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Introduction

The TALOE (Time to Assess Learning Outcomes in E-learning) project approaches the e-assessment concept by using technology for assessing students' learning. The main goal of the project was to develop a web-based platform that would help teachers and trainers decide which e-assessment strategies to use in their online courses.

Intention is to raise teachers' awareness about the variety of e-assessment strategies in order to improve the quality of the learning process. The concept of the tool is such that teachers describe a learning outcome of their course or module and the TALOE web tool analyses it and provides a suitable e-assessment strategy consistent with the intended learning.

The present and final version of the TALOE web tool became publicly available in June 2015. It covers the dimension of cognitive processes and does not discriminate between knowledge types, as suggested by the ALOA theoretical model. The set up matrix works in such way that the best (most appropriate) e-assessment methods are selected based on the absolute matches between input (learning outcome) and the e-assessment methods.

One of the activities in the TALOE project is implementation with case studies, Work Package 5 (WP5). Some of the activities in this WP were to define the case studies structure, to collect potential case studies and to use them for testing and evaluation of the TALOE web tool. Two global implementation reports have been prepared within this WP as well.

The First Global report on implementation (WP 5.02, May 2015) states testing and evaluation results of the developed TALOE web tool. Testing and evaluation were conducted from January to June 2015, and focus was placed on the tool's usability and the quality of the results in selected case studies.

This Second Global report on implementation (WP 5.02, January 2016) focuses on the implementation of the TALOE web tool that took place from June to December 2015. The tool was presented at national and international workshops and conferences and one more evaluation of the tool was prepared. This time random users evaluated their satisfaction with the tool. In total 20 participants evaluated the tool. Received feedback shows a positive attitude towards the tool, describing it as a valuable tool that can be used to improve learning outcomes and align them with specific assessment methods. Participants in the survey found the tool easy to use and expressed an intention to use it in future as well. 57.9% of participants stated, in overall, that they were satisfied with the tool and the same percentage of participants would recommend it to a colleague or a friend. In the end, the survey shows that TALOE web tool has reached its goal as the majority of participants stated that it enabled





them to align assessment methods to the learning outcomes better and helped them understand how to define the assessment methods more clearly.

The web tool guide has been translated into German and French as indicated in the project proposal. The TALOE web tool can be translated into any language by partners. The web tool software is available for translation in the intended language and can be installed on the partner's servers. For that purpose the University of Padua has already formalized the request for the original software.



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TALOE web tool

The main idea behind the development of the TALOE web tool was to provide teachers with a tool that would, by analysing provided courses' or modules' learning outcomes, offer the most appropriate e-assessment methods consistent with the intended learning outcomes.

The aim of the tool is to help teachers and educators decide on the assessment strategies they will use in their online courses. The tool is envisioned to be used by teachers, either to ensure that the existing assessment methods for their courses or modules are in line with the stated learning outcomes, or to be advised on the most appropriate assessment methods for the existing or new courses or modules.

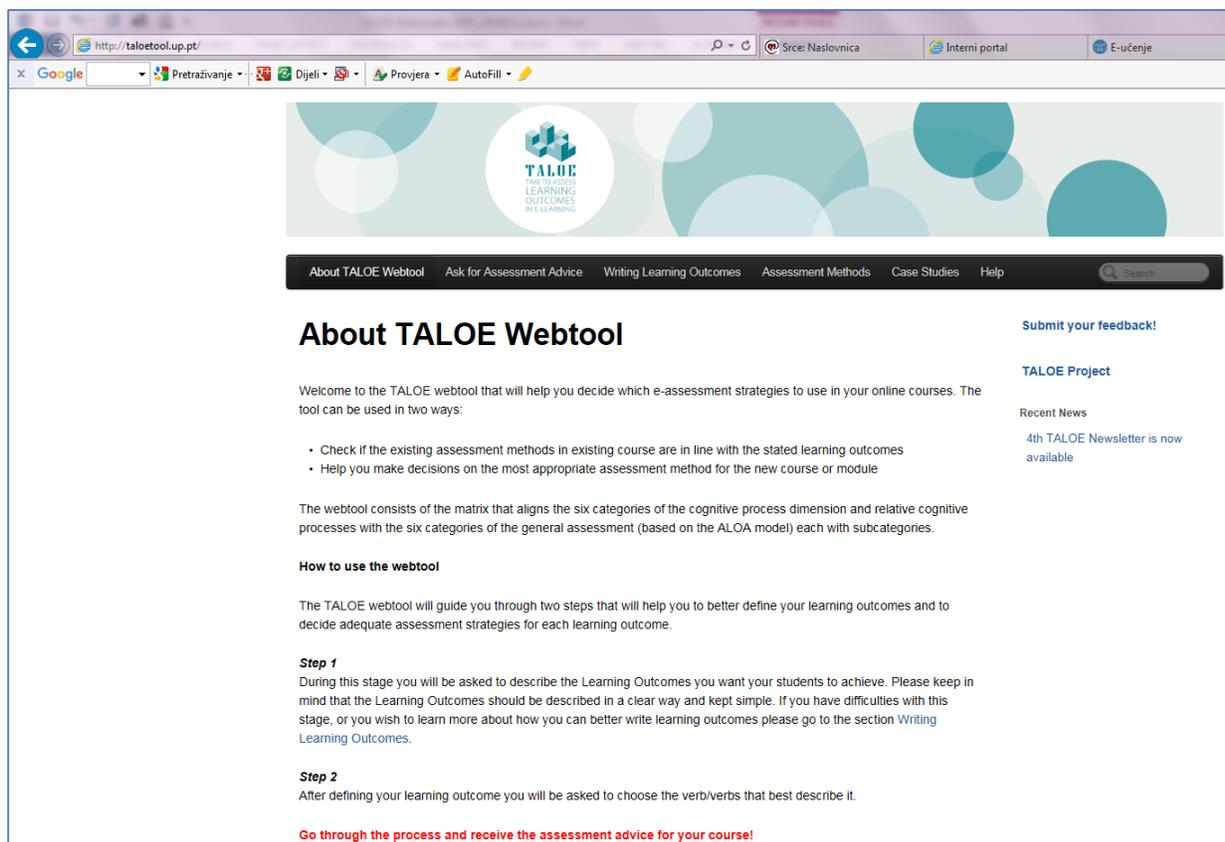
In order to see if the produced TALOE web tool has succeeded in achieving the set goal, the tool was tested in several phases.

