

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2020	David et al.	16 sessions (8 robot and 8 therapist)	N.D.	5 to 15 min	Yes	5 children with ASD	3 - 5 y.o.	No	N.D.	Different levels of ASD (3 low - 1 moderate - 1 high)	Dyadic: Child Robot (NAO) Human that prompt
2020	Ramírez-Duque et al.	1 session	N.D.	N.D.	No	23 children with ASD	ASD: 6.62 ± 2.38 y.o.	Yes	Down Syndrome, Congenital Hydrocephalus, general learning disability 15 children (TD: 7.75 ± 2.70)	N.D.	Dyadic: Child Robot (ONO-Humanoid) vs. Therapist
2020	Zheng et al.	4 sessions (experimental intervention S1-S4)	3-9 weeks of intervention for RI 3-9 weeks of wait list followed by 3-9 weeks of intervention for the WLC	10 min	No	23 children with ASD: Intervention Group (n=12) Waitlist Control (n=11)	2,54 y.o. range 1,64-3,14	Yes	11 children with ASD (waitlist control)	Autism	Dyadic: Child Robot (NAO) Parent (observe)
2020	Di Nuovo et al.	1 session (not clearly declared)	N.D. (perhaps only 1)	22 - 42 min	No	5 children with ASD	< 5 y.o.	No	N.D.	Children under 5 years old, with ASD and speech, language and communication needs: no further details are available	Dyadic: Child Robot (MiRo) Robot (NAO) Therapist Caregiver
2020	Schadenberg et al.	1 to 7 sessions (depending on the child)	Multiple days (depending on the child)	Mean 15 min Vary within children	No	31 children with ASD	5-12 y.o.	No	N.D.	Moderate Autism	Dyadic: Child Robot (ZENO) Adult facilitates
2020	So et al.	9 sessions	Once a week	45 min	Yes	13 children with ASD (did the Robot therapy)	5.62 ± 1.29 y.o.	Yes	13 children with ASD (5.49 ± 1.35 y.o.) Received normal care.	High functioning ASD	Triadic robot: Child Robot 1 (NAO) Robot 2 (NAO)
2020	Barnes et al.	1 session	N.D.	Songs duration	No	3 ASD children	TD children (M = 7.25; SD = 1.54) children with ASD (M = 8.33; SD = 4.04)	Yes	Healthy and standard therapy with human therapist	N.D.	Dyadic: Child Robot (NAO)
2020	De Korte et al.	20 sessions	weekly	45min, except for one teacher session including a 90min school/ daycare visit.	Yes	24 children with ASD	3-8 years	yes	standard therapy	91% scored above the ASD cut-off of the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2), with 2 participants (4.5%) scoring 1 point below and 2 participants (4.5%) scoring 2 points below the cut-off. Participants scoring below the ASD cut-off were equally distributed across groups (Fisher's exact test: $p=1.000$).	Dyadic PRT: Child Robot vs. Therapist-Parent session

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2020	Chung	12 sessions were structured into a baseline phase (3 weeks), an intervention phase (6 weeks), and a generalisation phase (3 weeks). The first three sessions were conducted solely by a human instructor. A social robot was introduced in the fourth training session. From Sessions 10 to 12, the mode of training switched back to humanonly instruction	weekly	30 minutes	No	15 children participated in the programme	The ages of the participants ranged from 6 to 11 years, with an average age of 8.67 years.	No	N.D.	All participants were diagnosed with ASD and attended mainstream primary schools. The mean SRS score of the 15 participants was 74.13T, which indicated a significant deficit in social functioning. The mean score in social communication and interaction was 74.4.	Triadic: Child Robot (NAO) Instructor
2020	Billing et al.	8 sessions	bi-weekly	3-87 mins (M=32mins)	No	61 children	between 3 and 6 years of age.	Yes	Standard therapy (SHT)	n initial ADOS score between 7 and 20	RET: Child Therapist Interaction partner SHT: Child Therapist Robot (NAO)
2020	Qidwai et al.	6 sessions	once a week	N.D.	No	15 children	7–11	Yes	Standard therapy	N.D.	Triadic human: Child Therapist Robot
2020	Aryania et al.	11 sessions	N.D.	Child 1: M= 10:48 SD=0:40 Child 2: M=10:04 SD=1:15	No	2	9 years	Yes	Standard therapy	high functioning - ADI-R scores: 26 (child 1), 34 (child 2) - GARS-2 test: 85 (child 1), 90 (child 2)	Child Human partner (gives instructions to the child) Human observer (observing sitting in a corner)
2020	Sperati et al.	1 session	N.D.	10 min	No	7 children with ASD	40±5.8 months	Yes	Communication Disorder (7 participants)	low and high functioning	Animal robot (panda pillow) Triadic human: robot-child-caregiver
2020	Petric and Kovacic	1 session	N.D.	N.D.	No	8 children with ASD	Preschool	Yes	Healthy children (6)	low and high functioning	Dyadic: robot-child
2020	Amanatiadis et al.	N.D.	N.D.	N.D.	No	12 children with ASD	N.D.	No	N.D.	N.D.	Quadratic: 2 robots and 2 children (not specified)
2020	Baraka et al.	N.D.	N.D.	N.D.	No	10 children with ASD	3-7	No	N.D.	Low, moderate and severe	Dyadic: Child Robot
2020	Javed et al.	1 session	N.D.	8 to 10 min	No	5 children with ASD (all males)	4-12 y.o.	Yes	13 children TD (7 males - 6 females)	ASD of different levels (2 very low functioning level)	Dyadic: Child Robot (MINI-ROBOT and IPO-ROBOT ROMO)
2020	Kostrubiec and Kruck	N.D.	N.D.	N.D.	No	8 children with ASD	5-10 y.o	No	N.D.	low functioning autism	Dyadic: therapist-robot is reinforcement-child
2020	Alnajjar et al.	4-7 sessions	once a week	5 min	No	6 children with ASD	9.03± 2.56 y.o	No	N.D.	Mild to moderate severity	Dyadic: robot and child
2020	Huijnen et al.	2 sessions	once a week	10 min	No	9 children with ASD	8-12 y.o	No	N.D.	ASD IQ:45-73	Dyadic: robot and child
2020	Giannopulu et al.	1 session	N.D.	15 min	No	40 children with ASD	7-11 y.o	No	N.D.	Mild to moderate severity	Dyadic: child-experimenter first; child-robot after
2020	Jain et al.	N.D.	N.D.	N.D.	No	7 children with ASD	3-7 y.o.	No	N.D.	Mild to moderate range of autism	Dyadic: Child Robot (SPRITE with Kiwi Skin)

