Anexos

**Presence Questionnaire - Utilizador 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Stems | *ITCorr* | *Score (1-8)* | *Real Score* | *Factor(s)* |
| 1. How much were you able to control events? | 0,43 | 7 | 3,01 | CF |
| 2. How responsive was the environment to actions that you initiated (or performed)? | 0,56 | 5 | 2,8 | CF |
| 3. How natural did your interactions with the environment seem? | 0,61 | 4 | 2,44 | CF |
| 4. How completely were all of your senses engaged? | 0,39 | 4 | 1,56 | SF |
| 5. How much did the visual aspects of the environment involve you? | 0,48 | 5 | 2,4 | SF |
| 6. How much did the auditory aspects of the environment involve you? | 0,32 | 3 | 0,96 | SF |
| 7. How natural was the mechanism which controlled movement through the environment? | 0,62 | 6 | 3,72 | CF |
| 8. How aware were you of events occurring in the real world around you? | 0,03 | 4 | 0,12 | DF |
| 9. How aware were you of your display and control devices? | -0,14 | 3 | -0,42 | DF |
| 10. How compelling was your sense of objects moving through space? | 0,51 | 5 | 2,55 | SF |
| 11. How inconsistent or disconnected was the information coming from your various senses? | 0,33 | 4 | 1,32 | RF |
| 12. How much did your experiences in the virtual environment seem consistent with your real-world experiences? | 0,62 | 4 | 2,48 | RF, CF |
| 13. Were you able to anticipate what would happen next in response to the actions that you performed? | 0,43 | 6 | 2,58 | CF |
| 14. How completely were you able to actively survey or search the environment using vision? | 0,59 | 6 | 3,54 | RF, CF, SF |
| 15. How well could you identify sounds? | 0,34 | 1 | 0,34 | RF, SF |
| 16. How well could you localize sounds? | 0,3 | 1 | 0,3 | RF, SF |
| 17. How well could you actively survey or search the virtual environment using touch? | 0,15 | 7 | 1,05 | RF, SF |
| 18. How compelling was your sense of moving around inside the virtual environment? | 0,62 | 5 | 3,1 | SF |
| 19. How closely were you able to examine objects? | 0,55 | 7 | 3,85 | SF |
| 20. How well could you examine objects from multiple viewpoints? | 0,49 | 8 | 3,92 | SF |
| 21. How well could you move or manipulate objects in the virtual environment? | 0,11 | 8 | 0,88 | CF |
| 22. To what degree did you feel confused or disoriented at the beginning of breaks or at the end of the experimental session? | -0,06 | 1 | -0,06 | RF |
| 23. How involved were you in the virtual environment experience? | 0,52 | 8 | 4,16 |  |
| 24. How distracting was the control mechanism? | 0,37 | 2 | 0,74 | DF |
| 25. How much delay did you experience between your actions and expected outcomes? | 0,41 | 1 | 0,41 | CF |
| 26. How quickly did you adjust to the virtual environment experience? | 0,42 | 4 | 1,68 | CF |
| 27. How proficient in moving and interacting with the virtual environment did you feel at the end of the experience? | 0,45 | 6 | 2,7 | CF |
| 28. How much did the visual display quality interfere or distract you from performing assigned tasks or required activities? | 0,44 | 4 | 1,76 | DF |
| 29. How much did the control devices interfere with the performance of assigned tasks or with other activities? | 0,44 | 4 | 1,76 | DF, CF |
| 30. How well could you concentrate on the assigned tasks or required activities rather than on the mechanisms used to perform those tasks or activities? | 0,51 | 6 | 3,06 | DF |
| 31. Did you learn new techniques that enabled you to improve your performance? | 0,33 | 3 | 0,99 | CF |
| 32. Were you involved in the experimental task to the extent that you lost track of time? | 0,41 | 4 | 1,64 |  |