The partnership produced the first version of the web tool at the beginning of 2015 and started with the initial testing of the first platform's functionalities. The TALOE web tool has been built on an existing model for the Alignment of Learning Outcomes and Assessment, the ALOA model, which uses the revised version of Bloom's Taxonomy to establish the link between the learning outcomes (LOs) and the following six categories of the general assessment methods, each with subcategories: multiple choice questions, essays, problem solving, practical work, short-answer questions and reflective practice assignments. All project partners agreed to simplify the tool procedures due to the complexity of the ALOA model (Falcao, 2013).

The TALOE web tool has become publicly available in June 2015 and project partners immediately started working on its presentation and promotion among the TALOE target groups defined within the project.

The TALOE web tool was primarily established at the server of one of the project partners (<http://taloe.innovate4future.eu/>), but in September 2015 it was moved to the server of the University of Porto and got the new web address (<http://taloetool.up.pt>). The University of Porto, as the project leader, will continue to maintain the server and the application during and after the project ensuring the tool's sustainability.





Interface of the TALOE web tool with the new web address

The TALOE web tool is based on the extended ALOA model (which links learning outcomes and assessment tasks) consisting of the matrix that aligns cognitive processes described in the learning outcomes and the categories of the e-assessment methods. The decision engine consists of the estimation of the score that measures the best match between the cognitive processes submitted by the user and the specific processes of a given assessment method.

How does the TALOE web tool work?

When describing a learning outcome, the teacher chooses up to three verbs that describe it the best. This step also enables the user to check and review the defined learning outcome. After describing the learning outcome with verbs, the teacher sets the process in motion and receives an assessment advice for the defined learning outcome. The received outcome provides a list of potential e-assessment methods, with the corresponding description. The

basic info about the learning outcome and the ALOA model are also available within the TALOE web tool. Therefore, the TALOE web tool can be used in two ways: to check if the existing assessment methods in an existing course are in line with the stated learning outcomes; and to help users decide on the most appropriate assessment method for a new course or module. The TALOE web tool can be used to learn more about learning outcomes, assessment and e-assessment, as it provides guidance on how to formulate the learning outcomes in accordance to Bloom's taxonomy (Bloom, 1956).

Survey on the TALOE web tool satisfaction

Final survey on the TALOE web tool was done in November and December 2015. The tool has been publicly available since June 2015 and presented at several international and national conferences and workshops. Final testing was done at the end of the project to receive information from the users about the usefulness of the tool.

For the purpose of this testing the evaluation form was made online and added to the TALOE web tool (<http://taloetool.up.pt/>).

The evaluation form was similar to the previous one (second phase survey, April 2015), this time containing fewer questions, focused on the usefulness of the tool.

In order to perform testing, the evaluation form was divided into four sections:

- Alignment to the target group (within the TALOE project)
- Evaluation of the TALOE web tool (consisting of seven close-ended questions – Likert scale)
- Suggestions for improvement (one open-ended question)
- Demographical questions and contact information

The evaluation form for the final testing was made using Google Docs and published online.

In this phase, participants were random users of the TALOE web tool (opposite to the previous survey when specific users were invited to participate). In total, 20 answers were collected by the survey. All questions were optional and some participants did not fill in all the answers. The participants were given an option to remain anonymous or to provide their e-mail to receive further information about the TALOE project. The majority of participants wanted to receive further information about the TALOE project and the web tool so they provided their contact information. The fact that users were interested in further development of the TALOE project and the web tool is important since it points out the importance of the TALOE project results to the community (academic and wider) and helps

the Project Consortium build a database of stakeholders for dissemination and exploitation activities.

As some questions are repeated from the second phase survey performed in April 2015 (results are presented in the First Global report of implementation, May 2015), where appropriate, the correlation between data has been made.

