

Reading between the words

Improving the readability and memorability of text



Kath Straub
usability.org



Outline

- How reading works
- How phrase-formatting helps
- When it helps
- Why it matters
- ReadSmart in Action



Reading is a series of **eye movements** called saccades.

Between the saccades, people fixate, or stop and look at what they are reading.

- Fixations last ~200-250 ms
- The average English word has 5.5 letters
- During a fixation, people see roughly 7-15 characters or ~ 2.5 words



Roadside joggers endure sweat, pain and angry drivers in



the name of fitness. A healthy body may seem reward ...

Roadside jogg

... joggers endure ...

... the ...

endure sweat,

...and angry drivers

... drivers in

...

...vers' in

...

the name of fit

the name of fit

...the

...the fitness. A hea

...the

...the A healthy bc

...and the program will be able to find the right answer.

...and the program will be able to find the right answer. `may seem 'reward'`

Multiple programmatic areas, such as energy efficiency, are

the main focus of the program. A healthy body r

...the

...the body may see

...and the program will be able to learn to play the game.

...and the program will be able to learn to play the game. `seem reward ..`



Roadside joggers endure sweat, pain and angry drivers in



the name of fitness. A healthy body may seem reward ...

Another detail: ~ 1 in 6 characters is a space.

Roadside joggers endure sweat, pain and angry drivers in

the name of fitness. A healthy body may seem reward ...

Outline

- A little bit about eye movements in reading
- How phrase-formatting helps
- When it helps
- Why it matters
- ReadSmart in Action

But, in a larger sense, we cannot dedicate—we cannot consecrate—we cannot hallow—this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom— and that government of the people, by the people, for the people, shall not perish from the earth.

When text is ragged-right spaces between words are all the same size. Spaces are not helpful. But they are probably not harmful, either because they are constant.

But, in a larger sense, we cannot dedicate—we cannot consecrate—we cannot hallow—this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom— and that government of the people, by the people, for the people, shall not perish from the earth.

When text is **right-justified** spaces between words are the same size within a line. However they are different from line to line. This may undermine readability because your brain is trying to interpret cues (space sizes) that are random and un-meaningful.

Spaces in print
don't help you read.

You probably didn't know that
spaces in handwriting **do help?**

Gettysburg Address

for us to be here dedicated to the great
task remaining before^{us}— that from these
honored dead we take increased devotion
to ~~the~~ ^{that} cause for which they here gave
the last full measure of devotion— that
we here highly resolve that these dead
shall not have died in vain; that this
nation shall have a new birth of freedom;
and that this government of the people, by
the people, for the people, shall not perish
from the earth.

for us to be here dedicated to the great
tasks remaining before ^{us} that from these
honored dead we take increased devotion
to ^{that} the cause for which they here gave
the last full measure of devotion that
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nation shall have a new birth of freedom,
and that this government of the people, by
the people, for the people, shall not perish
from the earth.

Word processors make spaces
the same size within a line.

But writers (at least Lincoln/
Hayes) modify the size of spaces
between words to create phrase
“packets.” They probably do this
without even thinking.

for us to be here dedicated to the great
task remaining before us -- that from
these honored dead we take increased
devotion to the that cause for which
they here gave gave the last full
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from the earth

for us to be here dedicated to the great
tasks remaining before^{us} - that from the
honored dead we take increased devotion
to ^{that} the cause for which they here gave ~~us~~

we 46 here 41 highly 20 resolve 42 that 41 these 37 dead
shall 37 not 24 have 48 died 43 in 30 vain; that 20 this
nation 32 shall 28 have 54 a 34 new 34 birth 31 of -5 freedom:
and 42 that 31 this 28 government 39 of 20 the 20 people, by
the 11 people, for 23 the 13 people, shall 24 not -5 perish
from 20 the 26 earth.



Numbers = units of space
between the handwritten words

If it were typeset
using those
space sizes
it would
look like this:

for us to be here dedicated to the great
task remaining before^{us}— that from these
honored dead we take increased devotion
to ^{that} the cause for which they here gave
the last full measure of devotion— that
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nation shall have a new birth of freedom:
and that this government of the people, by
the people, for the people, shall not perish
from the earth.

Line breaks
can also be helpful.

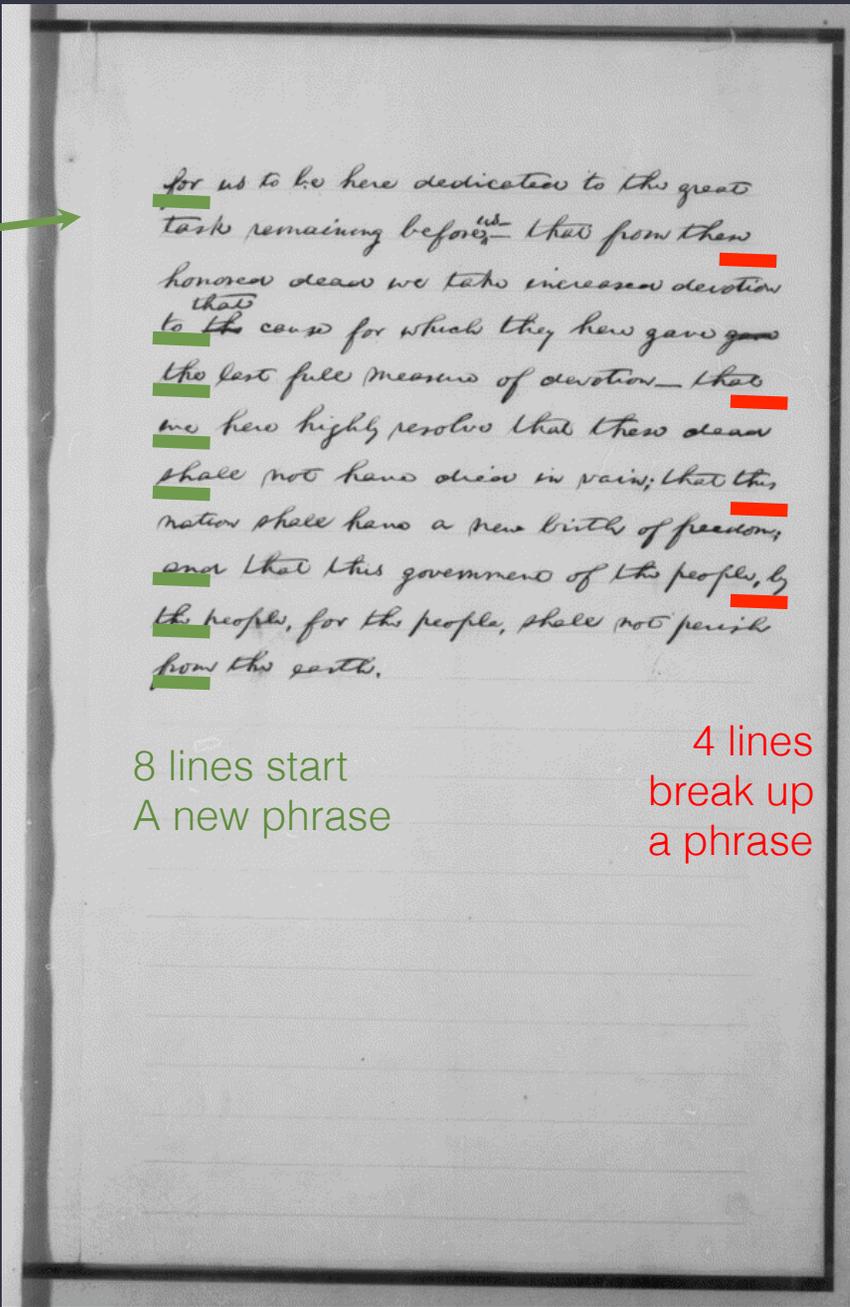
Word processors break lines based on character count.

