Identifying Empirical Markers of “Learning From” in Interprofessional Case Review Sessions

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Avoiding Assumptions and Making Observations

THE PROBLEM

Dialogic Construction of Patient Reality

Individual patient treatment involves arriving at answers to three key questions:

- What are the problems? (Assessment / Diagnosis)
- What should be done about it? (Treatment plan)
- Did it work? (Monitoring and Evaluation)

For many (apparently) routine or minor complaints, answering these questions may occur with little or no interprofessional collaboration. However, for more complex or serious complaints, an interprofessional team may be used or needed to arrive at the answers to these questions.

In other words, the reality of the patient's situation is not something given or obvious or "external" to conversation—in a very important sense, the social and practical reality of the patient's disease, treatment plan, and evaluation are *socially constructed in and through interprofessional dialogue and collaboration*.

So, training students how to talk to each other (how to collaboratively construct the patient's treatment reality) is a key piece of interprofessional education (IPE).

Not Mincing Pronouns

- We indicated in our title that we are focusing on the “learning from” portion of the IPE definition.
- But, that’s probably a bit of a misnomer since, as Bainbridge has pointed out[1,2], students may be learning “with and about” each other as well.

So, perhaps a better way of thinking about the problem we are wrestling with is “*How do students learn to dialogically create patient reality in interprofessional settings?*”

The Challenge

But, this poses a challenge because, while we can ask students *whether* they learn from, with and about each other:

- How do we *measure* the extent to which this is actually happening? Is all conversation in interprofessional events equally learning “with” and “from”?
- Is there a way to empirically identify (based on observation) when collaboration is actually happening in the conversations of interprofessional events?

Ultimately, what we would like to do is be able to identify when the most effective interprofessional learning occurs, as well as identify predictors that encourage and facilitate this learning.

DATA AND METHOD

Session and Data

- Weekly ~1.5 - 2 hour special needs dentistry case review sessions
- Attended by:
  - Dental Hygiene
  - Dental Medicine
  - Nutrition
  - Medicine
  - Nursing
  - Pharmacy
  - Social Work
- Sessions recorded using a 360 degree video camera
- Recorded sessions coded using Nvivo 11

