



MAINTENANCE SIMULATOR: A TRAINING TOOL FOR THE SUSTAINABILITY OF EUROPEAN WIND FARMS

Project N°: 2017-1-DE02-KA202-00426

ANEV, EVENTO NAZIONALE DEL PROGETTO SIMULWIND

Introduction and agenda

The main objective of this meeting is to test the beta version of the simulator to evaluate its quality and its effectiveness as training tool in order to improve the final version of the simulator. ANEV invited at his headquarter experts, university, institutions and more in general whoever was interested in the topic.

Thanks to the participation of ANEV associates to the event, who are in the majority expert in the subject, it was possible to collect precious information and impression directly from insiders.

The pilot test session took place the 28th November at ANEV headquarters with the following agenda:

14:00h Registration of the participant.

14:15h Simulwind project presentation: objectives and experiences acquired.

15:15h Coffee break.

15:30h Simulwind virtual reality simulation tool demonstration and SimulWind tool beta testing by the participants.

17:00h end of the event

After each personal test the participants were required to express their experience and practical views by filling up a questionnaire in order to improve the simulator prior the final version to be released at the end of the project.

Evaluation questionnaire results

The evaluation questionnaire was structured in six different blocks regarding the Pilot Test , which are:

- I. Project and Project Results
- II. Utility for Instruction
- III. Quality of Assessment
- IV. Quality of technological Interactivity
- V. Quality of instructional and practice exercises
- VI. Opportunities for deeper learning



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The results of the answers to those blocks are summarized in Figure 1. The mean appreciation obtained by the simulator in general evaluation is 3,75 over 4 points.

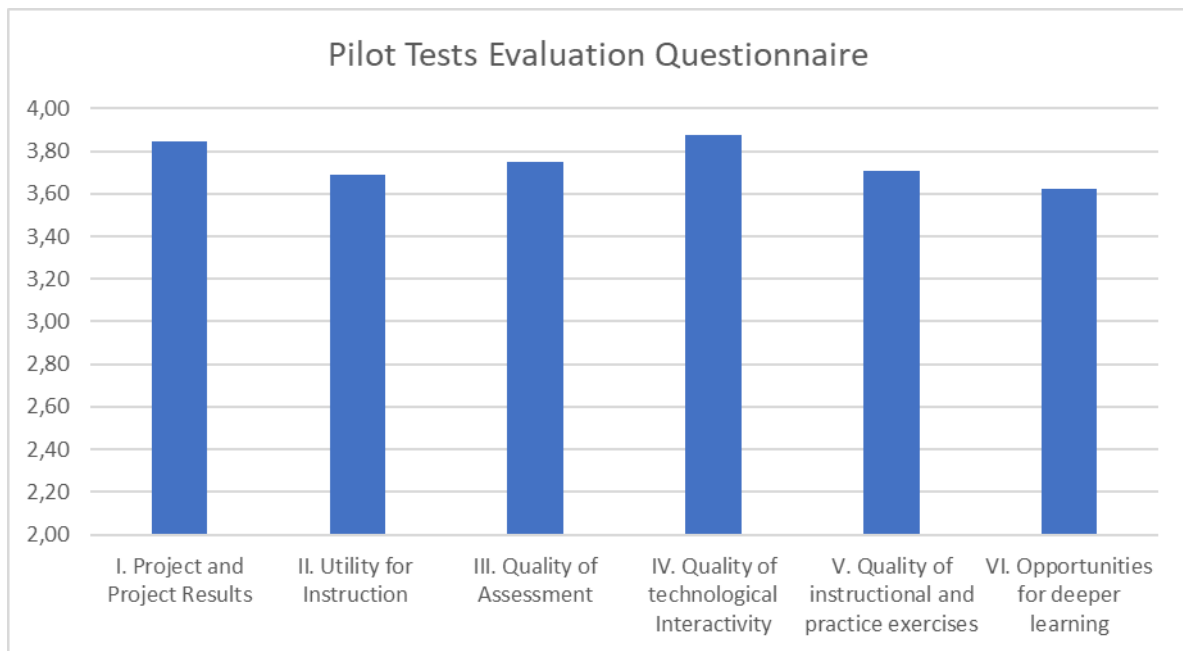


Figure 1. Evaluation results

Furthermore, it was asked to the participant to fill another questionnaire about the training tool evaluation in the following area:

1. Summary Report
2. Case Studies
3. Training Modules
4. E-atlas

The tool scores an average of 3,55 over 4 points in the investigated topics, the results are reported in figure 2.