Writers (at least Lincoln/Hayes) tend to break lines after a phrase is complete.

for us to be here dedicated to the great task remaining before us -- that from these honored dead we take increased devotion to the that cause for which they here gave gave the last full measure of devotion -- that we here highly resolve that these dead shall not have died in vain; that this nation shall have a new birth of freedom: and that this government of the people, by the people, for the people, shall not perish from the earth

7 lines start
a new phrase

7 lines
break up a phrase



for us to be here dedicated to the great task remaining before ^{us} -- that from these honored dead we take increased devotion to ^{that} the cause for which they here gave gave the last full measure of devotion -- that we here highly resolve that these dead shall not have died in vain; that this nation shall have a new birth of freedom; and that this government of the people, by the people, for the people, shall not perish from the earth.

8 lines start
A new phrase

4 lines
break up
a phrase

Outline

- A little bit about eye movements in reading
- How phrase-formatting helps
- When it helps
- Why it matters

Is reading easier if we reformat text* so that spaces are meaningful?

*The process of reformatting is a bit like to printing to PDF. On a bad day or for a very long document, It takes almost a few minutes.

Standard text



No other magazine brings your kids so much fun and learning!

Dear Friend,

From the wild to the weird to the wondrous, today's world is endlessly fascinating to your naturally curious kids.

Now you can satisfy that curiosity and treat the young people in your life to a thrilling year of exploration, discovery, and adventure—with gift subscriptions to **NATIONAL GEOGRAPHIC KIDS**.

Designed to entice, inform, enrich, and challenge today's inquisitive kids!

Created especially for boys and girls ages 6 to 14, **NATIONAL GEOGRAPHIC KIDS** magazine will grab your children's attention with colorful photos, clever graphics, and intriguing bits of information about nature, science, technology, the environment, popular culture, and more.

You'll love how this magazine encourages your kids to read, reason, and make key connections. And you can be sure that the award-winning content is wholesome, accurate, and up-to-date in the finest National Geographic tradition.

Each issue comes packed with special features that kids can't resist such as **Amazing Animals, Weird But True, Cool Inventions, Guinness World Records, Naughty Pets, Sports Funnies, Bet You Didn't Know, and Just Joking.**

There are also stories about young people and their accomplishments...mind-stretching puzzles and games...hands-on experiments, crafts, and activities that get kids further involved...plus contests, collector's cards, pull-out posters, and other bonus surprises.

Give your kids this great educational edge!

Critically acclaimed **NATIONAL GEOGRAPHIC KIDS** has been named Periodical of the Year for two consecutive years by the Association of Educational Publishers...has been honored with multiple Distinguished Achievement Awards...and has won six Parents' Choice Awards.

Praised by teachers, parents, and young people alike, **NATIONAL GEOGRAPHIC KIDS** fosters habits and skills that will help your children excel. Each issue encourages a love of reading and develops critical-thinking skills. The magazine makes learning fun—building a strong foundation of knowledge

 NATIONAL GEOGRAPHIC (over, please)

Weird But True:
If you could travel at the speed of light, you would never get older.

Formatted text



No other magazine brings your kids so much fun and learning!

Dear Friend,

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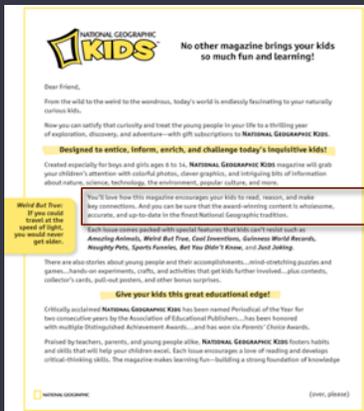
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 NATIONAL GEOGRAPHIC (over, please)

Weird But True:
If you could travel at the speed of light, you would never get older.

Does it look any different?



Standard text

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Formatted Text

You'll love how this magazine encourages your kids to read, reason, and make key connections. And you can be sure that the award-winning content is wholesome, accurate, and up-to-date in the finest National Geographic tradition.

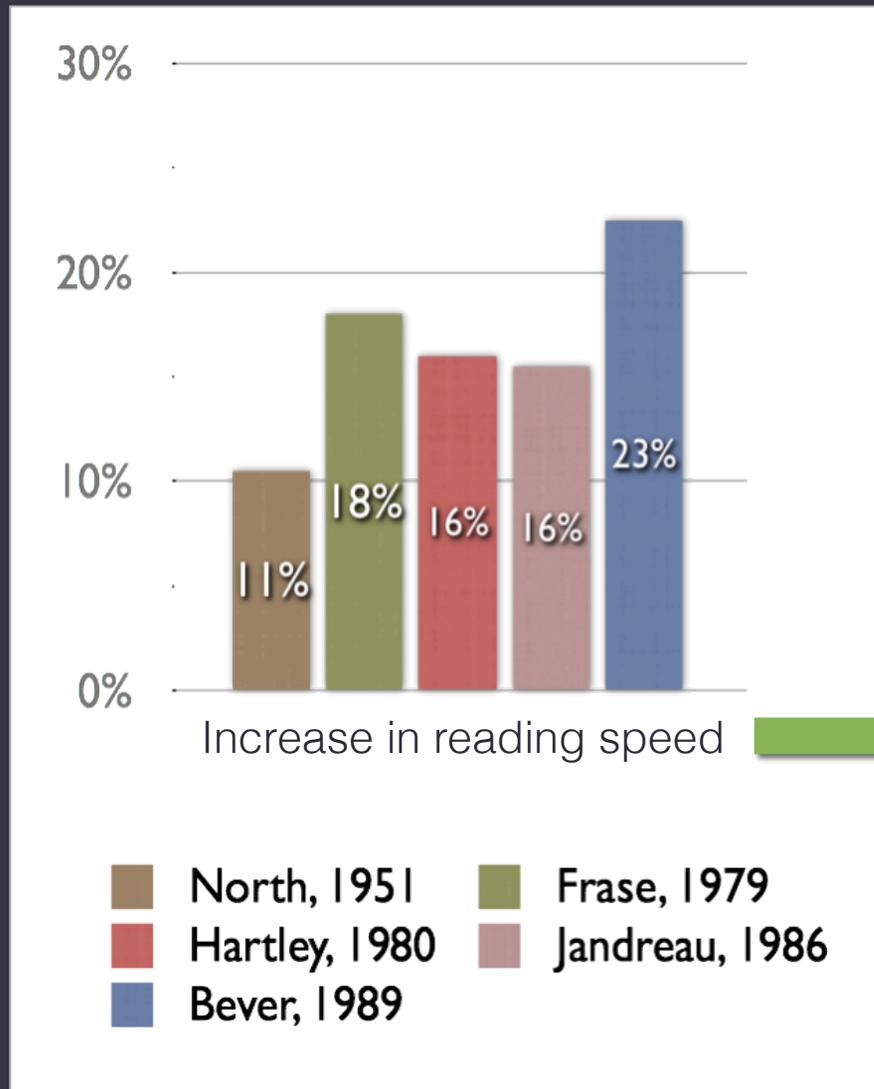
Overlaid

You'll love how this magazine encourages your kids to read, reason, and make key connections. And you can be sure that the award-winning content is wholesome, accurate, and up-to-date in the finest National Geographic tradition.

