Questionnaire - User Study

- 1. Introduction
- 2. Sign consent form
- 3. Fill out personal information questionnaire
- 4. Put on body suit
- 5. Explain about system

* Ind	dicates required question
1.	Controller being tested? *
	Mark only one oval.
	WBC
	Chiron
2.	Is the person testing first the VR or the screen? *
	Mark only one oval.
	VR first Skip to question 19
	Screen first Skip to question 29
3.	Participant code *
	Generating the participant code:
	1. Third letter of your first name (e.g., "S" for Elsa)
	2. Last letter of your surname (e.g., "T" for Schmitt)
	3. First letter of your mother's first name (e.g., "N" for Nadja)
	4. First letter of your birthplace (e.g., "F" for Freiburg)
	5. Day of your birth date (e.g., 08 for 08/12/1994, please use 2 characters)

4.	Age *	
5.	Height *	
6.	What gender do you identify as? * Mark only one oval.	
	Male Female Diverse Prefer not to say	
7.	What is the highest degree or level of education you have completed or are currently pursuing? Mark only one oval.	*
	High School Bachelor's Degree Master's Degree Ph.d or higher Trade School (Ausbildung) Prefer not to say	
	Freiei not to say	

8.	Are you left- or right-handed? *
	Mark only one oval.
	Left-handed Right-handed Prefer not to say
9.	Do you have any eyesight conditions (myopia, hyperopia,) ?
	Mark only one oval.
	Yes
	◯ No
	Prefer not to say
10.	What is the eyesight issue if there is one
11.	Are you wearing glasses or lenses or nothing today? *
	Mark only one oval.
	Glasses
	Lenses
	Nothing
12.	What is your field of study/work?

Do you have any physical disabilities? If yes, which?
How experient do you consider your self in videogames? (Consider how often you play/have played)
Mark only one oval.
I have no experience, never played
A little experience, played a few times
Moderate experience, played/play quite often
Advance experience, played/play very often
How often have you used used virtual reality gear? *
Mark only one oval.
Never
1 or 2 times
More than 2 times, but not often
Very often
How often have you interacted with teleoperation setups until now? *
Mark only one oval.
Never
1 or 2 times
More than 2 times, but not often
Very often

17.	Do you have a driver's and/or pilot's license? *										
	Mark only one oval.										
	Yes										
	No										
18.	What works best for you when learning something new? *										
	Mark only one oval.										
	1 2 3 4 5										
	Rear										

Experiment in Simulation with VR

Simulation with VR

• 6 minutes playing around OR until achieves the task one time successfully

20.

21.

19. SSQ questions BEFORE the VR

,	None	Slight	Moderate	Severe							
General	TNOTIE	Jilgilt	iviouerate	Jevele							
Discomfort											
Fatigue											
Headache											
Eyestrain											
Difficulty Focusing											
Difficulty Concentrating											
Blurred vision											
Dizziness with eyes open											
Fullness of head											
How many times repositioning was needed? Which tasks could the person achieve?											
Check all that app	oly.										
1: Open Drav 2: Move to & 3: Put water	Pick up b										
4: Close drav											
5: Return to	base										

22. SSQ questions AFTER the VR

Mark only one oval per row.

	None	Slight	Moderate	Severe
General Discomfort				
Fatigue				
Headache				
Eyestrain				
Difficulty Focusing				
Difficulty Concentrating				
Blurred vision				
Dizziness with eyes open				
Fullness of head				

23. (SEQ) Overall, how easy or difficult did you find to perform this task?

Mark only one oval.

24.	If you found it hard achieving the task, what was the main issue?
25.	(ARWES/CSS): Read each statement carefully and indicate the one that is most representative of your workload.
	Mark only one oval.
	1: Nothing to do; No system demands.
	2: Light Activity; minimal demands.
	3: Moderate activity; easily managed considerable spare time.
	4: Busy; Challenging but manageable; Adequate time available.
	5: Very busy; Demanding to manage; Barely enough time.
	6: Extremely busy; Very difficult; Non-essential tasks postponed.
	7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.