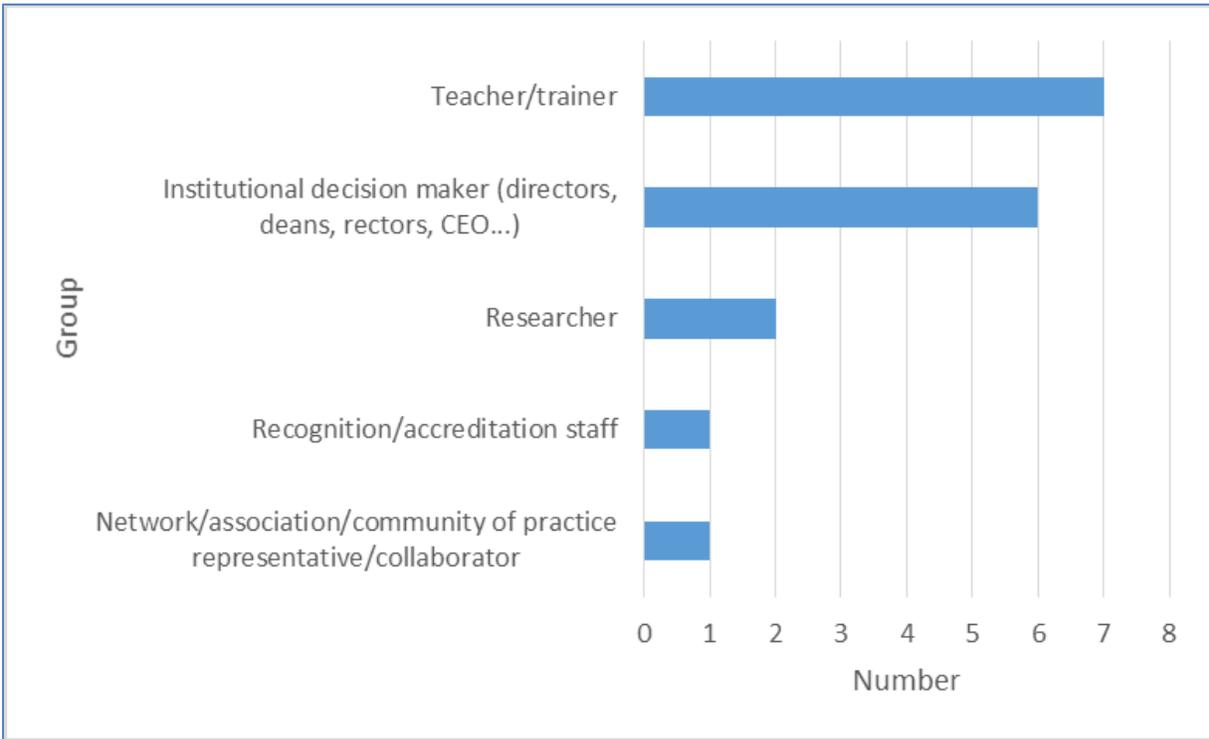
Alignment to the TALOE project group

In this survey participants were invited to identify themselves within the TALOE target group. The TALOE target group has been identified within the project and consists of:

- teachers/trainers
- researchers
- recognition/accreditation staff
- institutional decision makers (directors, deans, rectors, CEO...)
- network/association/community of practice representatives/collaborators

Project results have been disseminated to this target group during the project and in the final survey it was natural to ask survey participants to identify themselves within the project group.

Question: In which group would you position yourself?



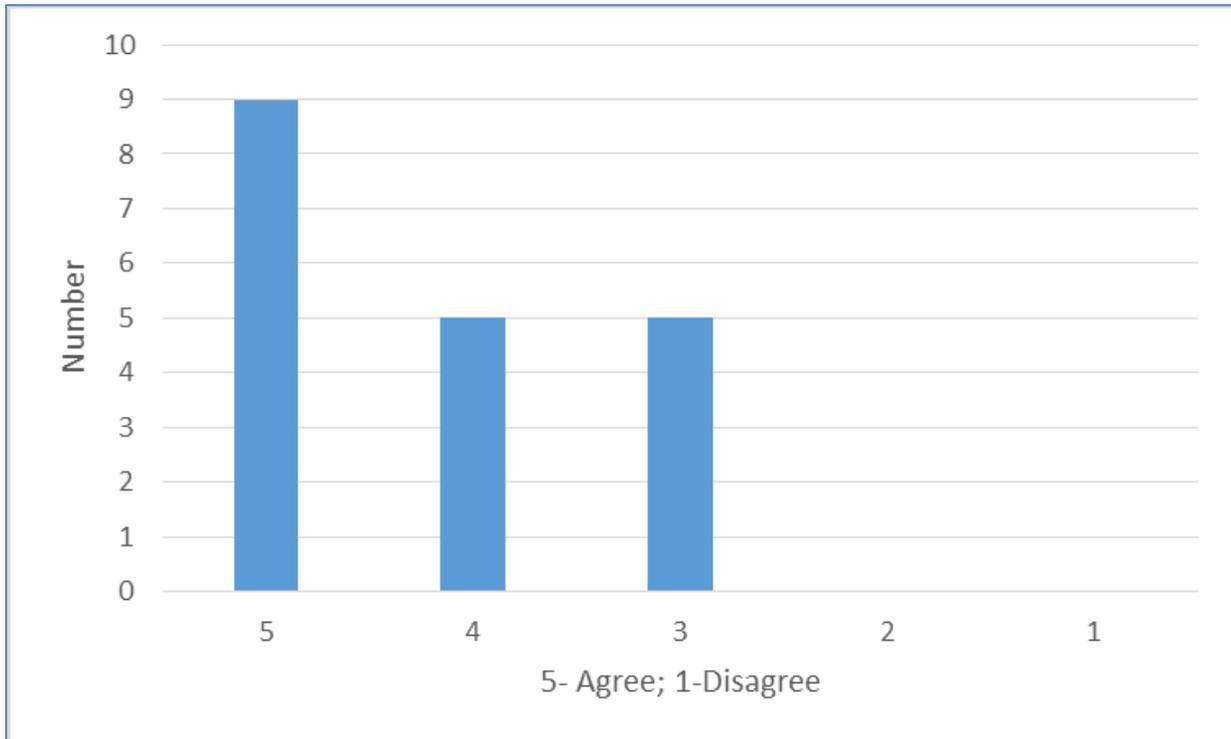
Participants from all subgroups of the TALOE project group participated in the survey. The majority of the participants are teachers/trainers and institutional decision makers, which was expected.

Institution

The participants were dominantly from universities (73.3%), while others were from colleges, associations and educational institutions.

Evaluation of the TALOE web tool

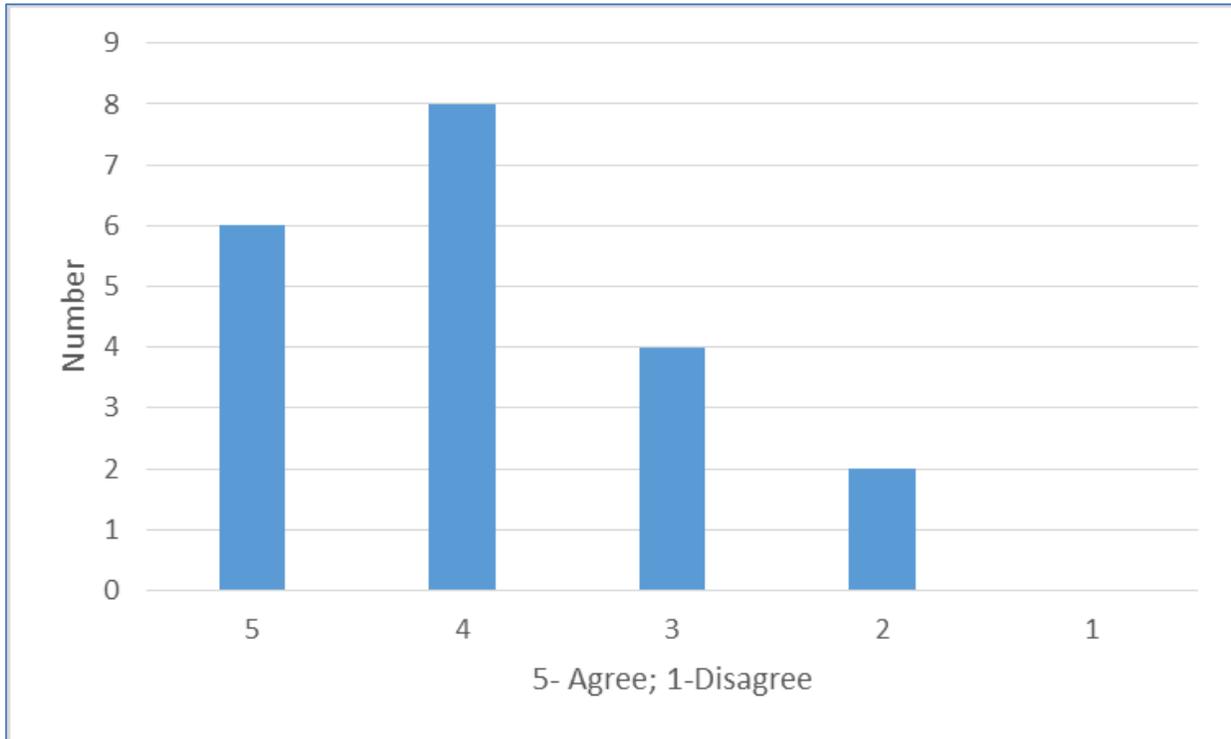
Question 1: The TALOE web tool is easy to use