Outline

- How reading works
- How phrase-formatting helps
- **When it helps**
- Why it matters
- ReadSmart in Action

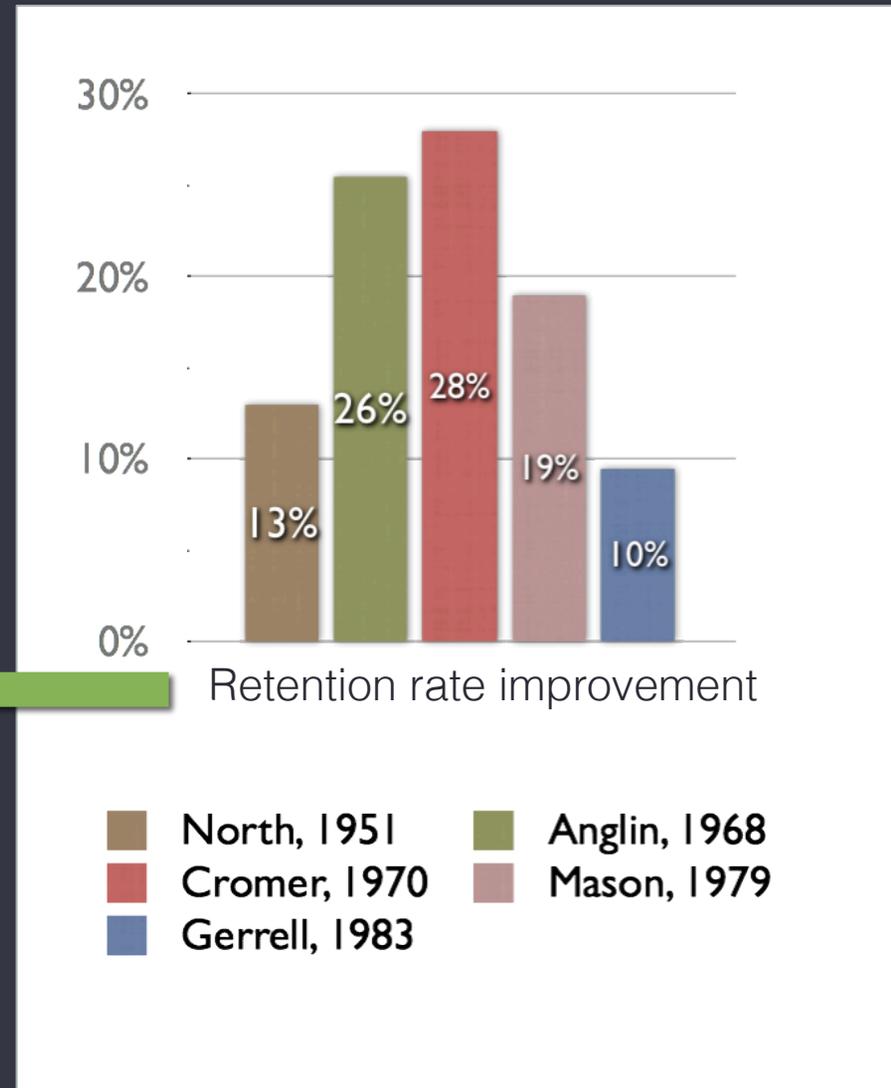
40 years of reading studies...



When text is formatted to reflect psycholinguistic principles, people read faster.

40 years of reading studies...

When text is formatted to reflect psycholinguistic principles, people remember more.

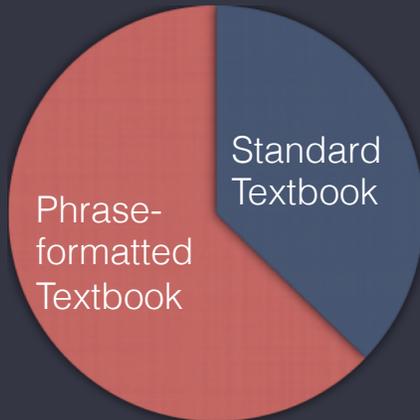


The previous studies explored a range of strategies to improve readability with spacing.

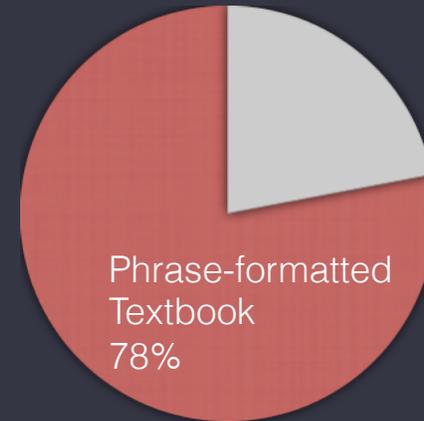
The following studies report on a specific flavor of text formatting, called ReadSmart



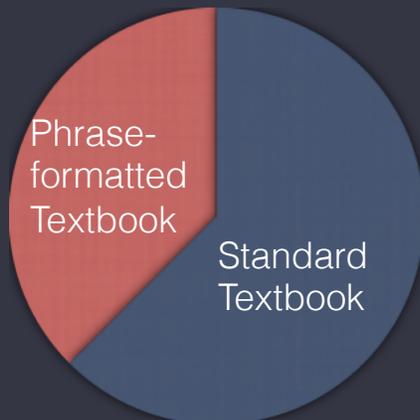
Community College Computer Literacy Course



Percentage of students earning **honors grades**



Positive **textbook ratings**



Percentage of students receiving **failing grades**



Students **learn more**
and **like their books** better
when the text is ReadSmarted.