26. Please answer the following questions

	Strongly Disagree	Slightly Disagree	Neither Agree not Disagree	Slightly Agree	Strongly Agree
I feel I could perceive the depth of the objects well					
I felt as though the robot's movements were my own.					
I feel like it was an immersive experience					
I feel like the simulation training was enough for me to understand how to use the system					

27.	Has the person already tested the Simulation without VR? *
	Mark only one oval.
	Yes Skip to question 71
	No Skip to question 29
28.	Simulation: notes from collector
	periment in Simulation without VR
	6 minutes playing around OR until achieves the task one time successfully
29.	How many times repositioning was needed?
30.	Which tasks could the person achieve?
	Check all that apply.
	1: Open Drawer 2: Move to & Pick up bottle
	3: Put water bottle inside drawer
	4: Close drawer
	5: Return to base

Mark only	one o	val.														
1	2	3	4	5	6	7										
Very							Very	/ Ha	rd							
If you fou	nd it	hard	achi	ievin	g the	e tas	k, wl	hat	was	th	e ma	ain	iss	ue?		
							car	eful	lly aı	nd	indio	cate	e th	e or	ne th	at is
represent	ative	of yo					: car	eful	lly aı	nd	indio	cate	e th	e or	ne th	at is
(ARWES/ represent Mark only	ative	of yo					: car	eful	lly aı	nd	indio	cate	e th	e or	ne th	at is
represent	ative one	of yo	our w	vorkl	oad.				lly aı	nd	indid	cate	e th	e or	ne th	at is
represent Mark only 1: N	ative one othing	of yo	our w	vorkl o sys	oad. tem (dema	ands		lly aı	nd	indio	cate	e th	e or	ne th	at is
mark only 1: N 2: Li	ative one othing	of yo oval. g to d	our w	vorkl o sys nima	oad. tem (dema	ands s.								ne th	at is
represent Mark only 1: N 2: Li 3: N	ative one othing ight A	of your oval. g to describing to describe the second of the second over the s	our wood o; No	o sys nima y; eas	oad. tem o I dem sily m	dema nanda	ands s. ged o	cons	sidera	ablo	e spa	are ·	tim	€.	ne th	at is
mark only 1: N 2: L 3: N 4: B	ative one othing ight A lodera usy; C	of your oval. g to describing the activity at each	our wood o; No	o sys nima y; eas g but	oad. tem o I dem sily m man	dema nanda anag agea	ands s. ged c able;	cons	idera equat	ablo	e spa me a	are ·	timo	€.	ne th	at is
mark only 1: N 2: Li 3: N 4: B 5: V	othing dothing ight A dodera usy; C	of your oval. g to descrivity at a according to the acco	o; No; y; minotivity nging	o sys nima y; eas g but nding	tem of te	dema nanda anag agea nana	ands s. ged c able; ge; E	cons Ade Bare	idera quat	ablo te t	e spa me a	are [.] ava me.	tim ₍	e. le.	ne th	at is

34. Please answer the following questions

	Strongly Disagree	Slightly Disagree	Neither Agree not Disagree	Slightly Agree	Strongly Agree
I feel I could perceive the depth of the objects well					
I felt as though the robot's movements were my own.					
I feel like it was an immersive experience					
I feel like the simulation training was enough for me to understand how to use the system					

35.	Has the person already tested the Simulation with VR? *
	Mark only one oval.
	Yes Skip to question 37
	No Skip to question 19
36.	Simulation: notes from collector

Experiment in Real World with VR

Real World with VR

- 4 minutes playing around
- Trying to achieve the task 3 times

37. SSQ questions BEFORE the VR

	None	Slight	Moderate	Severe
General Discomfort				
Fatigue				
Headache				
Eyestrain				
Difficulty Focusing				
Difficulty Concentrating				
Blurred vision				
Dizziness with eyes open				
Fullness of head				

39.

40.

38. (TASK 1) Subtasks success

	Success	Partial Success: Recovered alone from fail	Partial Failure: Small adjustment/help needed	Complete Failure: Give up or big adjustment needed	_
Open drawer					_
Move to & pick up bottle					_
Put bottle inside drawer					
Close drawer					_
Return to base					-
(TASK 1)) How man	y times repo	sitioning was nee	ded?	
(TASK 1) Mark only		erall, how eas	sy or difficult did y	ou find to perf	form this task?
1	2 3	4 5 6	7		
Very 🔘			Very Hard		

41	(TASK 1) (ARWES/CSS): Read each statement carefully and indicate the one that is most representative of your workload.
	Mark only one oval.
	1: Nothing to do; No system demands.
	2: Light Activity; minimal demands.
	3: Moderate activity; easily managed considerable spare time.
	4: Busy; Challenging but manageable; Adequate time available.
	5: Very busy; Demanding to manage; Barely enough time.
	6: Extremely busy; Very difficult; Non-essential tasks postponed.
	7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.
42	. (TASK 1) If you found it hard achieving the task, what was the main issue?
43	. (TASK 2) How many times repositioning was needed?

