



5.3.4 Quality Report on piloting the IAR programme

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1. Introduction

The 3 Kazakh Universities (Universities of Agrarian-Technical University (WKATU) Uralski, KEnEU Kostanay and INEU Pavlodar) agreed to develop a new common study program in the subjects of “robotic and automatization”. Additionally, LLL courses were developed and conducted at the participating Kazakh universities. But the outmost important and critical challenge lies in ensuring the sustainability of dual programs, with a pressing need to increase student enrolment to justify the resources allocated.

2. Evaluation of the developed study program

A new undergraduate study program, focusing on industry automation and robotics through a dual program, has been defined and launched at three Kazakh universities, involving a combination of academic and industry-based learning. The program was launched at the three universities with a reduced number of students: 6 in KEEU, 8 in WKATU and 15 planned in INEU.

The curricula have common core subjects in “General educational disciplines with optional components (electives)”, “university components” in basic and profile subjects which are the same for all 3 universities. Additionally, “optional components” in basic and profile subjects are offered with special focuses at the different universities. The programs were launched with specialized international initial ex-ante accreditation for 5 years (institutional accreditation at Faculty level) but it is awaiting program accreditation which is expected to be finalized in November 2023.

Lifelong Learning (LLL) program has been developed to foster and support the company mentors in their work with students, while they are in the company. The program was conducted, offering courses at participating Kazakh universities for professionals already working in the field of IAR, with invitations extended to regional professionals from organizations such as the Association of Automation and Robotics (KAAR) of Kazakhstan and other partner companies. The LLL program has also served to train the mentors of companies.

3. Methodology

In the document 5.3.2 Quality Report on Project Deliverables documentation and procedures on how to conduct the internal evaluation including qualitative and quantitative indicators for the partners from INEU, KEEU and WKATU were gathered. The methodology of questionnaires for the three involved parties in the strategic triangle: students, academic mentors and company mentors were be applied, as well as the method of world café for the three stakeholders. Questionnaires and world café questions are in the Appendix of this report.

4. Findings

Assessing the practical phases is a crucial aspect that warrants thoughtful consideration and feedback, particularly for the benefit of the students involved. The evaluation process may involve tutors from both the company and the university or solely a committee from the university. Regardless of the approach, it is imperative to establish transparent and well-defined evaluation criteria. Ideally, the same individual or individuals from the university should consistently oversee the evaluation of a specific practical activity in the company or entity. This ensures uniformity and clarity in the evaluation process, offering fair and standardized assessments for all participating students.

4.1 University mentors

It can be seen that there was no sufficient information nor knowledge on the tasks the students had to perform in the company prior to the internship. On the other hand, these seem to be good communication with the industry mentor as the academic mentors disagreed with the statement that they did not receive any feedback from them regarding the student's internship. All over all, they were satisfied with the feedback as well as the cooperation with the company.

4.2 Company mentors

Despite the week response from the company mentors, it could be detected that the company mentors did have enough information on the internship and its contents, and that they were satisfied with the cooperation with the university, the communication was good. It is obvious that there is still room to empower the students to take and express initiative.

4.3 Students

The students agreed or fully agreed on all statements, except they fully disagreed with the statement that they did not really know what to do in the company. They have got enough information from the university prior the beginning of the internship. Mentors in the company offered their full support and introduced the students with the other employees as well as with that task, which were relevant to the study programme.

All involved parties are satisfied with the process, information flow and feedback, cooperation among all stakeholders. The internship is well structured for all parties, there is good communication loop, although there is no data if there was a reflexion meeting with all three stakeholders, which would benefit all and would make room for improvement.

4.4 World Café

The method of World Café has many beneficial aspects. It encourages collaboration and fosters open dialogue among participants, encourages diverse perspectives and collective problem-solving. It is a creative method to provide a relaxed and informal atmosphere, it stimulates creative thinking and innovative solutions to complex issues. As some of the participants may be shy or introvert, it enables active participation from all attendees, ensuring everyone's voice is heard and valued, leading to greater buy-in and commitment. Nonetheless, it facilitates the exchange of ideas, experiences, and insights through multiple rounds of small group discussions leading to deeper understanding and shared learning. Five questions were discussed and valuable feedback gathered.

Students and company mentors agreed that there is a visible connection between the theoretically taught contents of the university and the given practical training in the company. On the other hand academic mentors still see a clear division that theory is taught at university and practice can only be gained in the company.

University mentors think that the greatest benefit the student gets from the company is practice and the company gets new ideas as also ready specialists in the future. Students also think that they gain experience and knowledge, company mentors see benefits for both sides. On one side the student gets practical knowledge and new skills and can build a career. The company on the other side gets new innovative employees, with new ideas and suggestions for the improvement of production.

The next question discussed was How can you understand whether the company's activities really complement the curriculum? Students think that theory is taught in university and practice in company. Whereas on the other hand company and university mentors see a clear connection between the work in company and theory, as they are developed together.