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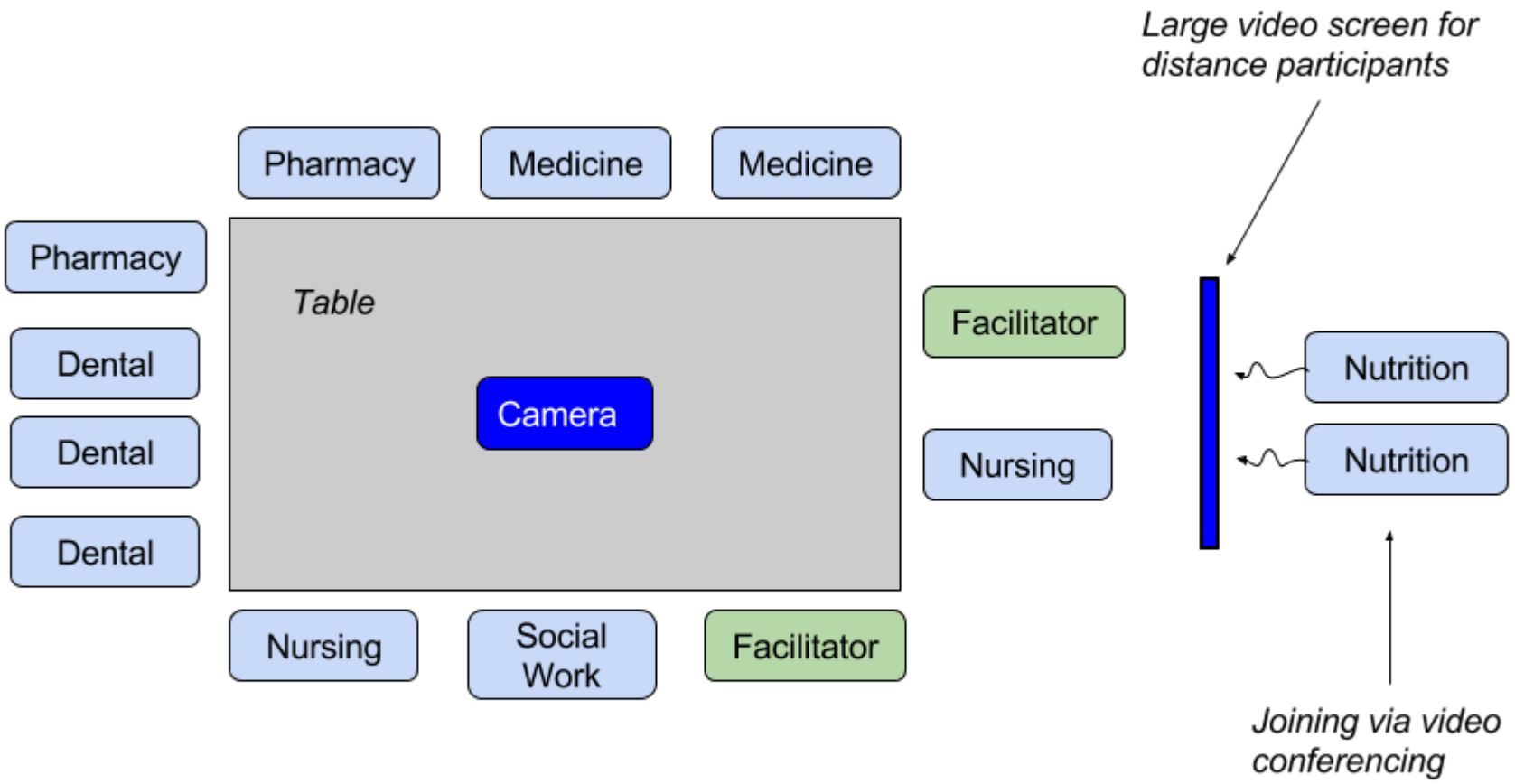
Typical Room Setup for Special Needs Interprofessional Case Review Sessions



Case sessions typically vary from 8-15 participants.

Calibrating Utterance-Level and Conversation-Level Coding

- *A priori* framework based on the work of John Searle's speech act theory[3,4] and informed by a sociology of knowledge approach to discourse analysis[5].
- Modified to fit interprofessional case review session
- Calibration coding (2 coders independently)
  - Initial independent coding of speech turns and speech acts
  - Comparison of coding statistics
  - Discussion of code changes
  - Second dual coding
  - Comparison of coding statistics
  - Independent coding with review of coding

Intercoder Agreement

Coder agreement deemed to be satisfactory when:

- Coding of speech turns for all participants across the 1.5-2 hour session was less than 60 seconds difference
- Agreement of definition of floor (e.g., when to ignore utterances)
- Agreement on a workable typology of speech acts (modified from the *a priori* framework to fit the particular simulated interprofessional case review session setting)
- Agreement on higher order conversational structures that emerged from the flow of speech turns and speech acts

Speech Act and Conversation Analysis Concepts

- **Utterance-level Structures**
  - **Speech turns:** a continuous utterance (which may be composed of several sentences) where the speaker is recognized as having the "floor". Governed by turn-taking conventions and institutional scripts.
  - **Speech acts**: the *action* being accomplished in the act of speaking (e.g., asserting, directing, questioning, expressing, etc.)
  - **Floor:** the socially warranted opportunity to speak uninterrupted.
- **Conversation-level Structures:** stretches of dialogue characterized by recurrent patterns of turn-taking, speaker/addressee identity, and types of component speech acts.
- **Institutional Scripts:** conversation-level structures or templates for interaction authorized as "normal" or "meaningful" within the given social context.

