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# **What happens during Asynchronous Text-Based Discussions in an Online Learning System?**

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# Asynchronous Online Discussion (AOD)

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- **AOD** is a text-based computer-mediated communication environment that allows individuals to interact with one another without the constraint of time and place.
- **Discussion** entails messages, dialogues, interactive events, and discourse.

# Background

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## Significance of the study:

- Student discussion has been identified as key component of online discussion, where learning takes place (Ertmer, et al., 2007).
- Prior research has suggested that limited student contribution in asynchronous online discussions appears to be a persistent and widespread problem even among graduate students (Hewitt, 2005).
- Research is mixed regarding whether the instructor or the students should act as a facilitator of online instruction (Mazzoln & Madison, 2003; Poole, 2000).

# Background

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Empirically, issues identified with AOD are:

- Limited contribution, and not seeing the need for online discussion (e.g., Guzdial and Turns, 2000; Masters and Oberprieler, 2004).
- Not knowing what to contribute (e.g., Poscente and Fahy, 2003; Dennen, 2005).
- Exhibiting surface level thinking (e.g., Yang et al., 2005; Schellens et al., 2005).
- Technical aspects (e.g., Cifuentes et al., 1997; Wasko and Faraj, 2000).
- Pre-empting student problem (e.g., Chen and Chiu, 2006; Xie et al., 2006).

# Background

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Our instructional design followed these research-based guidelines in order to increase participation:

- Selecting discussion topics that directly relate to students' main curriculum (e.g., Dennen, 2005; Hummel et al., 2005).
- Making the online discussion mandatory or giving incentives such as grades for student contribution (e.g., Cifuentes et al., 1997; Yeh and Buskirk, 2005).
- Giving clear explanations of the purpose of the online discussion (e.g., Cheung and Hew, 2005; Jung et al., 2002).
- Using posting deadlines for student contributions (e.g., Kienle and Ritterskamp, 2007).

# Research Questions

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1. How do graduate students perceive the contribution of AOD to higher-order learning in the context of an advanced qualitative research seminar?
2. How well do student's perceptions of the contribution of AOD to their learning correspond to the quality of their verbal interchanges ?
3. What relationship does a student's approach to learning and studying have to the quality of verbal interchanges that arise among pairs of students assigned to participate in AOD?

# Design and Methods

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## **Design:**

- Instrumental case study (Stake, 1990)
- Purposive convenience sample of 10 graduate students enrolled in Ed. Psych. PhD .

## **Procedures:**

- All students were expected to participate in AOD. The course purpose was to develop a qualitative PhD or MA research study, to have hands-on experience in data collection and data analysis, and to learn about 5 approaches to QR from which to select the design of their study.

## **Data:**

- Digital records of AOD verbal interactions and time stamped records
- Survey of Perceptions of AOD Experiences
- Study Process Questionnaire

# Validity Threats

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- **Credibility/Internal Validity:** Is what we claim we observed , what really happened?
  - Prolonged engagement:13 weeks of AOD records for all participants
  - Triangulation of data sources: AOD Records of Discussion (1700 logins), Survey of Perceptions of AOD Experience, Study Process Questionnaire
- **Dependability Validity:** Under the same circumstances would the same results be found?
  - Open coding of data
  - Content analysis
  - Inter-rater reliability



# Result (1)

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9 Dimensions (D) of students perception of AOD experiences:

- D1 Negative Consequences (0)
- D2 Facilitation of Discussion (-)
- D3 Value of Participation (+)
- D4 Discussion Results in Learning Outcomes (+)
- D5 Indirect Acquisition of Learning Strategies (+)
- D6 Meta-cognitive Influences on Learning (+)
- D7 Contribution to face-to-face Learning in Class (+)
- D8 Promotion of Collaborative Learning(+)
- D9 Participation Shaped by Course Design Features (+)

# Result (2)

- Large differences occur between pairs in the construction of discourse.

*Comparison of Individual and Pairs Quality of Verbal Participation during the Course*

	Number of WebCT log ins*	Number of messages for course	Number of participations in dialogue	Number of academic dialogues	Number of academic discourses	Number of words generated
Pair 1: A	198	22	15			
B	166	19	14			
Total			29	7	6	6,331
Pair 2: C	202	18	4			
D	202	8	2			
Total		26	6	2	1	8,493
Pair 3: E						
F	161	10	8			
Total	104	13	20			
		23	28	5	3	7,361
Pair 4: G	251	16	37			
H	254	18	33			
Total		34	70	18	10	30,520
Pair 5: I	155	20	7			
J	170	15	9			
Total		35	16	5	1	6,462

\* In another Graduate Course

## Result (3)

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Students with deep motive and deep strategies are associated with pairs of students who generated discourse most often during AOD.

*A comparison of the pairs of students approaches to learning on the SPQ\**

	Deep Motive	Deep Strategy	Surface Motive	Surface Strategy	Achieving Motive	Achieving Strategy
Pair 1: A	+	+	--	--	0	-
B	--	-	0	+	-	-
Pair 2: C	0	--	--	--	-	+
D	0	0	-	-	0	+
Pair 3: E	-	0	-	0	+	-
F	-	--	0	+	0	-
Pair 4: G	0	0	--	-	-	+
H	0	0	-	-	-	+
Pair 5: I	0	-	0	-	-	+
J	0	-	0	+	+	-

\* Note. The Study Process Questionnaire scores are based on the norms provided in Biggs J.

