

Supplementary Information (SI)

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A Sensorized Modular Training Platform to Reduce Vascular Damage in Endovascular Surgery

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Supplement 1 - Content:

This supplementary information feature a **User Questionnaire** conducted with all users of the user study conducted at Heidelberg University Hospital and Karlsruhe Institute of Technology.

User Questionnaire

1. First Name, Name

2. You belong to which group?

- ☐ Medical Expert
- ☐ Medical Student
- ☐ Non-medical User

3. What is your medical specialty?

- ☐ Vascular Surgery
- ☐ General Surgery
- ☐ No specialty yet (med-student)
- ☐ No specialty (non-medical user)

4. Prior to these experiments I have already used a catheter or guidewire on ...

- ☐ ... no phantom and no human vessels.
- ☐ ... this phantom.
- ☐ ... another phantom.
- ☐ ... real human vessels (if checked: please CONTINUE with questions below).

5. ADVANCING the catheter/guidewire appears the SAME as on the real patient.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	strongly agree

6. ADVANCING the catheter/guidewire creates friction which is too ... compared to a real patient.

	1	2	3	4	5	
low	☐	☐	☐	☐	☐	high

7. PROBING appears the SAME as on the real patient.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	strongly agree

8. PROBING creates friction which is too ... compared to a real patient.

	1	2	3	4	5	
low	☐	☐	☐	☐	☐	high

9. PULLING OUT the catheter/guidewire appears the SAME as on the real patient.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	strongly agree

10. PULLING OUT the catheter/guidewire creates friction which is too ... compared to a real patient.

	1	2	3	4	5	
low	☐	☐	☐	☐	☐	high

11. What would make artery probing more realistic in the vessel segment sample?

12. The vessel segment was mounted too ... during testing to appear realistic compared to a real patient.

	1	2	3	4	5	
firmly	☐	☐	☐	☐	☐	loose

13. How realistic would you rate the haptic experience with the training platform overall?

	1	2	3	4	5	
highly unrealistic	☐	☐	☐	☐	☐	highly realistic

14. How would you rate the visibility of the catheter?

	1	2	3	4	5	
low	☐	☐	☐	☐	☐	high

15. How useful would you rate the training platform for medical training?

	1	2	3	4	5	
useless	☐	☐	☐	☐	☐	useful

16. Which aspect of the phantom is most unrealistic? What would be needed to be improved the most to serve as a training device?

17. What important Feedback could you give that was not covered by the survey?

18. Further Remarks