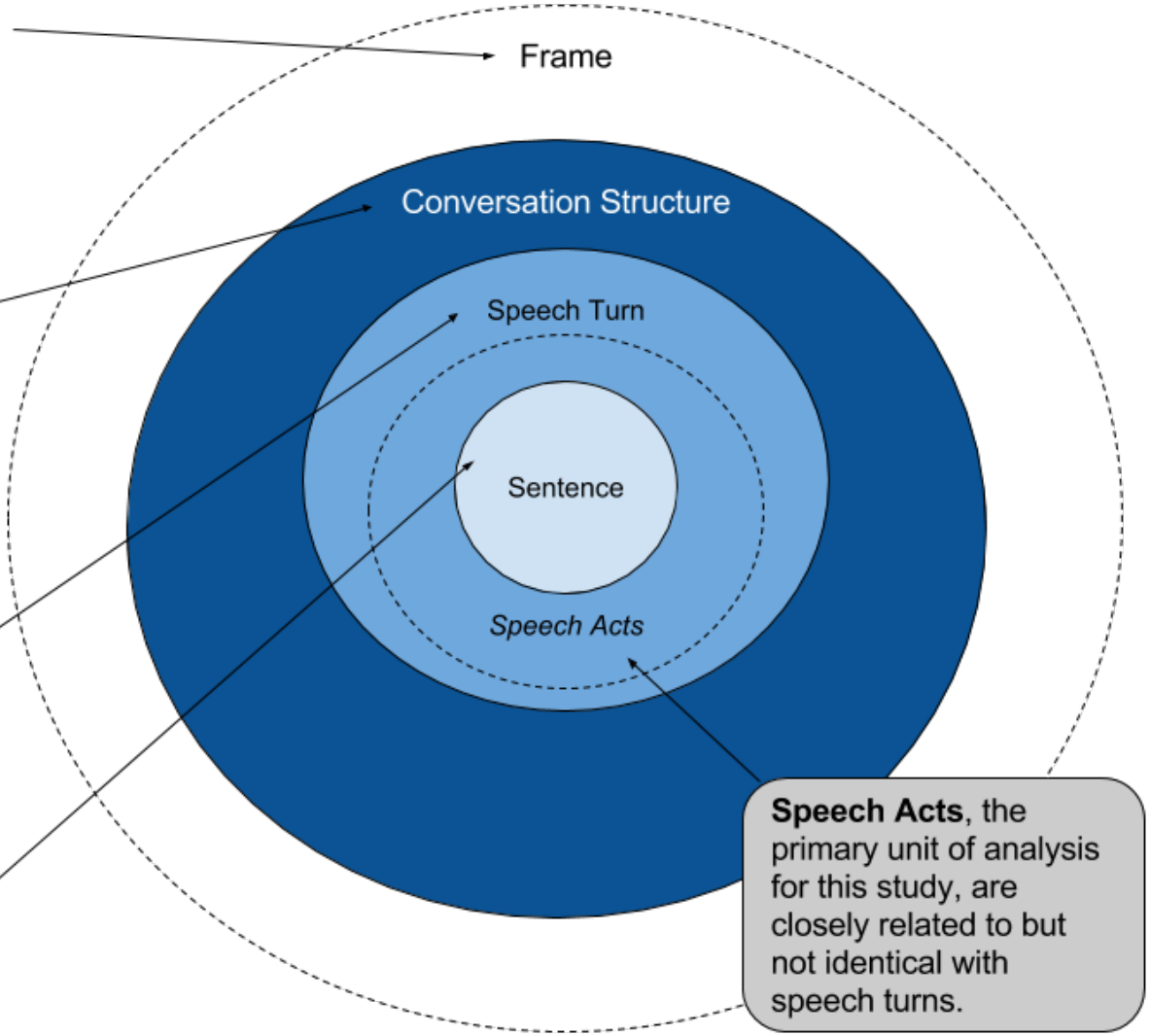
Levels of analysis

Frame set at institutional level (i.e., what counts as meaningful and typical discourse within the particular setting)

Conversation Structure governed by institutional scripts (among other things) and prior conversational structures ("moves")