44. (TASK 2) Subtasks success

Mark only one oval per row.

	Success	Partial Success: Recovered alone from fail	Partial Failure: Small adjustment/help needed	Complete Failure: Give up or big adjustment needed
Open drawer				
Move to & pick up bottle				
Put bottle inside drawer				
Close drawer				
Return to base				

45. (TASK 2) (SEQ) Overall, how easy or difficult did you find to perform this task?

Mark only one oval.

(TASK 2) (ARWES/CSS): Read each statement carefully and indicate the one that is most representative of your workload.
Mark only one oval.
1: Nothing to do; No system demands.
2: Light Activity; minimal demands.
3: Moderate activity; easily managed considerable spare time.
4: Busy; Challenging but manageable; Adequate time available.
5: Very busy; Demanding to manage; Barely enough time.
6: Extremely busy; Very difficult; Non-essential tasks postponed.
7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.
(TASK 2) If you found it hard achieving the task, what was the main issue?

49. (TASK 3) Subtasks success

Mark only one oval per row.

	Success	Partial Success: Recovered alone from fail	Partial Failure: Small adjustment/help needed	Complete Failure: Give up or big adjustment needed
Open drawer				
Move to & pick up bottle				
Put bottle inside drawer				
Close drawer				
Return to base				

50. (TASK 3) (SEQ) Overall, how easy or difficult did you find to perform this task?

Mark only one oval.

•	(TASK 3) (ARWES/CSS): Read each statement carefully and indicate the one that is most representative of your workload.
	Mark only one oval.
	1: Nothing to do; No system demands.
	2: Light Activity; minimal demands.
	3: Moderate activity; easily managed considerable spare time.
	4: Busy; Challenging but manageable; Adequate time available.
	5: Very busy; Demanding to manage; Barely enough time.
	6: Extremely busy; Very difficult; Non-essential tasks postponed.
	7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.
	(TASK 3) If you found it hard achieving the task, what was the main issue?

53. SSQ questions AFTER the VR

Mark only one oval per row.

	None	Slight	Moderate	Severe
General Discomfort				
Fatigue				
Headache				
Eyestrain				
Difficulty Focusing				
Difficulty Concentrating				
Blurred vision				
Dizziness with eyes open				
Fullness of head				

54.	Mental Demand: How much mental and perceptual activity was required (e.g.
	thinking, deciding, calculating, remembering, looking, searching, etc)? Was the
	task easy or demanding, simple or complex, exacting or
	forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html

(Scale 0-100)

55.	Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?	7
	(Scale 0-100)	
56.	Physical Demand : How much physical activity was required (e.g. pushing, pulling, turning, controlling, activating, etc)? Was the task easy or demanding, slow or brisk, slack or strenuous, restful or laborious?	ל
	(Scale 0-100)	
57.	Performance: How successful do you think you were in accomplishing the goals of the task set by the experimenter (or yourself)? How satisfied were you with your performance in accomplishing these goals?	7
	(Scale 0-100)	
58.	Effort : How hard did you have to work (mentally and physically) to accomplish your level of performance?	7
	(Scale 0-100)	
59.	Frustration: How insecure, discouraged, irritated, stressed and annoyed versus secure, gratified, content, relaxed and complacent did you feel during the task?	
	(Scale 0-100)	

60.	UMUX1: The teleoperation system capabilities meet my
	requirements/expectations

Mark only one oval.

	1	2	3	4	5	6	7	
Stro (\supset							Strongly agree

61. **UMUX2:** Using this teleoperation system is a frustrating experience

Mark only one oval.



62. **UMUX3:** This teleoperation system is easy to use

Mark only one oval.



63. **UMUX4:** I have to spend to much time correcting/compensating things with this teleoperation system

Mark only one oval.



64.	OATS1: The training	prepared me to properly	<i>i</i> interact with the system.
-----	----------------------------	-------------------------	------------------------------------

Mark only one oval.

