

## Monitoring Instructional Programs

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"You must do the thing you think you cannot do."  
Eleanor Roosevelt

### Why Collect Data?

Allows for precise and accurate evaluations of instructional strategies and interventions

Allows for decision making and adjustments over the course of the intervention

Accountability

### Data Collection: A Process

Select the behavior  
Define the target behavior(s)  
Choose a data collection system  
Determine when to collect data  
Implement the data collection system  
Summarize and graph data  
Utilize data to make decisions about program effectiveness

So what are the data collection options  
and  
how do I decide which one to use?

### Types of Data Collection Procedures/Systems

Anecdotal Reports  
Permanent Product Recording  
Event Recording  
Interval Recording  
Time Sampling  
Duration Recording  
Latency Recording

### Anecdotal Recording

- Write down the setting as you initially see it, describe the individuals and their relationship, identify the occurring activity
- Record everything the targeted student says and does and to whom or to what
- Describe everything said and done to the student and by whom
- Clearly differentiate between fact and your interpretation of what is being observed
- Useful for initial data collection to get the big picture

### *Permanent Product Recording*

Tangible items that result from behavior

Do not need to directly observe student, review the concrete results of behavior

Quizzes, tests, fluency measures, school discipline records, writing samples, homework, audio recordings, video recordings

### *Event Recording*

The number of times a behavior occurs  
Most directly and accurately reflects the number of times a behavior occurs

Useful when attempting to increase or decrease a specific behavior

Needs to be a discrete behavior (obvious or agreed upon beginning and end)

Used when instructing from a task analysis

*Beware high frequency and extended time behaviors*

### *Duration Recording*

Temporal rather than numerical dimension

Easily identifiable beginning and end (operational definition)

Average duration & Total duration

### *Latency Recording*

How long a student takes to begin performing a behavior

### *Interval Recording*

Approximation of actual behavior

% of intervals in which behavior occurs

Appropriate for high frequency and continuous behaviors

Less accurate than event recording, more accurate than time sampling

### *Interval Recording (cont.)*

I.d. specific observ. time period (10 – 60 min.)

Observation period divided into equal time intervals (10 – 30 sec.)

Behavior noted if it occurs at any time during the interval

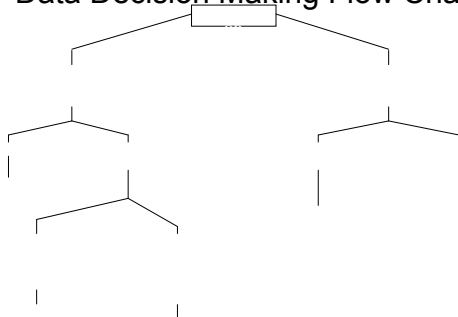
### Time Sampling

I.d. specific observ. time period (10–60min.)  
 Observation period divided into equal time intervals (e.g., 30 sec./ 1 min./ 3min./5min.)  
 Allows observing over longer periods of time  
 Behavior noted if it occurs at the end of the interval  
 Best for frequent or long duration behaviors

### Choosing a System

Is the target behavior numerical or temporal?  
 If numerical:  
     Continuous?  
     Frequency?  
 If temporal:  
     Time to initiate?  
     Elapsed time?  
 Third party?

### Data Decision Making Flow Chart



### Reliability

A second observer simultaneously and independently records the same data; calculate interobserver reliability

Frequency:

$$\frac{\text{Smaller \#}}{\text{Larger \#}} = \frac{19}{20} = .95 \text{ or } 95\%$$

### Reliability

A second observer simultaneously and independently records the same data; calculate inter-observer reliability

Duration & Latency:  $\frac{7}{9} \times 100 = 78\%$

$\frac{\text{Shorter \# of min.}}{\text{Longer \# of min}} \times 100 = \% \text{ agreement}$

### Reliability

A second observer simultaneously and independently records the same data; calculate inter-observer reliability

Interval Recording:  $\frac{7}{7+3} \times 100 = 70\%$

$\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100 = \% \text{ agreement}$

### Factors That Influence Inter-observer Agreement

- Reactivity
- Observer Drift
- Complexity
- Expectancy

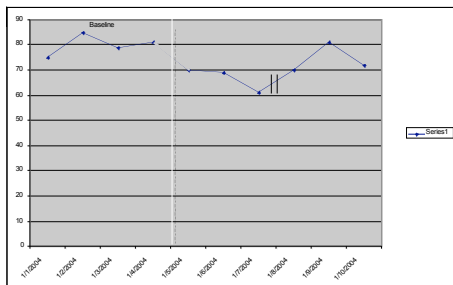
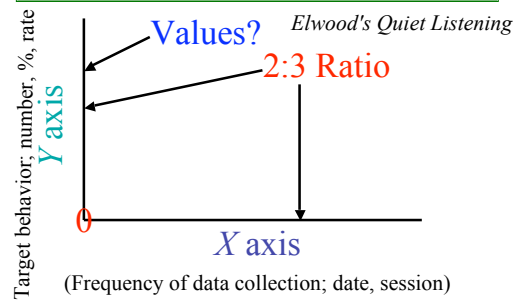
### Components of Data Collection Systems

Student's name	Date, Time, Location	Length of observation	Behavior observed
Description of behavior	Space for recording data	Scoring code	Data summary
Comments?			

