

Effects of note-taking pairs on students' reading retention of scientific and popular press articles

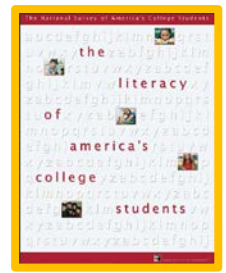
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Introduction



- Hand writing notes promotes learning and retention of material (Kuther, 2018)
- On both immediate and delayed tests of recall, students who took notes scored higher than students who did not take notes (Kiewra et al., 1991)
- Discussion makes students aware of a range of interpretations of the same material (Brookfield and Preskill, 2005)
- When no one in a group initially knows the answer, discussions with a peer(s) can be effective for understanding difficult concepts (Smith et al., 2009)
- Out of 4 levels (below basic, basic, intermediate and proficient), college students would be characterized at the intermediate literacy level (2006 study title: The Literacy of America's College Students)

Hypothesis

- Students would retain more knowledge from popular press articles than scientific articles.
- Conducting the activity of Note-Taking Pairs (taking notes and discussing) over either article type would lead to a greater retention of knowledge for each article type.

Materials and Methods

- ANS 235 Dairy Cattle Science Fall 2016 enrollment
 - n = 108
- Course Format
 - 1 hr. lecture Tuesday and Thursday
 - 2 hr. lab Wednesdays (4 sections)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				Article on Pair Housing Calves becomes available on BB.		
			If assigned to take notes, note check and 10 minute discussion in lab.	Quiz over article in class, first 10 minutes.		

Materials and Methods

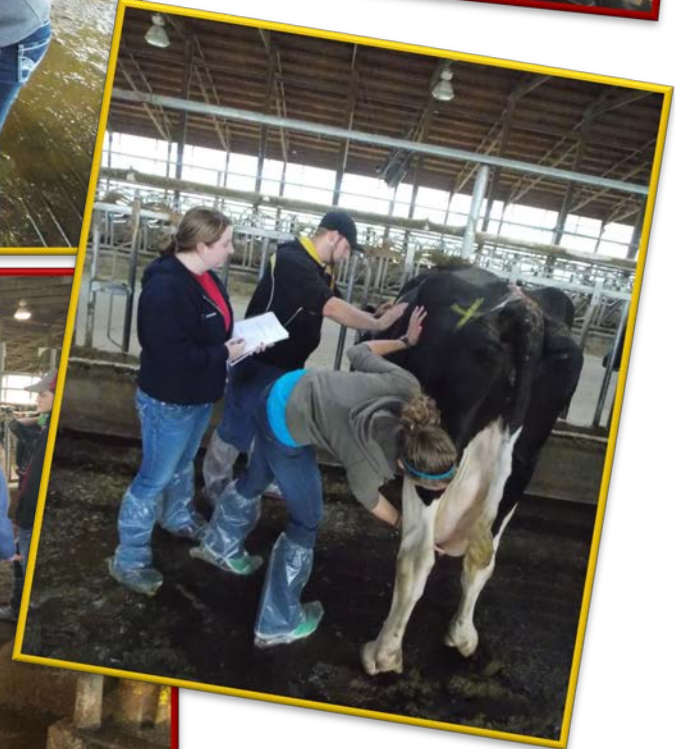
- Note Taking Pairs Activity
 - Compare your notes with your partner's notes.
 - Add/Correct something in your notes.
 - Share key points with your partner.
 - Listen carefully to your partner's key points.
 - Account for your discussion by being prepared to explain the key points.



Data Analysis

- Two group comparison
 - Activity score by NTP vs ND or PP vs S
 - Independent samples t-test
 - A priori Bonferroni adjustment (95% confidence)
- Individual paired comparison
 - Reading time or material retention by article type
 - Paired samples t-test
 - A priori Bonferroni adjustment (95% confidence)

Results



Results

Table 1. Comparison of activity score for students who had no discussion vs note-taking pairs.

	No Discussion				Note-Taking Pair			Sig.	t	df
	n	M	SD		n	M	SD			
Assign. 1	49	8.39	1.48		56	8.41	1.71		0.07	103

*** $p > 0.006$. Scale for assignment score ranged 0 to 10.

Results

Table 2. Comparison of activity score for students who had discussion with note-taking pairs by article type.

