

TOOLBOX

DIALOGUE INITIATIVE TM

On the Interaction of Affect and Information Transfer in Cross- Disciplinary Dialogue

Toolbox Dialogue Initiative
<http://toolbox-project.org/>

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Our Team

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This team includes researchers trained in philosophy, psychology, anthropology, chemistry/nanotechnology, and wildlife science

Interdisciplinary work is hard!

As Dr. James Old just noted, teams can fail to communicate if they can't use terms such as 'theory' in a common way

From earlier this morning, the empirical sciences aim at "explaining," whereas the humanities aim at "understanding," which can lead to a lack of common goals

Where we are: working to bridge these divides to study communication in team science

Two sorts of communication: task communication and relational communication

Task communication: informational

Assessing the problems, specifying goals, identifying and examining alternatives, etc. (Hirokawa & Salazar 1997)

Relational communication: affective

“...verbal and nonverbal messages that create the social fabric of the group...the affective or expressive dimension of group communication” (Keyton 1999)

More on task and relational communication

Task communication: improved when claims exchanged by team members can be constructively criticized (Schulze and Seuffert 2013)

Relational communication: improved when emotional context encourages open communication (Hemlin and Olsson 2013)

Task communication: improved by criticism...

- ...but this might be perceived as aggressive, dismissive, or silencing and thus impede relational communication

Relational communication: improved by openness...

- ...but this might impede the willingness to criticize that is necessary for effective task communication

Questions: how common and robust is this tension?

Beyond this, do these two sorts of communication relate in other regular and interesting ways?

Our Proposal: To evaluate discussion threads from TDI Workshops from two perspectives

Perspective 1: qualitative analysis of informational character of workshop dialogue

- Hope: that this tracks aspects of task communication

Perspective 2: Emotional tone analysis IBM Tone Analyzer

- Hope: that this tracks aspects of relational communication

Brief overview of TDI workshops and transcript threads

Overview of IBM Tone Analyzer

Some approaches for using these tools to study the relation between task and relational communication

Research

Core Question: What role should research at MSU play in campus sustainability efforts?

1. MSU invests sufficiently in campus-based research on sustainable energy technologies.

Disagree *Agree*
1 2 3 4 5 I don't know N/A

2. Technological advancements in campus laboratories should be translated into energy solutions on the MSU campus.

Disagree *Agree*
1 2 3 4 5 I don't know N/A

3. It is more important to bring cutting edge research to campus than to restrict the construction of new laboratories that consume large amounts of energy.

Disagree *Agree*
1 2 3 4 5 I don't know N/A

4. Collaboration between academic units and campus operations is necessary for MSU's future campus sustainability plans.

Disagree *Agree*
1 2 3 4 5 I don't know N/A

5. MSU invests sufficiently in on-campus student sustainability efforts (e.g., research and other projects).

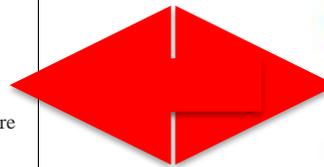
Disagree *Agree*
1 2 3 4 5 I don't know N/A

6. MSU clearly advertises how MSU sustainability research is integrated into campus infrastructure.

Disagree *Agree*
1 2 3 4 5 I don't know N/A

7. MSU must incentivize technology transfer for energy and sustainability-related research projects.

Disagree *Agree*
1 2 3 4 5 I don't know N/A



TDI Transcript Threads

12	P5 I compare different species using their evolutionary relationships. And so, the experiment is sort of the process by which the species diversified over the last, say, 50 million years. So you can't do the experiment.	R P4 E-S 10, EX	NEG 12-24
13	P4 It's pretty difficult.	V P5	
	[laughter]		
14	P5 And all you have is that information;	E-S 12 / EX	
15	P? [overlap] right		
16	P5 [cont'] you can use all kinds of clever [or] circumstantial things, or whatever,	Cont.	
17	P? [overlap] right		
18	P5 [cont'] but you are ... the data sort of exists and you measure it, and then you sort of look for patterns.	Cont. INFO	
19	P1 But there is uncertainty in the experimental – the paleontological, or whatever it is – information you get out of the past. There're certain uncertainties in that. But that's experimental issues right there.	CHALL P5 E P5 14 EX	

CONVERSATIONAL FUNCTIONS (L) – R: response; E-S: elaboration (on self); Ex: example; V: validation; INFO: introduces new information; CHALL: challenge; E: elaboration;

TEAM IMPACT (R) – Neg: successful negotiation

Sample use cases

Choose an example to learn how you can adjust the tone of your content to change people's perceptions, or improve its effectiveness.

[Learn more.](#)

Tweets Online Review Email message Your own text

Analyzing Customer Engagement Data? Try out the [Tone Analyzer Customer Engagement Endpoint](#).