Speech Turn structure governed by turn taking rules and pragmatics

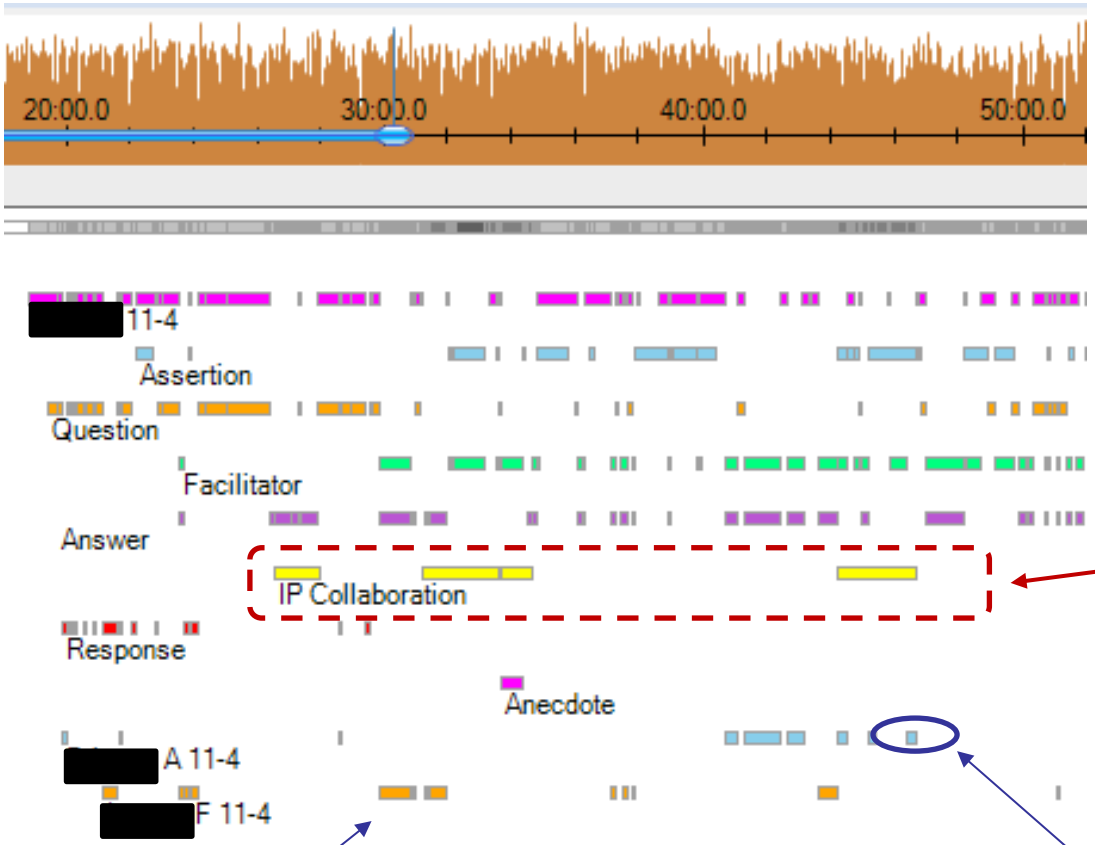
Sentence structure governed by rules of grammar, syntax, semantics



Speech Acts, the primary unit of analysis for this study, are closely related to but not identical with speech turns.

