

Multi-User GeoGebra with Virtual Math Teams

The Math Forum @ Drexel University

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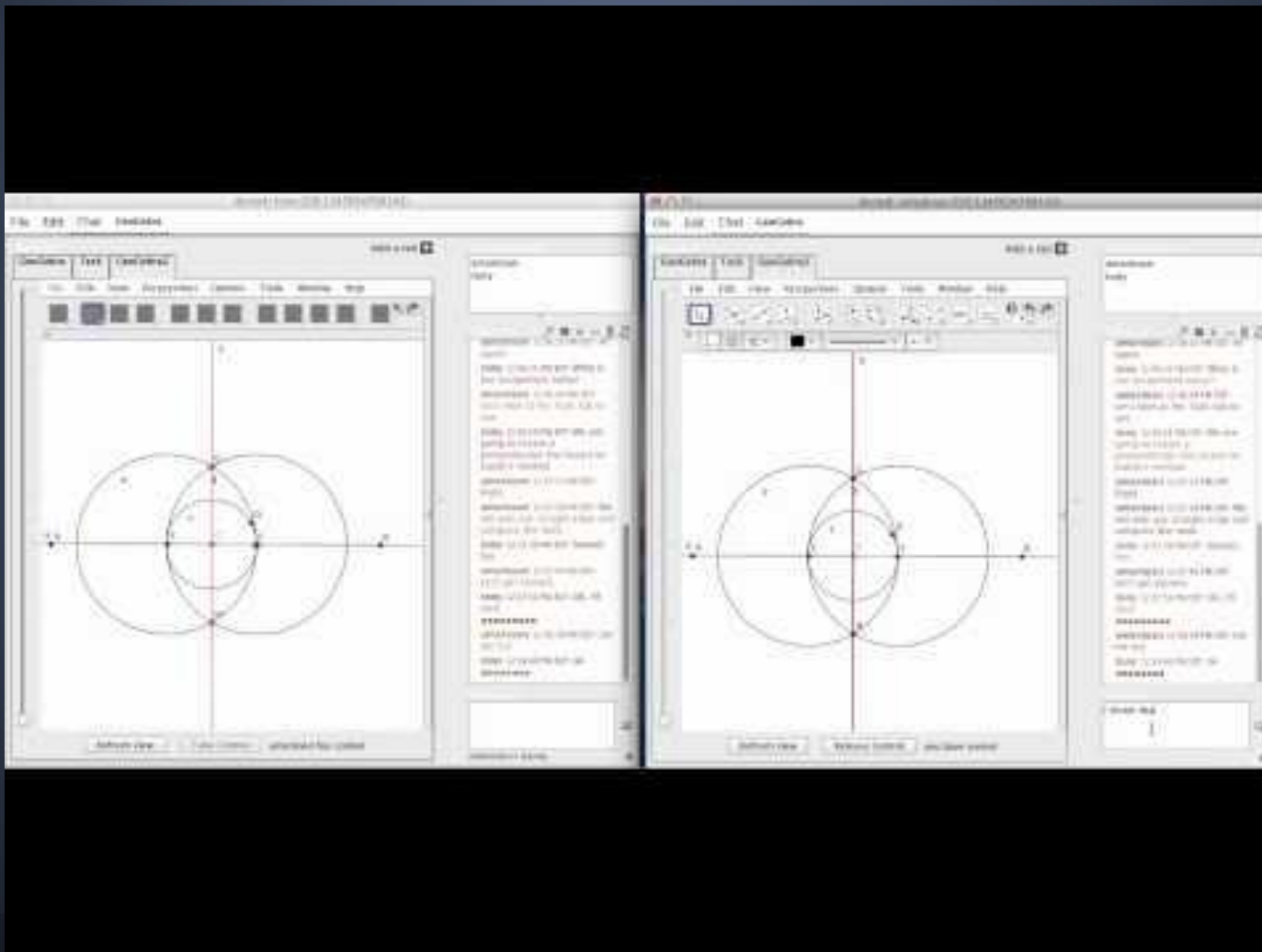
Virtual Math Teams (VMT)

- VMT is a tool that creates an online environment for students to work on and discuss math problems synchronously.
- VMT aims to combine the advantages of dynamic geometry with advantages of collaborative learning.