Tabela 2 - Questionário de Presença Utilizador 1

**Presence Questionnaire - Utilizador 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Stems | *ITCorr* | *Score (1-8)* | *Real Score* | *Factor(s)* |
| 1. How much were you able to control events? | 0,43 | 5 | 2,15 | CF |
| 2. How responsive was the environment to actions that you initiated (or performed)? | 0,56 | 5 | 2,8 | CF |
| 3. How natural did your interactions with the environment seem? | 0,61 | 4 | 2,44 | CF |
| 4. How completely were all of your senses engaged? | 0,39 | 4 | 1,56 | SF |
| 5. How much did the visual aspects of the environment involve you? | 0,48 | 5 | 2,4 | SF |
| 6. How much did the auditory aspects of the environment involve you? | 0,32 | 3 | 0,96 | SF |
| 7. How natural was the mechanism which controlled movement through the environment? | 0,62 | 7 | 4,34 | CF |
| 8. How aware were you of events occurring in the real world around you? | 0,03 | 1 | 0,03 | DF |
| 9. How aware were you of your display and control devices? | -0,14 | 3 | -0,42 | DF |
| 10. How compelling was your sense of objects moving through space? | 0,51 | 6 | 3,06 | SF |
| 11. How inconsistent or disconnected was the information coming from your various senses? | 0,33 | 4 | 1,32 | RF |
| 12. How much did your experiences in the virtual environment seem consistent with your real-world experiences? | 0,62 | 4 | 2,48 | RF, CF |
| 13. Were you able to anticipate what would happen next in response to the actions that you performed? | 0,43 | 6 | 2,58 | CF |
| 14. How completely were you able to actively survey or search the environment using vision? | 0,59 | 8 | 4,72 | RF, CF, SF |
| 15. How well could you identify sounds? | 0,34 | 1 | 0,34 | RF, SF |
| 16. How well could you localize sounds? | 0,3 | 1 | 0,3 | RF, SF |
| 17. How well could you actively survey or search the virtual environment using touch? | 0,15 | 7 | 1,05 | RF, SF |
| 18. How compelling was your sense of moving around inside the virtual environment? | 0,62 | 3 | 1,86 | SF |
| 19. How closely were you able to examine objects? | 0,55 | 8 | 4,4 | SF |
| 20. How well could you examine objects from multiple viewpoints? | 0,49 | 8 | 3,92 | SF |
| 21. How well could you move or manipulate objects in the virtual environment? | 0,11 | 6 | 0,66 | CF |
| 22. To what degree did you feel confused or disoriented at the beginning of breaks or at the end of the experimental session? | -0,06 | 4 | -0,24 | RF |
| 23. How involved were you in the virtual environment experience? | 0,52 | 5 | 2,6 |  |
| 24. How distracting was the control mechanism? | 0,37 | 4 | 1,48 | DF |
| 25. How much delay did you experience between your actions and expected outcomes? | 0,41 | 1 | 0,41 | CF |
| 26. How quickly did you adjust to the virtual environment experience? | 0,42 | 4 | 1,68 | CF |
| 27. How proficient in moving and interacting with the virtual environment did you feel at the end of the experience? | 0,45 | 4 | 1,8 | CF |
| 28. How much did the visual display quality interfere or distract you from performing assigned tasks or required activities? | 0,44 | 2 | 0,88 | DF |
| 29. How much did the control devices interfere with the performance of assigned tasks or with other activities? | 0,44 | 2 | 0,88 | DF, CF |
| 30. How well could you concentrate on the assigned tasks or required activities rather than on the mechanisms used to perform those tasks or activities? | 0,51 | 5 | 2,55 | DF |
| 31. Did you learn new techniques that enabled you to improve your performance? | 0,33 | 3 | 0,99 | CF |
| 32. Were you involved in the experimental task to the extent that you lost track of time? | 0,41 | 2 | 0,82 |  |