RESULTS

Coding was carried out directly on the video: snippet from a coded video



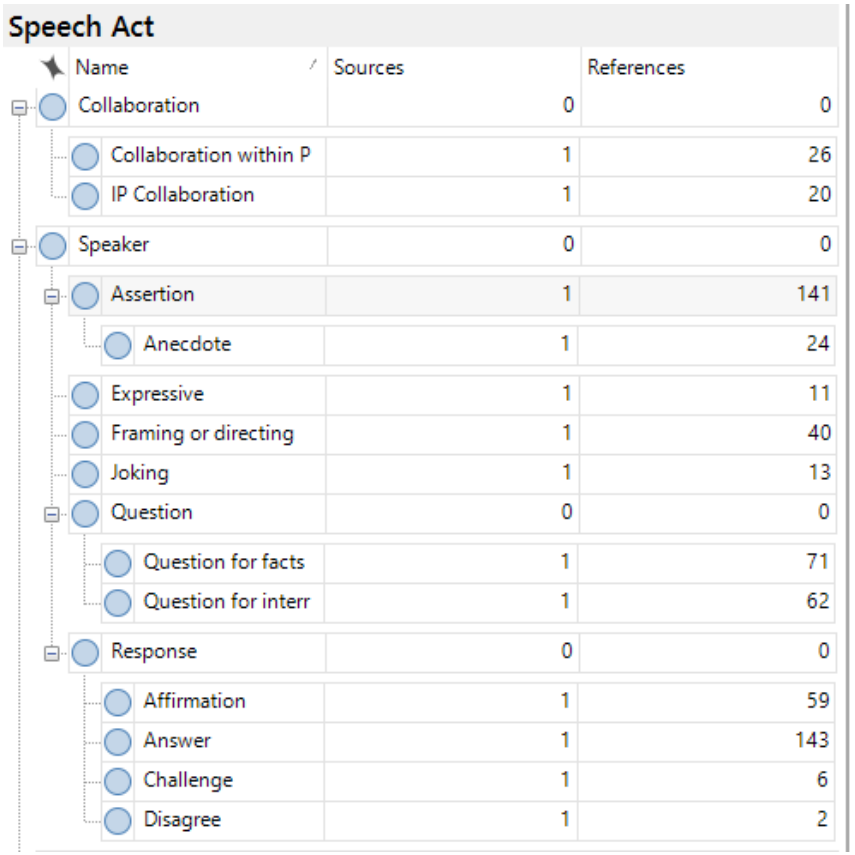
After speech turns and acts are coded, conversation-level structures are encoded

Each bar indicates a separate speech turn (black bars on the left are redacted names)

The length of the bars indicate the duration of the speech turn

Speech Turns Coded Three Ways

- **The Speaker** (including profession, sex, year, role and modality [in-person versus video])
- **Profession of the Addressee** (facilitator was used as the default when the addressee wasn't clear)
- **Speech Act**



Speech Act

Name	Sources	References
Collaboration	0	0
Collaboration within P	1	26
IP Collaboration	1	20
Speaker	0	0
Assertion	1	141
Anecdote	1	24
Expressive	1	11
Framing or directing	1	40
Joking	1	13
Question	0	0
Question for facts	1	71
Question for interr	1	62
Response	0	0
Affirmation	1	59
Answer	1	143
Challenge	1	6
Disagree	1	2

Final speech act coding scheme

Identifying Conversational Structures: Types of Collaboration

- After coding speech turns, we then code conversation level structures
- Specifically, we are looking for instances of student collaboration:
  - **Collaboration within professions** (e.g., Dental students discussing among themselves the most appropriate approach to treatment)
  - **Collaboration between professions** (e.g. Dental and Medical students discussing nitrous oxide use in treatment of a special needs patient.)
- In order to do this, we developed a series of rules for when coding of a collaborative expanse of speech turns both begins and ends.
- In order to demarcate where collaboration starts and stops, we had to identify its boundaries relative to the standard institutional “script” or “template” for conversations within the classroom.

The Importance of “Breaking Script”

It is exactly the conventionality of the higher education template that allows us to identify its boundaries. In the case of IP dialogue in a simulated case review, the students and facilitator are expected to "break" the standard higher educational discursive pattern of speech acts:

$$\text{Assertion}_{\text{instructor}} \rightarrow \text{Question}_{\text{instructor}} \rightarrow \text{Answer}_{\text{student}} \rightarrow \text{Affirmation/Challenge}_{\text{instructor}}$$

While warranted conversation among students is not completely alien to higher ed, it is certainly not the norm in many situations and, importantly, neither students nor facilitators may feel particularly comfortable with it.