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2020	Hudson and Lewis	2 sessions	Once a week	15 minutes	No	9 children with ASD	3 - 12 y.o.	No	-	N.D.	Dyadic: Child Robot
2020	Arpaia et al.	1 session	N.D.	10 min	No	3 children with ASD	8 - 10 y.o	No	N.D.	ADOS-2 moderate level of autism CGI: 3,4,5	Dyadic: Child Robot
2020	Rakhymbayeva et al.	7 sessions	N.D.	15 to 20 min	No	15 children with ASD (10 with ADHD commorbidity)	6.7± 2.7 y.o	No	N.D.	ADOS average = 2	Dyadic: Child Robot
2020	Arshad et al.	1 session	N.D.	15 min	No	8 children with ASD	10 - 13 y.o	Yes (cross-over design)	Standard Therapy	Mild or moderate autism	Dyadic: Child Robot
2020	Casas-Bocanegra et al.	1 session	N.D.	N.D.	No	3 children with ASD	6.66± 2.49 y.o	No	N.D.	N.D.	Dyadic: Child Robot
2019	Ali et al.	16 sessions (2 protocols: 8 sessions for each protocol)	Once a week (Over a period of 6 months)	N.D.	No	12 children with ASD (11 male - 1 female)	6-10 y.o.	No	N.D.	N.D.	Triadic robot: Child Robot 1 (NAO) Robot 2 (NAO)
2019	Cao et al.	1 session	N.D.	N.D.	No	15 children with ASD	Mean: 4.96 y.o.	Yes	15 children TD (mean: 4.53 y.o.)	ASD	Dyadic: Child Robot (NAO) Vs Human agent
2019	So et al.	9 sessions	Once a week	45 min	Yes	13 children with ASD (did the Robot therapy)	4 - 6 y.o.	Yes	13 children with ASD (did normal care)	ASD - socially high-functioning	Triadic robot Child Robot 1 (NAO) Robot 2 (NAO)
2019	Javed et al.	Maximum of 8 sessions	N.D.	8 to 10 min	No	5 children with ASD (all males)	4-12 y.o.	Yes	13 children TD (7 males - 6 females)	ASD of different levels (2 very low functioning level)	Dyadic: Child Robot (MINI-ROBOT and IPO-ROBOT ROMO)
2019	Clabaugh et al.	20 sessions	5 times a week	(Determined by when the minimum number of 20 child-robot interactions was completed)	No	17 children with ASD	3-7 y.o.	No	N.D.	Mild to moderate range of autism	Dyadic: Child Robot (SPRITE with Kiwi Skin)
2019	Hirokawa et al.	N.D.	N.D.	15-30 min	No	10 children with ASD	Mean: 11.4 y.o.	No	N.D.	ASD	Dyadic: Child Robot (NAO)
2019	Zhang et al.	1 session	N.D.	25 min	No	20 children with ASD	Mean 6.75 y.o.	Yes	20 children TD (mean 6.35 y.o.)	ASD and healthy	Dyadic: Child Robot (NAO) Experimenter supports
2019	Kumazaki et al.	7 sessions	Once a day	20 min (first one and last one) 1 h (the other sessions - 30 minutes with JUA and 30 minutes of IGT)	N.D.	13 children with ASD	18 - 27 y.o.	Yes	16 children with ASD (no training program using an android robot)	QI > 70.	Dyadic: Child Robot (ACTROID-F) training Human interviewer (pre-post intervention)
2019	Chung et al.	12 sessions	Once a week.	30 min	Yes	14 children with ASD (All males)	9-11 y.o.	No	N.D.	Moderate to sever social impairment (66T < SRS < 89T)	Triadic human: Child Robot (NAO) Instructor

