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Accelerating Online Text-based Discourse via 3D Online Learning Environments

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The main points

- Adding a 3D online learning environment to existing text-based communications used for course discussion
  - accelerates rapport
  - greatly increases number exchanges
  - increases depth of discourse
  - sustains discourse longer over the semester
- Cognitive Scaffolding accelerates rapport building (presence)

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3D Online Learning Environment

- Multi-User 3D Environment that support Collaborative Groupware and Unified Communications.
- Used since 2002 for selected CECS courses
- Typically used in a blended mode
- Research questions
  - Student satisfaction
  - Learning Outcomes
  - Discourse

The Initial Study

- Comparing courses taught using the same discourse requirements and similar assignments between the fall of 2004 and fall of 2005.
  - Internet Only, Web LMS (no face to face, no 3D OLE)
  - Internet Extended (multiple face to face and Internet Tools)
  - 3D OLE (3 face to face, 3D OLE, and Internet Tools)
- Each type consists of three or more courses over the 3 long semesters.

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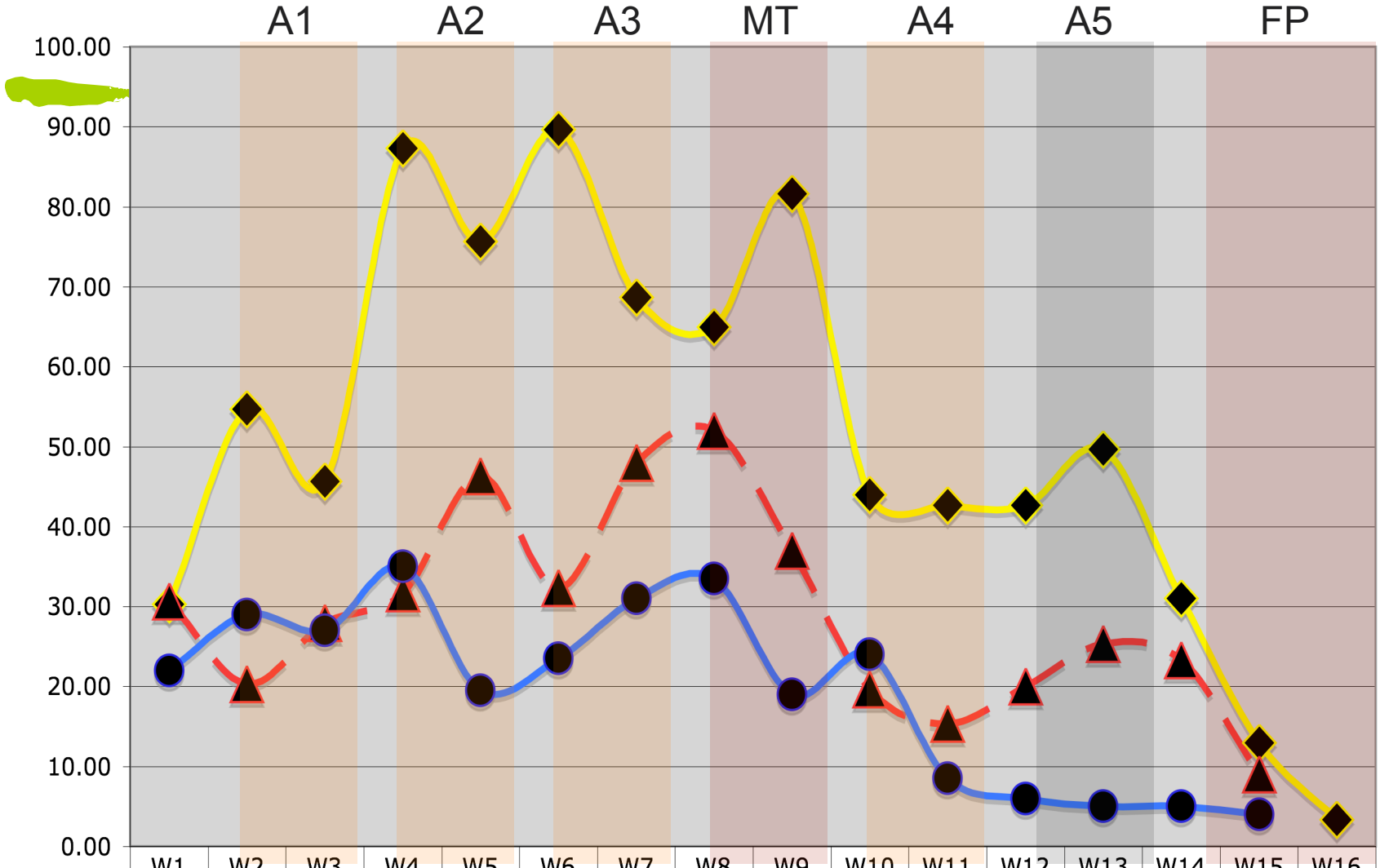
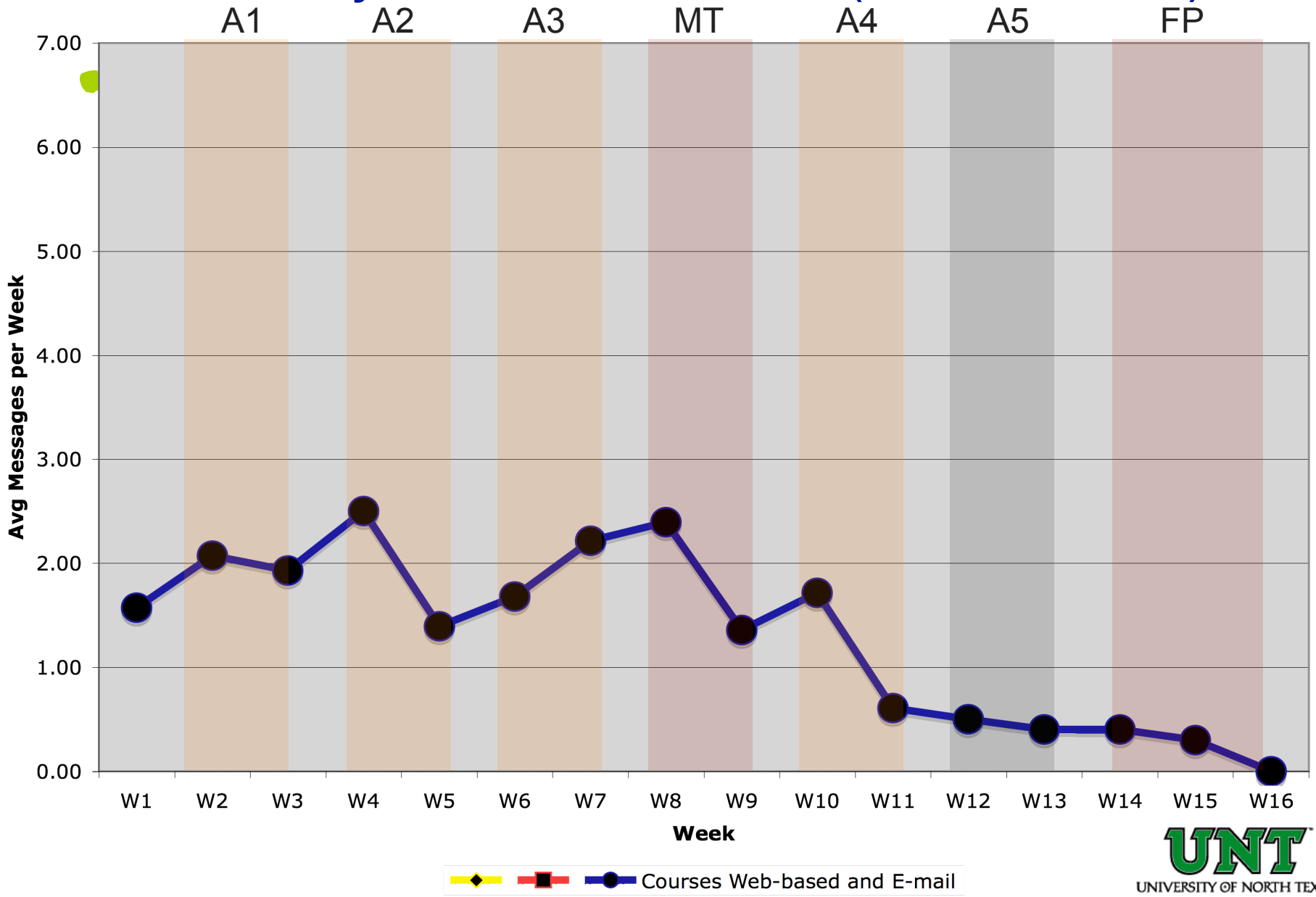
Avg Message Totals by Delivery Type