What we are looking for are empirical markers of where the standard script has been temporarily abandoned.

Markers of Collaboration

- In many instances, discussions among students are obvious (e.g., back and forth addressing of students to each other over a sequence of speech turns without the facilitator joining the conversation).
- However, sequences of speech turns can be much shorter and still be classified as (somewhat deficient) forms of learning from/with.
- We call these micro-collaborations. On the next slide we provide two examples of the coding rules for a micro-collaboration.

Two Micro-Collaboration Coding Examples

Example 1

- **Facilitator**: "What could the patient do to increase oral Ph?"
- **Dental**: "The patient could eat cheese."
- **Nutrition**: “Or chew gum."
- **Facilitator**: “Right, right"

Since Nutrition student’s response is piggybacking on the dental student’s answer, her answer ***is*** considered collaborative. However, the dental student’s initial statement would ***not*** be collaborative since she wasn't looking to anyone else for help with the answer.

Example 2

- **Facilitator**: "What could the patient do to increase oral Ph?"
- **Dental**: "The patient could eat cheese..." [tone rises at the end and the student looks to another student as a prompt for him to finish her statement]
- **Nutrition**: "...or chew gum." [looking at the former student and clearly finishing her statement]
- **Facilitator**: “Right, right"

In this situation, ***both*** the dental and the nutrition students’ utterances would be coded as collaborative.

End of Collaboration Sequence

Typically, a collaborative student exchange ends when the Facilitator enters back into the conversation.

However, this is not always the case. A *good facilitator* may interject within a student conversation to clarify or continue the discussion.

The example on the following slide provides an example of a facilitator interjection that would **not** be considered a break in the IP collaboration taking place.

Facilitator Interjection to Enhance Collaboration

In a conversation where a dental and a medical student were talking about different methods of sedating special needs patients:

Dent: I don't have extensive experience at this stage...In terms of nitrous, in terms of oral surgery, also I don't think that would get us to a level to where we could do that.

Med: Not to work, but it would get you somewhere where you could start [an IV and...]

Dent: [Start an IV]. Yeah

Med: Yeah....Does it work well enough?

Facil: What are you asking? Does *what* work well enough on the special needs...

Med: As far as?

Facil: The nitrous?

Med: The nitrous*....(conversation continues)*

In this case, although the facilitator has entered the exchange, it would not be considered a break in the IP Collaboration sequence.

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Data are then downloaded into matrices which are then available for statistical analyses.

