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Tool for learners' self-evaluation of work based learning

Work-based learning in the vehicle industry. KA2_2015-1-SE01-KA202-012241
Intellectual output no. 4

Tool for learners' self-evaluation of work based learning in Germany, Scotland and Sweden

by

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Introduction

In IO_4 (Intellectual Output No. 4) the steps and the process of developing the online questionnaire for self-evaluation of the learning progress of the vehicle learners are documented. All involved project partners compiled individual lists of questions based on national experiences and resources. The results are more or less differentiated in the terms of content. The Swedish partner has chosen the questions based on the experiences of teachers from several vocational schools. The result includes open and reflective questions. The main focus is on the self-evaluation of general aspects in the training process. The college in Scotland has used the extensive experiences on the subject of self-evaluation. In addition existing self-evaluation models were modified according to the task. Germany's project team has strongly concentrated the focus on technical questions in the automotive technology. The basis was the training act for vehicle learners.

During the third project meeting in Livingston, Scotland, a common questionnaire was issued to assess the vocational training of the vehicle learners. The online questionnaire is the result of the experiences and competencies of the three project partners. The questionnaire is based on Google Drive. It is divided into three main parts. The first part asks for personal data related to the vocational training and to the training company. The second part focuses on basic vocational competences and skills and contains twelve questions. The third part tends to specific vocational aspects of the training programme. It contains eleven questions. In the second and third part different types of questions are used, like open and closed questions, describing and multiple choice questions, etc., (see IO_3, cp. 3). Aim of the international project team was to develop a modern and user-friendly solution that can be used in different environments and on various terminal devices, like smartphone, laptop, tablet, or personal computer. With a generated QR-code the learner can connect to the questionnaire very easy and fast. The feasibility was tested successfully with students of the West Lothian College. The students used their smartphones or the WLC's computers. The analysis of the questionnaire's results is done with an automatically generated Excel table. The necessary time needed is very little.

From the gathered information from the previous project progression a ready-to-use tool was developed. The online questionnaire for self-evaluation is the result of IO_4. The project partners will test the questionnaire in the course of the project.

Summary

The questionnaire required testing as part of the quality assessment process to determine the validity and usefulness of the self-evaluation questions. The following is a summary of the data sources obtained in the development of the self-evaluation questionnaire.

Prior to obtaining feedback the self-evaluation questions written during the January 2017 visit were rewritten and entered into the Google Drive by the partners.

The questionnaire was circulated as follows:

- A project brief was written with a summary of the project and was sent out to all contacts related to the automotive sector concerned with workforce development.
- 180 vehicle learners of the first, second, and third training year were tested by Handwerkskammer, West Lothian College and Amledo & Co.
- The survey was circulated within vehicle lecturing and training staff, managers in vehicle vocational training centres and companies in Germany, Scotland and Sweden.

The results of the tests are:

- Administrative aspects of the questionnaire
- Content aspects of the questionnaire
- Technical aspects of the questionnaire
- Interpretations of the results
- Feedback of the participants' vehicle learners, vehicle lecturing and training staff, managers in vehicle vocational training centres and mentors in the companies.

The target groups have approached the process with an open mind and mostly without motives or agenda. The result confirmed that self-evaluation can be a powerful tool to motivate and to support motor vehicle learners in their training process.

Facts and figures on how you checked the questions with involved national partners

Germany

After the project meeting in Livingston the German team met administrators of the vocational training in East Thuringia in a workshop (seminar). The executive directors of the Guild of Automotive Trades of East Thuringia and South-East Thuringia, the headmaster of the technical vocational school Gera, and the assistant director of the vocational training centre Gera discussed the previously translated questionnaire. All questions were looked at individually. In some parts the wording was slightly modified, but the essential contents of the questions were not changed. To get the most honest answers and real information from the learners the order of the original questionnaire was changed. This was discussed very intensively before. The reason was that in the dual vocational training system in Germany the learner and the training company sign an apprenticeship contract. This contract infers some extensive legal aspects. The sensitive use of the collected data is necessary to build a common and trustworthy basis to get honest answers from the learner, especially when the survey is held outside of the training company, e.g. in the vocational school. When asking the learner within the training company the order of the questions does not play an important role.
The test phase was held in the vocational school, some training companies, and in the vocational training centre. Most of the seminar participants wanted to arrange the questions for personal and company related data at the end of the questionnaire. Reason for this is the experience that these questions will be answered more willingly and honest as the personal related data questions come late in the survey.
The concerned supervisory school authority must be asked before the survey can be held in the vocational school in terms of data-protection law. This was done by the Chamber of Skilled Crafts of East Thuringia and permitted by 23 February 2017. The survey was held in March and April 2017. Approximately 110 learners of the first, second, and third year took part.