Temper, Temper

Healthy ways to manage your anger

By DOROTHY FOLTZ-GRAY

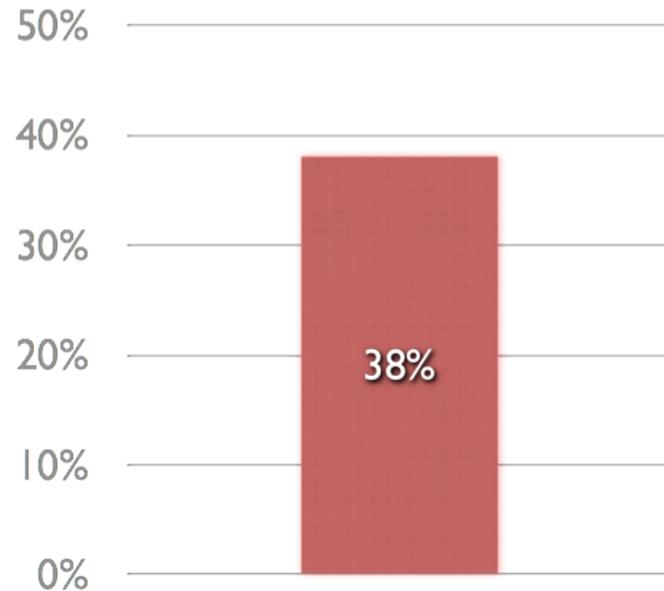
Cass Bruton-Ward of Hoboken, N.J., once worked for a boss who was critical and dictatorial. The boss would dominate discussions and ignore any comments not in agreement with hers. During brainstorming sessions, she would interrupt Bruton-Ward and her colleagues and berate them with remarks like "that's a terrible idea." Bruton-Ward, a 47-year-old media-relations expert, would walk into every meeting calm, become increasingly angry, and exit hopping mad. Finally she decided to try a yoga

technique at the meetings to calm herself. "I'd sit erect, breathe deeply and focus on the breath," she says. "By doing this simple thing, I could be attentive without getting caught up in the anger."

Bruton-Ward not only solved her work woes, but by shifting her focus and breathing slowly and deeply, she also interrupted the unhealthy physiological response that accompanies anger. Her heart rate and blood pressure dropped and her muscles relaxed.

The belief that it's healthy to let off steam no longer holds up. Studies show outbursts augment and perpetuate anger, like a bellows

ILLUSTRATION BY PHILIPPE LARDY



Increased in enjoyment when article is phrase-formatted

Measure: Post-passage survey

Adults *enjoy reading more*
when the text is ReadSmarted.





Native Chinese speakers

第一届中国英语教学优秀论文评选 获奖证明信

兹证明山东大学刘福前老师和美国亚利桑那大学 Thomas G. Bever 合写的《句法分析在阅读中作用的实验研究——兼论认知科学阅读研究对外语教学的启示》(原载《外语教学与研究》2002年第3期)获得第一届中国英语教学优秀论文评选三等奖。

第一届中国英语教学优秀论文评选由中国英语教学研究会主办、外语教学与研究出版社协办。本次评选活动共收到参选论文 152 篇,全国分为 8 个大区进行初评,共有 58 篇文章进入全国总评,最后评出一等奖 2 名,二等奖 13 名,三等奖 16 名。评选结果已正式公布于中国英语教学研究会网站 (<http://www.et-china.org>)。

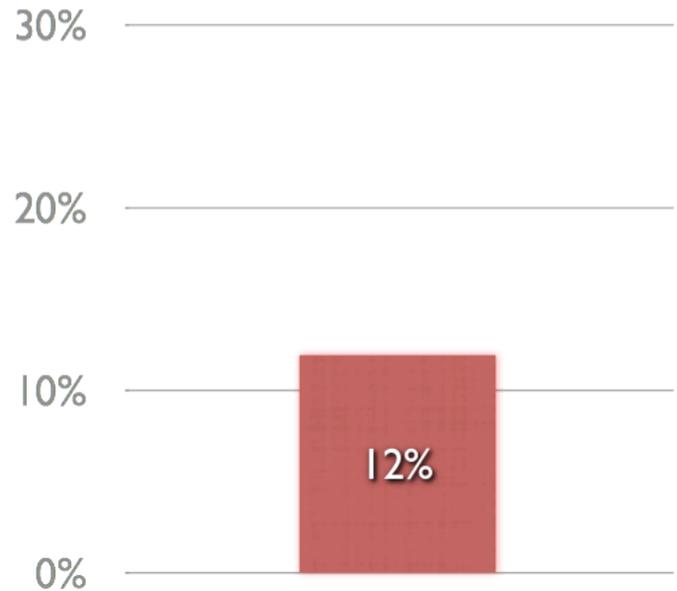
第一届中国英语教学优秀论文颁奖仪式将在 2005 年 5 月份在北京召开的中国英语教学研究会年会上举行,届时敬请光临。外研社将于近期出版《中国英语教学优秀论文集(一)(2001.7-2003.6)——第一届中国英语教学优秀论文评选获奖作品集》

本次参选的论文为 2001 年 7 月至 2003 年 6 月在国内外杂志和论文集中发表的由中国人撰写的中文或英文的英语教学方面的论文。

- 全国评审委员会的委员为:
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中国英语教学研究会
2004 年 10 月 20 日

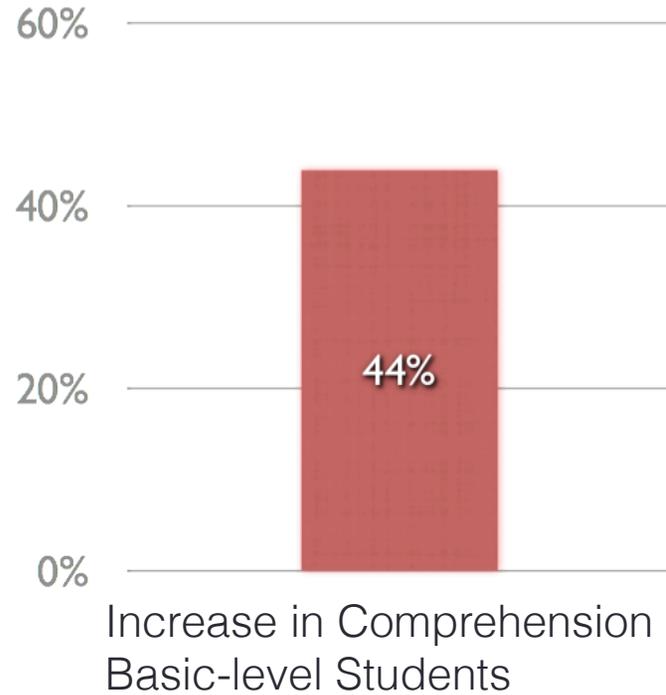
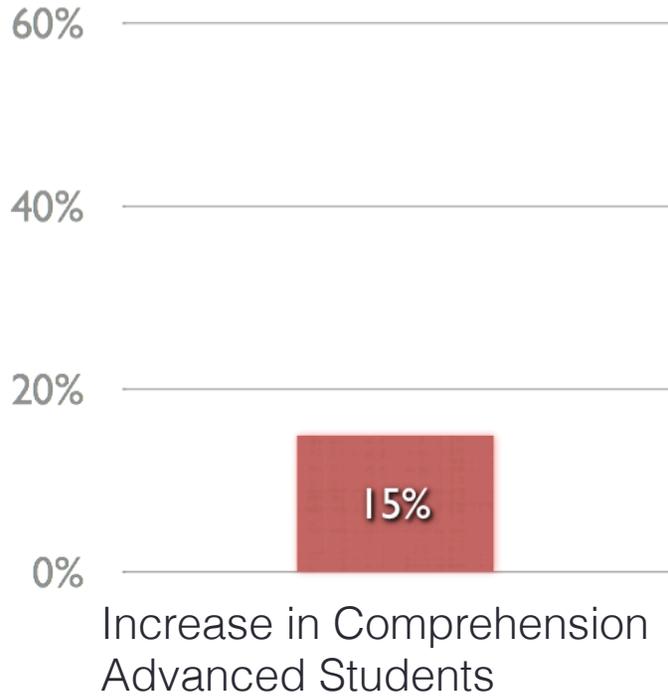