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
A : Collaboration	Collaboration within Profes	C : IP Collaboration	D : Speaker	E : Assertion	F : Anecdote	G : Expressive	aming or dire	I : Joking	J : Question	Question for fa	interp, opinio	M : Response	N : Affirmation	O : Answer	P : Challenge	Q : Disagree	R : Target	S : Dental	T : Dietitian	U : Facilitator	V : Medical	W : Nurse
0:00.0	0:00.3	0:01.4	0:00.0	2:26.3	0:49.2	0:03.4	0:14.3	0:04.5	0:00.0	0:13.4	0:13.2	0:00.0	0:20.7	3:05.0	0:00.0	0:02.7	0:00.0	0:26.6	0:00.0	5:56.0	0:00.0	0:00.0
0:00.0	0:27.8	0:25.2	0:00.0	0:10.1	0:00.0	0:00.0	0:00.0	0:00.0	0:00.0	0:01.3	0:35.2	0:00.0	0:01.9	0:43.9	0:00.0	0:00.0	0:00.0	0:00.3	0:25.2	0:36.1	0:02.1	0:00.0
0:00.0	0:00.0	0:00.0	0:00.0	0:19.0	0:00.0	0:00.0	0:00.0	0:01.1	0:00.0	0:08.2	0:00.1	0:00.0	0:02.7	2:34.6	0:00.0	0:00.0	0:00.0	0:00.0	0:01.1	3:02.6	0:00.0	0:00.0
0:00.0	0:04.5	0:13.5	0:00.0	1:12.4	0:00.0	0:00.0	0:00.0	0:01.7	0:00.0	0:01.0	0:03.3	0:00.0	0:04.7	1:32.2	0:00.0	0:00.0	0:00.0	0:04.3	0:44.0	1:14.1	0:35.4	0:00.0
0:00.0	0:13.0	0:00.0	0:00.0	0:13.1	0:00.0	0:00.0	0:00.0	0:01.4	0:00.0	0:04.5	0:05.9	0:00.0	0:09.1	4:36.4	0:00.0	0:00.8	0:00.0	0:13.2	0:00.0	1:47.1	4:20.8	0:00.0
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0:00.0	0:39.9	0:27.2	0:00.0	0:18.8	0:00.0	0:00.0	0:00.0	0:00.0	0:00.0	0:01.5	0:11.3	0:00.0	0:08.5	0:33.5	0:00.0	0:00.0	0:00.0	0:00.4	0:00.0	0:45.1	0:03.3	0:00.0
0:00.0	0:02.0	0:02.7	0:00.0	37:28.2	1:21.6	0:34.4	2:54.6	0:36.0	0:00.0	2:23.0	6:41.0	0:00.0	3:23.0	1:47.3	0:12.9	0:15.6	0:00.0	3:44.3	1:56.3	2:04.7	1:49.7	0:00.0
0:00.0	0:00.0	0:00.0	0:00.0	1:12.4	0:00.0	0:02.6	0:01.0	0:01.8	0:00.0	0:08.3	0:16.2	0:00.0	0:03.0	2:42.1	0:00.0	0:00.0	0:00.0	0:00.0	0:00.0	2:48.9	0:00.0	0:00.0
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This matrix summarizes the duration of each speech act (columns) for each participants (rows)

So, in this particular case, while the facilitator spent over 37 minutes making Assertions (statements of fact…in effect, teaching), she only spent 6:41 minutes asking questions of interpretation, experience or opinion (e.g., “how might you treat this patient?”)

At this point you are probably wondering:

This seems like a lot of work…what's the payoff?