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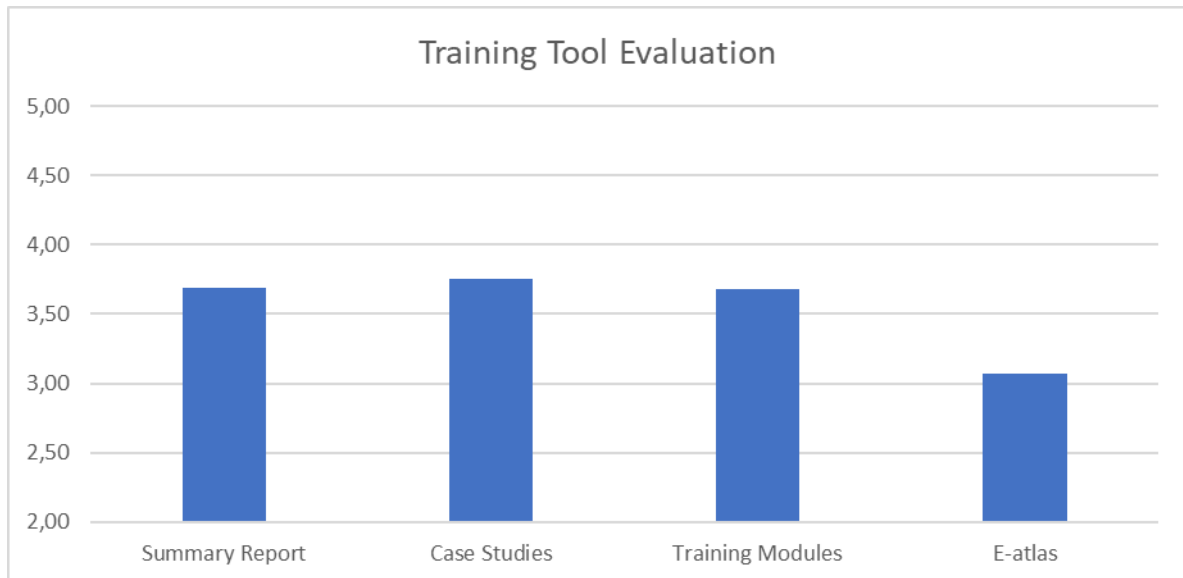


Figure 2, training tool evaluation

As it can be observed in the graphic the results obtained are very good and the first reaction received during the national event presentation, assisting in the use of the simulator, was very positive because the participants have a real feeling of working inside the nacelles, this information gain great value considering the fact the majority of the participant are insider in the Eolic energy sector and they have already experienced the inspection of a real turbine. All the questionnaires included some points to write down the personal observations and comments. These comments are critical on specific points as they will serve the project to improve the tool and develop a VR tool with even higher quality. Some of the comments received are copied just below:

- Introduce vibration to improve the contact feeling.
- Don't use the red color for successful action.
- After few minutes it becomes intuitive to use.
- Include more highlights on material could be simplification for learning activities

ANEV has understood from this pilot test that the interest in this technology is very high, and it represents a new and realistic approach. On one hand, experts in the sector confirmed their impressions of close to a real situation, corroborating the importance of this tool in the training of specialized personnel in total safety. On the other hand, this technology can also represent a bridge between wind technology and interested people, who can enhance their knowledge in the subject thank to this intuitive tool. Thus, ANEV considers this technology fundamental to motivating new generations towards Eolic energy.



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Conclusions

The experience of the Pilot Test was very enriching for both parties, ANEV and the participants. All the comments were considered very relevant and some of them were considered in order to improve the Virtual Reality Simulator. Our work now will be to integrate new information in the software and think about what is next. This event confirmed the great appeal VR technology has but also its importance and capability of this technology to immerse people in a faraway scenario.

Finally, we can conclude, some improvement can be done but the overall operation of the simulator goes smoothly, and the final state of the tool has exceeded the expectations of the consortium.