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2019	Yoshikawa et al.	1 session (composed by 5 conversation trials)	N.D.	317-376 sec (human - robot) 325 - 363 sec (ASD group)	No	4 children with ASD (all males)	15-18 y.o.	Yes	6 children TD (male adolescents) (with difficulties to adapt to school)	No one with some severe language disability.	Dyadic: Child Robot (ACTROID-F) vs: Human interviewer
2019	Cao et al. (2)	6 to 8 sessions (plus 8 SHT or 8 RHT/Woz)	Twice a week	45 min (read in the trial record related)	No	11 children with ASD (First phase (RAT - WoZ) 27 children with ASD (21 completed the full protocol) (Second phase (RET - supervised autonomous) <i>(In the trial record related, 70 participants were mentioned)</i> (https://clinicaltrials.gov/ct2/show/record/NCT03323931)	3 - 5 y.o.	No	N.D.	ASD	Dyadic: Child Robot (NAO) Therapist mediates
2019	Melo et al.	123 sessions (2 in preliminary study - 121 in final long term study)	Spanning a total of 4 weeks for 18 children (121 sessions of final long term study)	15 - 25 min (final long term study)	No	5 children (preliminary study) 6 children (restricted study) 18 children (final long term study)	3 years and 9 months to 5 years and 9 months	No	N.D.	ADOS-2	Dyadic: Child Robot (ASTRO) Therapist supervision Hidden controllers
2019	Wan et al.	1 session	N.D.	10 min	No	74 children	5 y. and 8 months (mean)	No	N.D.	52 children with ASD 18 children with Development Delays 3 children not yet diagnosed 1 child TD	Dyadic: Child Robot 1 (DABAO) Robot 2 (XIAOE) Robot 3 (MIKA)
2019	So et al.	18 sessions	2 per week	30 min	Yes	23 children with ASD	6 - 12 y.o.	No	N.D.	Mild to Moderate ASD (evaluated by clinical psychologists and pediatricians from the Pamela You de Child Assessment Center, HongKong, through standard clinical interviews with their parents and based on the Diagnostic and Statistical Manual of Mental Disorders) Chinese speaking.	Dyadic: Child Robot 1 (NAO) Robot 2 (NAO) Human researcher supervision
2019	Anzalone et al.	N.D.	6-months duration	N.D.	Yes	42 children with ASD (Male 37 – Female 5) Because of technical issues during recording, full data were finally available only for: - 25 children with ASD and 8 in the sub-group trained. - 12 children with TD	7.94 (± 1.67) y.o. ASD children trained 6.85 (± 1.34) y.o. 16 TD children 8.06 (± 2.49) y.o.	Yes	16 children with TD (Male 10 – Female 6) 14 children with ASD trained for 6 months (Male 14 – Female 0)	42 ASD children: - Autism: N = 10 - Asperger: N = 4 - ASD: N = 28 14 ASD children trained: - Autism: N = 3 - Asperger: N = 2 - ASD: N = 9	Dyadic: Child Robot (NAO) Therapist supervision Hidden controllers of robot's activities

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2019	Silva et al.	3 test sessions (1 per experimental condition)	1 every 2 weeks Experimental procedure began within 48h following the first meeting.	N.D.	No	10 children with ASD (10 males) 13 adults with ASD (2 females, 11 males)	ADULTS Mean: 27 y.o. Range: 22–35 y.o. CHILDREN Mean 6 y.o. Range: 5–9 y.o.	No	N.D.	clinical diagnosis of ASD based on the Diagnostic and Statistical Manual of Mental Disorders retrieved from participants' clinical case files and in each case confirmed by a psychologist. Severe language delay (preverbal/single words, as assessed by a speech pathologist at study enrollment); No other psychiatric diagnoses; no motor, visual, or auditory impairments; no pet ownership; no allergies nor fear of dogs	Animal robot Triadic human: Child Dog (living or ROBOT - ANIMAL ZOOMER DOG) Experimenters Familiar person
2019	Mehmood et al.	8 trials	Once a week	N.D.	No	8 children	8.275 y.o.	No	N.D.	Mild to Minimal autism	Triadic robot: Child Robot 1 (NAO) Robot 2 (NAO)
2019	Petric and Kovacic	1 session	Not applicable	N.D.	No	8 children with ASD	2 - 6 y.o.	Yes	7 children TD	Not declared, but ADOS scale was used	Dyadic: Child Robot (NAO) Therapist observes Parent if help needed Robot operator (hidden) Second therapist (hidden)
2019	Taheri et al.	11 sessions	Once a week	20-30 min	Yes (parents questionnaires)	4 children with ASD (Male 4, Female 0)	Approximately 6 y.o.	No	N.D.	3 children with high-functioning autism 1 child with low-functioning autism	Triadic human: Child Robot (NAO) Parents Therapist Robot operator
2019	Knight et al.	23 sessions	N.D.	N.D.	No	3 high-school students with ASD (Challenging behaviors) (Male 2 - Female 1)	Only 3 participants: - 18 years old - 15 years and 10 months old - 17 years old	No	N.D.	ASD IQ> 75	Dyadic: Teenagers Robot (OZOBOT) iPads (for web-based OzoBlockly editor) Assistant professor Doctoral student 2 researcher assistants
2019	Marino et al.	12 sessions (1 pre-assessment + 10 therapy + 1 post-assessment)	Twice a week	90 min	No	14 children with ASD (out of 58 enrolled in total)	4-8 y.o.	Yes	standard therapy	Mild to moderate	Triadic human: Child (group of children, not actually interaction, but group activities) Robot (NAO) Clinical Psychologist Psychotherapist
2019	Fuglerud et al.	3-4 sessions	1-2 for week	15 min	No	2 children with ASD	First year of primary school	Yes	10-16 children TD (preschoolers)	ASD	Dyadic: Child Robot (NAO) Teacher facilitation
2019	Zaraki et al.	25 sessions	N.D.	N.D.	No	9 children with ASD	7 - 8 y.o.	Yes	30 children TD (19 girls 11 boys)	They had different abilities.	Triadic human: Two children Robot (KASPAR)