Payoff 1: Find out what is really going on

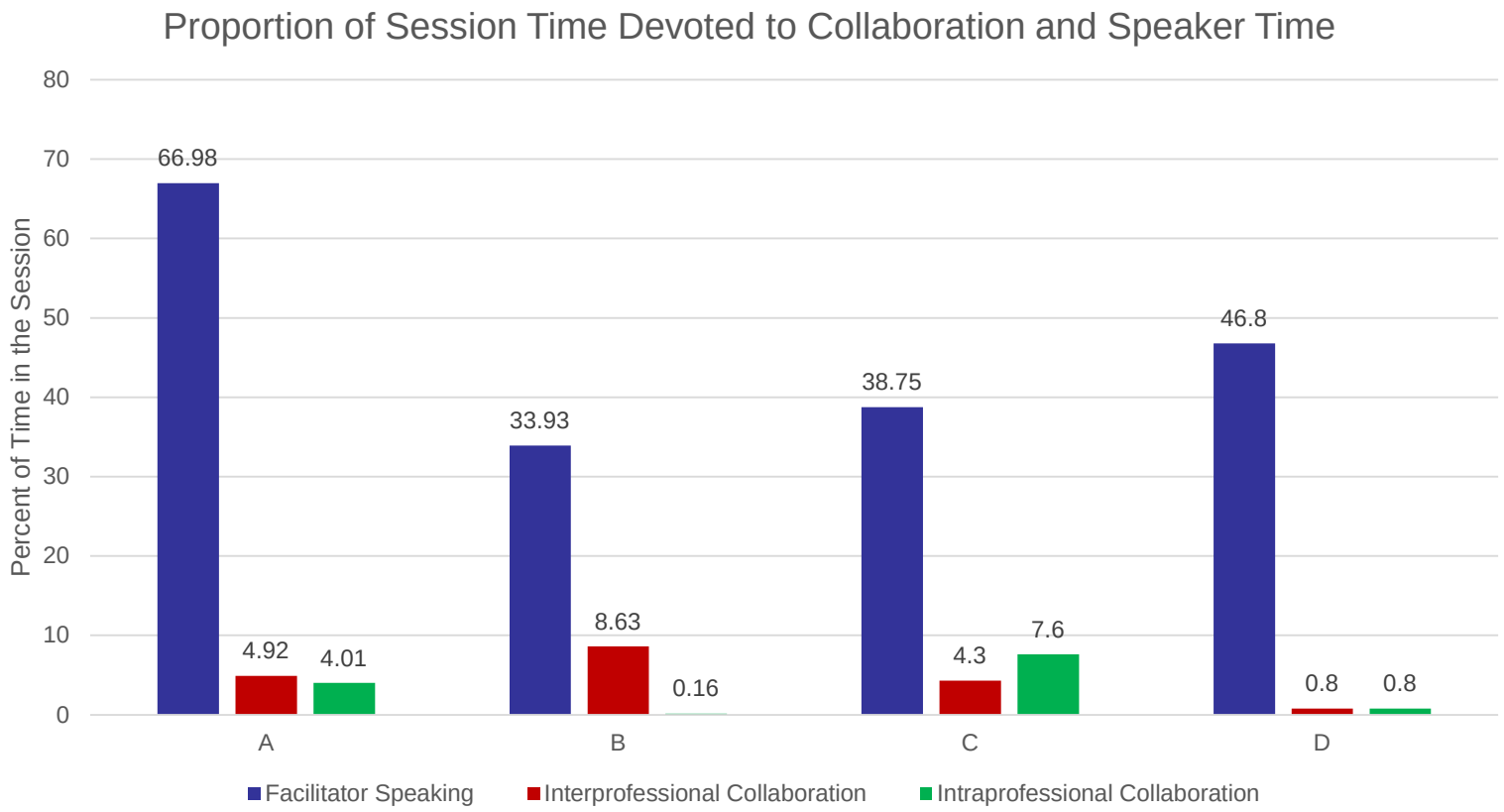
Payoff 2: Figure out *what predicts* our desired outcomes and then purposively change to achieve those outcomes

What is real and what is wishful thinking?

- We tell ourselves that students are learning with, from and about each others' professions in different IPE sessions.
- We do surveys and ask students if this is happening (no surprise, they almost always tell us they are).
- But, unless we **operationalize** what it means to "learn with/from" and then **observe** interaction and finally **measure** interaction patterns, we never really know for sure.
- And, if we subscribe to wishful thinking rather than actual measurement, we will never really be sure how we can get better at teaching IPE…or, indeed, even whether we are accomplishing what we hope we are accomplishing.

So, what do we learn from actually observing and measuring interaction?

What proportion of the IPE session is actually spent in collaborative student interaction?



That's an average of just 5.6 minutes in a two hour session!

This Takes us to Payoff 2

Now that we know how to operationalize, observe and measure our desired outcome variable, we can begin to examine the characteristics of the session to identify what factors are associated with higher levels of collaborative interprofessional interaction:

- Number of students?
- Topic?
- Interprofessional makeup?
- Structure of speech acts?
  - Are students more likely to collaborate following explicit framing statements by facilitators?
  - Is student collaboration inversely associated with the amount of time a facilitator speaks?
  - Etc.

CONCLUSIONS

Conclusions

- We cannot assume that students are learning to the skills needed to collaborate in the process of creating a patient's reality.
- We cannot simply ask students if they think they are learning what we hope they are learning.
- If we want students to learn collaborative interprofessional interaction, we need to find ways to measure when (and how often) that is actually occurring.
- In so doing, we provide the basis for:
  - Understanding more deeply the nature of how interprofessional collaborative practice occurs
  - Changing our IPE practices in a way that is both purposive and based in actual empirical evidence

QUESTIONS?

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