The majority of participants find the TALOE web tool easy to use. User friendliness is an important feature as it influences the teacher's attitude towards the usage of this web tool. Comparing the result with results from the second phase survey (April, 2015) it is evident that the participants of the previous survey found the tool easier to use (93.5%) than the participants of this survey (73.7%).

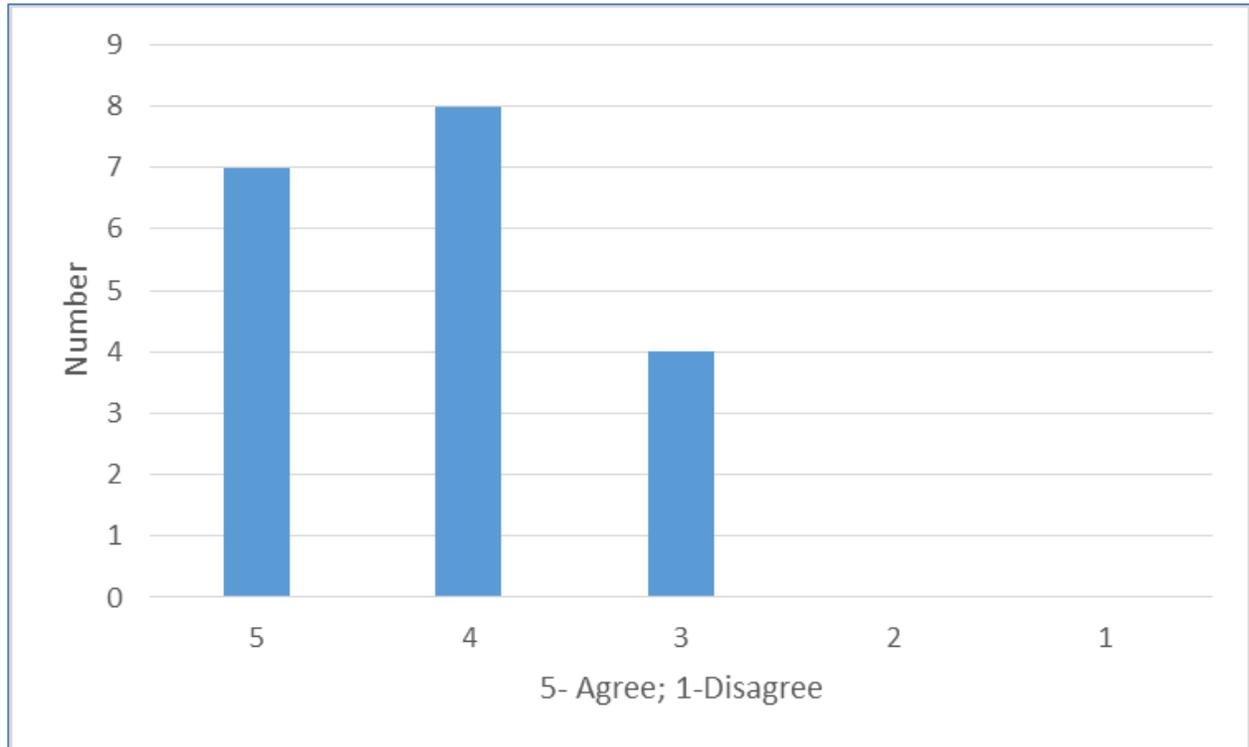
In order to make this tool user friendly, project partners have prepared animated guidelines. Still, in the comment section participants asked for more examples on how to use the tool while defining learning outcomes and deciding on specific assessment methods.

Question 2: It enabled me to better align assessment methods to the learning outcomes