	1	2	3	4	5	6	7	
Stro (\supset							Strongly agree

65. **OATS2:** The simulation training prepared me to easily use the system to accomplish my mission.

Mark only one oval.



66. **OATS3:** The simulation training accurately portrayed the operations in the field.

Mark only one oval.



67. **OATS4:** The simulation training adequately covered all important ways I interact with the system.

Mark only one oval.



68. Please answer the following questions

	Strongly Disagree	Slightly Disagree	Neither Agree not Disagree	Slightly Agree	Strongly Agree
I feel I could rotate well the base of the robot the way I wanted to					
I feel I could translate the base of the robot the way I wanted to					
I feel I could move the robot's arm the way I wanted to					
I feel I could rotate the robot's hand the way I wanted to					
I feel I could move the base at the same time I moved the robot's arm to accomplish the task					
I feel I could perceive the depth of the					

depth of the			
objects well I do not feel			
sick after I do not feel using this sick after visual using this interface visual			
interface I feel I did			
not need to I feel I did move myself not need to too much to move myself accomplish too much to the task accomplish			
the task I feel that my			
arm is sore I feel that my from the arm is sore teleoperation from the			
teleoperation I feel like it			
took me a lot I feel like it of time to took me a lot move the of time to robot's base move the from A to B robot's base			
from A to B I feel like I			
improved my I feel like I performance improved my considerably performance over the runs considerably			
over the runs I feel like			
with more I feel like training, I with more would feel training, I less tired would feel			
less tired I felt as			
though the I felt as robot's though the movements robot's were my movements own. were my			
own I feel like it			
W00 0F			

was an

10:59	Questionnaire - User Study Live it									
	immersive experience									
69.	Has the pers	son already t	ested the R	Real World v	vithout VR	?*				
	Mark only o	ne oval.								
	Yes	Skip to ques	tion 103							
	No	Skip to quest	ion 71							
70.	Real world v	vith VR: notes	s from colle	ector						

Experiment in Real World without VR

Real World without VR

- 4 minutes playing around
- Trying to achieve the task 3 times

72.

73.

71. (TASK 1) Subtasks success

	Success	Partial Success: Recovered alone from fail	Partial Failure: Small adjustment/help needed	Complete Failure: Give up or big adjustment needed	
Open drawer					-
Move to & pick up bottle					_
Put bottle inside drawer					
Close drawer					-
Return to base					-
TASK 1)	How man	y times repo	sitioning was need	ded?	
(TASK 1) Mark only		erall, how eas	sy or difficult did y	ou find to perf	orm this tas

/4.	that is most representative of your workload.
	Mark only one oval.
	1: Nothing to do; No system demands.
	2: Light Activity; minimal demands.
	3: Moderate activity; easily managed considerable spare time.
	4: Busy; Challenging but manageable; Adequate time available.
	5: Very busy; Demanding to manage; Barely enough time.
	6: Extremely busy; Very difficult; Non-essential tasks postponed.
	7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.
75.	(TASK 1) If you found it hard achieving the task, what was the main issue?
76.	(TASK 2) How many times repositioning was needed?

77. (TASK 2) Subtasks success

Mark only one oval per row.

	Success	Partial Success: Recovered alone from fail	Partial Failure: Small adjustment/help needed	Complete Failure: Give up or big adjustment needed
Open drawer				
Move to & pick up bottle				
Put bottle inside drawer				
Close drawer				
Return to base				

78. (TASK 2) (SEQ) Overall, how easy or difficult did you find to perform this task?

Mark only one oval.

79.	(TASK 2) (ARWES/CSS): Read each statement carefully and indicate the one that is most representative of your workload.
	Mark only one oval.
	1: Nothing to do; No system demands.
	2: Light Activity; minimal demands.
	3: Moderate activity; easily managed considerable spare time.
	4: Busy; Challenging but manageable; Adequate time available.
	5: Very busy; Demanding to manage; Barely enough time.
	6: Extremely busy; Very difficult; Non-essential tasks postponed.
	7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.
80.	(TASK 2) If you found it hard achieving the task, what was the main issue?
81.	(TASK 3) How many times repositioning was needed? *

82. (TASK 3) Subtasks success

Mark only one oval per row.

