

Innovating Online Learning
using
Social Dynamics Analysis
to create
Student Success

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Research Questions

1. Can a lexicon be constructed to assess social presence?

2. Do the five phases in the social construction of knowledge predict social presence?

Hypothesis

1. A lexicon can be constructed to accurately assess social presence.

2a. All phases of IAM will be positively related to social presence.

2b. Higher phases of IAM will contribute more to social presence than lower phases.

Definitions

- **Interaction Analysis Model (IAM):** A tool to analyze the phases of knowledge construction during discussions in virtual environments.
- **Phases of Knowledge Construction in IAM:** Phase I is sharing and comparing, Phase II is dissonance, Phase III is negotiation and co-construction, Phase IV is testing tentative constructions, and Phase V is the application of newly co-constructed knowledge.
- **Social Construction of Knowledge:** A collaborative process which produces new knowledge.
- **Social Presence:** The degree to which a person is perceived as a 'real person' in mediated communication.

Methods

Subjects. The data consisted of 123 postings from an online discussion board on the topic of culture.

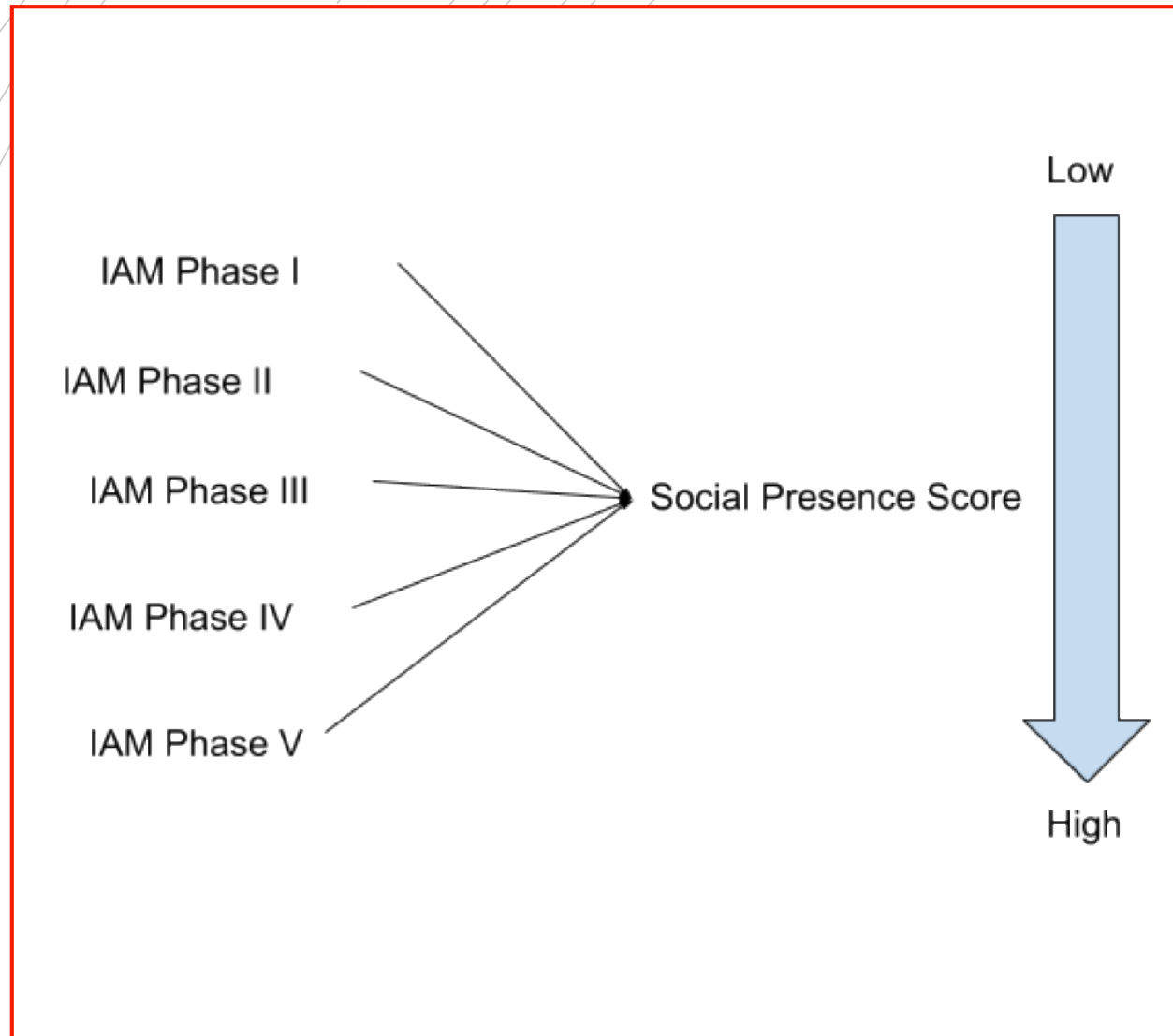
Apparatus. A custom R script was used to generate all five IAM phase scores, and to generate a social presence score, for each of the 123 postings.

Procedure: Steps for IAM Analysis & Social Presence Analysis

- Analyzed the data in order to obtain the counts of each IAM Phase along with the signaling words for each of the five phases.
- Compiled the Social Presence lexicon.
- Data was cleaned to remove all punctuation.

Results

- A multiple regression was run to predict social presence (cpSP) based on the five phases of IAM (cpI, cpII, cpIII, cpIV, cpV).



Multiple Regression Results

Variable Name	B	Signif.
(Constant)	10.12	***
Phase 1 Score (cpI)	0.92	***
Phase 2 Score (cpII)	2.61	***
Phase 3 Score (cpIII)	0.29	
Phase 4 Score (cpIV)	3.06	**
Phase 5 Score (cpV)	2.75	***

***: $p < 0.001$, **: $p < 0.01$

Limitations

Analyzed higher education discussion board transcripts.

Has not been tested on informal communication discussions.

Does not identify misspelled words.

Lexicon is currently only in English.

Implications

- Social Presence Analysis can identify discussions which reach higher levels of construction of knowledge.
- An automated approach makes social presence analysis more available to instructors which can help them to get a snapshot of their course.
- Highlights the importance of teaching students to utilize personable language in online discussion forums.

Future Research

Create a lexicon for the IAM coding process in order to save even more time when analyzing discussions.

Should account for colloquial language utilized in informal communications.

Determine a way to analyze misspelled words.

Translate lexicon into other languages.

Conclusion

- Hypothesis 1: The lexicon accurately assessed the social presence score in each post. Hypothesis 1 is supported.
- Hypothesis 2a: Significant positive relationships were found for all phases except phase III. Hypothesis 2a is partially supported.
- Hypothesis 2b: Phases IV and V's coefficients are greater than I and II. Hypothesis 2b is partially supported.

Thank you!
Questions?

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