Tabela 3 - Questionário de Presença Utilizador 2

**Presence Questionnaire - Utilizador 3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Stems | *ITCorr* | *Score (1-8)* | *Real Score* | *Factor(s)* |
| 1. How much were you able to control events? | 0,43 | 7 | 3,01 | CF |
| 2. How responsive was the environment to actions that you initiated (or performed)? | 0,56 | 5 | 2,8 | CF |
| 3. How natural did your interactions with the environment seem? | 0,61 | 4 | 2,44 | CF |
| 4. How completely were all of your senses engaged? | 0,39 | 4 | 1,56 | SF |
| 5. How much did the visual aspects of the environment involve you? | 0,48 | 5 | 2,4 | SF |
| 6. How much did the auditory aspects of the environment involve you? | 0,32 | 3 | 0,96 | SF |
| 7. How natural was the mechanism which controlled movement through the environment? | 0,62 | 6 | 3,72 | CF |
| 8. How aware were you of events occurring in the real world around you? | 0,03 | 4 | 0,12 | DF |
| 9. How aware were you of your display and control devices? | -0,14 | 3 | -0,42 | DF |
| 10. How compelling was your sense of objects moving through space? | 0,51 | 5 | 2,55 | SF |
| 11. How inconsistent or disconnected was the information coming from your various senses? | 0,33 | 4 | 1,32 | RF |
| 12. How much did your experiences in the virtual environment seem consistent with your real-world experiences? | 0,62 | 4 | 2,48 | RF, CF |
| 13. Were you able to anticipate what would happen next in response to the actions that you performed? | 0,43 | 6 | 2,58 | CF |
| 14. How completely were you able to actively survey or search the environment using vision? | 0,59 | 6 | 3,54 | RF, CF, SF |
| 15. How well could you identify sounds? | 0,34 | 1 | 0,34 | RF, SF |
| 16. How well could you localize sounds? | 0,3 | 1 | 0,3 | RF, SF |
| 17. How well could you actively survey or search the virtual environment using touch? | 0,15 | 7 | 1,05 | RF, SF |
| 18. How compelling was your sense of moving around inside the virtual environment? | 0,62 | 5 | 3,1 | SF |
| 19. How closely were you able to examine objects? | 0,55 | 7 | 3,85 | SF |
| 20. How well could you examine objects from multiple viewpoints? | 0,49 | 8 | 3,92 | SF |
| 21. How well could you move or manipulate objects in the virtual environment? | 0,11 | 8 | 0,88 | CF |
| 22. To what degree did you feel confused or disoriented at the beginning of breaks or at the end of the experimental session? | -0,06 | 1 | -0,06 | RF |
| 23. How involved were you in the virtual environment experience? | 0,52 | 8 | 4,16 |  |
| 24. How distracting was the control mechanism? | 0,37 | 2 | 0,74 | DF |
| 25. How much delay did you experience between your actions and expected outcomes? | 0,41 | 1 | 0,41 | CF |
| 26. How quickly did you adjust to the virtual environment experience? | 0,42 | 4 | 1,68 | CF |
| 27. How proficient in moving and interacting with the virtual environment did you feel at the end of the experience? | 0,45 | 6 | 2,7 | CF |
| 28. How much did the visual display quality interfere or distract you from performing assigned tasks or required activities? | 0,44 | 4 | 1,76 | DF |
| 29. How much did the control devices interfere with the performance of assigned tasks or with other activities? | 0,44 | 4 | 1,76 | DF, CF |
| 30. How well could you concentrate on the assigned tasks or required activities rather than on the mechanisms used to perform those tasks or activities? | 0,51 | 6 | 3,06 | DF |
| 31. Did you learn new techniques that enabled you to improve your performance? | 0,33 | 3 | 0,99 | CF |
| 32. Were you involved in the experimental task to the extent that you lost track of time? | 0,41 | 4 | 1,64 |  |