	Success	Partial Success: Recovered alone from fail	Partial Failure: Small adjustment/help needed	Complete Failure: Give up or big adjustment needed
Open drawer				
Move to & pick up bottle				
Put bottle inside drawer				
Close drawer				
Return to base				

83. (TASK 3) (SEQ) Overall, how easy or difficult did you find to perform this task?

Mark only one oval.

	1	2	3	4	5	6	7	
Very								Very Hard

thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100)	84.	(TASK 3) (ARWES/CSS): Read each statement carefully and indicate the one that is most representative of your workload.
2: Light Activity; minimal demands. 3: Moderate activity; easily managed considerable spare time. 4: Busy; Challenging but manageable; Adequate time available. 5: Very busy; Demanding to manage; Barely enough time. 6: Extremely busy; Very difficult; Non-essential tasks postponed. 7: Overloaded; System unmanageable; Essential tasks undone; Unsafe. 85. (TASK 3) If you found it hard achieving the task, what was the main issue? 86. Mental Demand: How much mental and perceptual activity was required (e.g. * thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		Mark only one oval.
3: Moderate activity; easily managed considerable spare time. 4: Busy; Challenging but manageable; Adequate time available. 5: Very busy; Demanding to manage; Barely enough time. 6: Extremely busy; Very difficult; Non-essential tasks postponed. 7: Overloaded; System unmanageable; Essential tasks undone; Unsafe. 85. (TASK 3) If you found it hard achieving the task, what was the main issue? 86. Mental Demand: How much mental and perceptual activity was required (e.g. *thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		1: Nothing to do; No system demands.
4: Busy; Challenging but manageable; Adequate time available. 5: Very busy; Demanding to manage; Barely enough time. 6: Extremely busy; Very difficult; Non-essential tasks postponed. 7: Overloaded; System unmanageable; Essential tasks undone; Unsafe. 85. (TASK 3) If you found it hard achieving the task, what was the main issue? 86. Mental Demand: How much mental and perceptual activity was required (e.g. *thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		2: Light Activity; minimal demands.
5: Very busy; Demanding to manage; Barely enough time. 6: Extremely busy; Very difficult; Non-essential tasks postponed. 7: Overloaded; System unmanageable; Essential tasks undone; Unsafe. 85. (TASK 3) If you found it hard achieving the task, what was the main issue? 86. Mental Demand: How much mental and perceptual activity was required (e.g. *thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		3: Moderate activity; easily managed considerable spare time.
6: Extremely busy; Very difficult; Non-essential tasks postponed. 7: Overloaded; System unmanageable; Essential tasks undone; Unsafe. 85. (TASK 3) If you found it hard achieving the task, what was the main issue? 86. Mental Demand: How much mental and perceptual activity was required (e.g. * thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		4: Busy; Challenging but manageable; Adequate time available.
7: Overloaded; System unmanageable; Essential tasks undone; Unsafe. 85. (TASK 3) If you found it hard achieving the task, what was the main issue? 86. Mental Demand: How much mental and perceptual activity was required (e.g. * thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		5: Very busy; Demanding to manage; Barely enough time.
86. Mental Demand: How much mental and perceptual activity was required (e.g. * thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) 7 Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		6: Extremely busy; Very difficult; Non-essential tasks postponed.
86. Mental Demand: How much mental and perceptual activity was required (e.g. * thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		7: Overloaded; System unmanageable; Essential tasks undone; Unsafe.
thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?	85.	(TASK 3) If you found it hard achieving the task, what was the main issue?
thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		
thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or forgiving? https://www.keithv.com/software/nasatlx/nasatlx.html (Scale 0-100) Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		
87. Temporal Demand: How much time pressure did you feel due to the rate of pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?	36.	thinking, deciding, calculating, remembering, looking, searching, etc)? Was the task easy or demanding, simple or complex, exacting or
at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?		(Scale 0-100)
(Scale 0-100)	37.	·
		(Scale 0-100)

88.	Physical Demand : How much physical activity was required (e.g. pushing, pulling, turning, controlling, activating, etc)? Was the task easy or demanding, slow or brisk, slack or strenuous, restful or laborious?
	(Scale 0-100)
89.	Performance: How successful do you think you were in accomplishing the goals of the task set by the experimenter (or yourself)? How satisfied were you with your performance in accomplishing these goals?
	(Scale 0-100)
90.	Effort : How hard did you have to work (mentally and physically) to accomplish your level of performance?
	(Scale 0-100)
91.	Frustration: How insecure, discouraged, irritated, stressed and annoyed versus secure, gratified, content, relaxed and complacent did you feel during the task?
	(Scale 0-100)
92.	UMUX1: The teleoperation system capabilities meet my requirements/expectations
	Mark only one oval.
	1 2 3 4 5 6 7
	Stro Strongly agree