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2019	Arent et al.	1 session	N.D.	N.D.	No	6 children with ASD	6-7 y.o.	No	N.D.	Autism	Dyadic: Child Robot (NAO) Teacher facilitates
2019	Attawibulkul et al.	2 sessions (all children played this game with BLISS robot)	1 day (the interval between rounds is around 5 hours)	10 min	No	6 children with ASD	3 - 10 y.o.	No	N.D.	The children were screened by a child psychologist before recruited in this study, for confirming that all participants have either autism spectrum disorder or other special needs: no further details are available	Triadic human: Child Robot (BLISS) Parents Therapist
2019	Cervera et al.	40 sessions	Once a week (during 10 months)	15 min (expressive activity) 15 minutes (understanding activity)	No	9 children with ASD (intervention group)	3-5 y.o.	Yes	Standard therapy (5 children with ASD)	Autism	Triadic human: Child Robot (NAO) Caregiver
2019	Telisheva et al.	6 session	3 times per week	15 min	No	5 children with ASD	4-8 y.o.	No	N.D.	Severe form of ASD	Dyadic: Child Robot (NAO)
2019	Kumazaki et al. (2)	1 session (32 trials)	N.D.	2.5 min	No	14 children with ASD	3.33 ± 0.93 y.o.	Yes	23 children TD (3.19 ± 1.42 y.o.)	Autism	Dyadic: Child Robot 1 (ACTROID -F) vs. Robot 2 (COMMU) Parent (in the beggining)
2019	Zhang et al.	1 session (warm-up, 3 tasks)	N.D.	N.D	No	20 children with ASD	6.79 ±0.93 y.o.	Yes	20 children TD (6.35 ±0.56 y.o.) (IQ:106.70)	IQ: 104.90	Dyadic: Child Robot (NAO) Researcher
2019	Wanglavan et al.	1 session	N.D.	N.D.	No	4 children with ASD	5-8 y.o.	No	N.D.	N.D.	Triadic human: Child Robot (BLISS) Parent/Therapist
2019	Pérez et al.	8 sessions	N.D.	N.D.	No	2 children with ASD	6 y.o.	No	-	Level 2 according to DSM-V	Dyadic: Child Robot (Bee-bot)
2019	Ishak et al.	N.D.	N.D.	10 minutes	N.D.	9 children with ASD	5 - 6 y.o.	No	-	Mild - moderate autism	Dyadic: Child Robot (Rero robot)
2019	Roberts-Yates and Silvera-Tawil	N.D.	N.D.	N.D.	N.D.	25 children with ASD	13 - 19 y.o.	No	N.D.	N.D.	Dyadic: Child Robot
2019	Axelsson et al.	1 session	N.D.	N.D.	No	10 children	N.D.	No	N.D.	N.D.	Dyadic: Child Robot
2019	Kumazaki et al. (3)	1 session	N.D.	N.D.	No	15 children with ASD	6.01± 0.56 y.o	Yes	19 TD children (5.69± 0.52 y.o)	SRS = 67.13± 15.19	Triadic robot: Robot A Robot B Child
2019	Cai et al.	N.D.	N.D.	N.D.	No	5 children	3-5 y.o	No	No	Low functioning (3 children) Moderate functioning (1child) High functioning (1 child) 12<=ADOS-2<=25	Dyadic: Child Robot
2019	Alhaddad et al.	1 session	N.D.	24 min	No	10 children with ASD	7-10 y.o	No	No	Mild or moderate autism	Dyadic: Child Robot

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2018	Nuovo et al.	14 sessions	3 times per week	6-8 min	No	6 children with ASD	8 y.o. (standard deviation = 1.5 y.o.)	No	N.D.	ASD grade 3 with intellectual disability from mild to profound	Dyadic: Child Robot (NAO)
2018	Rudovic et al.	1 session	N.D.	25 min	No	35 children with ASD	3-13 y.o.	No	N.D.	ASD	Dyadic Child Robot (NAO) Therapist mediates
2018	Del Coco et al.	N.D.	N.D.	N.D.	No	8 children with ASD	3.11 - 7.9 y.o.	No	N.D.	ASD	Dyadic: Child Robot (ZENO) Tablet Therapist supports
2018	Saadatzai et al.	16 to 32 sessions	1-2 times a week (over a 4-months period)	N.D.	Yes	3 children with ASD	6-8 y.o.	No	N.D.	1) 8 y.o male - severe autism range - reading skills equivalent to first grade students. 2) 8 y.o male - severe autism range - reading skills below the first grade level. 3) 6 y.o male - high functioning autism - reading skills equivalent to second grade level.	Dyadic: Child Robot (NAO) Virtual Character (PA)
2018	Kumazaki et al.	1 session	N.D.	15 min (3 interactions of 5 min)	No	28 ASD children	5-6 y	Yes	38 TD children	ASD and TD	Dyadic: Child Robot (COMMU ROBOT) vs. Human Agent
2018	Scassellati et al.	30 sessions	Every day (for 1 month)	30 min	Yes	12 children with ASD	6 - 12 y.o.	No	N.D.	Nonverbal intelligent quotient scores of ≥ 70 as determined by the Differential Ability Scales. Diagnosis of ASD was based on standard-in-field clinical best-estimate (CBE) diagnosis by licensed clinical psychologists and/or speech-language pathologists with extensive experience in autism diagnosis. Measures used in the diagnostic process included the Autism Diagnostic Interview-Revised (ADI-R) caregiver interview and the Autism Diagnostic Observation Schedule (ADOS) semistructured play observation	Triadic human: Child Robot (JIBO) Caregiver
2018	Albo-Canals et al.	8 sessions	2 every day (between 4th and 7th of April of 2016)	N.D.	No	12 children (11 boys 1 girl)	6 - 14 y.o.	No	N.D.	Severe Autism	Triadic human: Child Robot (KIBO) Teacher Peers
2018	Zheng et al.	4 sessions	N.D. (during 27 days)	N.D.	No	14 children with ASD (12 males - 2 females)	3-4 y.o.	No	N.D.	IQ - average 54.71 ADOS-2 raw score - average 21.29	Dyadic: Child Robot (NAO)