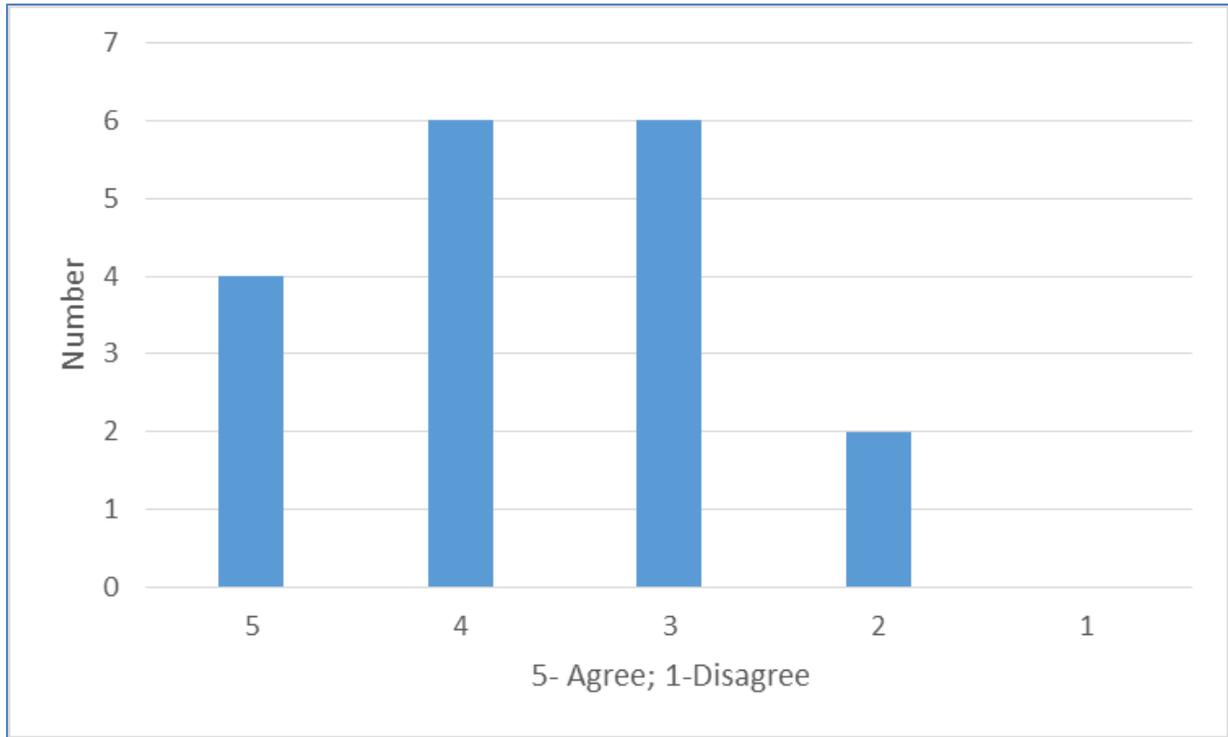
The majority of participants (70.0%) find the TALOE web tool useful while aligning assessment methods to the learning outcomes. Still, there are users who need more information on how to identify the appropriate assessment methods and align them to the learning outcomes. On the other hand, the remaining 30.0% of participants might be very skilled in using the ALOA model and might not need a tool to help them align assessment methods to the learning outcomes. The results are similar to those gathered in the second phase survey where 61.3% found the tool useful.

Question 3: The TALOE web tool helps me better understand how to define the assessment methods



Answers given to this question confirm, once more, that the TALOE web tool has reached its goal, as the majority of the participants (78.9%) find this tool helpful for understanding how to define the assessment methods better. This result is in accordance with the result gathered in the second phase survey in April 2015 (72.4%).

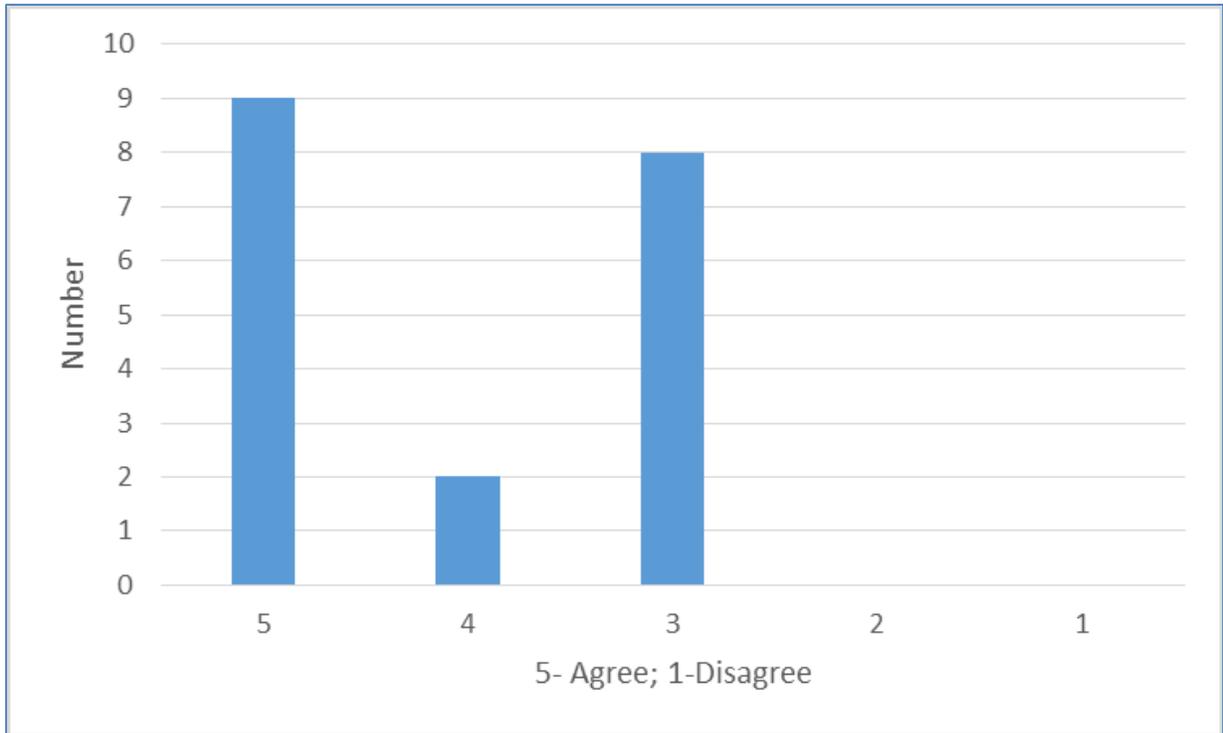
Question 4: TALOE web tool provides good quality results



Results achieved using the TALOE web tool are of good quality. Some participants could not estimate the quality of the results received. The comments give a clear explanation of these results. Participants stated that the tool is appropriate for the elementary level users only. The language was also stated as one of the major obstacles. Participants who speak English as a second language find it difficult to describe the necessary verbs.