	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16
CRG/List	30.33	54.67	45.67	87.33	75.67	89.67	68.67	65.00	81.67	44.00	42.67	42.67	49.67	31.00	13.00	3.33
F2F/List	30.67	20.33	28.00	31.67	46.33	32.33	48.00	52.00	37.00	19.67	15.33	20.00	25.33	23.33	9.00	
WebCT	22.00	29.00	27.00	35.00	19.50	23.50	31.00	33.50	19.00	24.00	8.50	6.00	5.00	5.00	4.00	

Internet-Only WebCT Course (no f2f or 3D)



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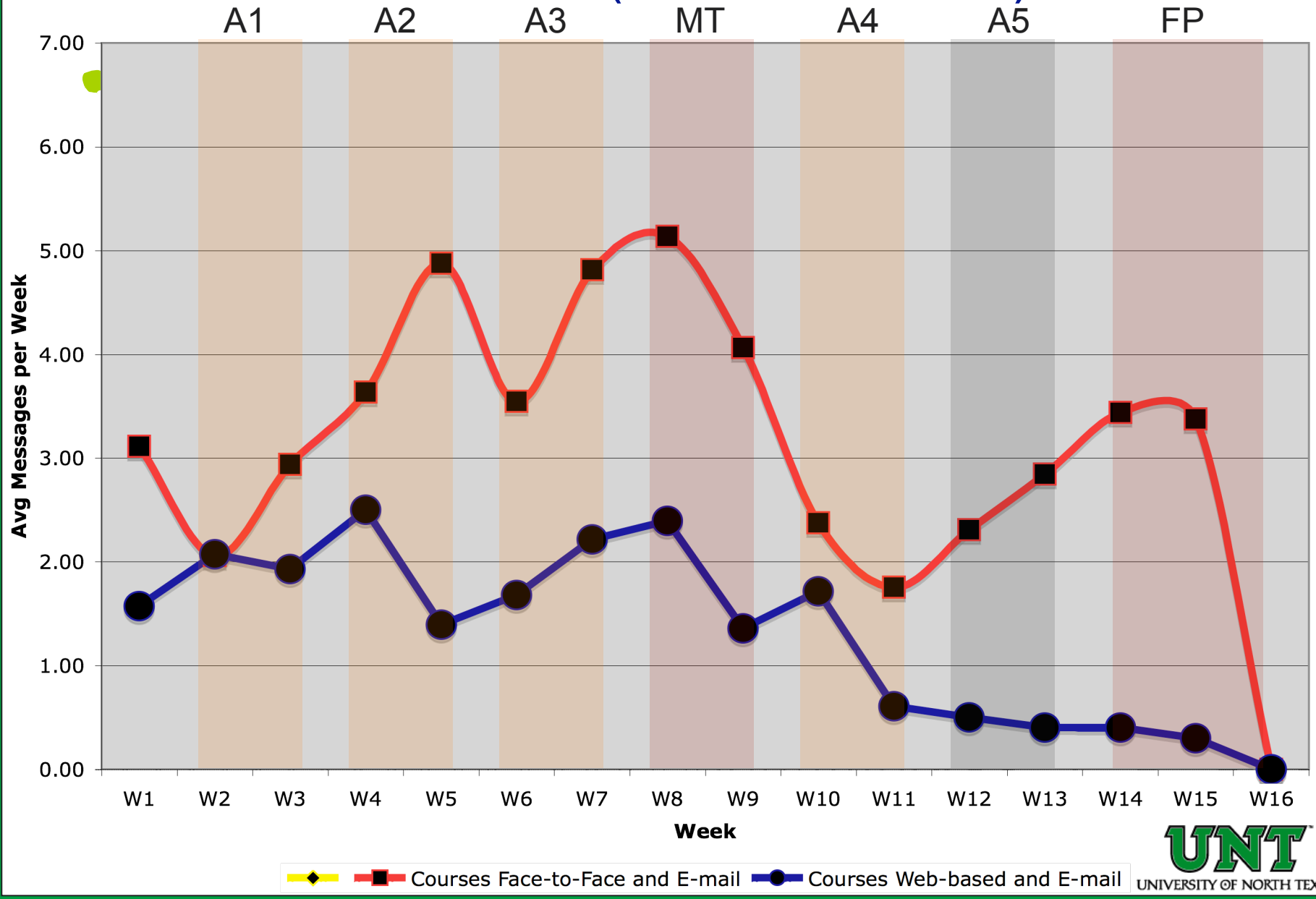
+ Internet Extended (multi f2f + Inet)