I was asked to sign a third party contract a week out from stay. If it wasn't an 8 person group that took a lot of wrangling I would have cancelled the booking straight away. Bathrooms - there are no stand alone bathrooms. Please consider this - you have to clear out the main bedroom to use that bathroom. Other option is you walk through a different bedroom to get to its en-suite. Signs all over the apartment - there are signs everywhere - some helpful - some telling you rules. Perhaps some people like this but It negatively affected our enjoyment of the accommodation. Stairs - lots of them - some had slightly bending wood which caused a minor injury.

Analyze

Sample text:

I gave it a 3 because I thought that not always knowledge ... knowledge is not always...that's just not the penitential for research, I thought. Sometimes it's just interesting to know. Sometimes people do research, but it may not really pertain to you. If you read about it, it's interesting. Oh, that's pretty cool. I guess that's knowledge gained. Some research, you know, I think, is somebody studying some...I don't know, something that you'd never think would be even important to know about. It may not be important at that time, but maybe down the road it'll be important.

Output

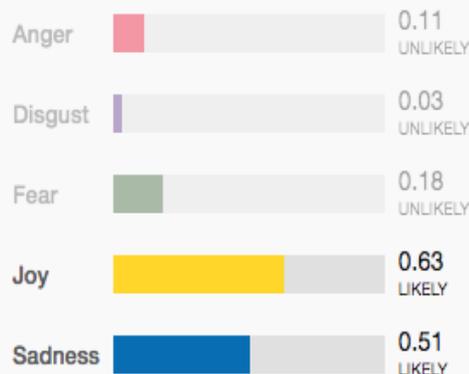
The Tone Analyzer Service analyzes text at the document level and the sentence level. Use the document level analysis to get a sense of the overall tone of the document, and use the sentence level analysis to identify specific areas of your content where tones are the strongest.

To understand how to interpret your tone score, see [Understand your Tone Score](#).