Integration with GeoGebra

- This allows remote students to synchronously work on a construction together.
- Users can take turns manipulating the construction.
 - Adding, deleting, modifying and moving objects
- The construction will stay in sync on each user's screen.
- Users can chat about the problem as they work.

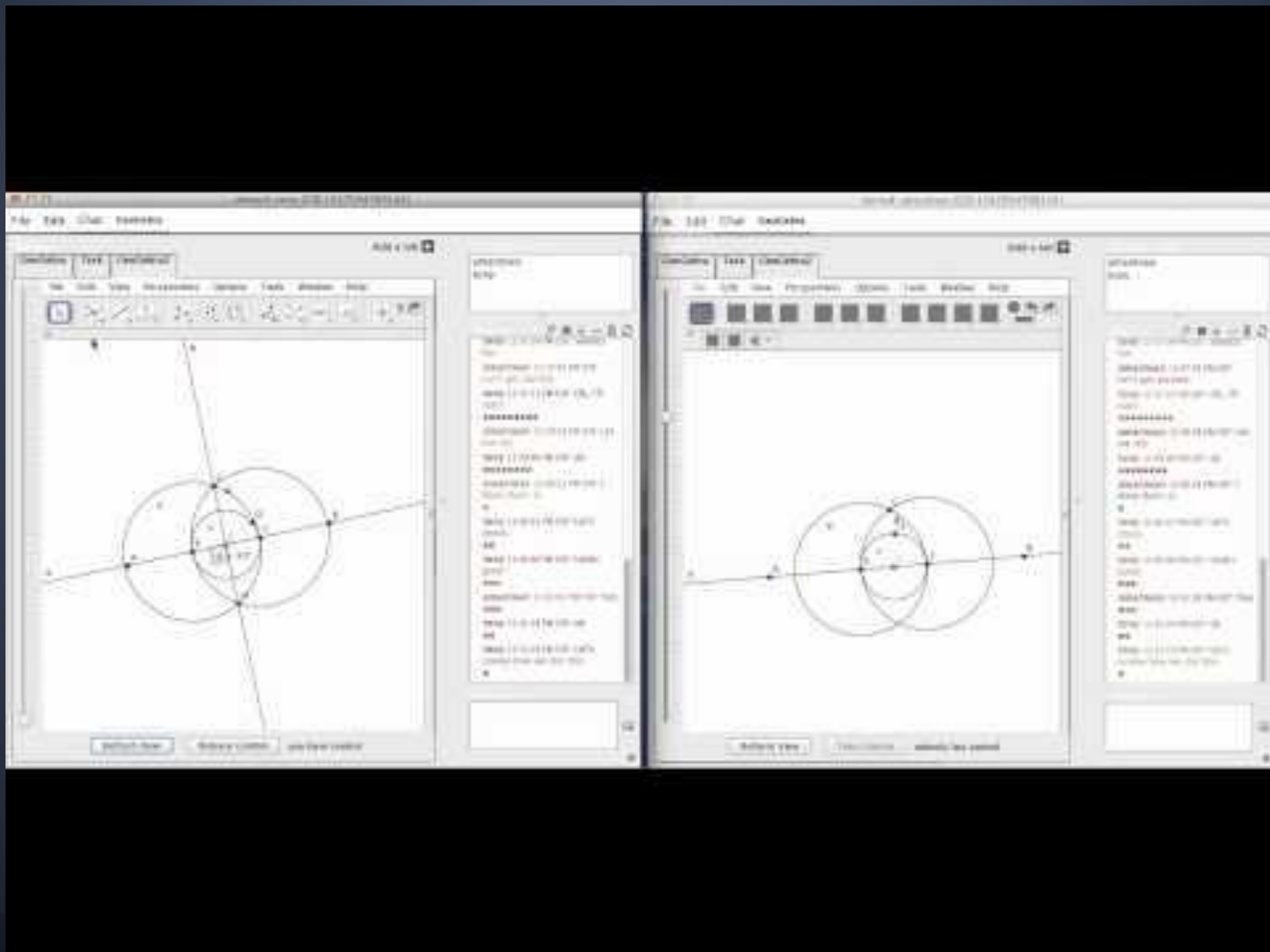
Integration with GeoGebra



History Tracker

- Built in history tracker allows users to scroll back and forth in time to see how the construction developed.
- Shows everything that happened including style changes and object movements.
- Each GeoGebra instance is tracked separately.