The German project team evaluated the results of the tests. The following issues are the most relevant:
1 Administrative aspects of the questionnaire
2 Content aspects of the questionnaire
3 Technical aspects of the questionnaire
4 Interpretations of the results
5 Feedbacks of the participants/learners

1 Administrative aspects of the questionnaire

This part dealt with the necessary permissions for holding a questionnaire, especially the obligations given by the data-protection law. The learners answered the questionnaires at different locations (training company, vocational training school, vocational training centre). These three institutions have to meet different standards for questionnaires. The longest time was needed to get permission for the questionnaire at the vocational school, but it was easy for the companies and training centre.

Conclusion: The shortest preparation time was spent when holding the questionnaire at the training companies. The advantages of regularly executed self-evaluations by learners were pointed out in discussions with the training companies. Some of these advantages are:

- quick overview of the learner's skills and competences
- feedback of shortfalls in the learning process
- fast and specific correction of the training process within the company
- introduction of quality standards to the training as part of quality management (QM) system

Pros of the test version:

- simple and clear layout of the questionnaire
- individual customization of the questions and answer-options
- short handling time
- short evaluation time
- no paper

2 Content aspects of the questionnaire

The content aspects of the questionnaire were discussed in the previously mentioned workshop. As a result some questions of both the common and the technical parts were restated more precisely. Furthermore the learners got some background information about self-evaluation in the learning process and about the ERASMUS+ project.

Conclusion: Most of the participating learners have never done a self-evaluation of their training process before. The basic information about purpose and advantages of self-evaluation were useful. Very persuasive was the fact of quality assurance in the training process. Most learners answered willingly and self reflectively.

3 Technical aspects of the questionnaire

The learners answered the self-evaluation questionnaires on their computers or smartphones. The generated QR-code and the web link worked well. The learners answered without any big problems. They needed about twenty minutes each. Only the slow and poor internet connection via mobile telephone system (MTS) in some (rural) areas was named as critical.

Conclusion: The chosen way of self-evaluation is widely accepted by the learners. To answer the questionnaires a good and steady MTS is required. The internet platform "Google Drive" as provider of the questionnaire is reliable. The evaluation and analysis of the results is quite easy and comfortable.

4 Interpretations of the results

The analysis of the results showed some conclusions (the numbers show per cent of participating learners):

a) 1st part - "Who am I?"
- 75% work in authorized garages
- 62% in subject area passenger cars
- relatively even distribution of the involved learners; one third first training year learners, one third second training year learners, one third third training year learners, fourth training year learners did not participate

b) 2nd part - "Essential skills"
- 75% are interested in team work
- 93% are always or mostly on time
- 52% understand given work instructions
- 25% come up with own ideas

c) 3rd part - "Technical/industrial knowledge"
- 70% have good or excellent knowledge and experience of using tools and equipment in the workshop
- 55% have good or excellent knowledge and experience of working at customer's cars
- rating of their own skills in special areas of work depends on the year of training
- 75% have developed personal qualities
- 60% have developed skills and craftsmanship

Conclusion: The interpretation of the given answers shows that the learners answered mainly honestly and realistically. Only two per cent gave not usable answers to open questions, but generally were open questions answered only minimally. Multiple choice questions can answered easier on smartphones and tablet computers. It is supposed that the partly anonymised test (in the vocational training school) conduced to more honest answers but in garages the learners probably refused to answer truly, due to the dependency of the vocational training contract and the uncertainty of using the new and unknown self-evaluation tool.

5 Feedbacks of the participants/learners

The learners were asked anonymously after the questionnaire what they thought about it and if there were any things they would improve. Here is what they said most often:

- new and interesting tool
- multiple choice questions are better than open questions, but the mixture of questions is fine
- more questions concerning technical details
- wider range of topics, e.g. electro mobility
- the questionnaire should be split up according to the training years, esp. first year learners said this
- more questions about soft skills
- personal question about the achievability of training goals
- technical hint at the very beginning to hold the device horizontally

Conclusion: The learners are interested in using the self-evaluation questionnaire to improve the quality of their training and like to enhance the necessary tool.