Increase in TOEFL Score
when test is phrase-formatted

Measure: TOEFL score



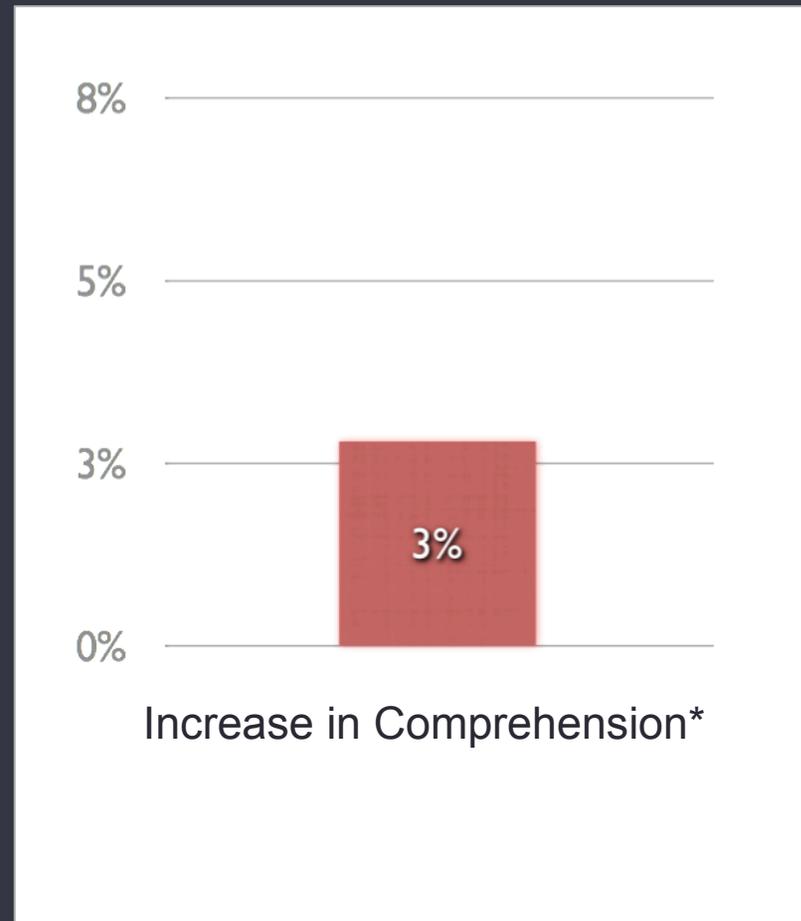
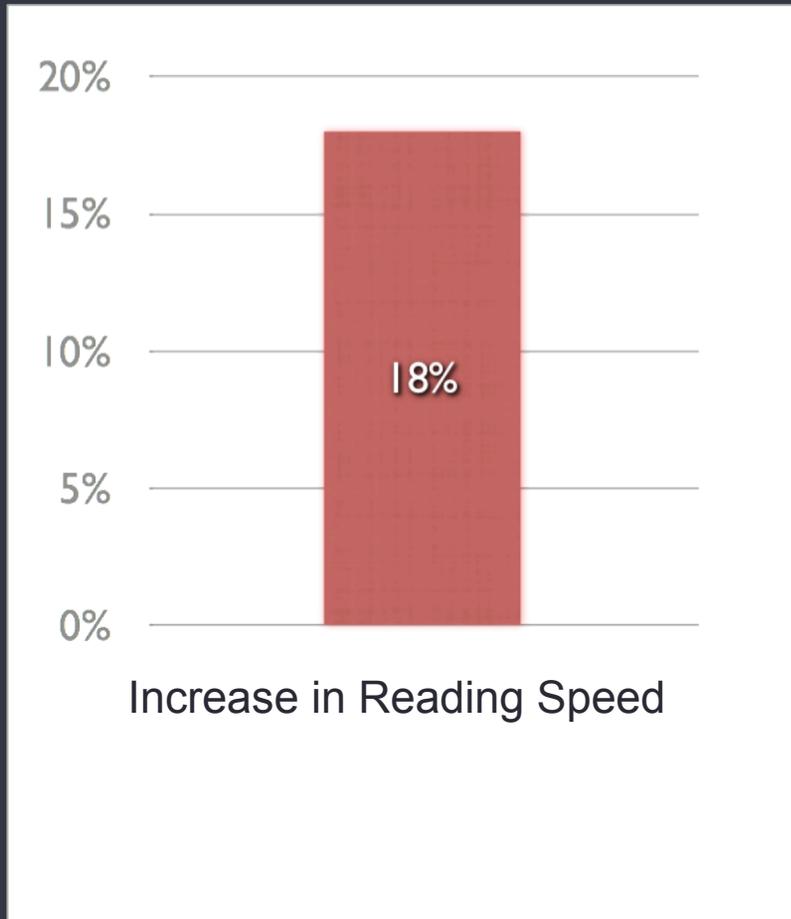
Native Japanese speakers



