

# GIVING PEOPLE WITH DISABILITIES THE TECHNOLOGICAL TOOLS TO SPEAK OUT

DECEMBER 10 | DMS 12102 | UOTTAWA



## Speaking Notes

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Can a subject with autism learn social skills by interacting with a humanoid  
robot?

Results of a pilot study that is longitudinal, real-world, and evolutionary



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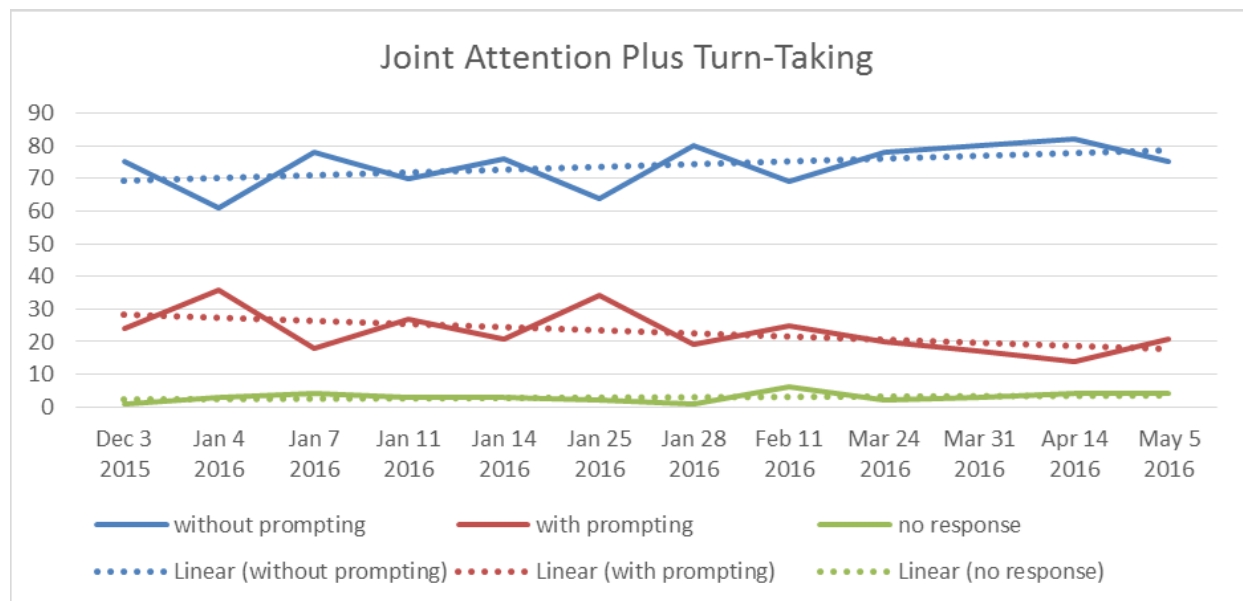
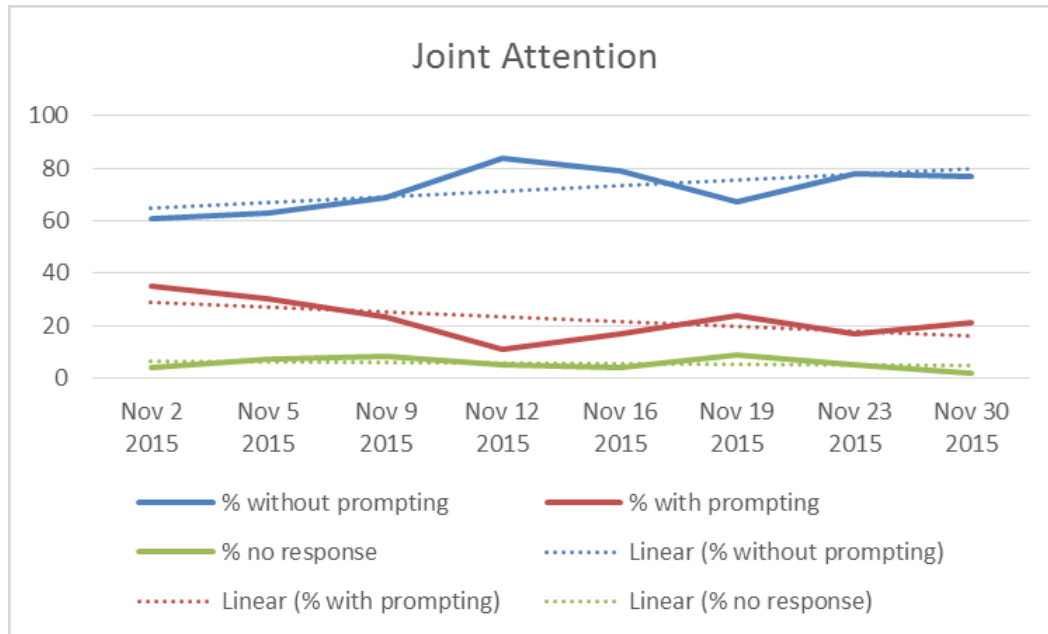
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Focus	Session	Date	Total # of directives issued to the student	Total # of student's responses without needing prompting	Total # of student's responses but only with prompting	Total # of directives to which the student did not respond	% without prompting	% with prompting	% no response
Response to Joint attention	1	Nov 2 2015	105	64	37	4	61	35	4
	2	Nov 5 2015	96	60	29	7	63	30	7
	3	Nov 9 2015	138	95	32	11	69	23	8
	4	Nov 12 2015	95	80	10	5	84	11	5
	5	Nov 16 2015	118	93	20	5	79	17	4
	6	Nov 19 2015	126	84	30	12	67	24	9
	7	Nov 23 2015	152	119	26	7	78	17	5
	8	Nov 30 2015	148	114	31	3	77	21	2
Initiating Joint Attention	9	Dec 3 2015	104	78	25	1	75	24	1
	10	Jan 4 2016	118	72	42	4	61	36	3
	11	Jan 7 2016	72	56	14	3	78	18	4
	12	Jan 11 2016	30	21	8	1	70	27	3
	13	Jan 14 2016	73	56	15	2	76	21	3
	14	Jan 25 2016	86	55	29	2	64	34	2
	15	Jan 28 2016	88	70	17	1	80	19	1
	16	Feb 11 2016	52	36	13	3	69	25	6
	17	Mar 24 2016	98	76	20	2	78	20	2
	18	Mar 31 2016	89	71	15	3	80	17	3
	19	Apr 14 2016	70	57	10	3	82	14	4
	20	May 5 2016	53	40	11	2	75	21	4