Scotland

The questionnaire was circulated as follows:

- A project brief was written with a summary of the project and it will be sent out to all contacts related to automotive sector within the workforce development
- Three groups of twelve apprentices were tested at West Lothian College
- Survey circulated within a total of 4 lecturing staff at West-Lothian College
- The survey was circulated to the Head and Deputy Head of the Automotive Centre at West-Lothian College
- Circulated to the Head and Deputy Head of Work force development at West-Lothian College
- Visits were made to apprentices at:
  - Fife College (10 learners)
  - Dundee and Angus College (10 learners)
  - Perth College UHI (10 learners)
  - First (UK) Bus (6 learners)

Feedback

- All the groups of learners at West-Lothian College found the questions interesting and provided well considered answers. Learners engaged with the discussion and provided valuable and insightful comments about the motor vehicle sector. In particular they gave feedback on the level of training both inside and outside the college from their employers and the college lecturers.

- The learners explained that they do not currently engage in self-evaluation of their learning. However they felt that after their experience of the self-evaluation questionnaire that it was a good process and helped consolidate their learning and experiences in a more formal manner.

Additionally they felt that this would help the future quality of their training, by improving the understanding of both the academic and practical aspects by both themselves and their mentors and lecturers.

- The lecturing staff at West-Lothian College also found the questionnaire to be a useful and insightful tool for their planning and support of their learners and for their own self-evaluation and reflective practice.

- The Head and the Deputy Head of the Automotive Engineering Centre at West-Lothian College considered that the tool was useful and gave eager support to its validation through the use of the centre learners. They were also keen supporters of its use as a longer term tool not only for learners, but also for staff in their self-reflection process.

- The automotive workforce development officer at Dundee and Angus College, considered that the questionnaire would be a useful tool in the development of the learners.

- The learners at Dundee and Angus College considered that the tool was simple and straightforward to use and also offered insightful feedback on their sector as well as potential changes to the questionnaire.

Sweden

The methods used for development, quality assessment and usefulness of vehicle learners' self-evaluation questions were:

- The self-evaluation questionnaire was translated into Swedish and a survey designed using Google Drive
- A nationwide newsletter was sent to 210 vehicle lecturers all over Sweden with information about the self-evaluation tool and invitation for feedback.
- Direct contact was made with five vehicle lecturers at Westerlundska gymansiet in Nyköping, Jacobsskolan in Hässelholm, Yrkesgymnasiet in Gävle, Lugnetgymansiet in Falun, and Nyköpings gymnasium in Nyköping.
- The companies contacted were Din Bil Sverige AB (national dealer of VW, Audi, Skoda, Seat) and Nobina (the Nordic region's largest and most experienced public transport company).
- The self-evaluation questionnaire in Swedish was tested on the Google Drive survey.

Results from the Newsletter

The newsletter concerning the possibility of implementing learners' self-evaluation into teaching and work-based learning was sent to 210 vehicle lecturers all over Sweden. The open rate was 41.1 %, way above the list average of 27.2 %. The click rate was 14.6 % also much higher than the list average of 8.3 %. We also identified a significant interest from vehicle lecturers with apprentices in training.

Results from feedback and test

Feedback was received from both college vehicle lecturers and company based managers within the vehicle industry. The comments and suggestions for improvements received were as follows:

Karl-Arne Haglund, senior graduated automotive lecturer at Westerlundska gymnasiet in Enköping and Per-Ola Person, senior graduated automotive lecturer at Jacobsskolan in Hässelholm:

"The feedback received was very relevant and of high value and was integrated into the learners' self-evaluation tool."

Documentation is attached in the appendix.

Keijo Sipinen, vehicle lecturer at Nyköpings gymnasium:

"It is a good document that I can definitely imagine using. Very good with issues relevant to the work and the contact with other employees in the workplace."

Anders Hemström, lecturer in vehicles & transport at Lugnets gymnasium in Falun:
"I have read the questions and think that they are very good. I even let two students answer them to see what he thought and he thought they were good. It is difficult to make good questions and possible answers, but you have done it very well."

Lars Eriksson, vehicle lecturers at Yrkesgymnasiet in Gävle:
"I have tested the self-evaluation question and used the Google Drive survey with vehicle learners in the second year of vehicle training. The question about social employment skills is very interesting. The technical question could perhaps be more general and enable the learners to express what they have learned. We are not used to self-evaluation questions (in Swedish "Självbedömning"). It opens up alternative ways of using survey tools for the evaluation of learning progress."
The test results in Swedish are available in the appendix.

Tommy Lövgren, recruitment and training manager at Nobina (the Nordic region's largest and most experienced public transport company):
"I have read through the questions and I think it looks good."