Measure: Reading Comprehension on SAT like Essays

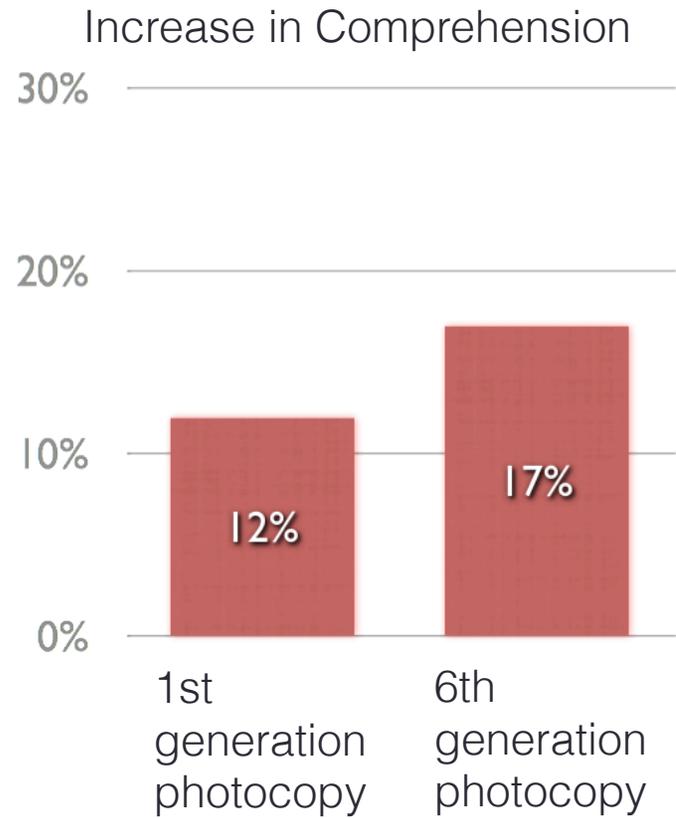


Native Spanish speakers



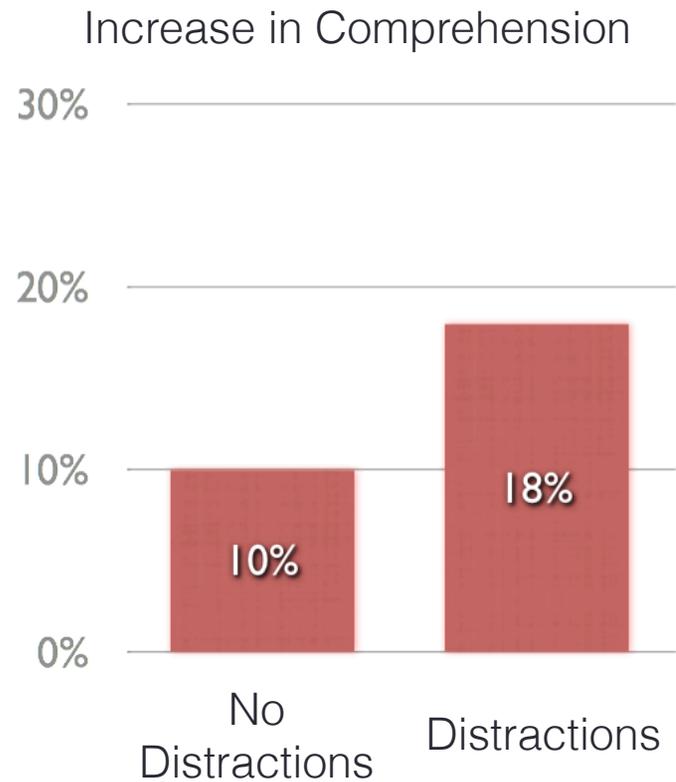
Measure: Comprehension scores for native Spanish speakers
on English SAT test instructed to read for accuracy* not speed

People **reading in their second language** read faster and remember more when the text is ReadSmarted.



Measure: Reading degraded copy (1st or 6th generation photocopies)

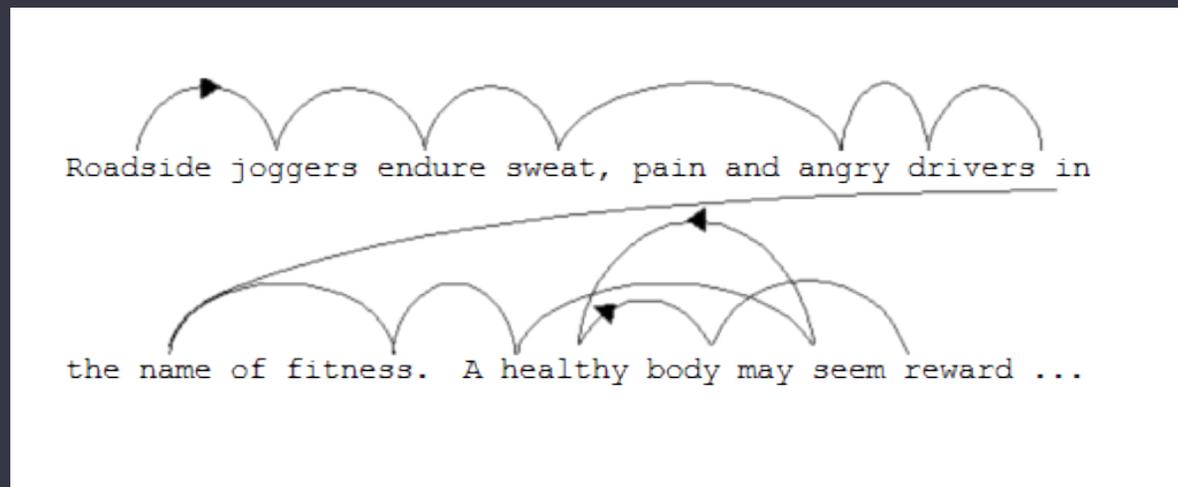
DISTRACTIONS



Measure: Reading Comprehension

When reading is hard
people remember more
when the text is ReadSmarted.

What's really happening?



	Standard Text	ReadSmarted Text
# Fixations	Poor Readers $>$ Superior Readers	Poor Readers \approx Superior Readers
Fixation length	Poor Readers $>$ Superior Readers	Poor Readers \approx Superior Readers
Recursive reading	Poor Readers $>$ Superior Readers	Poor Readers \approx Superior Readers

When text is ReadSmarted, the eye-movements of poor readers look like the eye-movements of good ones. The sizes of the spaces seems to help them “plan” their eye-movements better.

Does that change anything we care about?
Like, ... behaviors?

Outline

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- When it helps
- Why it matters
- ReadSmart in Action

OK, people read more efficiently.
But your customers are probably great readers.
Does ReadSmart change anything you care about?
Like, ... customer behavior?

Clickthrough on web ads

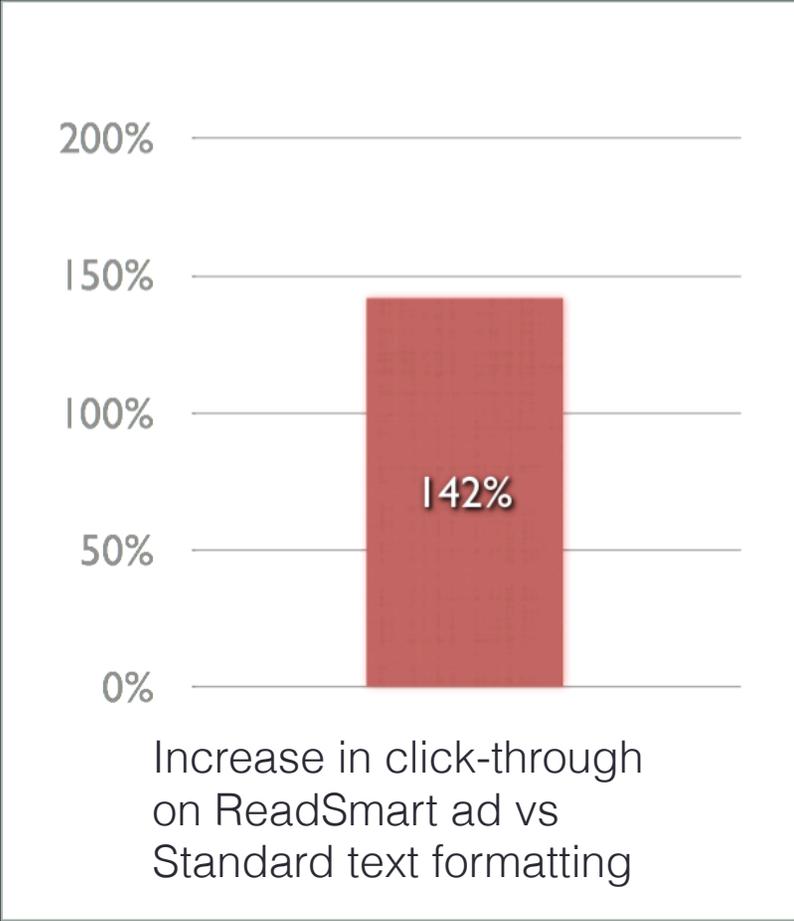
Standard text

[Product] and the
free [Branded] support
program can help
you manage your
type 2 diabetes

