A Conversation Analysis of Web-based and Face-to-face Interprofessional Team Communication During a Standardized Patient Encounter

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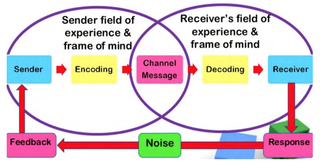
BACKGROUND

- The World Health Organization stresses the need for interprofessional education (IPE) as a necessary step in preparing "collaborative practice-ready" healthcare providers.[1]
- Challenges exist in developing and implementing IPE activities, such as coordinating the schedules of multiple programs and obtaining appropriate space for the teams to work.
  - To help overcome of these challenges, virtual learning environments have been explored.
- In a recent pilot study, we compared web-based (WB) and face-to-face (FTF) interprofessional (IP) student team interactions with standardized patients (SPs), focusing on the competency area of IP communication.[2]
  - IP team communication assessment scores were similar as assessed using validated questionnaires
  - Observable differences in the teams' communication were noted
- Further exploration of the differences in IP teams' communication using these two platforms was deemed necessary before implementation of future WB encounters.

METHODS

- Objective: explore IP teams' communication during a WB and FTF SP encounters using conversation analysis (CA), focusing on turn-taking, parties and alliances, and power
- Conceptual framework[3]

Wilbur Schram model of communication



Schramm's Field of Experience Model of Communication Theory (on the basis of Schramm & Roberts 1971). Adapted from "Marketing Communication Models" [PowerPoint presentation on Slideshare.net] by S. Sota, 2014. Copyright 2014 by Author.

- Sender and receiver = all participants
- Encoding and decoding = verbal and non-verbal way of conveying the message
- Feedback = response and reaction from the receiver back to the sender
- Channel = Zoom platform or air within proximity of participants
- Field of experience = individual's life and prior healthcare training (history taking skills, prior exposure to SP encounters), and institutional positioning (roles and responsibilities, perceived stereotypes)
- Overlap = common experiences (their shared IPE mental model)
- Noise: outside distractions

- Data source
  - Two 20 minute recordings of IP student team interactions with a SP (one WB and one FTF)
    - FTF team: pharmacy, osteopathic medicine (male), physical therapy
    - WB team: pharmacy, physical therapy (male), occupational therapy
  - Scenario: develop an interprofessional care plan for the next month for a patient who experienced a stroke 2 months prior and was struggling with recovery of physical mobility as well as coping with the loss of a spouse 6 months ago
- Transcription, coding, and observation process
  - One investigator systematically transcribed the recordings over a 3 week period.
  - Coding for pauses, overlap, and latching was then performed following Sidnell's guidelines.[4]
  - Observations of nodding, head-turning, gaze, smiling, and use of inclusive words (i.e. we, us) were also noted and counted.
  - Two investigators then independently reviewed the transcription and coding.
- Length of the opening sequence for each encounter was noted.
- The number of turn constructional units (TCUs) for each participant were counted and compared.
- All investigators also completed a case rubric while viewing the recordings.
- Analysis
  - Transcriptions and observations were explored to determine whether they illustrated any of the characteristics found in the 3 of Freebody's six analytic passes selected for analysis: 1) turn-taking, 2) parties and alliances, and 3) power.[5]
  - This data was then triangulated with the case rubric and communication assessment test-team (CAT-T) data from the pilot and findings from a review of the literature.
- This project was approved by the Midwestern University and Rosalind Franklin University IRBs.

RESULTS

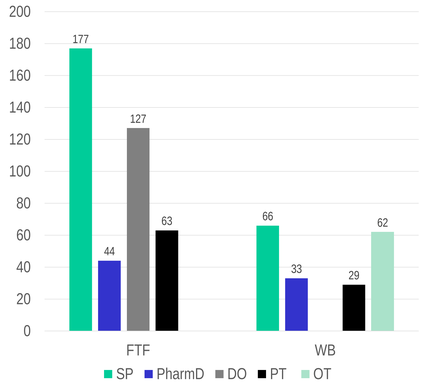
Opening Sequence

- Both encounters contained an opening sequence that consisted of summon-answer and one-at-a-time rules in addition to anchor statements.