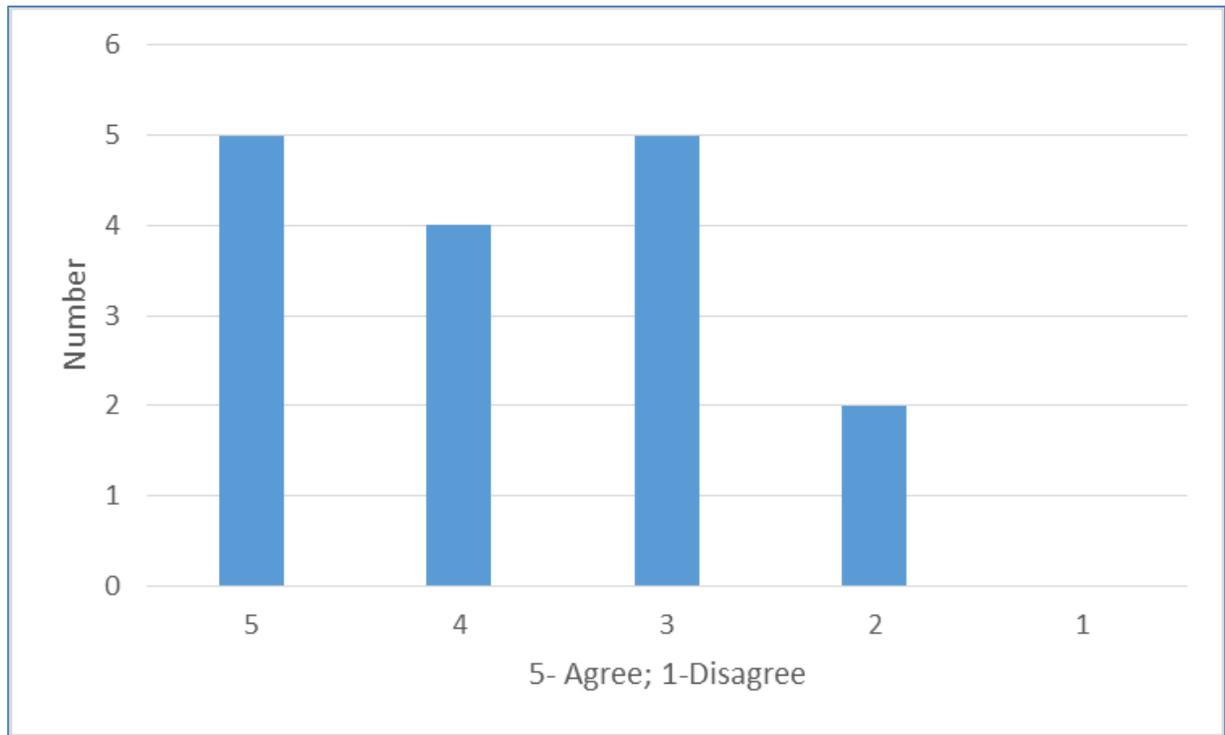
In this survey, fewer participants agreed that the tool provides good quality results (55.6%) than in second phase survey (74.2%) (April 2015).

Question 5: I would recommend TALOE web tool to a colleague/friend



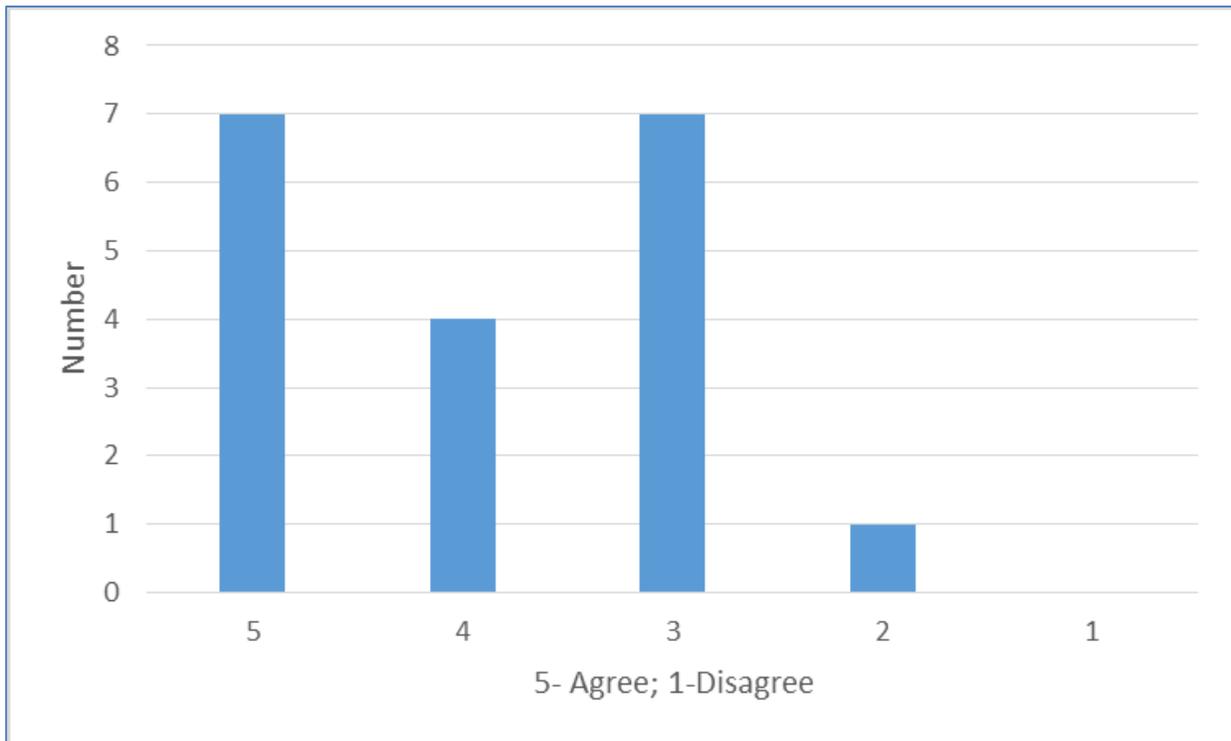
57.9% of participants would recommend the TALOE web tool to a colleague or a friend. Some participants could not decide if they would recommend the tool or not. In second phase survey (April 2015), 80.6% of participants said they would recommend it to a colleague or a friend. It can be presumed that, because of the already stressed issues (simplicity of the tool, language), some participants have doubts about the tool.