ReadSmarted text

[Product] and the free
[branded] support program
can help you manage
your type 2 diabetes

*Dramatic simulation: Try reading each ad aloud
with a longish pause at the end of each line.
Is one ad easier to read/understand?*



In A/B tests people **click on web ads** more frequently when copy is ReadSmarted.

Memory for key content

Standard Formatting

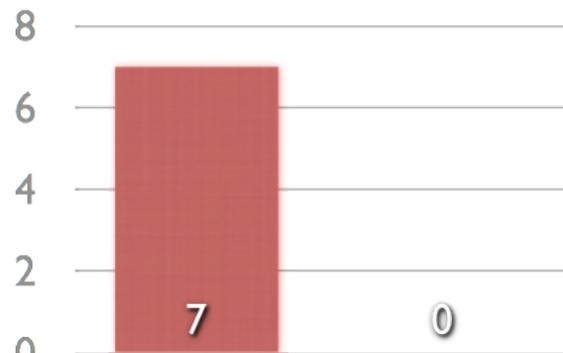
**One stop
past the end
of the line...**

Actually, there's more to enhancing readability than where lines end. Remember how the random size of spaces between words in right-justified text undermines reading? The reverse is also true. Bever and colleagues, linguists and psychologists at the University of Arizona, have shown that when line endings and space sizes offer clues to how words should be grouped, reading is faster and feels easier (Bever, Jandreau, Burwell, Kaplan & Zaenan, 1990; Jandreau & Bever, 1992; among many others.)

Phrase-formatted Text

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ReadSmart Standard

Comprehension questions
answered more correctly

People remember more
when copy is ReadSmarted.

Share with friends

Standard Formatting

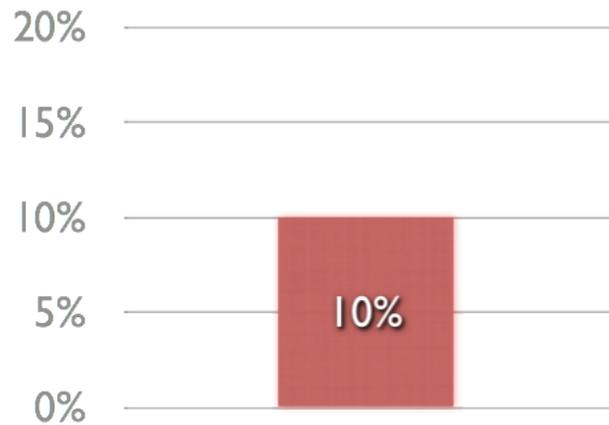
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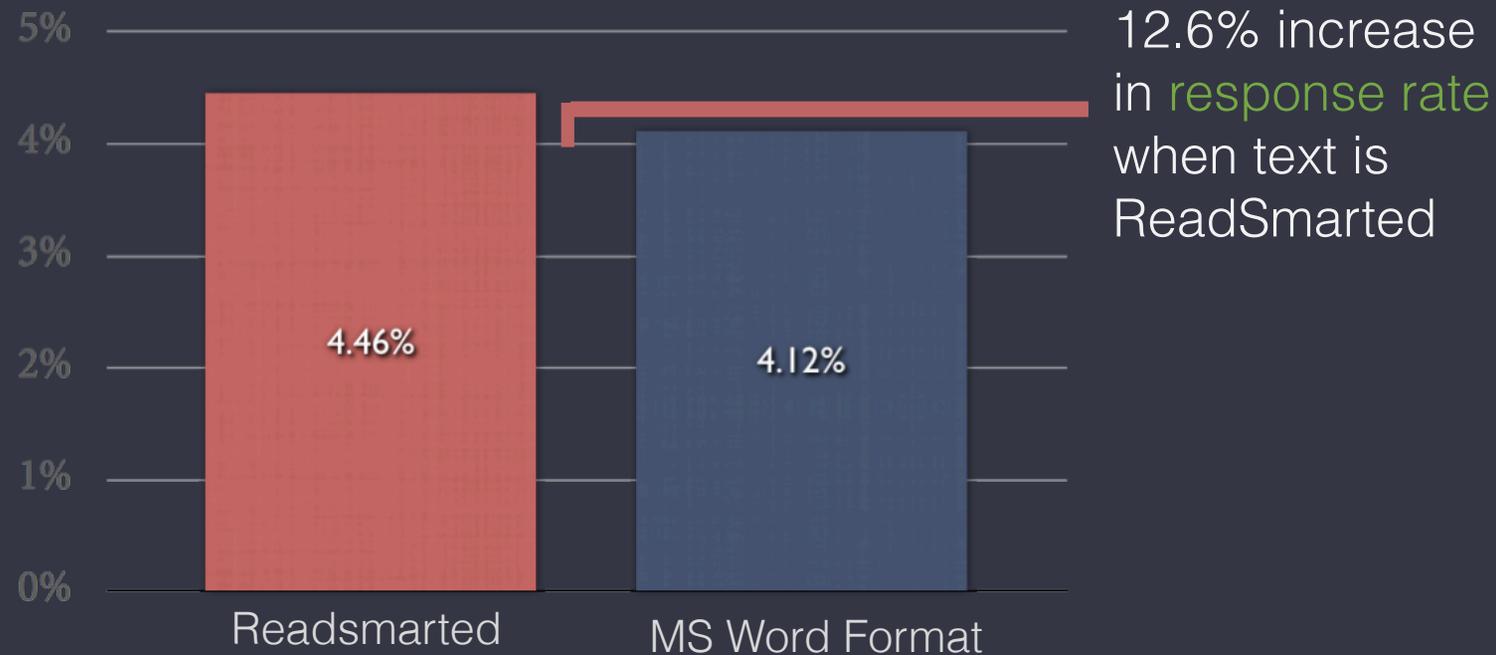
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Increase in likelihood to share when copy is ReadSmarted

People say they will forward to a friend more often when text is ReadSmarted.

Direct mail



When a direct mail request is ReadSmarted
more people respond

Direct mail



When a direct mail request is ReadSmarted people write bigger checks.

