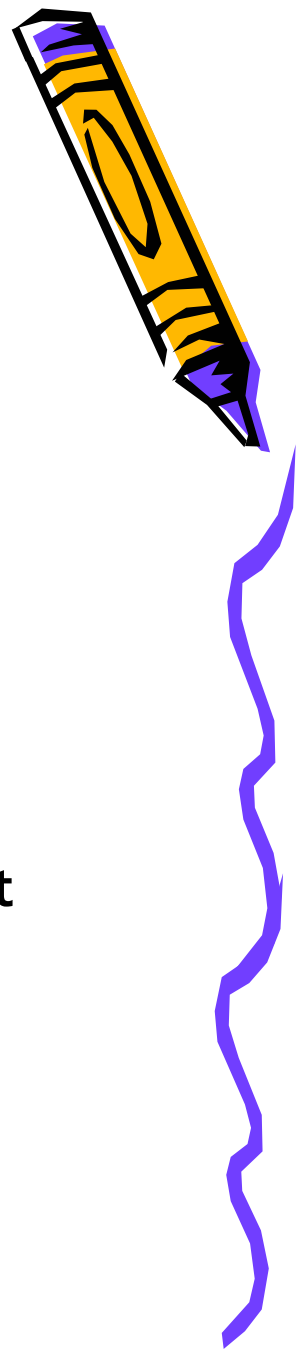


New report (individual)



What we learned:

1. **Uncovering design ideas is a gradual and indirect process**
 - assessment idea
 - Non-RT teacher
2. **Talking to the user is crucial**
 - The more users, the better
 - The more diverse, the better
3. **Having a good client relationship is important**
 - Took turns learning & teaching
 - Frequent meetings extremely helpful
4. **HCI methods can be used in different ways**
 - Not every method will apply
 - Certain methods prove invaluable



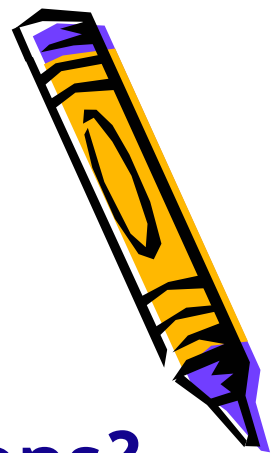
“the team”



“the client”



questions?



questions?

questions?

Questions?

questions?

questions?



The End