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2018	Van Straten et al.	2 trials	1-2 weeks between the trials	15 min	No	8 children with ASD	4 - 8 y.o.	No	N.D.	Autism (ADOS+ Diagnosis)	Dyadic: Child Robot (NAO) Body Appearance (humanized or mechanical)
2018	Khamassi et al.	Over 10 simulations (Not specified)	N.D.	N.D.	No	12 children with ASD	N.D.	No	N.D.	Mild and Moderate ASD symptoms + few children with severe	Dyadic: Child Robot (NAO) Researcher Supervision
2018	Costa et al.	1 session	N.D.	2 h	No	15 children with ASD	4 -14 y.o.	No	N.D.	ASD	Dyadic: Child Robot (QT-ROBOT) Adult interviewer
2018	Askari et al.	1 session (probably, not specified)	N.D.	N.D.	No	6 children with ASD (1 female 5 males)	8 - 16 y.o.	Yes	6 children TD (all males)	High Functioning	Dyadic: Child Robot(Humanoid RYAN) Researcher supports
2018	Zaraki et al.	11 sessions (total number of child-robot interaction)	N.D. (Each child took part in a different number of sessions)	N.D. (Different for each child)	No	4 children with ASD (2 males 2 females)	Mean age of 13 y.o.	No	N.D.	Children with different levels of ability.	Triadic human: Child (ren) Robot (KASPAR) Operator (sometimes)
2018	Nie et al.	4 sessions	N.D.	N.D.	No	14 children with ASD (First study) 20 children with ASD (Second study) (equally divided into 2 groups)	mean age 2.66 y.o. (1.65-4.57 y.o.)	Yes	10 of 20 children with ASD (Second study)	N.D.	Dyadic: Child Robot (NAO)
2018	Moghadas and Moradi	1 session	N.D.	3 min (190 sec)	No	8 children with ASD	2.1-4 y.o.	Yes	8 TD children (2.11-7.6)	ASD and TD	Dyadic: Child Robot (ANIMAL-PARROT)
2018	Marinoiu et al.	24 sessions	N.D.	10-15 min	No	7 children with ASD	N.D.	No	N.D.	ASD	Dyadic: Child Robot (ZENO)
2018	Javed et al.	N.D.	N.D.	N.D.	No	3 children with ASD	4 - 15 y.o. (Mean of 8 y.o. + s.d.of 3.90)	Yes	3 children TD	2 High Functioning ASD 1 Low Functioning ASD	Dyadic: Child Robot (DARWIN MINI ROBOT)
2018	Giannopulu et al.	1 session	N.D.	15 min (1 min of rest, 7 min of human interaction and 7 min of robot interaction)	No	20 children with ASD (17 boys and 3 girls)	Chronological age: 7 -11 y.o. Developmental age: 5 -7 y.o.	Yes	20 children TD (10 boys and 10 girls) 6 - 7 y.o.	Mild-moderal autism; verbal children	Dyadic: Child Robot (PEKOPPA - a PLANT) vs. Experimenter
2018	Taheri et al.	12 sessions	Once a week	30 min	Yes	6 participants with ASD Divided in 3 pairs (twins, siblings, classmates)	range: 6-15 y.o.	No	N.D.	High and low functioning.	Triadic human: Child Robot 1 (NAO) Robot 2 (ALICE) Peer/Parent/Therapist
2018	Kumazaki et al. (2)	1 session 3 trials	N.D.	5 min	No	11 children with ASD	(m= 15.91 y; SD= 1.20y)	Yes	18 children TD (m=15.73y;SD=1.57 y)	ASD	Dyadic: Child Robot 1 (ACTROID-F) vs. Robot 2 (COMMU) vs. Adult
2018	Carlson et al.	8 sessions	Twice a week	10 min	No	10 children with ASD	Mean age 5.3, 4-6y.o.	No	N.D.	Autism	Dyadic: Child Robot (CUDDLER-A*STAR) Experimenter