Document-level

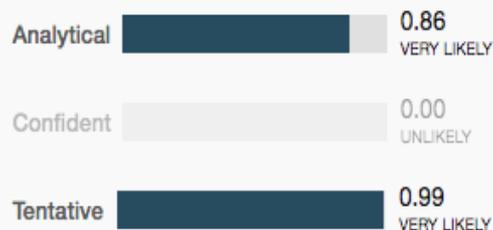
Emotion

< .5 = not likely present
> .5 = likely present
> .75 = very likely present



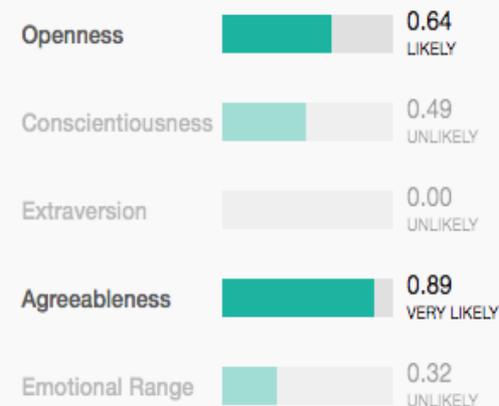
Language Style

< .5 = not likely present
> .5 = likely present
> .75 = very likely present



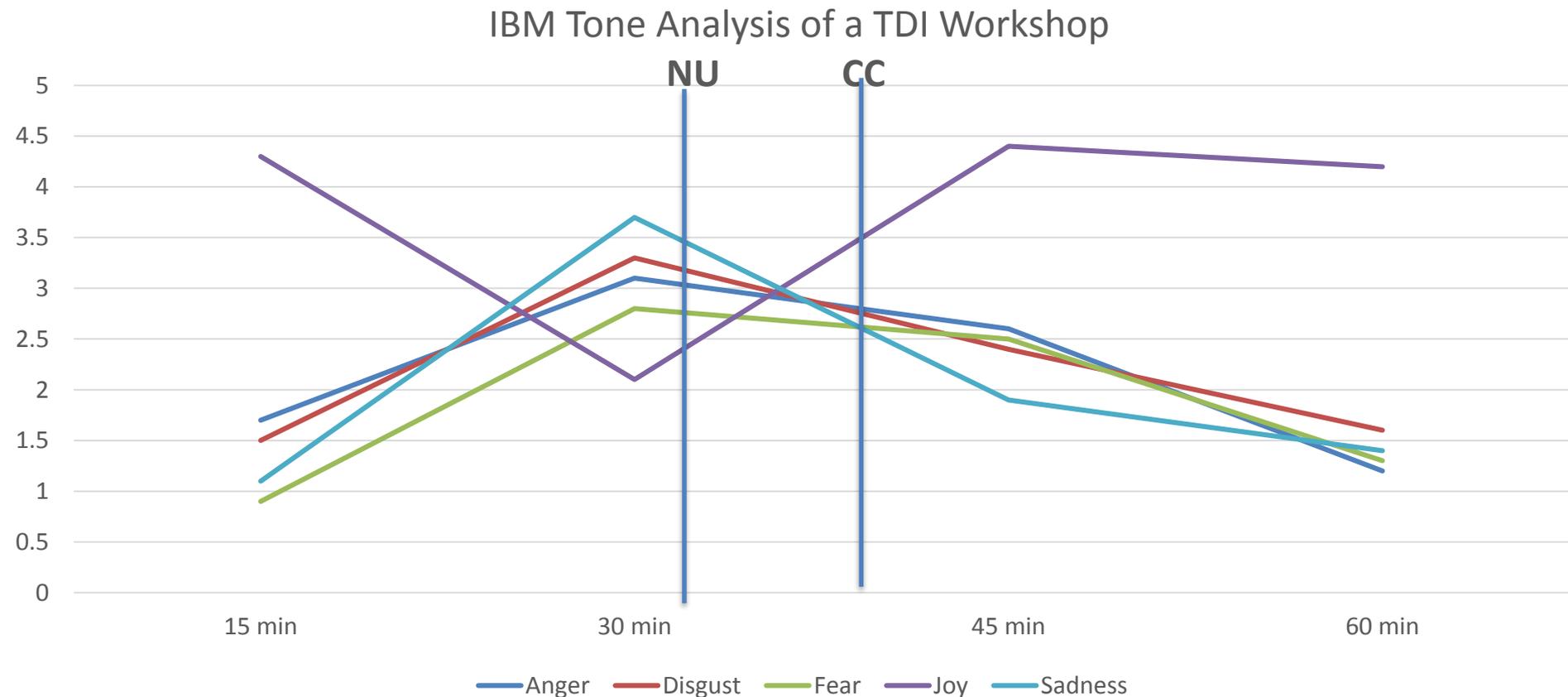
Social Tendencies

< .5 = not likely present
> .5 = likely present
> .75 = very likely present



- Fast, Lisa A., and David C. Funder. [Personality as Manifest in Word Use: Correlations with Self-Report, Acquaintance Report, and Behavior.](#) Journal of Personality and Social Psychology, Vol. 94(2) (2008).
- Gill, Alastair J., Scott Nowson, and Jon Oberlander. [What Are They Blogging About? Personality, Topic and Motivation in Blogs.](#) Proceedings of the Third International ICWSM Conference (2009): pp. 18-25.
- Golbeck, Jennifer, Cristina Robles, Michon Edmondson, and Karen Turner. [Predicting Personality from Twitter.](#) Proceedings of the IEEE International Conference on Social Computing (2011).
- Hirsh, Jacob B., and Jordan B. Peterson. [Personality and Language Use in Self-Narratives.](#) Journal of Research in Personality, Vol. 43 (2009): pp. 524-527.
- Yarkoni, Tal. [Personality in 100,000 Words: A Large-Scale Analysis of Personality and Word Usage among Bloggers.](#) Journal of Research in Personality (2010).

Approach 1: Temporal Analysis of Full Dialogue Sessions



Approach 2: Tracking Tone around Team Impact Dialogue Segments

Code	Description
NO UPTAKE	Failure of the group to take up ideas introduced by other participant (not facilitator)
LINKS	Recognition of linkages among the prompts
SELF AWARE	Developed self-awareness of E/M issues
SELF SHIFT	Shift in E/M commitments
TEAM AWARE	Airing of awareness of differences or similarities regarding E/M issues within the team
Co-create	Co-creation of shared meaning across utterances
<ul style="list-style-type: none">CONSTRUCT	Elaboration and/ or questioning leads to airing of new point(s) or differentiation of prior points.
<ul style="list-style-type: none">NEGOTIATE	Disagreement accompanied by discussion about that disagreement