### Why graph data?

1. Provide a means for organizing data during the data collection process
2. An ongoing picture makes possible formative evaluation, the ongoing analysis of the effectiveness of the intervention
3. Graphs serve as a vehicle for communication among teacher, student, parents, and related service personnel

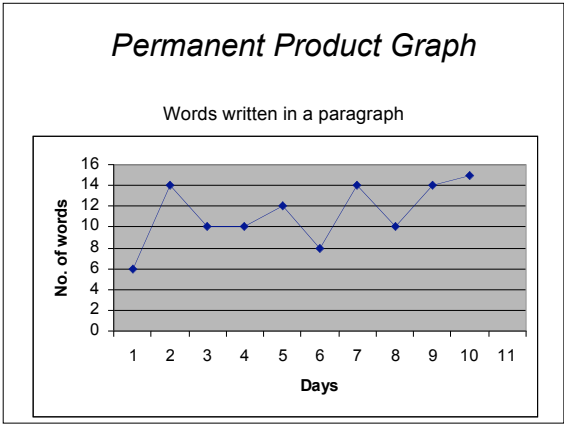
### Graphing Conventions



### Permanent Product Data

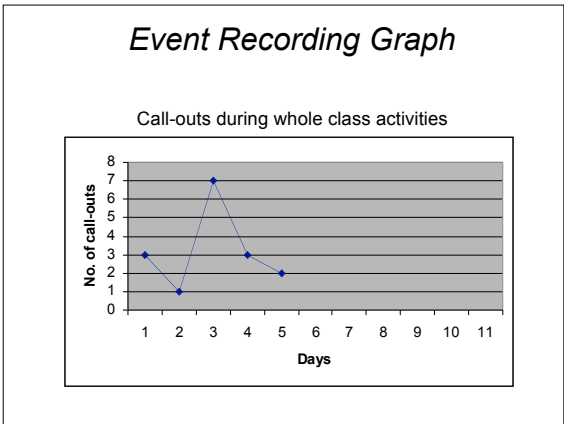
Student: Catherine  
 Behavior: writing paragraphs of 20 words given title and topic sentence

Date	# of words	Date	# of words
3/16	6	3/27	8
3/18	14	3/30	14
3/20	10	4/2	10
3/23	10	4/4	14
3/25	12	4/7	15



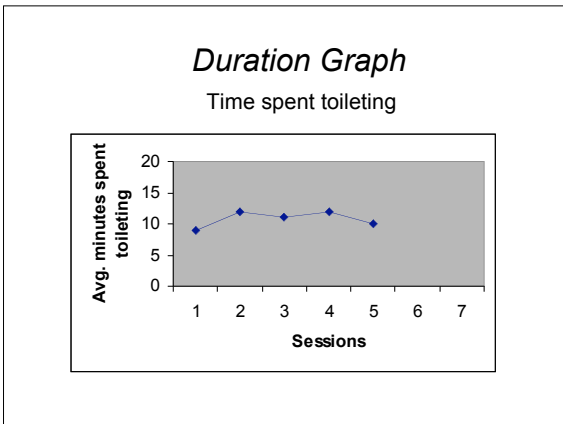
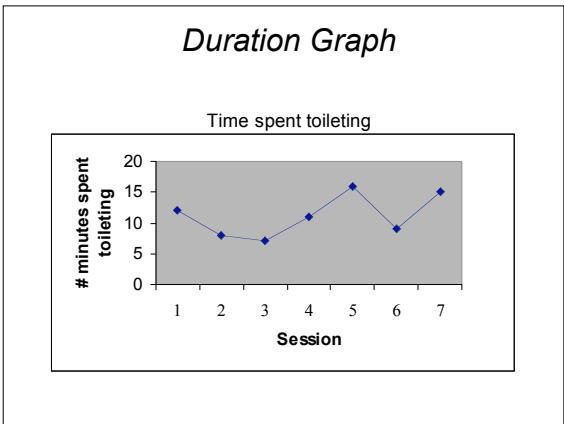
### Event Recording Data Collection

<b>Student</b>	Michael	
<b>Behavior</b>	Calling out without raising hand	
<b>Observation Period</b>	10:20-11:00 (whole class activity)	
<b>Days</b>	<b>Instances</b>	<b>Total</b>
Monday	///	3
Tuesday	/	1
Wednesday	////	4
Thursday	///	3
Friday	//	2



### Duration Data Collection

<b>Student</b>	Casey	
<b>Behavior</b>	time spent toileting	
<b>Mon.</b>	1. 12 mins 2. 8 mins. <b>AVG = 9 mins</b> 3. 7 mins	<b>Thurs.</b> 1. 14 mins 2. 10 mins <b>AVG = 12 min</b> 3. 12 mins
<b>Tues.</b>	1. 11 mins 2. 16 mins <b>AVG = 12 mins</b> 3. 9 mins	<b>Fri.</b> 1. 9 mins 2. 11 min <b>AVG = 10 min</b> 3. 10 min
<b>Wed.</b>	1. 15 min 2. 10 min <b>AVG = 11 min</b> 3. 8 min	