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2018	Kim et al.	2 sessions	Every two to three weeks.	20-30 min	No	4 children with ASD (All males) (Were recruited 31, they used only 4 children's data)	10 y.o. (about)	Yes	2 children TD (around 10 y.o.) They did the same protocol.	ASD	Dyadic: Child Robot (NAO) Parent eventually models
2018	So et al.	24 sessions	Twice a week	30 min	Yes	7 children with ASD	8.99 ± 2.14 y.o. (Intervention)	Yes	6 children with ASD in Wait-List (9.50 ± 2.42 y.o.)	IQ level: 49-67	Dyadic: Child Robot (NAO)
2018	So et al. (2)	10 session (not sure)	Twice a week	30 min	Yes	15 children with ASD	5 ± 0.83 y.o.	Yes	15 children with ASD 15 children TD (5 ± 0.83 y.o.) (Standard therapy and healthy)	ASD	Dyadic: Child Robot (NAO)
2018	Fachantidis et al.	4 sessions	once every two weeks	30 min	No	4 children with ASD	7-12 y.o	No	N.D.	ASD IQ>69	Dyadic: robot and child
2018	Sakka et al.	10 sessions	once a week	60 min	Yes	6 children with ASD	11-15 y.o.	No	N.D.	N.D.	Triadic human: Child A Child B Robot
2018	Pour et al.	1 session	N.D.	15 min	No	14 children with ASD	5.4± 1.5 y.o	No	N.D.	Low functioning (6 children) High functioning (8 children)	Dyadic: Child Robot
2018	Silva et al.	4 sessions	N.D.	5 min	No	3 children with ASD	6-9 y.o	No	N.D.	High functioning	Triadic human: Child Robot Researcher
2018	Krichmar et al.	1 session	N.D.	N.D.	No	6 children with ASD (5 children with ADHD comorbidity)	7-11 y.o.	No	N.D.	N.D.	Dyadic: Child Robot
2018	Nunez et al.	2 sessions	N.D.	5 min	No	4 children with ASD	3-5 y.o	No	No	21<PARS<46	Triadic human: Child Robot Therapist
2018	Desideri et al.	4 sessions	N.D.	5-15 min	No	2 children with ASD	9-10 y.o	No	No	40<CARS-2<45	Dyadic: Child Robot
2017	Bharatharaj et al.	4 sessions	Daily (x 49 days)	15 min (Minimum)	No	24 children with ASD G1: 10 -- for investigating improvements in social interaction, learning, and psychological changes. G2: 14 -- for investigating the physiological changes in participating children before, during, and after interacting with KiliRo robot.	6-16 y.o (9.71 mean age)	No	N.D.	ASD	Dyadic: Child Robot (KILIRO - a PARROT)
2017	Kumazaki et al.	1 session	N.D.	3 - 5 min As long as each participant was comfortable	No	16 participants (15 males, 1 female)	10-17 y.o. (mean: 12.6)	No	N.D.	High-functioning level ASD (full-scale IQ ≥ 85, mean: 101.1, AQ-J: 29.9)	Dyadic: Child Robot 1 (ACTROID-F) Robot 2 (SMILE SUPPLEMENT - cartoonish) Robot 3 (M3-SYNCHY - abstract)

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2017	Costescu et al.	6 sessions	Weekly	2 h	No	12 children with ASD (assigned to either RET)	6–12 y.o.	Yes	15 children with ASD Assigned to TAU group (Treatment As Usual)	N.D.	N.D.
2017	Rudovic et al.	1 session.	N.D.	25 min	No	36 children with ASD --17 from Asia (Japan) --19 from Eastern Europe (Serbia)	3 - 13 y.o.	No	N.D.	Japan: mild-moderate autism. Serbia: mild-severe autism.	Dyadic: Child Robot (NAO) Therapist, no interaction
2017	Yun et al.	8 sessions	1 per week	30-40 min	No	15 children with ASD (male subjects)	4 - 7 y.o.	No	N.D.	(IQ) of 60 or more	Dyadic: Child Robot Therapist instruction, no interaction
2017	Bharatharaj et al.	15 sessions	3 sessions each day (consecutive)	15 min	No	9 children with ASD	6 - 16 y.o.	No	N.D.	Autism (CAST score >15)	Animal robot (parrot) competition: Child Robot (KILIRO - a PARROT) Researcher
2017	Chevalier et al.	4 sessions (each composed by 10 videos)	N.D.	N.D. (all of the videos were 1-2 seconds long)	No	6 children with ASD 7 adults with ASD (9 males - 4 females)	Children 8-13 y.o. Adults 20-43 y.o.	No	N.D.	ASD	Triadic robot: Child Robot 1 (NAO) Robot 2 (ZENO) Virtual female agent
2017	Boccanfuso et al.	12 sessions	Twice a week	30 min	No	8 children with ASD	3-6 y.o.	Yes	3 children with ASD. (3-6 y.o.) They received speech therapy 1 hour per week for 6 weeks, but no robot-assisted intervention.	N.D. They had speech deficiency.	Dyadic: Child Robot (CHARLIE - toylike)
2017	Golestan et al.	2 to 4 sessions	N.D.	15 minutes	No	4 children with ASD	mean 5.5 y.o.	No	N.D.	4 Low Functioning ASD	Triadic human: Child Robot (SPHERO) Therapist
2017	Short et al.	1 session (some children did 2 sessions)	N.D.	20 min (5 min for 4 different conditions)	No	6 children with ASD	5-9 y.o.	No	N.D.	Autism	Dyadic: Child Robot (mobile HUMAN or BOX) Parent
2017	Robins et al.	N.D. (probably 2 trials)	N.D.	N.D. (Depends from each child - It ends when the child wants to leave the room or is bored or not interested)	No	3 children with ASD	3 - 5 y.o.	No	N.D.	ASD	Dyadic: Child Robot (KASPAR)
2017	Desideri et al.	3 to 5 sessions	Once a week	10 min	No	3 children with ASD	Preschool age	No	N.D.	ASD	Dyadic: Child Robot (NAO) Therapist
2017	Petric et al.	2 sessions (1- Initial protocol testing and lessons learned 2- Imitation protocol pilot study)	N.D. (For each task, the gesture was demonstrated at most three times)	N.D.	No	7 children with ASD	2.9 - 5.0 y.o. (preschool age)	Yes	12 children TD (1.8 - 4.6 y.o.)	ASD	Triadic human: Child Robot (NAO) Parent Therapist
2017	Nakadoi	1 session	N.D.	N.D.	No	9 children with ASD (4 males- 5 females)	8–19 years	No	N.D.	Different levels and comorbidities	Dyadic: Child Robot (PARO) Parents
2017	Feng et al.	1 session	N.D.	N.D.	No	2 children with ASD	4 - 5 y.o.	No	N.D.	ASD	Dyadic: Child Robot (NAO)