All world café participants agreed that the quantity and quality of care provided by the mentors are sufficient. The university mentor is in touch with the company mentor, who has control over the practical process in the company.

To the last question some slightly different answers were presented. Tools used for feedback are mostly interviews or discussions in person. For the company mentors timesheets must be presented. The university mentors expect from students' logbooks and practice diary. Also, they are present at the evaluation of the internship by the student.

It can be concluded that the cooperation between all three stakeholders is good. There are personal contacts, discussions and agreements regarding the course of the internship. The internship procedure has to be standardised and unified supported by jointly developed documentation to close the feedback loop. Regular coordination meetings before, in-between and after the internship is necessary. Clear understanding of the content of the internship, its connection to the theory and responsibilities of each of the stakeholders in the triangle (student-university-company) is of great importance.



5. Conclusion

The project has made important progress in bridging the gap between academia and industry in Kazakhstan. Its impact and stakeholder support, coupled with a focus on long-term sustainability, will determine the potential for this dual education model to shape the future of education in the region. Sustainability as the key point of every project, was regarded as important as any other activity in the project and therefore a sustainability plan was developed by the partners. It includes a five-year plan how to ensure a long-term sustainability of the main results of the project, in particular, the Bachelor's degree program "Robotic Systems", advanced training programs (LLL) and effective cooperation with companies, updating of teaching materials, mobility of students, improvement of laboratory complexes, advanced training of teaching staff as well as updating of the educational program. All these activities will have a huge permanent impact at the regional and national level.



Appendix

INTERNSHIP IN THE COMPANY

1. Feedback questionnaire – UNIVERSITY mentors

Dear academic mentor,

At the end of the internship at the company, you are kindly invited to answer the following questions. Questionnaires will be analysed for the needs of optimizing the organisation and the internship process. Your opinions and suggestions are of great importance to us! Collected data will be processed anonymously.

University :

Choose the appropriate level of agreement: 1 – I fully agree to 6 – I fully disagree.
x – I don't know / not relevant

The academic mentor got all the necessary information of his tasks prior the beginning of the internship.	1	2	3	4	5	6	x
The academic mentor knew about the student`s tasks in company.	1	2	3	4	5	6	x
The academic mentor knew in advance what work tasks the student will have to fulfil.	1	2	3	4	5	6	X
The academic mentor knew which skills and competences the student should acquire with each task.	1	2	3	4	5	6	X
The academic mentor was introduced to the company structure.	1	2	3	4	5	6	x
The academic mentor was told about his duties and role in this dual education.	1	2	3	4	5	6	x
The academic mentor was given enough time to fulfil his tasks.	1	2	3	4	5	6	x
The academic mentor has communicated openly with the student and gave feedback to his work performance.	1	2	3	4	5	6	x
The academic mentor took chance to get in touch with industrial surrounding.	1	2	3	4	5	6	x
The academic mentor was supportive to student`s questions during their internship.	1	2	3	4	5	6	x
Work tasks were mostly relevant/suitable to the study programme.	1	2	3	4	5	6	x
Clearly structured internship was priorly accordated with company.	1	2	3	4	5	6	x
The academic mentor saw that student took responsibility for his professional career.	1	2	3	4	5	6	x
The academic mentor has got no feedback what the student was doing during the internship.	1	2	3	4	5	6	x



University mentor of internship was available if required during internship.	1	2	3	4	5	6	x
Overall satisfaction with the feedback from internship.	1	2	3	4	5	6	x
I would recommend students for internship to a befriended academics.	1	2	3	4	5	6	x
During internship I was least pleased with:							
My suggestions for improvement of the quality of internship:							

1 – I fully agree ... 6 – I fully disagree. X – I don't know / not relevant

Please, describe your experience regarding internship in comparison to the internship in the first year.

How do you assess the planning of an next internship?

In what way did it influence your cooperation with the university (R&D support work, orientation, expectations, acquisition of competences/skills/knowledge)?

Thank you!



INTERNSHIP IN THE COMPANY

2. Feedback questionnaire – COMPANY MENTORS

Dear company mentor,

At the end of the internship in your company, you are kindly invited to answer the following questions. Questionnaires will be analysed for the needs of optimizing the organisation and the internship process. Your opinions and suggestions are of great importance to us!

Collected data will be processed anonymously.