Lotta Forss, Education Manager Services Market, Din Bil Sverige, Volkswagen Skoda Audi Seat Volkswagen Transportbilar Porsche:
"Thank you for the interesting material. Unfortunately, we have not reached so far in our college cooperation within Din Bil Sweden AB, so it was very inspiring reading. I would like to point out that I have examined the learners' self-evaluation questions very carefully. I will run a pilot test and it should also be possible to do the same in cooperation with Motorbranschcollege, the vehicle branch of colleges."

Analysis of the feedback
The results from the interviews and the survey show an alternative way to develop skills and know-how in vocational training in the vehicle sector. The results give examples of how this can be achieved using a broad set of tools for the evaluation of employability skills by VET staff questioning learners. The results show that to a great extent the learners are prepared to work hard to achieve the required learning outcomes. The design of the vehicle learners' self-evaluation question is of good quality and can be used in the evaluation of learners' social and professional skills. The results can be used in both college and work-based learning.

It is easy and free of charge for vehicle vocational training staffs to put up the questions themselves in Google Drive for example and to customize the issues for all types of vehicles such as trucks and buses. The Google Drive survey tool also provides analyses that make the results quick and easy to evaluate. The questions

and the methods are free to use and can easily be adapted to any special needs of the company and the college.

The intention is to quickly and easily get feedback on how the learners have perceived their own learning and this can then also be compared to the learning goals of the company and the school. It provides feedback possibilities to the learner, the lecturer at the school, the company mentor, the workshop manager and others, as part of the quality assurance work of the company to ensure the provision of skills.

Recommendations

Germany

The self-evaluation of the training progress is an important instrument for quality management of the vocational training. Many training companies are not aware of this aspect. Very often the holder of the company or the responsible person for training think the questionnaire could create more red tape, is useless, and would be a waste of time. As already shown in IO_3 about ten per cent of all training companies in East Thuringia work actively with evaluation tools. The most training companies use the training journal *autoFACHMANN* and *autoFACHMANN digital*. These professional publications contain vocationally relevant and pedagogically edited questionnaires for self-evaluation. With the help of these the mentor can monitor continuously the learner's training process. Some other companies have developed their own paperbound questionnaires (see IO_3, cp. 2).
In conversations with training responsible persons and mentors the positive effects of the evaluation was mentioned. By the self-evaluation of the learner the company can obtain very useful information about the previously gathered skills and capabilities of the learner. Based on this information the mentor can discern and answer possible deficits. Also, this information allows a planning of actions and applications for the learner in the training company. The learner feels integrated and cared for while in training process. This helps to motivate the learner to aspire better training results.
Learners contribute to how the company is recognised and seen by others within the age-set. A positive image ensures a constant procreation of trainees.

Scotland

Generally organisations see that training and its evaluation is good for their business. However due to current economic conditions and the nature of the automotive sector, then they may not always be able to fully commit to the ongoing support requirement of apprentice programmes.

It was also recognised that self-evaluation by a learner of their career progress was a good step forward to taking ownership of their career and progressing the completion of the vocational training. The company can also gain, as there maybe hitherto unrecognised strengths and weaknesses can be supported, in their employees. This can help the business provide additional support through planning a series of additional training projects.

Further to this, some learners see that self-evaluation, which their employer will discuss with them, as highly beneficial as it promotes their self-esteem, as they feel like they are a valued team member and an asset to the business.

Sweden

Generally organisations see that training and its evaluation is good for their business. However due to current economic conditions and the nature of the automotive sector, they may not always be able to fully commit to the ongoing support requirement of vocational training programmes.

It was also recognised that self-evaluation by an learner/apprentice of their career progress was a good step forward to taking ownership of their career and progressing the completion of their vocational training. The company can also gain, as possibly hitherto unrecognised strengths and weaknesses in their employees can be supported. This can help the business provide additional support through planning a series of additional training projects.

Furthermore, some learners see self-evaluation, which their employer will discuss with them, as highly beneficial as it promotes their self-esteem, making them feel like they are a valued team member and an asset to the business.

The self-evaluation of the training progress is an important instrument for quality management of vocational training. Many training companies are not aware of this aspect. Very often the company management or the person responsible for training believes that the questionnaire could create more red tape, is useless, and would be a waste of time.

In conversations with vehicle training responsible persons and mentors the positive effects of the evaluation was mentioned. Through the self-evaluation of the learner the company can obtain very useful information about the previously gathered skills and capabilities of the learner. Based on this information the mentor can discern and answer possible deficits. Also, this information allows planning of actions and applications for the learner within the training company. The learner feels integrated and cared for during the training process. This helps to motivate the learner to aspire to better training results. Learners contribute to the way in which the company is recognised and seen by others within the age-set. A positive image ensures a constant intake of trainees.