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2017	Bharatharaj et al.	49 sessions	N.D.	60 min (4 parts of 15 min each)	No	7 children with ASD	6-16 y.o.	No	N.D.	ASD	Dyadic: Child Robot (KILIRO - a PARROT)
2017	Ponce et al.	3 trials	N.D.	N.D.	No	4 children with ASD	N.D.	No	N.D.	ASD	Dyadic: Child Robot (TEC-O) Therapist
2017	Kim et al.	4 sessions (corresponding to the 4 phases described by the protocol)	Only once (sessions were consecutive)	N.D. (decided by the therapist)	No	2 children with ASD	6-12 y.o.	No	N.D.	Mild autism.	Dyadic: Child Robot
2017	Arias and Madrid	6 sessions	Once a week	2 hours (with 15 minutes of break and 30 minutes for presentations)	No	7 teenagers with ASD	14 - 19 y.o.	No (but the teenagers with asperger were put into groups with neurotypical teenagers)	N.D.	Diagnosis of Asperger (no delay in language and more autonomy than ASD)	Dyadic: Teenagers Robot (NAO)
2017	Ahmad et al.	1 session	N.D.	Adults: 3 min with NAO + 5 min of questionnaire.	No	7 children with ASD 2 parents 5 teachers	10-12 y.o. (children) 25-35 y.o. (adults)	No	N.D.	High-Functioning ASD	Dyadic: Child Robot (NAO)
2017	Ackovska et al.	N.D.	N.D.	10 - 15 minutes	No	6 children with ASD	6 - 11 y.o.	No	-	N.D.	Dyadic: Child Robot (NAO)
2017	Guedjou et al.	1 session	N.D.	1 min	No	15 children with ASD	9.25± 1.82 y.o	Yes	15 TD children 11 TD adults	ADI-R: 31.1± 5.46 IQ: 73± 14 ADI-R: 40.97± 9.44	Dyadic: Subject Robot
2017	Dickstein-Fischer et al.	N.D.	N.D.	N.D.	No	5 children with ASD	5-8 y.o.	No	N.D.	Moderate to severe	Dyadic: Child Robot
2017	Chevalier et al. (2)	4 sessions	once a week	10 min	No	12 children with ASD	11.7± 2.6 y.o	No	N.D.	N.D.	Dyadic: Child Robot
2017	Koch et al.	1 session	N.D.	2 h	No	13 children with ASD	8.4 ± 2.0 y.o	No	N.D.	ADOS-2 scores: 12.3 ± 3.6	Dyadic: Child Robot
2017	Suzuki et al.	1 session	N.D.	N.D.	No	8 children with ASD	6.38 ± 2.26 y.o	No	No	SRS = 76.5	Triadic human: Child Robot Therapist
2017	Matsuda et al.	2 sessions	2 sessions in two followed days	5 min	No	3 children with ASD	5-6 y.o	No	No	28<PARS<52	Triadic human: Child Robot Therapist
2017	Moorthy et al.	7 sessions	once a week	20-30 min	Yes	5 children with ASD	5-10 y.o	No	No	N.D.	Dyadic: Child Robot
2017	Palestra et al.	2 sessions	N.D.	N.D.	No	5 children with ASD	9-14 y.o	No	No	Autism and Asperger Syndrome	Triadic human: Child Robot Therapist/Parent
2016	Choi et al.	10 sessions	Twice a week	N.D.	No	3 children with ASD	5 - 6 y.o.	No	N.D.	ASD	Dyadic: Child Robot (HUMANOID) Computer
2016	Wijayasinghe et al.	N.D.	N.D.	N.D.	No	13 children with ASD 54 healthy adults (only for validation)	4 age groups (6, 9, 11, 12) y.o.	No	N.D.	ASD	Dyadic: Child Robot (ZENO) Therapist supervision