Tabela 4 - Questionário de Presença Utilizador 3

**User Experience Questionnaire - Utilizador 1**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **fully agree with negative term (1)** | **answer(1-7)** | **fully agree with positive term (7)** | **answer (0-1)** | **Aspect** | **Factor** |
| 1 | annoying | 4,00 | enjoyable | 0,17 | Attractiveness | Emonional |
| 2 | bad | 4,00 | good | 0,33 | Attractiveness | Emonional |
| 3 | unlikable | 5,00 | pleasing | 0,67 | Attractiveness | Emonional |
| 4 | unpleasant | 5,00 | pleasent | 0,67 | Attractiveness | Emonional |
| 5 | unattractive | 3,00 | attractive | 0,33 | Attractiveness | Emonional |
| 6 | unfriendly | 7,00 | friendly | 1,00 | Attractiveness | Emonional |
| 7 | slow | 6,00 | fast | 0,83 | Efficiency | Pragmatic |
| 8 | inefficient | 6,00 | effient | 0,83 | Efficiency | Pragmatic |
| 9 | impratical | 7,00 | practical | 0,67 | Efficiency | Pragmatic |
| 10 | clusttered | 6,00 | organized | 0,50 | Efficiency | Pragmatic |
| 11 | not understandable | 6,00 | understandable | 0,67 | Perspicuity | Pragmatic |
| 12 | dificult to learn | 7,00 | easy to learn | 1,00 | Perspicuity | Pragmatic |
| 13 | complicated | 7,00 | easy | 1,00 | Perspicuity | Pragmatic |
| 14 | confusing | 7,00 | clear | 0,83 | Perspicuity | Pragmatic |
| 15 | unpredictable | 2,00 | predictable | 0,17 | Dependability | Pragmatic |
| 16 | obstructive | 5,00 | supportive | 0,67 | Dependability | Pragmatic |
| 17 | not secure | 4,00 | secure | 0,50 | Dependability | Pragmatic |
| 18 | does not meet expectations | 2,00 | meets expectations | 0,17 | Dependability | Pragmatic |
| 19 | inferior | 3,00 | valuable | 0,00 | Stimulation | Hedonic |
| 20 | boring | 3,00 | exciting | 0,33 | Stimulation | Hedonic |
| 21 | not interesting | 2,00 | interesting | 0,17 | Stimulation | Hedonic |
| 22 | demotivating | 4,00 | motivating | 0,33 | Stimulation | Hedonic |
| 23 | dull | 2,00 | creative | 0,17 | Novelty | Hedonic |
| 24 | conventional | 3,00 | inventive | 0,17 | Novelty | Hedonic |
| 25 | usual | 1,00 | leading edge | 0,00 | Novelty | Hedonic |
| 26 | conservative | 1,00 | innovative | 0,00 | Novelty | Hedonic |

Tabela 5 –User Experience Questionnaire do Utilizador 1

**User Experience Questionnaire - Utilizador 2**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **fully agree with negative term (1)** | **answer(1-7)** | **fully agree with positive term (7)** | **answer (0-1)** | **Aspect** | **Factor** |
| 1 | annoying | 2,00 | enjoyable | 0,17 | Attractiveness | Emonional |
| 2 | bad | 3,00 | good | 0,33 | Attractiveness | Emonional |
| 3 | unlikable | 5,00 | pleasing | 0,67 | Attractiveness | Emonional |
| 4 | unpleasant | 5,00 | pleasent | 0,67 | Attractiveness | Emonional |
| 5 | unattractive | 3,00 | attractive | 0,33 | Attractiveness | Emonional |
| 6 | unfriendly | 7,00 | friendly | 1,00 | Attractiveness | Emonional |
| 7 | slow | 6,00 | fast | 0,83 | Efficiency | Pragmatic |
| 8 | inefficient | 6,00 | effient | 0,83 | Efficiency | Pragmatic |
| 9 | impratical | 5,00 | practical | 0,67 | Efficiency | Pragmatic |
| 10 | clusttered | 4,00 | organized | 0,50 | Efficiency | Pragmatic |
| 11 | not understandable | 5,00 | understandable | 0,67 | Perspicuity | Pragmatic |
| 12 | dificult to learn | 7,00 | easy to learn | 1,00 | Perspicuity | Pragmatic |
| 13 | complicated | 7,00 | easy | 1,00 | Perspicuity | Pragmatic |
| 14 | confusing | 6,00 | clear | 0,83 | Perspicuity | Pragmatic |
| 15 | unpredictable | 2,00 | predictable | 0,17 | Dependability | Pragmatic |
| 16 | obstructive | 5,00 | supportive | 0,67 | Dependability | Pragmatic |
| 17 | not secure | 4,00 | secure | 0,50 | Dependability | Pragmatic |
| 18 | does not meet expectations | 2,00 | meets expectations | 0,17 | Dependability | Pragmatic |
| 19 | inferior | 1,00 | valuable | 0,00 | Stimulation | Hedonic |
| 20 | boring | 3,00 | exciting | 0,33 | Stimulation | Hedonic |
| 21 | not interesting | 2,00 | interesting | 0,17 | Stimulation | Hedonic |
| 22 | demotivating | 3,00 | motivating | 0,33 | Stimulation | Hedonic |
| 23 | dull | 2,00 | creative | 0,17 | Novelty | Hedonic |
| 24 | conventional | 2,00 | inventive | 0,17 | Novelty | Hedonic |
| 25 | usual | 1,00 | leading edge | 0,00 | Novelty | Hedonic |
| 26 | conservative | 1,00 | innovative | 0,00 | Novelty | Hedonic |