Table 1: Characteristics of Opening Sequences

Characteristics	FTF	WB
Length (seconds)	20	80
Sentence latch	5	0
Speaker overlap	5	0
Turn constructional units (TCUs)		
SP	10	10
PharmD	4	2
DO	5	-
PT	3	3
OT	-	6

Figure 1: Number of Turn Constructional Units (TCUs) per Participant



Turn-taking

- Predominantly signaled non-verbally in both encounter types
  - FTF – signaled with a head-turn or eye gaze
  - WB – signaled with an extended pause or a smile

Table 2: Pauses during Turn-taking

Type of Turn-taking Pause	FTF	WB
1 second or more		
Number of turn-taking pauses	23	32
Total seconds of all turn-taking pauses	59	94
Average length of pause per turn-taking (seconds)	2.57	2.94
2 seconds or more		
Number of turn-taking pauses	20	27
Total seconds of all turn-taking pauses	56	89
Average length of pause per turn-taking (seconds)	2.80	3.30

Table 3: Smiles during Transition Space

Timing of Smiles	FTF	WB
During opening sequence	11	2
After opening sequence (excluding closing)	0	7

Parties and Alliances

- In both encounters:
  - Alliances formed among team members and with the SP
    - Used inclusive words (i.e. "we", "us", "the team") instead of "I"
  - Individuals asked questions related to their professional scope

Case Rubric

- Based around patient's five goals, with 3-4 items per goal (maximum possible score 17)

Table 5: Case Rubric Scores, by Reviewer

Encounter Type	Reviewer #1	Reviewer #2	Reviewer #3	Overall Mean
FTF	10	11	11	10.7
WB	11	10	10	10.7

Power

Table 4: Power Comparison Between Encounter Types

Characteristics	FTF	WB
Power structure	Hierarchical	Shared
Team leader	DO student	Shared
Power struggle	None	Minimal

Other Observations

- Shared field of experience
  - FTF – previously established (prior IPE coursework)
  - WB – appeared to develop throughout the encounter
- Noise
  - Did not seem to impact either teams' communication

DISCUSSION

FTF and WB IP teams' communication with a SP

- Functions within Schramm's field experience model of communication theory
  - Individuals coded and decoded messages effectively as both the receiver and sender
  - Used verbal and non-verbal signals
    - Differences between encounter types in the signals for turn-taking
  - Did not appear to be impacted by noise
  - Teams appeared to rely on their shared IPE mental model during the encounter
- Opening sequences
  - Both encounter types contained typical elements of opening sequences, including summon-answer, one-at-a-time rules, and anchor statements.
  - WB opening sequences was 6 times longer than the FTF
    - Possibly due to students not yet having a shared mental model about how to conduct a web-based encounter
- Overall, effective IP team communication with the SP was achieved in both the WB and FTF encounters.
  - Supported by:
    - Similar case rubric scores for both encounter types
    - Similar IP team communication assessment scores from the patient perspective via the adapted CAT-T[2]
- In a prior review of literature about telemedicine and doctor-patient communication, 80% of findings favored telemedicine.[6] Further research in verbal content analysis was suggested to better understand the communication process.
- To our knowledge, no studies have been published that qualitatively evaluate IP team communication via CA to explore any differences that may exist between these two platforms.

Limitations

- Unable to contact participants after the analysis to verify that our observations from the conversation analysis and interpretation of participants' non-verbal behaviors matched their intentions and perceptions of the activity
- Lack of parity in the professional composition of the teams
- Potential for human error in transcription and observation
- Sample from a single institution

CONCLUSIONS AND FUTURE DIRECTIONS

- Differences in IP team communication were noted between the WB and FTF SP encounters in areas including the length of the opening sequences, number of turn constructional units, signals for turn-taking, and emergence of a single team leader.
- Overall, both teams appeared to communicate effectively, with minimal, if any, power struggles.
- Additional studies are needed to obtain a more in-depth understanding of IP team communication with a patient (SP) during a WB encounter in order to effectively train students to provide telehealth services.
- Areas to explore include:
  - Differences in web-based platforms
  - Body language of SPs and students and the influence on perceptions of the experience
  - Team hierarchy and power struggles during WB encounters

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The authors have no conflicts of interest to disclose.

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