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2016	Srinivasan et al.	60 sessions	6 days a week 4 days + 2 home-sessions A total of 10 weeks	45 min	No	36 children (32 M and 4 F)	5 - 12 y.o. (Mean (SD)= 7.63(2.24)	Yes	3 groups : (1) rhythm intervention (2) robot intervention (3) control	ASD	Triadic human: Child Robot 1 (NAO) Robot 2 (NOVIO - non humanoid) Therapist
2016	Han et al.	40 sessions	Twice a week (During 5 months)	30 min	Yes	3 children with ASD (2 females - 1 male)	12-13 y.o.	No	N.D.	N.D.	Triadic human: Child Robot (IROBI-Q) Researcher
2016	Zheng et al.	2 trials	N.D.	N.D. It depend on the participant's performance in that session	No	8 children with ASD	N.D.	Yes	8 children TD	ASD	Dyadic: Child Robot (NAO) Administrators (2)
2016	Giannopulu et al.	1 session	N.D.	15 min	No	10 children with ASD	7 - 9 y.o.	Yes	10 children TD (6-7 y.o.)	ASD (31-35 CARS, i.e. mild-moderate autism)	Dyadic: Child Robot (PEKOPPA) Vs. Adult researcher
2016	Yun et al.	8 sessions (iRobiQ and CARO used equally)	Daily	30-40 min	No	8 children with ASD	3 - 5 y.o.	No	N.D.	High-functioning autism.	Triadic human:
2016	Suzuki et al.	1 session	N.D.	First trial: 30 sec for each question Second trial: 90 sec of dance.	No	5 children with ASD	9-16 y.o.	No	N.D.	N.D.	Dyadic: Child Robot (NAO)
2016	Moorthy et al.	9 sessions	Once a week	20-30 min	No	5 children with ASD	4-10 y.o.	No	N.D.	ASD (Referred for occupational and speech therapies)	Dyadic: Child Robot (Snatcher robot developed using LEGO NXT 2.0) Therapist Parent supervision
2016	Chevalier et al.	1 test	N.D.	N.D.	No	11 children with ASD (9 M and 2 F)	11.9+/-2.59 y.o.	No	N.D.	Autism	Dyadic: Child Robot (NAO) Caregiver supervision Experimenter
2016	Mavadati et al.	6 to 17 sessions (depending on the amount of sessions needed to reach an 80 percent skill level in all tasks)	N.D.	45-60 min	Yes	7 children with ASD (2 female and 5 male)	6-15 y.o.	No	N.D.	High functioning verbal children with autism.	Dyadic: Child Robot (NAO)
2016	Boccanfuso et al.	N.D.	N.D.	10 min (divided into 4 activities) (with each individual activity lasting approximately 2.5 minutes)	No	12 children with ASD	Mean 2.5 y.o.	Yes	9 children TD (All males) Mean 3.9 y.o.	ASD	Dyadic: Child Robot (SPHERO) Caregiver observes
2016	Salvador et al.	5 sessions (1= baseline, 5=exitline, 2-3-4=intervention sessions)	Once a week	N.D.	No	11 children with ASD (2 female)	7-17 y.o. (m=9.8 y, SD=2.9 y)	No	N.D.	High functioning ASD children with a T-Score greater than 76 in the Social Responsiveness Survey (SRS)	Dyadic: Child Robot (ZENO R50)
2016	Tariq et al.	3 sessions	N.D.	15 min	No	3 children with ASD	3.5 - 7 y.o.	No	N.D.	ASD	Dyadic: Child Robot (NAO)

Table Supplementary Material 2: Analysed papers and sessions categories

Year	Authors	How long?				Participants					Main actors in the protocol
		Number of sessions	Frequency of sessions	Session duration	Follow up	Number of participants	Age	Control group(yes or no)	Control group type (standard therapy or Healthy)	Level Autism	
2016	Liu et al.	3 sessions (with incremental feedback: only speech, only observation, both)	Once	N.D.	No	5 children with ASD	≥ 8 y.o.	Yes	10 children TD	ASD	Dyadic: Child Robot (NAO) Teacher (mediator/help)
2016	Beer et al.	6 sessions	Once a week	N.D.	No	4 children with ASD	9 - 16 y.o.	No	N.D.	Autism	Dyadic: Child Robot (NAO) Therapist (help/prompts)
2016	Simut et al.	1 session with the robot	N.D.	15 min	No	30 children with ASD	5 - 7 y.o.	No	N.D.	IQ of ≥ 70 .	Dyadic: Child Robot (PROBO) vs. Human Agent
2016	Wong et al.	5 sessions	Once a week	30 minutes	No	8 children with ASD	4 - 6 y.o.	Yes	Standard therapy	N.D.	Dyadic: Child Robot (CuDDler robot)
2016	Bernardo et al.	4 sessions	N.D.	20 min	No	8 children with ASD	N.D.	No	N.D.	N.D.	Dyadic: Child Robot
2016	Chevalier et al. (2)	1 session	N.D.	2 min	No	6 children with ASD 7 adults with ASD	10.9 $\pm$ 1.8 y.o (children) 26.1 $\pm$ 7.9 y.o (adults)	No	No	N.D.	Dyadic: Child Robot
2016	Palestra et al.	2 sessions	In the same day	N.D.	No	3 children with ASD	8-13 y.o	No	No	High functioning	Dyadic: Child Robot
2016	Valadão et al.	1 session	N.D.	40 min	No	5 children with ASD	7-8 y.o.	Yes	Typical Development	N.D.	Triadic human: Child Robot Therapist

N.D. Not Declared