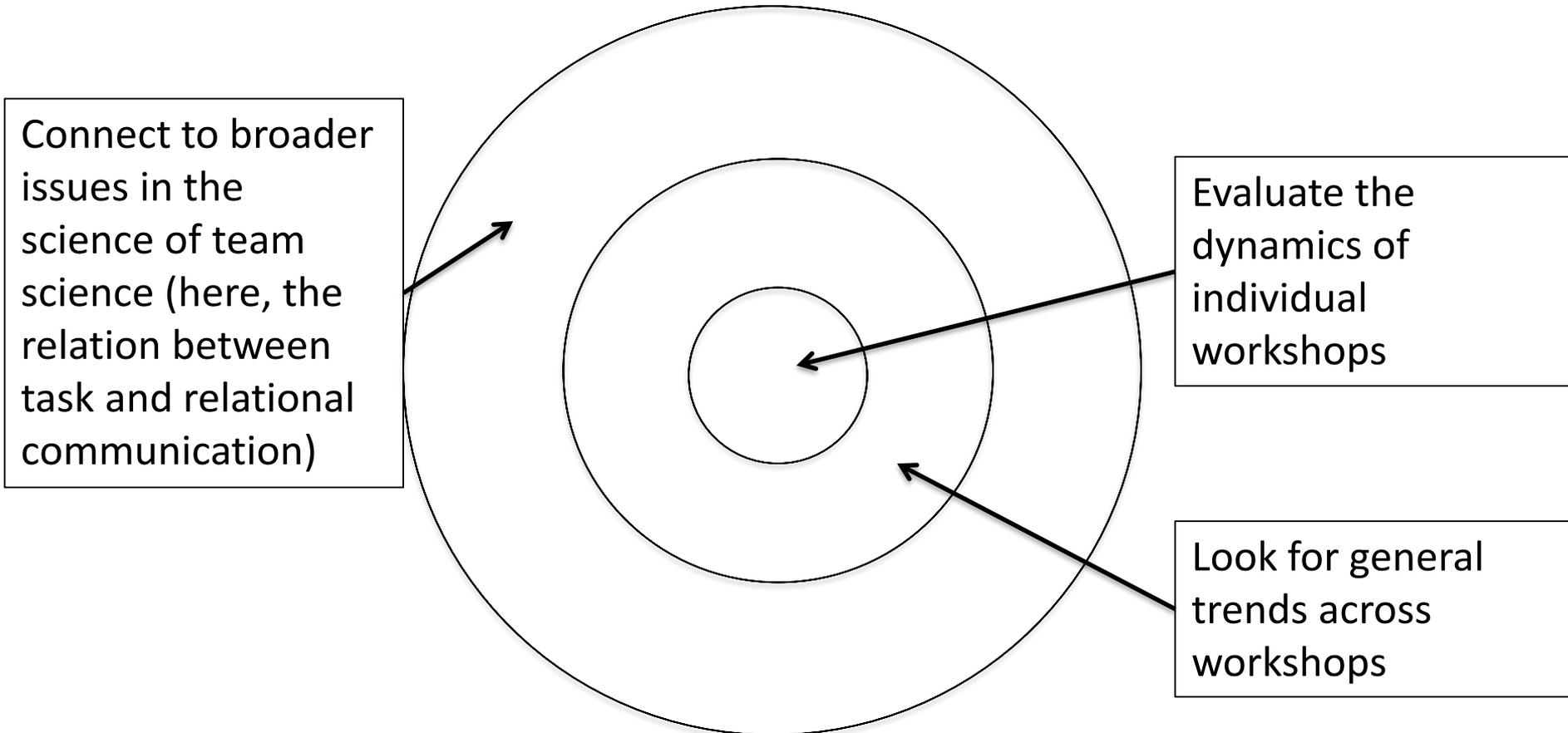
Approach 2: Tracking Tone around Team Impact Dialogue Segments

255	P6 [cont'] and here's your evidence... We always win. [Chuckles, mixed comments. laughter talkover]	Cont.	NU
256	P2 I get what you're saying, and I don't know whether I have a clear boundary in my head that would say 'This is science and this isn't,' or 'This is worth pursuing and this isn't.'	V P6 E-S 197, 226 R P6 242 INFO	NEG 256, 263-271
257	P5 [overlap] The really interesting thing – well, one interesting thing – is [when] you have a data set [of] about 50 species, milkweed species for example...	E P6 215 E P1 169 EX	
258	P? [overlap] That's a random—	H	
259	P2 [overlap] Why'd you pick those? Yeah... [Laughter.]	H	
260	P5 In a way I imagine the ... and this is sort of my own insecurity coming out , but I imagine that what I do with those data are very much like what a social scientist might do with data on the success and lack of success of different societies.	E-S 257 E P6 EX	SA
261	P2 Mm hmm.		
262	P5 You're taking data on it, and running correlations, looking at the relationships. And so, certainly they ... one interesting observation is, no one – I don't think – would say that what I do with those [phylogenetic] data are not science, maybe because the data set happens to be non-human related, I don't know why, even though the methodologies might be quite similar.	Cont. CHALL P2	NU

Research Implications

Research on Complex Communication

- Study relational and task communication



Executive summaries of TDI Workshops

- If we can determine that a low level of relational communication can impede task communication...
- And we can show, using the Tone Analyzer, that in a specific workshop task communication has diminished at the same time relational communication diminishes...
- Then we can advise the team to attend to issues of relational communication

In closing...

Thoughts?

Advice?

Questions?

THANKS!