	Scientific				Popular Press			Sig.	t	df
	n	M	SD		n	M	SD			
Assign. 1	28	7.25	1.69		28	9.57	0.57	***	-6.88	33

*** $p > 0.006$. Scale for assignment score ranged 0 to 10.

Results

Table 3. Comparison of activity score for students who had no discussion and no note-taking pairs by article type.

	Scientific			Popular Press			Sig.	t	df
	n	M	SD	n	M	SD			
Assign. 1	26	7.73	1.48	23	9.13	1.10	***	-3.71	47

*** $p > 0.006$. Scale for assignment score ranged 0 to 10.

Impact of Taking Notes and Discussion on Student Retention of Material



Student Feedback

- **On note taking:**
 - Taking notes to *help retention* (being graded on them *helped hold me accountable*).
 - I like the activity a lot, I think that its *amazing how by writing and by discussing with a partner I was able to retain a lot more of the information that I read.*
- **On discussion with a partner**
 - I liked that we were able to *talk with another person* about the article. Sometimes I had a hard time understanding the scientific articles, *but I got a better understanding when I talked with someone else.*
 - The *discussions* – *helped me remember a few select details about the article in question and understand how another reader perceived it.*

Results

Table 4. Comparison of strategy on increased retention of information between article type.

	Scientific				Popular Press			Sig.	t	df
	n	M	SD		n	M	SD			
Note-taking increased retention	104	3.81	1.15		104	3.78	1.05		0.31	103
Discussion with a partner increased retention	104	3.31	1.33		104	3.22	1.26		1.32	103

*** $p > 0.001$. Scale for increased retention ranged 1 (strongly disagree) to 5 (strongly agree). Higher score indicates higher agreement of increased retention.

Results

Table 5. Comparison of strategy on increased retention of information within article type.

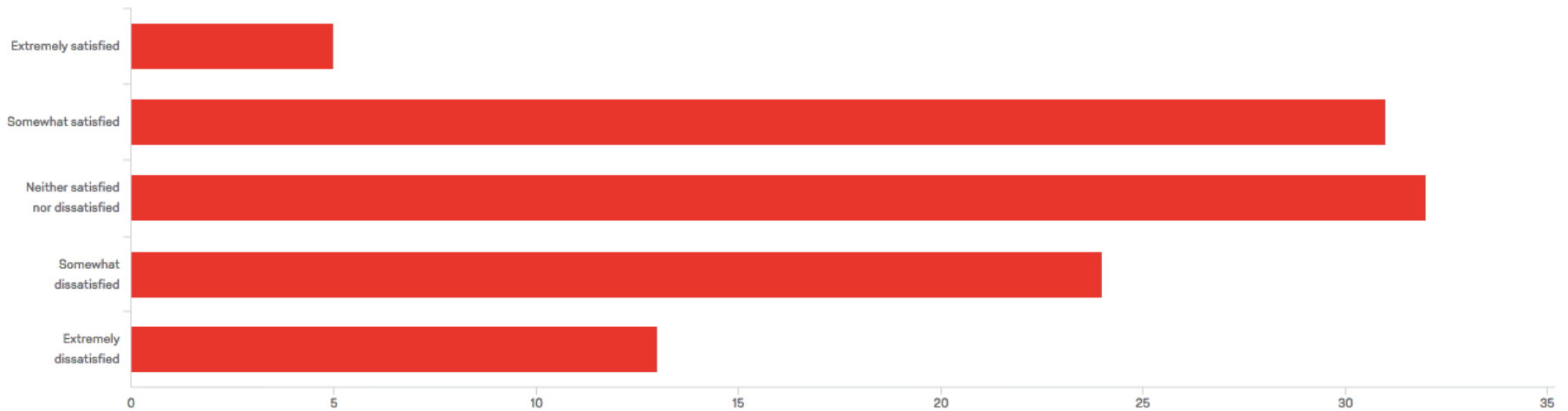
	Note-taking increased retention			Discussion with a partner increased retention			Sig.	t	df
	n	M	SD	n	M	SD			
Scientific	104	3.81	1.15	104	3.31	1.33	***	4.14	103
Popular Press	104	3.77	1.05	104	3.23	1.26	***	4.83	104

*** $p > 0.001$. Scale for increased retention ranged 1 (strongly disagree) to 5 (strongly agree). Higher score indicates higher agreement of increased retention.