History Tracker In Action



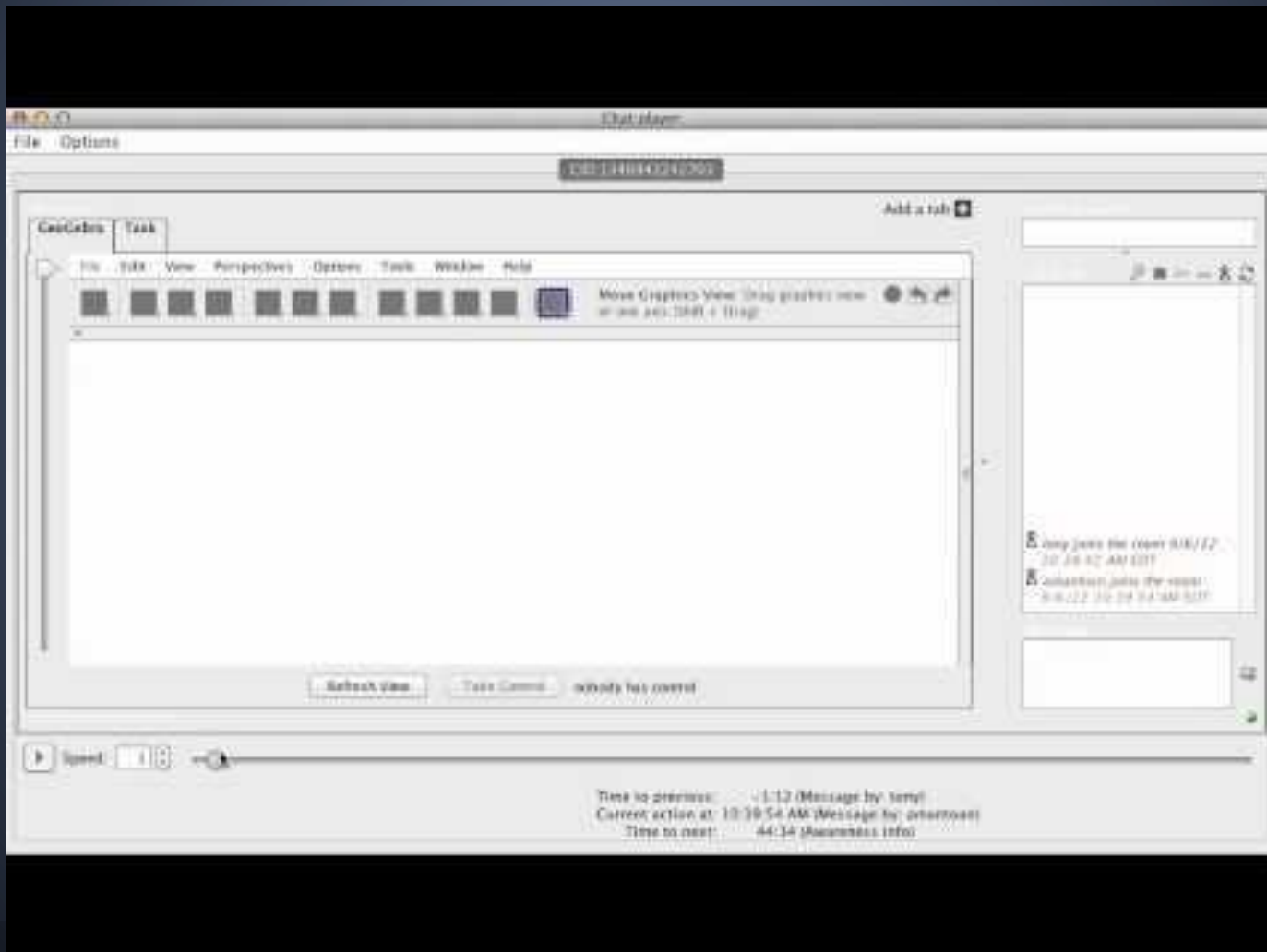
Other Shared Tools

- Shared Whiteboard
 - Users can doodle on the shared whiteboard
 - History of the whiteboard is also tracked.
- Web browser
 - Very Simple web browser
 - Can be used to show instructions for the student's assignments or other related information on the web.