Question 6: I will use the TALOE web tool in future



Not all participants answered this question. From those who did, 56.0% will use the tool in future, 31.0% has not decided yet and 13.0% said that they will not use it further.

Question 7: I'm satisfied with the TALOE web tool in overall



Although more than half of participants (57.9%) find the tool useful, a large number of participants need more information about how to move beyond the identification of appropriate assessment methods to the implementation phase. Some find language an obstacle and to some the tool was too basic.



Question 8: Suggestions for improvement of the tool?

- *Simulation may be added.*
- *To translate it to the other languages (ex. Hungarian)*
- *One practical example for the verbs*
- *Tool is very easy to use. It answer well the cognitive level but it is too simple to answer more complicated learning outcomes (not only cognitive)*
- *Lack of customization. It seems a bit redundant as a rod, it could be nice to have a variety of assessment methods*
- *More assessment methods that are aimed doing specific things subjects (i.e. assessment of attitudes, other languages, more choices in verbs)*
- *Translation into other languages*
- *Examples would be helpful along with the explanations*
- *To include more examples and stories about the use of them (possibly in audio)*

Based on the participants' answers, suggestions for improvement can be divided into three groups:

- translation of the tool to the other languages
- adding more example of use (application on real case studies), possibly in video or audio format
- adjustment of the tool for more complex learning outcomes (not only cognitive)



TALOE webinars

In January 2015 the TALOE partnership started with a series of webinars titled “Talks on E-assessment and Learning Outcomes”. Webinars were initiated and organised by one of the partners, University of Zagreb University Computing Centre SRCE. Intention of the webinars was to provide an additional communication channel to discuss relevant issues about the assessment of learning outcomes.

The aim of the webinars was:

- to place the learning outcomes and assessment methods in e-learning into focus;
- to help teachers and trainers decide on the e-assessment tools and processes;
- to enhance the quality of the education process and improve students’ learning experience;
- to encourage the academic community to network, exchange experience and cooperate.

TALOE webinars were scheduled on a monthly basis, usually on the third Wednesday at 11 o’clock CET. All webinars could be found on the following web address: https://connect.srce.hr/taloe_webinars/. Webinars were free and no previous registration was required. Webinars were announced through the project dissemination channels.

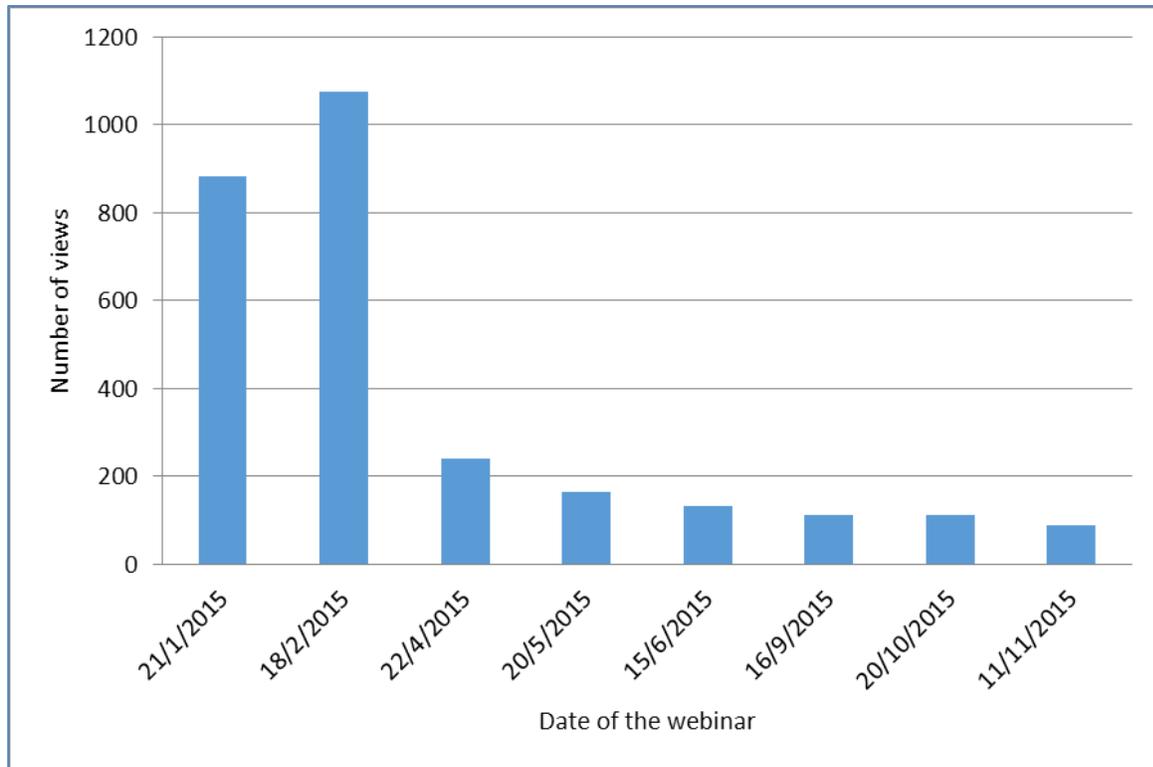
Eight webinars were held between January and November 2015:

- **21 January 2015:** Content analysis and critical thinking– An Assessment Study
Speaker: Antonella Poce, Ph.D., University Roma Tre
- **18 February 2015:** Assessment Strategy: Managing and Supporting Assessment Designers
Speakers: dr. James Brunton and Elaine Walsh, Open Education Unit, Dublin City University
- **22 April 2015:** Reflections on collaborative assessment: materiality, dialogue and group connoisseurship
Speakers: Clara O’Shea and Tim Fawns, the University of Edinburgh
- **20 May 2015:** A journey through the assessment and feedback landscape: from principles to effective practice
Speaker: dr. Gill Ferrell, consultant at Aspire and Board Director of EUNIS

- **15 June 2015:** Composing assessment for the multimodal classroom
Speaker: James Lamb, Lothians Equal Access Programme for Schools in Edinburgh
- **16 September 2015:** Mind the Gap! Perceptual differences and learning
Speaker: Associate professor Steve Wheeler, Plymouth University
- **20 October 2015:** Be aware what you are asking for! Assessment criteria and analytics.
Speaker: Full professor Blaženka Divjak, Faculty of Organization and Informatics University of Zagreb
- **11 November 2015:** The TALOE web tool
Speakers: Sandra Kučina Softić, University Computing Centre University of Zagreb, Rita Falcão de Berredo, Universidade Nova de Lisboa & Éva Szalma, EDEN
The last TALOE webinar was presented at the United States Distance Learning Association National Distance Learning Week 2015.