Satisfaction with the NTP activity

Q14 - Overall, at the end of the course, how satisfied were you with the Note Taking Pairs Activity?

Page Options ▾



1	Extremely satisfied	4.76%	5
2	Somewhat satisfied	29.52%	31
3	Neither satisfied nor dissatisfied	30.48%	32
4	Somewhat dissatisfied	22.86%	24
5	Extremely dissatisfied	12.38%	13

68/105 = 64.8%

Qualitative Feedback (-)

- *Having to write an entire page took me a ton of time, especially over the scientific articles.*
- *I did not like the discussions-I felt like every partner I had did not want to talk about the article and the conversation was very forced. 10 minutes also seemed to be too long.*
- *I did not like the majority of the scientific articles. Although they had some knowledgeable information, I thought they were somewhat difficult to read and understand the material.*
- *Didn't seem needed, information could have presented in class with a lot less work.*

Qualitative Feedback (+)

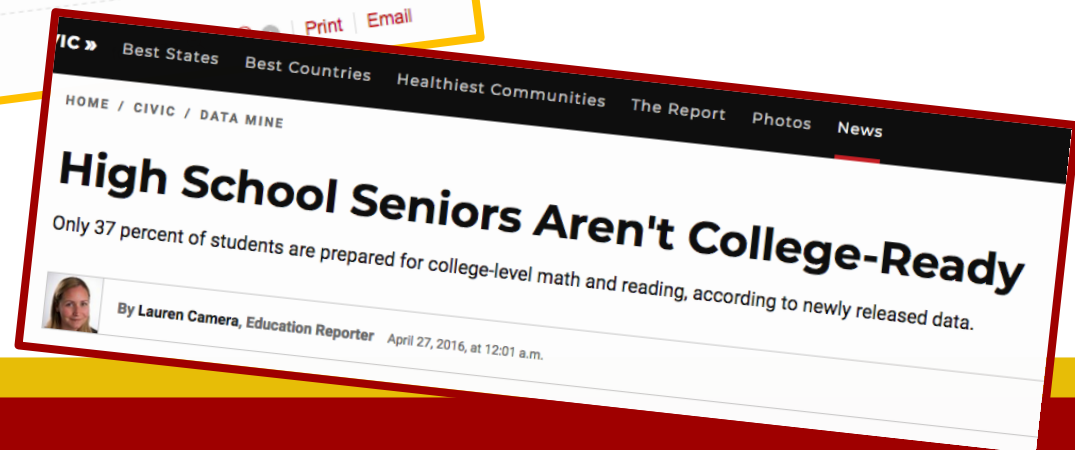
- *I believe that most people, including myself, would rather avoid reading scientific articles because they take a lot of work and time to understand...being forced to read them for class defiantly improved my speed reading the articles and my ability to comprehend scientific articles quicker.*
- *I liked learning more about the research behind known statements. The articles brought different views to consider in the dairy industry.*
- *I liked getting to practice reading scientific articles. Some times they can very hard to read but with this exercise I was able to understand them more.*
- *I was interested in the scientific studies that we read about and found the information presented to be useful especially thinking ahead to a career in the dairy industry. I enjoy learning beyond the surface level of the information presented during lecture.*

Conclusion

- No differences were observed in quiz scores between students regardless of the note-taking pairs activity
- There were no differences in perception of increased retention of the material between the popular press and scientific articles
 - However students rated the activity of note-taking higher in efficacy than discussion

Implications

- How do we increase reading comprehension of undergraduate students so that way they are able to read and understand scientific papers, let alone popular press articles when the average college freshman is coming to college with a 7th grade reading level ability?
- Students not prepared adequately for college.



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Questions