VMT has built in tools for session analysis

- VMT records every chat, and action in the session.
- Provides a session replayer to go back and forth through the session step by step.
- Chat, whiteboard, and GeoGebra events all playback in the order they occurred in the original session.

The VMT Session Replayer



VMT has built in tools for session analysis

- Spreadsheet log files can be downloaded for each VMT room.
- Log files and the VMT Replayer provide unique insights for teachers and researchers.
- Allows teachers to go back and see anything they missed during class.

Session Log Files

	A	B	C	D	E	F	G	H
1	Line	Date	Start Time	Post Time	Duration	EventType	tony	<u>amantoan</u>
2	1	09/06/2012		10:38:42	00:00:00	chat	joins the room	
3	2	09/06/2012		10:39:54	0:1:12	chat		joins the room
4	3	09/06/2012		11:24:49	0:44:55	chat	Hello	
5	4	09/06/2012		11:25:07	0:0:18	chat		Hi. Lets start by looking at the task description.
6	5	09/06/2012		11:25:11	0:0:4	chat	Ok.	
7	6	09/06/2012		11:25:31	0:0:20	chat	Alright, I'll start.	
8		09/06/2012		11:25:42	0:0:11	<u>Geogebra: GeoGebra</u>	added point:Point "A"	
9		09/06/2012		11:25:44	0:0:2	<u>Geogebra: GeoGebra</u>	added point:Point "B"	
10		09/06/2012		11:25:44	0:0:0	<u>Geogebra: GeoGebra</u>	added line:Line "a"	
11		09/06/2012		11:25:50	0:0:6	<u>Geogebra: GeoGebra</u>	added point:Point "C"	
12		09/06/2012		11:25:52	0:0:2	<u>Geogebra: GeoGebra</u>	added point:Point "D"	
13		09/06/2012		11:25:52	0:0:0	<u>Geogebra: GeoGebra</u>	added conic:Circle "c"	
14		09/06/2012		11:26:01	0:0:9	<u>Geogebra: GeoGebra</u>	added point:Point "E"	
15		09/06/2012		11:26:02	0:0:1	<u>Geogebra: GeoGebra</u>	added point:Point "F"	
16	7	09/06/2012		11:26:18	0:0:16	chat		Great, I'll take it from here.
17		09/06/2012		11:26:29	0:0:11	<u>Geogebra: GeoGebra</u>		added conic:Circle "d"
18		09/06/2012		11:26:33	0:0:4	<u>Geogebra: GeoGebra</u>		added conic:Circle "e"
19		09/06/2012		11:26:40	0:0:7	<u>Geogebra: GeoGebra</u>		added point:Point "G"
20		09/06/2012		11:26:43	0:0:3	<u>Geogebra: GeoGebra</u>		added point:Point "H"
21		09/06/2012		11:26:52	0:0:9	<u>Geogebra: GeoGebra</u>		added line:Line "b"
22	8	09/06/2012		11:27:00	0:0:8	chat		That;s it.
23	9	09/06/2012		11:27:04	0:0:4	chat	Lets check.	
24		09/06/2012		11:27:15	0:0:11	<u>Geogebra: GeoGebra</u>	added angle:Angle "?"	
25	10	09/06/2012		11:27:21	0:0:6	chat	Looks good.	
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Classroom Materials Available

- The VMT research team has developed materials specifically for collaborative use of GeoGebra.
- Developed by leading researchers in Computer Supported Collaborative Learning (CSSL) at Drexel University
- <http://GerryStahl.net/vmt/activities.pdf>

VMT Is Publicly Available

- VMT is open source.
- Our Math Forum VMT server is available for all to use - vmt.mathforum.org
- Anyone may set up their own VMT server.

For More Info

- See Tony Mantoan here at IGI 2012 for more info on getting materials, using VMT, and any other questions you have.

tony@mathforum.org

vmt.mathforum.org/vmt/igi2012.html