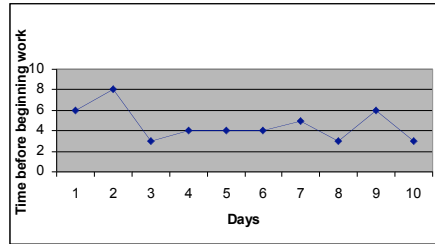
### Latency Data Collection

Average daily time before beginning work

2/6-2/10	2/13-2/17
M 6'	M 4'
T 8'	T 5'
W 3'	W 3'
H 4'	H 6'
F 4'	F 3'

### Latency Graph

Average daily time before beginning work



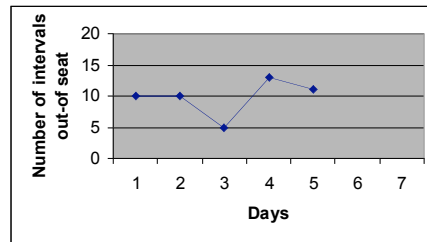
### Interval Recording Data Collection

Student: Omar  
 Behavior: out-of-seat  
 Observation Period: 7 minutes (first 7 minutes of center time)

	20'	40'	60'	20'	40'	60'	20'	40'	60'	20'	40'	60'	20'	40'	60'	20'	40'	60'		
Mon	-	S	S	S	-	-	S	-	-	-	-	-	-	S	S	S	-	S	S	
Tues	S	S	S	-	S	-	-	-	-	S	-	-	-	-	-	-	S	-	S	S
Wed	-	-	-	S	S	-	S	-	-	-	-	-	-	-	-	-	S	S	-	-
Thurs	S	-	S	S	-	S	S	-	-	-	-	-	S	S	S	S	-	-	S	S
Fri	-	S	-	-	S	-	S	-	-	S	S	S	-	S	S	S	-	-	S	S

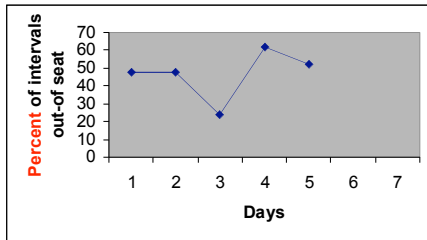
### Interval Recording Graph

Out-of-seat during first 7 minutes of "Centers"



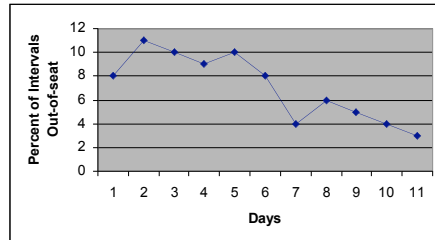
### Interval Recording Graph

Out-of-seat during first 7 minutes of "Centers"



### Interval/Time Sampling

Out-of-seat during first 7 minutes of "Centers"



### Rate Data Collection

<b>Student</b>	Steven		
<b>Behavior</b>	Packet assembly		
<b>Observation Period</b>	Vocational training at Red Cross		
<b>Days</b>	<b>No. Completed</b>	<b>Time</b>	<b>Rate per minute</b>
Monday	45	30'	1.5
Tuesday	40	25'	1.6
Wednesday	45	25'	1.8
Thursday	40	20'	2.0
Friday	50	25'	2.0

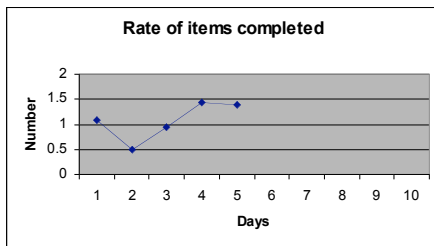
### Computing Rate

- Divide the number of correct responses by the time taken for responding

$$\text{Rate (.5)} = \frac{\text{Number correct (5)}}{\text{Time (10 minutes)}}$$

### Rate Graph

Daily rate of packet assembly



### Data Collection

**Student** Stacey  
**Behavior** Reading Fluency  
**Assessment Period** Language Arts Block -2nd grade

Weekly Probe	Words Correct/Minute
Week 1	40
Week 2	40
Week 3	41
Week 4	43
Week 5	44
Week 6	46
Week 7	48
Week 8	49
Week 9	52
Week 10	55

### Graphing Activity

- Take out graph paper
- Design a graph that matches the data on reading fluency
- Be sure to label the graph to include
  - Title
  - Axis
  - Key

### Data Collection/Graphing Applied Learning

- Take out goal/objectives you have been working on all along
- Use the decision making flowchart to explore the different data collection options
- Decide which data collection method matches the skill you need to monitor
- Develop/revise a data sheet that enables you to quickly and easily record responses
- Design a graph that provides a way to visually represent the student's progress on the skill