

Can a Narrative Framework Effectively Communicate Weather and Climate Concepts?

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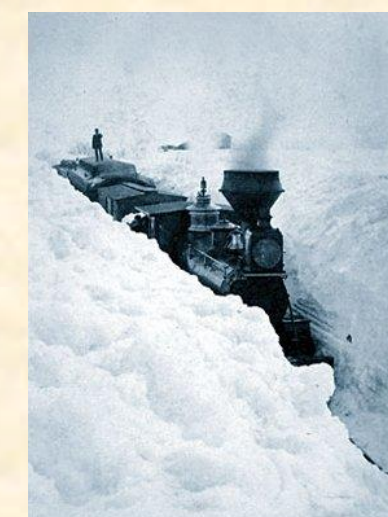
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Bridging Weather/Climate Science and Communication

- Conduct scientifically credible climate/weather research on the Hard Winter of 1880-1881 and other events through the *Little House* book series.
 - Place extreme winters in climatological context via the Accumulated Winter Season Severity Index (AWSSI).
 - Examine effects of ENSO and NAO on winter weather in the central U.S.
 - Document, describe, conduct attribution of the Hard Winter of 1880-1881; connect to elements in Wilder's *The Long Winter*.
- Communicate research results to non-meteorologist/ non-climatologist audiences.
- Provide weather and climate expertise for Wilder researchers, enthusiasts, and fans.
- Document effectiveness of communicating weather/climate concepts via Laura Ingalls Wilder narrative.

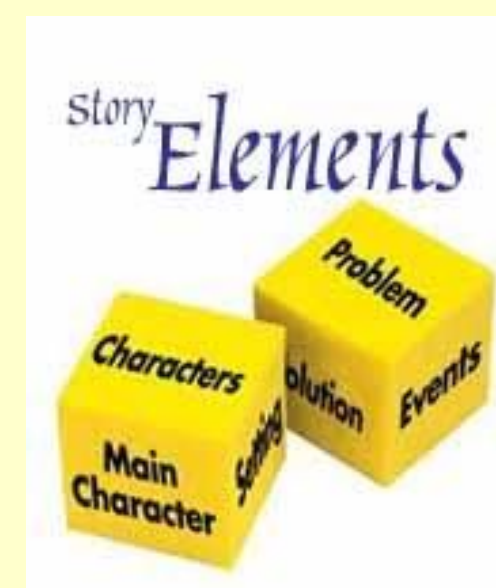
The Plot and Setting



Kelly's Cut, 0.5 miles west of Sleepy Eye, MN, March 1881

Creating a Narrative

- Listing facts is not enough!
- Include all narrative elements:
 - Protagonist and antagonist
 - Setting in place and time
 - Introduction, dénouement, and resolution
- Story is most effective if:
 - Story is *congruent* to listeners' life experiences
 - Story *transports* its listeners
 - Listeners *trust* storyteller
 - Listeners relate to the *hero* of the story



The Hero



Carrie, Mary, and Laura Ingalls around the late 1870s. Photo courtesy of the Laura Ingalls Wilder Home Association, Mansfield, MO



Laura Ingalls Wilder in 1884, at around age 17.



Laura Ingalls Wilder with her books. Photo copied from the *Springfield News-Leader* from a story that ran on May 22, 1949.

The Narrative

- Basis: Scientific investigation of weather and climate events in the Little House books.
- Frames:
 - Storyteller is a detective following the clues left by Wilder in her stories to verify and support them.
 - The Ingalls family was unaware of the risks of their environment, and with modern information, we can be better prepared for hazards of weather and climate events.
 - Survival tactics for weather and climate events have changed from the pioneer era to now.
 - The background climate has changed from the pioneer era to now and is projected to keep changing in the future due to human activities.
- Format: 20-60 minute oral presentation with supporting slides of images, data, and short text.

The Audiences

- Laurapalooza, July 2012
 - 29 completed survey of ~75 in audience.
 - Members included teachers, historians, authors, fans.
 - Part of ongoing interaction with the audience group.
- National Association of Interpreters Region V, April 2013
 - 13 completed survey of ~15 in audience.
 - Members included naturalists, park workers.
- Climate and Society Course, February 2014
 - 17 completed of 17 in audience.
 - Members included graduate and advanced undergraduate students in Natural Resources and related fields.

Evaluating Effectiveness

- Survey offered to all audience members. All participation voluntary, with consent form provided.
 - Survey based loosely on questions used by Yale Project on Climate Change Communication.
 - Questions covered climate change literacy, perception, and trusted sources, as well as audience feelings about the presentation and demographics.
- Narrative effectiveness also noted, qualitatively, by press coverage of the topic.

Variable	Narrative	NASIS	p	LP	NAI/CS	p
EconRisk	3.45	2.62	0.00000001	3.45	3.46	0.96
EnvirRisk	3.62	2.85	0.00000006	3.45	3.81	0.17
HealthRisk	3.07	2.44	0.0000004	3.28	2.85	0.12
HeardAbt	3.67	3.03	0.00008	3.83	3.31*	0.15
%Sci	77.2	63.6	0.0002	77.3	77.1	0.98
Gender	1.77	1.54	0.0007	1.97	1.56	0.0007
GW happening	1.78	2.21	0.02	1.68	2.00*	0.42
Ideal	3.00	3.37	0.02	2.81	3.21	0.48
Informed	2.80	2.57	0.03	2.61	3.00	0.03
Model	2.83	3.24	0.10	2.76	3.00*	0.61
GWinfo	2.41	2.43	0.90	2.25	2.57	0.27
Focused				4.66	3.77	0.002
Inspired				4.48	3.85	0.006
OpenMind				4.48	4.19	0.11
OpenNewidea				4.45	4.31	0.64
CarefulConsid				4.41	3.67	0.008
RelateThings				4.34	4.08	0.30
Thorough				3.90	3.63	0.35
UnderstPersp				3.48	3.81	0.26
IDoques				3.41	2.88	0.18
Novel				3.21	3.41	0.60
IdeaWOth				3.11	2.81	0.44
Creative				3.07	3.65	0.12
ChkSelf				3.04	3.48	0.21
Talk2oth				3.00	2.38	0.14
FindAns				2.90	2.88	0.96
AskOthrs				2.90	2.52	0.34
MMadeUp				2.14	2.19	0.89
NewInfoNot				1.72	1.72	0.99
Uninterested				1.28	1.33	0.81
Irritated				1.07	1.11	0.69
Bored				1.03	1.60	0.004
Angry				1.00	1.04	0.56
DoElse				0.97	1.51	0.001
Frustrated				0.97	1.15	0.09
TrustScientists				4.34	4.36	0.95
TrustNOAA				4.28	4.64	0.16
TrustNPS				4.21	3.92	0.22
TrustCDC				4.03	3.59	0.08
TrustEPA				3.69	3.74	0.87
TrustTVmets				3.62	3.04	0.03
TrustDoE				3.41	3.74	0.24
TrustPresObama				3.00	2.59	0.29
TrustMedia				2.83	2.11	0.01
TrustReligious				2.72	2.59	0.71
TrustCongress				2.31	2.19	0.64

Annotated Survey

Conclusions

- Laura Ingalls Wilder narrative audiences exhibit significantly higher perception of climate change risk than general population. Also more likely to have heard about climate change, feel informed, agree that climate change is happening, and perceive agreement among climate scientists.
- Laurapalooza audience, compared to Interpreters and Course audiences, exhibited higher feelings of inspiration, focus, and careful consideration of all viewpoints. Both audiences exhibited high trust in scientists, particularly NOAA.

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