Tabela 6 –User Experience Questionnaire do Utilizador 2

**User Experience Questionnaire - Utilizador 3**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **fully agree with negative term (1)** | **answer(1-7)** | **fully agree with positive term (7)** | **answer (0-1)** | **Aspect** | **Factor** |
| 1 | annoying | 5,00 | enjoyable | 0,17 | Attractiveness | Emonional |
| 2 | bad | 7,00 | good | 0,33 | Attractiveness | Emonional |
| 3 | unlikable | 7,00 | pleasing | 0,67 | Attractiveness | Emonional |
| 4 | unpleasant | 5,00 | pleasent | 0,67 | Attractiveness | Emonional |
| 5 | unattractive | 5,00 | attractive | 0,33 | Attractiveness | Emonional |
| 6 | unfriendly | 7,00 | friendly | 1,00 | Attractiveness | Emonional |
| 7 | slow | 4,00 | fast | 0,83 | Efficiency | Pragmatic |
| 8 | inefficient | 6,00 | effient | 0,83 | Efficiency | Pragmatic |
| 9 | impratical | 7,00 | practical | 0,67 | Efficiency | Pragmatic |
| 10 | clusttered | 6,00 | organized | 0,50 | Efficiency | Pragmatic |
| 11 | not understandable | 6,00 | understandable | 0,67 | Perspicuity | Pragmatic |
| 12 | dificult to learn | 7,00 | easy to learn | 1,00 | Perspicuity | Pragmatic |
| 13 | complicated | 5,00 | easy | 1,00 | Perspicuity | Pragmatic |
| 14 | confusing | 5,00 | clear | 0,83 | Perspicuity | Pragmatic |
| 15 | unpredictable | 2,00 | predictable | 0,17 | Dependability | Pragmatic |
| 16 | obstructive | 5,00 | supportive | 0,67 | Dependability | Pragmatic |
| 17 | not secure | 4,00 | secure | 0,50 | Dependability | Pragmatic |
| 18 | does not meet expectations | 2,00 | meets expectations | 0,17 | Dependability | Pragmatic |
| 19 | inferior | 3,00 | valuable | 0,00 | Stimulation | Hedonic |
| 20 | boring | 3,00 | exciting | 0,33 | Stimulation | Hedonic |
| 21 | not interesting | 6,00 | interesting | 0,17 | Stimulation | Hedonic |
| 22 | demotivating | 4,00 | motivating | 0,33 | Stimulation | Hedonic |
| 23 | dull | 6,00 | creative | 0,17 | Novelty | Hedonic |
| 24 | conventional | 4,00 | inventive | 0,17 | Novelty | Hedonic |
| 25 | usual | 1,00 | leading edge | 0,00 | Novelty | Hedonic |
| 26 | conservative | 1,00 | innovative | 0,00 | Novelty | Hedonic |

Tabela 7 –User Experience Questionnaire do Utilizador 1