Company:

Choose the appropriate level of agreement: 1 – I fully agree to 6 – I fully disagree.
x – I don't know / not relevant

The university provided all the necessary information prior the beginning of the internship.	1	2	3	4	5	6	x
The student was well accepted by employees in the enterprise.	1	2	3	4	5	6	x
I knew in advance what work tasks the student will have to fulfil.	1	2	3	4	5	6	x
I knew which skills and competences the student should acquire with each task.	1	2	3	4	5	6	x
Mentor was introduced to the student`s program.	1	2	3	4	5	6	x
Mentor was told about his duties and role in this dual education.	1	2	3	4	5	6	x
Mentor was given enough time to fulfil his tasks.	1	2	3	4	5	6	x
Mentor has communicated openly with the student and gave feedback to his work performance.	1	2	3	4	5	6	x
The student was given space to express initiative/interest and took chance.	1	2	3	4	5	6	x
Employees have responded openly and supportive to student`s questions.	1	2	3	4	5	6	x
Work tasks were mostly relevant/suitable to the study programme.	1	2	3	4	5	6	x
* Clearly structured internship was accorded with university.	1	2	3	4	5	6	x
* Responsibility was given to the student for professional career.	1	2	3	4	5	6	x
Sometimes we didn't really know what to do with the student.	1	2	3	4	5	6	x
University mentor of internship was available if required during internship.	1	2	3	4	5	6	x
Overall satisfaction with the internship.	1	2	3	4	5	6	x
I would recommend students for internship to a befriended company.	1	2	3	4	5	6	x



During the internship I was least pleased with:

My suggestions for improvement of the quality of internship:

1 – I fully agree ... 6 – I fully disagree. X – I don't know / not relevant

Please, describe your experience regarding internship in comparison to the internship in the first year.

How do you assess the planning of the next internship?

In what way did it influence your cooperation with the university (R&D support work, orientation, expectations, acquisition of competences/skills/knowledge)?

Thank you!

INTERNSHIP IN THE COMPANY

3. Feedback questionnaire - STUDENTS

Dear student,

At the end of the internship in the company, you are kindly invited to answer the following questions. Questionnaires will be analysed for the needs of optimizing the organisation and the internship process. Your opinions and suggestions are of great importance to us!
Collected data will be processed anonymously.

Study programme:
Study year:
Company:

Choose the appropriate level of agreement: 1 – I fully agree to 6 – I fully disagree.

x – I don't know / not relevant

The university provided all the necessary information prior the beginning of the internship.	1	2	3	4	5	6	x
I was well accepted by employees.	1	2	3	4	5	6	x
I knew in advance what work tasks I will be doing.	1	2	3	4	5	6	x
I knew which skills and competences I will acquire with each task.	1	2	3	4	5	6	x
Mentor introduced me to the work environment.	1	2	3	4	5	6	x
Mentor has acquainted me with the company.	1	2	3	4	5	6	x
Mentor told me which work tasks to do and what should I learn by doing them.	1	2	3	4	5	6	x
Mentor was available for my questions.	1	2	3	4	5	6	x
Mentor has communicated openly with me and gave me feedback for my work.	1	2	3	4	5	6	x
I was able to express initiative / interest, if I wanted to do so.	1	2	3	4	5	6	x
Employees have responded to my questions.	1	2	3	4	5	6	x
Work tasks were relevant/suitable to my study programme.	1	2	3	4	5	6	x
Work plan comprised of tasks was helpful for my internship.	1	2	3	4	5	6	x
*Please, add a comment – in what way it influenced acquisition of competences/skills, your expectations for WBL etc.:							
* Clearly structured internship has increased my motivation for work tasks.	1	2	3	4	5	6	x



* Clearly structured internship has increased my responsibility for my professional career.	1	2	3	4	5	6	x
Sometimes I didn't really know what to do in the company.	1	2	3	4	5	6	x
Organiser of internship was available if required during my internship.	1	2	3	4	5	6	x
I got accustomed to the culture of the work environment and the rules of behaviour in the company.	1	2	3	4	5	6	x
I got accustomed to the working discipline and responsibility for performance of tasks.	1	2	3	4	5	6	x
Overall satisfaction with internship.	1	2	3	4	5	6	x
I would recommend this company for internship to a friend.	1	2	3	4	5	6	x
During internship I was most pleased with:							
During internship I was least pleased with:							
My suggestions for improvement of the quality of internship:							

1 – I fully agree ... 6 – I fully disagree. X – I don't know / not relevant

Please, describe your experience regarding internship in comparison to the internship in the first year. How do you assess the planning of the internship? In what way did it influence your internship (work, orientation, expectations, acquisition of competences/skills/knowledge?)

Thank you!

4. World café method

If possible, all three stakeholders should share their experiences and feelings in a World café session.

For the feedback following methods should be used:

The methodology World Café - consists of common parts serving the comparability between the stakeholder groups and of specialized elements designed for each of the stakeholder groups separately.

The common method used with each of the stakeholder groups is the question round with each of the groups. During the question session, 5 questions are presented and explained. The participants have 5 minutes per question to write feedback using moderation cards. Each of the group is asked the same 5 questions. The purpose is to find out to what extent the expectations of the separate stakeholder groups towards the dual study model match.

The following questions are asked:

Question 1

Do you see the connection between the theoretically taught contents of the university and the given practical training at all?

Question 2

What do you see as the biggest benefit for the company and the students?

Question 3

How can you understand whether the company's activities really complement the curriculum?

Question 4

Are the quantity and quality of care provided by the mentors sufficient?

Question5

Which kind of assessment and feedback tools (written or oral) did you use to reflect the practical training? To whom these were submitted?