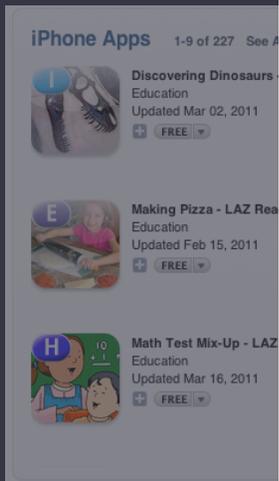
Readsmart changes reading.

- People read faster
- They remember more
- Like what they read better
- Respond more frequently

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ReadSmart in action: Learning A-to-Z – Books for children – Apple App Store

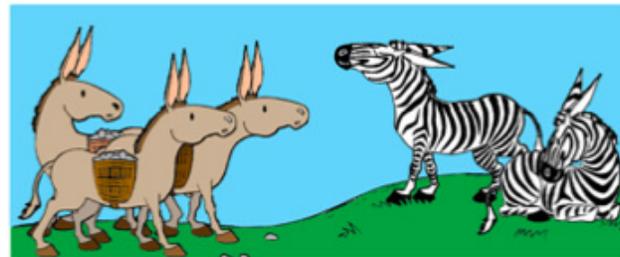
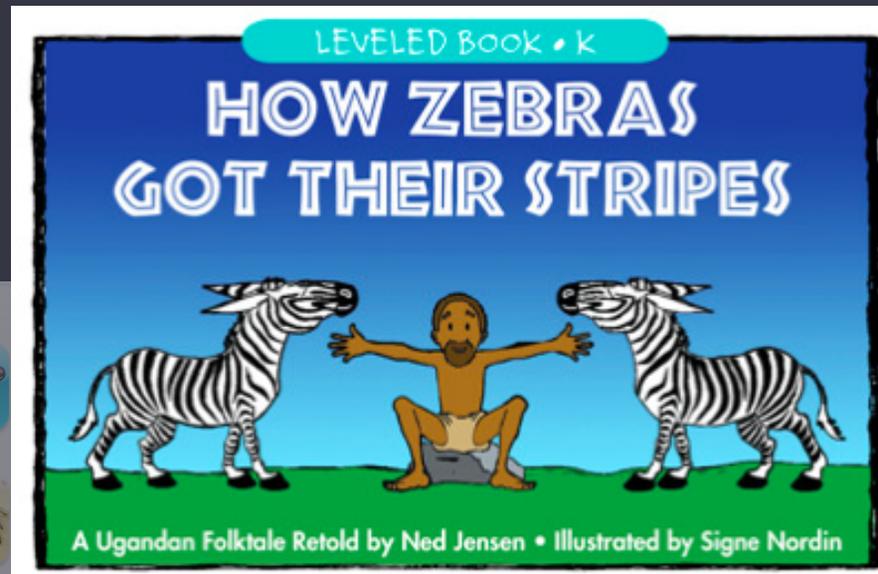


Free App

+ This app is designed for both iPhone and iPad

Category: Education
Released: Nov 24, 2010
Version: 1.4
Size: 2.8 MB
Language: English
Seller: Language Technologies, Inc.
© 2010

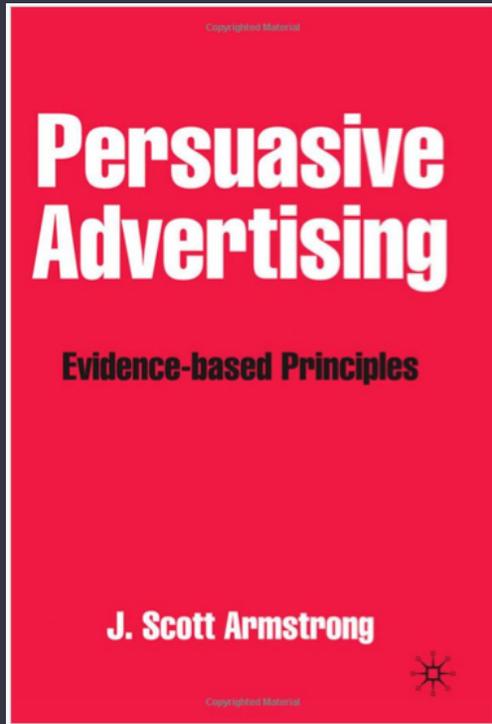
Rated 4+



Soon other donkeys saw the zebras.
They asked the zebras where they came from.
When the zebras told the donkeys their secret,
the donkeys all rushed to see the wise old man.



ReadSmart in action: Physical books worth reading



Copyrighted Material

Comprehensive c

To specify compi
holders—stockho
community men
objectives for ea
Stockholders t
buyers to pay mo
information to cu
Customers gai
reassures them th
in using a prod
of advertising in e
given to subjects.
the peanut butter
the subjects prefe
the two unidentifi
shown similar fin
Distributors ca
Nutri-Grain bars
called, asking wh
ensure that a cam
not harm distrib
to run the manu
mean that we we
p. 337).

Advertising mi
in the United Kin
of cooperatives hi
declining sales an
size its benefits (c
campaign: "Busin
were not only to
surveys showed it
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The principles

advertising needs principles ... not opinions.
Rosser Reeves, famous advertiser, 1961

The development of principles is a long-held tradition in advertising. Many great advertisers have shared their wisdom in this way. In 1871, George P. Rowell, the founder of *Printer's Ink*, described his "Principles of Advertising," including such advice as "Honesty is by all odds the very strongest point ... in an advertisement." N. C. Fowler followed with three books on advertising principles; the last one, *Fowler's Publicity* (1897), contained over 1,000 pages. While Fowler based his principles on common sense alone, some have endured, such as the value of simplicity, the importance of truth, the need for good taste, and the use of free samples.

The 194 principles in this book are organized to help advertisers design persuasive campaigns. They start with strategy-related considerations: information, influence, emotion, and mere exposure. General tactical principles follow: reducing resistance, gaining acceptance, crafting the message, and attracting attention. The book then deals with principles that are specific to various media. These include still media (e.g., magazines, newspapers, and the Internet), and motion and sound media (e.g., TV, radio, and the Internet). Exhibit C shows the organization of the principles in this book.

Exhibit C Categories of persuasion principles

Strategy	General tactics	Media-specific tactics
1. Information	5. Resistance	9. Still media
2. Influence	6. Acceptance	10. Motion media
3. Emotion	7. Message	
4. Mere exposure	8. Attention	

The principles under each of the three major categories (Strategy, General tactics, and Media-specific tactics) are presented in an order that reflects a natural progression in the design process. They begin with the more general issues and move to the more specific.

While *Persuasive Advertising* is designed to be read from cover to cover, it also serves as a reference. To aid in using the book, each of the ten sections summarized in Exhibit C ends with a checklist of principles. Key concepts are listed in the Subject index to help you find principles relevant to a specific problem. Similarly, a Names index might help you to track down studies or sayings. The Glossary provides explanations of key terms used in the book. Finally, you will find a "persuasion principles map" on the last page (page 388).

<http://bit.ly/SpdpwF>





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