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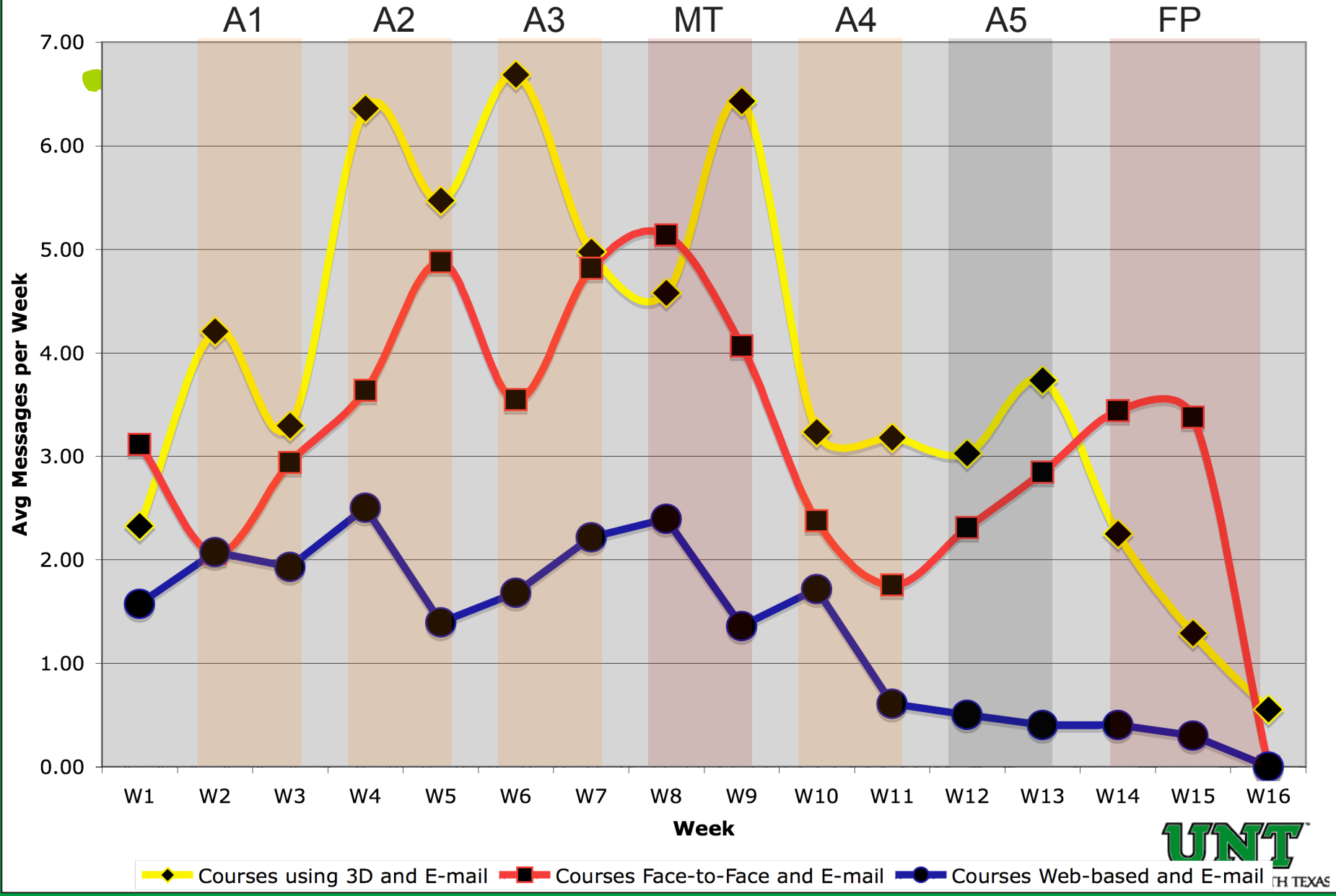
+ 3D OLE (3 f2f meetings, 3D OLE, Inet)



Initial Discourse Analysis

- Internet Only (LMS)
  - The *majority of postings were only fulfilling the required discourse* parts of the assignments.
  - Students were more likely not to complete discourse assignments at the end of the semester.
  - The majority of postings not related to assignments are “Information Requests” from students to the Instructor.
- Face to Face Internet Extended
  - The *majority of postings were follow-up discussions* that went beyond the minimum requirements of the assignment.
  - The majority of messages not related to assignments, were messages between students - helping each other.
- 3D OLE and Limited Face-to-Face
  - The *majority of messages were students helping each other*.
  - Followed by students discussing course topics beyond the minimum requirements of the assignment.
  - Students were answering questions faster than the Instructor, who was answering postings within 4-8 hours.