	UMUX2:	Usin	g this	tele	opei	ratior	ı sys	stem is a frustrating experience *
	Mark only	one o	oval.					
	1	2	3	4	5	6	7	
	Stro 🔾							Strongly agree
٠.	UMUX3:	This	teleo	pera	tion	syste	em i	s easy to use
	Mark only	one o	oval.					
	1	2	3	4	5	6	7	
	Stro 🔘							Strongly agree
	teleoper	ation	syste		d to	mucl	h tin	ne correcting/compensating things with this
	Mark only	one (ovai.					
	1	2	3	4	5	6	7	
	Stro 🔘							Strongly agree
	OATS1:	The t	rainin	ıg pre	epar	ed m	e to	properly interact with the system. *
	OATS1:			ıg pre	epar	ed m	e to	properly interact with the system. *
					epar 5	ed m	e to	properly interact with the system. *

97.	OATS2: The simulation training prepared me to easily use the system to
	accomplish my mission.

Mark only one oval.

1	2	3	4	5	6	7	
Stro (Strongly agree

98. **OATS3:** The simulation training accurately portrayed the operations in the field.

Mark only one oval.



99. **OATS4:** The simulation training adequately covered all important ways I interact with the system.

Mark only one oval.

	1	2	3	4	5	6	7	
Stro								Strongly agree

100. Please answer the following questions *

	Strongly Disagree	Slightly Disagree	Neither Agree not Disagree	Slightly Agree	Strongly Agree
I feel I could rotate well the base of the robot the way I wanted to					
I feel I could translate the base of the robot the way I wanted to					
I feel I could move the robot's arm the way I wanted to					
I feel I could rotate the robot's hand the way I wanted to					
I feel I could move the base at the same time I moved the robot's arm to accomplish the task					
I feel I could perceive the depth of the					

depth of the			
objects well I do not feel			
sick after I do not feel using this sick after visual using this interface visual			
interface I feel I did			
not need to I feel I did move myself not need to too much to move myself accomplish too much to the task accomplish			
the task I feel that my			
arm is sore I feel that my from the arm is sore teleoperation from the			
teleoperation I feel like it			
took me a lot I feel like it of time to took me a lot move the of time to robot's base move the from A to B robot's base			
from A to B I feel like I			
improved my I feel like I performance improved my considerably performance over the runs considerably			
over the runs I feel like			
with more I feel like training, I with more would feel training, I less tired would feel			
less tired I felt as			
though the I felt as robot's though the movements robot's were my movements own. were my			
own I feel like it			

was an

experience	e O
	are an already to start dithe Deal Mould with MD2 *
Has the pe	erson already tested the Real World with VR? *
Mark only	one oval.
Yes	Skip to question 103
No	Skip to question 37
Real world	d without VR: notes from collector

Post-test Questions

103. Questions related to the simulation WITH VR *

	Strongly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Strongly Agree
I feel like the depth perception in simulation was better than in the real world					
I felt like teleoperating the robot in simulation and in the real world was a similar experience					

104. Questions related to the simulation WITHOUT VR *

	Strongly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Strongly Agree
I feel like the depth perception in simulation was better than in the real world					
I felt like teleoperating the robot in simulation and in the real world was a similar experience					

105. In the real world experiments, please choose your preference for each of the * topics

	with VR	without VR	Same
Which setup allowed you to complete the tasks more efficiently?			
Which setup made it easier to operate the robot accurately?			
Which setup did you find more comfortable?			
Which setup would you be willing to use many times again?			
Which setup felt more immersive?			
Overall, which one did you like the most?			

106.	Did you notice any difference in how you controlled the robot between the simulation and the real-world environment?
107.	Did you notice any difference in how you controlled the robot in real world using the VR and not?
	What improvements would you suggest for each setup?
109.	What did you like most about using VR/non-VR for teleoperating the robot?

This content is neither created nor endorsed by Google.

Google Forms