

**Writing a storyboard:**

- Organize data & locate trends.
- Select figures that best represent trends.
- Write bullet points for each figure.
- Integrate figures into "storyboard:"
  - Assess how each figure contributes to the major theme
  - REVISE figures to focus on the major theme.
  - REVISE bullet points to focus on the major theme.
  - Add/remove figures.
- Write supporting text.

**Reading a storyboard:**

- Read a single figure to assess accuracy and completeness of the data description.
- Read a series of figures to assess the main theme or "story" of the research article. Assess the logical sequencing of the images.

**Challenge 1: Reading a single figure.**

- What does this visual show? (results)
- What conclusions can be drawn from this visual? (discussion)
- What does each bar show? (caption)
- How might these data have been obtained? (methods)
- What questions do you still have about this visual?

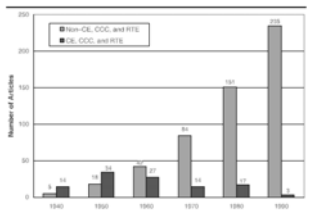



Figure 1. Journal Articles on the Research Paper Assignment  
 NCTE CE = College English, CCC = College Composition and Communication, RTE = research in the teaching of English.

Note: CE, CCC, and RTE are the journals with the highest impact factor in the field of Writing Studies.

NCTE/CCCC's Recent War on Scholarship  
 2005, 22, 198 Written Communication  
 Richard H. Howell

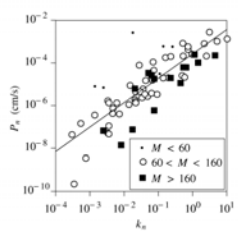
**Challenge 2: Reading a series of figures.**

- What do these visuals show?
- What conclusions/trends can be drawn from these visuals?
- How do these visuals relate to each other? Do they support each other, contradict each other, or ....?
- What other data might you want to see in addition to these?



Kentucky Department of Education. (2003). Kentucky Performance Report. [WWW Document] URL: [http://app1.kde.state.ky.us/secure\\_cats\\_reports\\_03/index.cfm?action=display\\_regionstate](http://app1.kde.state.ky.us/secure_cats_reports_03/index.cfm?action=display_regionstate) (visited 2004, Jan 4).

**Challenge 3: Write 2-3 bullet points for each figure.**



**Methods**

- measuring  $P_a$
- measuring  $k_a$
- fitting straight lines to data
- calculating correlation coefficients

**Results**

- each dot represents ... } caption
- the lines represent ... }
- large range of  $P_a$
- large range of  $k_a$
- regression line:  $P_a = 1.14 \log k_a - 3.58$  → caption?
- correlation coefficient = 0.8
- most of  $M > 160$  below line; all of  $M < 160$  above line

**Discussion**

- correlation → clear support for dissolve and diffuse theory
- scatter → dissolve/diffuse not the whole story
- outliers → solutes transported by other mechanisms

SPRING 2002 KENTUCKY PERFORMANCE REPORT DATA DEAGGREGATION WRITING PORTFOLIO

	# STUDENTS	% DISTINGUISHED	% PROFICIENT	% APPRENTICE	% NOVICE
<b>TOTAL</b>	48,424				
Gender					
Female	23,356	48			
Male	25,068	52			
Demographic					
White (Non-Hispanic)	41,340	49			
African American	4,264	16			
Hispanic	522	1			
Asian	262	1			
Other	589	1			
Other 2	32,869	49			
Program					
Regular Program	47%	1			
Extended English Proficiency	21%				
Extended English Proficiency	15,426	10			
Special and Technical Program	4,194	17			
Free and Reduced Lunch Program					
Approved For Free/Reduced Lunch	24,452	65			
Not Approved (Students not tested)	15,976	44			
Secondary Program					
Students without Secondary	42,514	49			
Students with Secondary	4,264	16			
Student with Accommodation	4,727	17			
Student without Accommodation	1,263	2			
Alternative Assessment	424	14			
Language Proficiency					
None	16				
ELL	446				
Other	612				


Reporting and/or related data are obtained from student answer documents. To protect anonymity, no performance data are reported if category includes fewer than 10 students. These analyses are based on tested students, and do not include alternative assessment. Data errors are not reported for writing because a holistic scoring method is used to evaluate student work.

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**Challenge 4: Integrate figures into a storyboard.**

- Assemble figures into a "storyboard"
- Assess how each figure contributes to the major theme
- REVISE figures to focus on the major theme
- REVISE bullet points to focus on the major theme
- Add figures to fill in gaps
- Remove figures to eliminate redundancy

Sample Draft Storyboard



**Methods**

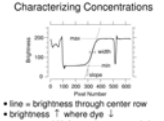
- tabulate blurring statistics
- frames separated by 1 mm

**Changes with Mixing Distance**

Frame	min	max	width
1	115.07	241.3	0.684
2	120.9	239.9	0.647
3	126.5	217.5	0.649
4	130.5	202.9	0.679
5	134.1	202.9	0.703
6	138.5	187.5	0.704
7	139.6	184.8	0.745
8	142.0	184.8	0.710
9	144.2	180.9	0.703
10	145.4	180.7	0.708
11	147.9	179.2	0.700
12	149.3	176.7	0.702
13	150.2	173.8	0.706
14	151.3	173.3	0.698
15	152.9	172.0	0.690
16	153.3	171.2	0.682

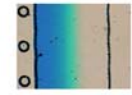
- line = brightness through center row
- brightness ↑ where dye ↓
- measure width from min, max, and slope

**Characterizing Concentrations**



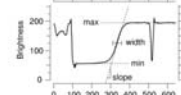
- line = brightness through center row
- brightness ↑ where dye ↓
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**Sample Image**



- circles are distance markers (250 μm)
- blue dye in left channel, none in right
- blurring of dye in center → diffusion

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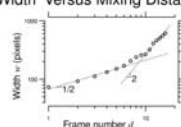
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**Width Versus Mixing Distance**



- log-log plot of  $w$  versus  $d$
- $w \propto \sqrt{d}$  → consistent with theory
- $w \propto d^2$  → "edge effects" ?

**Challenge 5: Translate bullet points into report text.**

- Use "storyboard" as an "outline" of your report.
- Develop bullets into well-supported arguments. Integrate figures with text.
- Read and revise to fill in gaps.
- Add abstract, references, and other supporting material.