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## The research questions are below:

1. What kinds of prompts best facilitate getting an appropriate response from a subject with autism: Physical, Verbal, Visual prompts?
2. Does prompting increase/ decrease over time, including physical prompts, verbal prompts, and visual prompts?
3. Is the subject more responsive to prompts provided by the robot or prompts provided by the SLP, and under what conditions?
4. Does background noise affect a subject's attentional level?
5. What is the effect of a peer joining the therapy sessions?
6. Does the subject's state of arousal prior to robot therapy correlate with the subject's performance during robot therapy in any way?
7. What can we learn from contemporaneous unstructured accounts of a therapy session immediately after the session?
8. What is the comparative effectiveness of unstructured, semi-structured, and structured interviews immediately following a session? Immediately prior to a session? Both?
9. What can we learn from contemporaneous qualitative accounts of the therapy combined with quantitative scoring of the videos?



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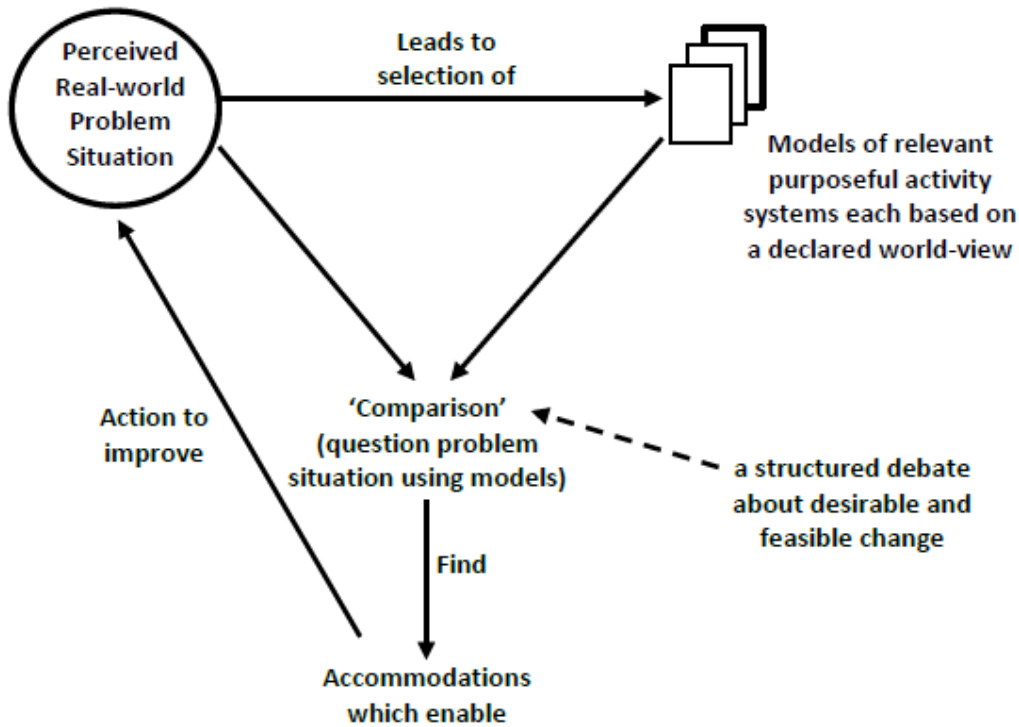
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10. Is it possible to construct simple interview forms for instructors of other activities to fill out, by which we could measure the degree of cause-and-effect relationships among robot therapy and other activities?
11. Was there a particular event during a session that consistently seemed to start a downgrade in performance?
12. Was there a particular event during a session that consistently seemed to start an improvement in performance?

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## Principles:

- The real world is a complexity of relationships
- Relationships are to be explored via models of purposeful activity based on explicit world-views
- Inquiry is structured by questioning a perceived situation using the models as a source of questions
- An 'Action to improve' is based on finding accommodations, i.e. versions of the situation which conflicting interests can live with
- The inquiry is in principle never-ending and is best conducted with a wide range of interested parties

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**The Jibo robot**