As already shown in IO_3 about ten per cent of all training companies in East Thuringia work actively with evaluation tools. Most training companies use the training journal *autoFACHMANN* and *autoFACHMANN digital*. These professional publications contain vocationally relevant and pedagogically edited questionnaires for self-evaluation. With the help of these the mentor can monitor continuously the learner's training process. Some other companies have developed their own written questionnaires (see IO_3, cp. 2).

Self-evaluation by learners and learning progress analyses by their mentors are very important in the improvement of the quality of training and we are encouraged by the test results from learners we have engaged with. We recommend the vehicle business using and developing quality enhancements. Self-evaluation can be an additional powerful tool.

Appendix Questionnaire

Self-evaluation tool

Where am I today?

Think about your apprenticeship so far, answer all questions honestly and in as much detail as possible.

Who am I?

Name

Company name

Mentor name

Year/stage of apprenticeship or training

- Year 1
- Year 2
- Year 3
- Year 4

Essential skills

This section will ask you about your soft skill development in the workplace and during the course of training. These can also be described as "employability skills".

Your timekeeping and attendance...

- "I attend work/college every day and I am never late"
- "I attend work/college every day and I am mostly on time"
- "I have small periods of absence and occasionally late"
- "I am often absent and/or late"

Rate your confidence when working with others or in a team

	1	2	3	4	
Lacking confidence, makes me uncomfortable					Very confident, I prefer working in teams

Do you get the opportunity to work alongside others in the garage and develop your teamwork skills?

Would you like more opportunities to work in teams with colleagues?

- Yes
- No, I don't want to
- Maybe

How do you feel about talking with and listening to colleagues in the garage?

- Uncomfortable
- It's OK

- Happy to listen and talk to others
- I wish we could do more of it

Do you understand work instructions that are given to you?

- Yes
- No
- Sometimes, it could be clearer

Are you comfortable giving information to others?

- Yes
- No
- Sometimes, it depends who it is

Are you able to come up with ideas and to deal with situations that may occur in the garage?

- Yes, I do this often
- Yes, sometimes
- No, not yet

Have you ever solved a problem on your own in the workplace? What happened? What did you do to resolve it?

How would you check that a customers car is road worthy and safe after you have worked on the car?

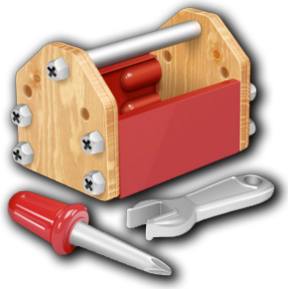
If you are concerned about the safety of the car after you have worked on it, what action would you take?

- Speak to your mentor/supervisor
- Speak to a colleague
- Say nothing to avoid trouble
- Try to fix the problem on my own

What items of PPE (Personal Protection Equipment) are you expected to wear in the garage and for what activities?

Technical/industrial knowledge

These questions are designed to capture your knowledge and experience on a range of technical skills at the point of questioning.



Rate your knowledge and experience of using tools and equipment in the workshop.

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

What tools and equipment would you like further training on?

Rate your knowledge and experience of carrying out routine light vehicle maintenance operations

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

Rate your knowledge and experience of replacing the following engine components:

	None/little	Good	Excellent
Spark plug			
Piston			
V-Belt			
Timing belt			

Rate your knowledge and experience of working with fuel systems

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

Rate your knowledge and experience of working with the following exhaust components:

	None/little	Good	Excellent
Catalytic convertor			
First silencer			
Second silencer			
Soot filter			

Rate your knowledge and experience of removing light vehicle chassis units and components

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

Rate your knowledge and experience of inspecting vehicles using prescribed inspection methods

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

Rate your knowledge and experience of vehicle transmission and driveline units and components

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

Rate your knowledge and experience of diagnosing and rectifying electrical unit and component faults

	1	2	3	4	5	
Very little knowledge						Knowledgeable and experienced

How comfortable are you in using diagnostic equipment?

- Never used it
- I can use it with assistance
- Highly experienced
- Would like further training

And finally...

Reflecting on your apprenticeship/training so far, do you feel that your skills and knowledge have been adequately developed?

What skills have you developed during the course of your apprenticeship/training? For example riding a bike and tying a shoelace.

What personal qualities have you developed during the course of your apprenticeship/training? For example effective communications and working with others.

Looking forward, detail areas that you would like to further develop.

Thank you for taking the time to complete this self-evaluation.
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