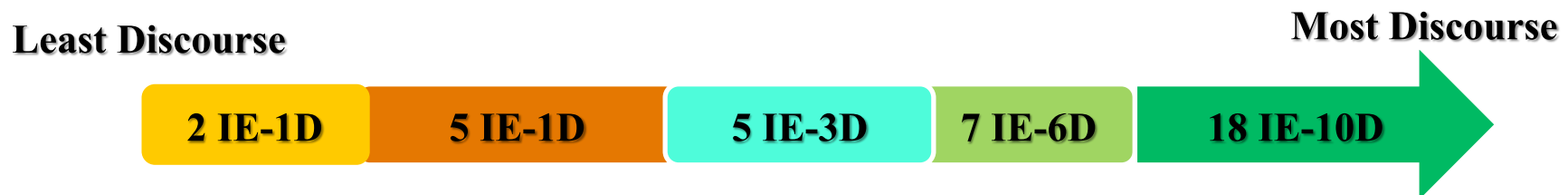
# Data speak louder...

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## Student Open-ended Responses:

*Differences were shown between pairs in terms of their views on:*

- Overall value of AOD
- Engagement in learning outside of classroom
- AOD facilitation to high-order thinking
- Contrast to class discussion









*Note: IE refers to Interaction Events, and D refers to Discourse.*




# Overall value of AOD

**(D3) Statement:** *How at the end of the course I value online discussion.*

## POSITIVE PERCEPTION

- It asks me to be ready for the course as much as possible and then to make the most of the course. 
- It is a tool that aids in my understanding and learning. 
- It helped me to clarify ideas and concepts. 
- Of all mentioned reason, it helped me to reflect, to keep ongoing and to be prepared. 
- It is more relaxed way of getting through the material. I appreciate being with someone I know well and comfortable with. 
- It forces me to be more organized. Also, it resulted in several useful insights. 

## NEGATIVE PERCEPTION

- I prefer a face-to-face discussion. 
- I found that often, it was a perfunctory process, i.e., answer the question for the sake of doing so. 
- It felt superficial. I did not find the exchanges yielded a lot of feedback. It was difficult to engage in dialogue. I found it frustrating at times. 



# Engagement in learning outside of classroom

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**(D1) Statement:** *I find it difficult to focus on the topics and dialogue with my discussion partner.*

## POSITIVE PERCEPTION

- Although we have a different level of experience, the exchange of information was very useful.
- My partner and I are at the same level in most cases we complemented each other's understanding on given topics.
- I understand my partner—the dialogue is clear.
- We checked each other's messages regularly. Also, we both tried to explain our ideas as clearly as possible. It worked.

## NEGATIVE PERCEPTION

- It is not difficult to focus on the topic, but sometimes to really have a dialogue, because of time, and depth of the topics we are studying.
- Since we are taking a face-to-face class together, I find it easier and less time consuming to talk to him face-to-face.
- The lag time between responses is too great to feel like a discussion (there was minimal dialogue).



# AOD facilitation to high-order thinking

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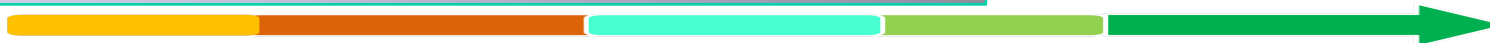
**(D4) Statement:** *I find writing down my ideas to prepare for online discussion facilitates my thinking to a higher level.*

## POSITIVE PERCEPTION

- It forces me to reflect upon my ideas. Also, my partner's input to what I have written provides insights.
- Preparing answer to the prepared questions was helpful but management and engaging in dialogue was challenging.
- I agree this is true in both the discussion and the exercises from the book.
- I think that for me it was the main help: clarify ideas for someone else to understand, so that I would be more ready for the class discussion.
- I used them to write my proposal and engage in discussion.
- It helps me to think more about the information than just reading alone.

## NEGATIVE PERCEPTION

- I hope so.
- I am mostly paraphrasing information I find in books, not applying it much.



# Contrast to class discussion

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**(D4) Statement:** *Online discussion causes me to verify my thinking more than in class discussion.*

## POSITIVE PERCEPTION

- I think that both are highly useful in my understanding and learning.
- Online discussion is interesting but in-class discussion and teaching is more important.

## NEGATIVE PERCEPTION

- I do not have the impression it is more than in class.
- I think the in-class is more stimulating for me because it is with more people, more diverse ideas, and it is in real time.
- It is too impersonal.
- In-class discussion is more personal, and ideas can be exchanged more easily. Also in-class discussion involves the input of more than just two people (and it includes the professor).





# Conclusions

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- 1- The **research-based** design features (in AOD, not AOD) do lead students to have more **positive** perceptions of AOD.
- 2- Student pairs who had **more positive Perceptions** of their AOD experiences also generated **more discourse** as **evidence of higher order thinking**.
- 3- Differences in student **Approaches to Learning** are associated with the **Potential** pairs have to generate discourse.
- 4- Peer Online discussions: **interesting** and **useful** for learning, Professor in-class discussions **important, stimulating** or **multi-vocal**.



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