All webinars were recorded and recordings are available at:

- TALOE web page: <http://taloe.up.pt/webinars/>
- SRCE web page: <http://www.srce.unizg.hr/en/elc/international-relations/taloe-webinars/>.



TALOE webinars - number of views per recording on December 11, 2015

Presentation of the TALOE web tool at international conferences and workshops

When the TALOE web tool became publicly available in June 2015, dissemination activities, planned within the WP 5, but also within the WP6 – Dissemination and WP7 - Exploitation of results, enhanced.

This report focuses on activities related to the WP5. Overall dissemination activities are presented in the Final report on WP6 - Dissemination.

List of conferences where the TALOE web tool was presented:

- 47th International EUCEN Conference, 3 – 5 June 2015, Istanbul – Turkey
New e-Assessment Model for Distance Learning Courses



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- EDEN Annual Conference, 9 – 12 June 2015, Barcelona – Spain
Time to Assess Learning Outcomes in E-learning – TALOE web tool
- Assessment in HE Conference, 24 – 25 June 2015, Birmingham – UK
Structuring peer assessment and its evaluation by learning analytics
- PROVIDE conference, 17 – 18 September 2015, Mechelen– Belgium
Time to Assess Learning Outcomes in E-learning
- Online Educa Conference, 2 – 4 December, 2015, Berlin – Germany
The TALOE web tool – which e-assessment strategies to choose?



EUNIS IELTS Workshop, presentation of the TALOE web tool



EDEN Conference, presentation of the TALOE web tool

List of workshops where the TALOE web tool was presented:

- EUNIS E-Learning Task Force Workshop 2015, 9 June 2015, Dundee – Scotland,
Assessing online learning: the TALOE project
- EUCEN Autumn Seminar 2015, 17 November 2015, Brussels – Belgium
The TALOE project – assessment of learning

In each of these events, the TALOE web tool was presented to participants providing them with concrete examples and letting them try the tool for themselves.

As planned within the WP5, the paper titled “Time to Assess Learning Outcomes in E-learning – TALOE web tool” written by Sandra Kučina Softić, Inés GilJaurena, Alfredo Soeiro, Rita Falcão and Jüri Lössenko was published in the Proceedings (pages: 1045-1055, Publication year: 2015, ISBN: 978-615-5511-04-2) of the European Distance and E-Learning Network 2015 Annual Conference held on 9-12 June, 2015 in Barcelona, Spain.

EUCEN Autumn Seminar was chosen as the final (international) workshop of the project. The final workshop consisted of two parts: the first one included a formal presentation of the project and its objectives (done by A. Soeiro) and the second included a practical use of the TALOE web tool (done by S. Kučina Softić). About 20 participants participated in the each part of the workshop.



EUCEN Autumn seminar 2015, participants working in groups during the final TALOE workshop

Besides surveys, project partners gathered oral feedback from participants of the events, during the presentations. Participants were very positive about the tool, they expressed the need for such tool and stated a common problem of defining the learning outcomes and their alignment with the assessment methods. So, the tool was welcomed by all of the participants but many of them expected that the tool will do their work for them and free them from coping with learning outcomes and assessment methods.

Further improvement of the TALOE web tool

Following the feedback received from the users of the TALOE web tool in different stages of its development and testing, the partnership identified several directions for further development of the platform:

- word analysis of the learning outcomes with special regards to particularities that each European language has, related to the verbs used for defining the learning outcome;
- improvement of the optimization method by including more complex decision engine;
- extension/further development of the decision engine by including the knowledge dimension;
- improvement of the graphical interface and platform functionalities;
- development of plug-ins to allow the usage within, for example, LMS Moodle environment.

The partnership decided to address the above mentioned directions for further developments in future common projects.

Conclusion

Assessment is a crucial process in education. To be valid, assessment should be consistent with the intended objectives of a learning activity. The learning process is very complex in all its components: clear definition of the intended learning outcomes, definition of adequate learning activities and selection of assessment practices that address what is expected from the students. The use of e-learning in learning and assessment brings an additional level of complexity to the process. The TALOE project provided a practical web solution, the TALOE web tool, to some of these issues, based on previously developed tools.

The TALOE web tool provides support and guidance to teachers while formulating learning outcomes in accordance to Bloom's taxonomy. It also increases the accuracy of e-assessment methods, received by the tool, and the alignment between learning outcomes, assessment techniques and teaching methods.

The web tool consists of procedures that enable a person to check if the existing assessment methods in an existing course are in line with the stated learning outcomes and can help decide on the most appropriate assessment method for a new course or module. The TALOE



web tool also provides information about the learning outcomes, e-assessment methods and some case studies.

The possibilities for further development of the tool, based on project partners' inputs as well as those from users, have been recognized, especially in phases of complexity of the definition of the procedures relating to the learning outcomes and assessment methods. This can be a base for the next project.

The acceptance of the web tool has been above expectations. Therefore, the discussion about improvements has been made among partnership and users, especially during the workshops. Several suggestions have been considered, such as analysing the influence of cultural and linguistic contexts, improving the decision procedure to propose assessment methods and including more dimensions of the relationship between types of learning outcomes and assessment methods. The possibility of applying for further funding from European projects has been discussed and plans have been made by the partnership to enhance the web tool and the associated research.

Key Reference Documents

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List of Appendices

Appendix 1: TALOE web tool evaluation form:

https://docs.google.com/forms/d/1WTXaC9NkL08j-tFjGOWOKwokuJOkVmZGZfr8g8ho_KA/viewform?c=0&w=1orm?c=0&w=1



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