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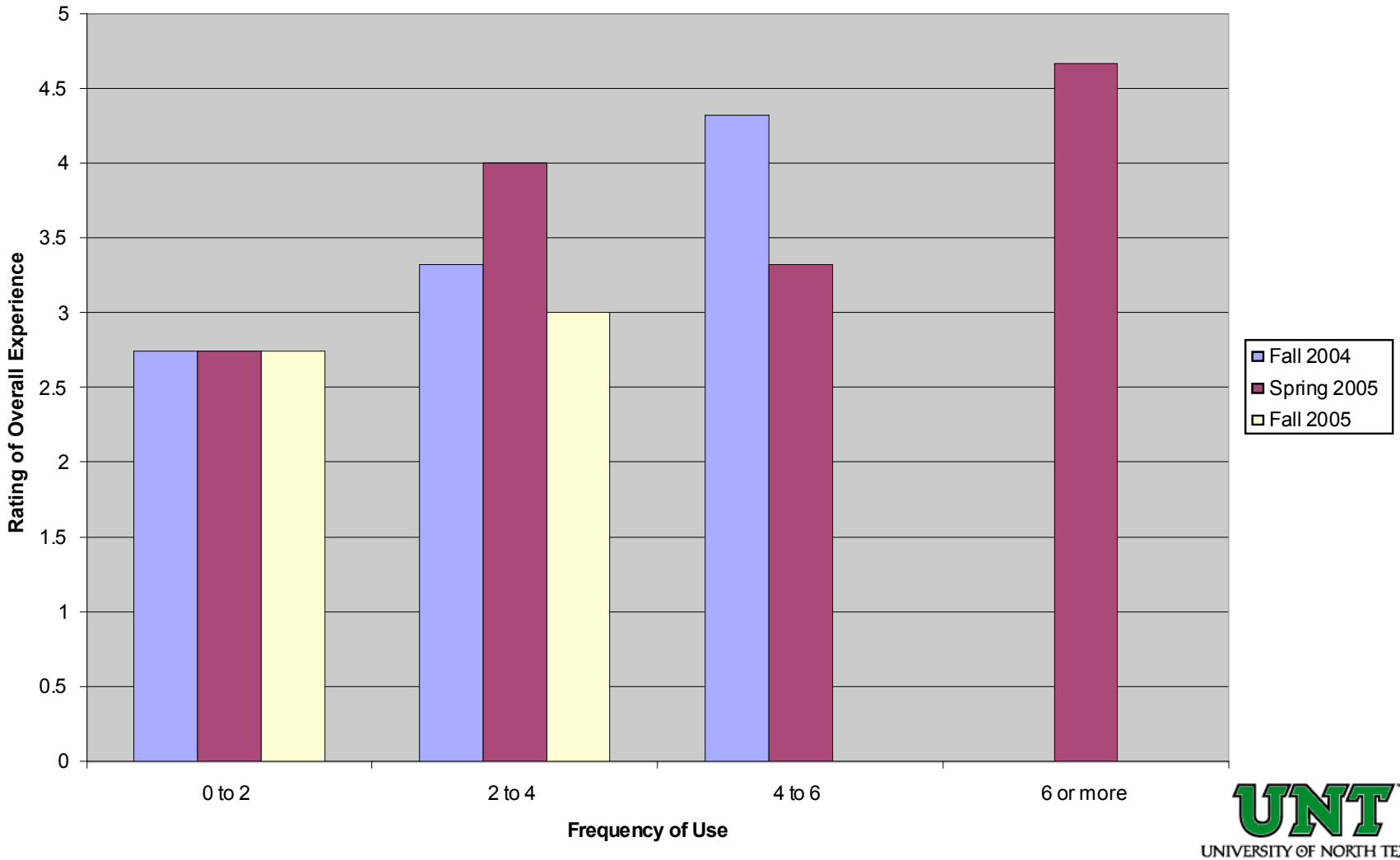
Frequency of use impacts satisfaction

Figure 3: Frequency of Use Relative to Rating of Overall Experience



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Cognitive Scaffolding

- Text-based communications alone requires extended contact between participants to build trust and connection - then significant discourse happens. Research shows this takes between 10-18 weeks.
- The 3D environment like video conference or meeting face-to-face increases what I am defining as cognitive discourse scaffolding.
- Cognitive Discourse Scaffolding
  - Mechanism to more quickly build discourse communities (Rapport)
  - Building trust
  - Creating Mental Images/Maps

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Future direction

- Implement the 3-D OLE with WebCT delivered courses to see impact without face-to-face interaction that this study had.

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