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Foster Problem-solving Capabilities with the Innovation Coaching Training Concept

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Abstract: Due to the challenges arising from complex requirements and rapidly varying conditions in innovation projects, interdisciplinary competencies and methodical problem-solving abilities are increasingly important. Innovation Coaches support development teams to align their interdisciplinary competences into a flexible and structured innovation process. This research examines the systematic development of competencies in the context of agile innovation projects and presents a training concept to promote the competencies of Innovation Coaching. The modular and action learning based training concept allows for a training parallel to the project work and can be adapted to the project context. Applying the training concept in multiple innovation projects presents the successful training of innovation coaches with the ability to apply and analyse methods for their goal to increase problem-solving skills and positive team development in agile working teams.

Keywords: Innovation Coaching; Problem-solving, Competence models; action learning, modular training concept; creativity; Hybrid Learning Cycle.

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1 Introduction

Innovation is key for the future success of each company and part of human development in general. One challenge of the rapidly changing environment is the increased complexity, especially in the early phases of new product development projects (Albers, et al., 2017). Employees in project teams therefore need competencies to be able to manage themselves in a flexible and agile way. Furthermore, there is a need for future orientation and further development of competencies to be able to solve problems and develop innovations (World Economic Forum, 2020).

People, their competencies and their further development must be at the centre of all innovation activities (Albers, et al., 2019). To guide and enable new innovations in diverse development teams, an innovation coaching approach is required to support the agility as well as the targeted and effective integration of problem-solving capabilities (Albers, et al., 2020). This extensive goal leads to the challenge, that coaches must be trained systematically and in application-oriented manner to develop distinctive skills and competencies. Therefore, a training concept is required to enable people's innovation skills and their coaching ability in interdisciplinary teams to foster the agile development of innovations.

2 Theoretical Framework

Innovation Coaching

To handle complexity in the early phases of new product development projects diverse agile approaches are increasingly applied in development processes. The development teams must handle ambidextrous situations within the organization by working in structured and flexible process elements in a systematic matter. However, in the environment of physical product development, challenges arise due to individual requirements, purposes and technical requirements (Schmidt, et al., 2019). The state of research and the study results of the Future Organization Report 2019 (Peters, et al., 2019) show, that many companies have integrated agile methods and practices into their organization but are still afar from achieving the desired agility.

The approach of ASD – Agile Systems Design supports the agile development of mechatronic systems with a suitable and individual selection of methods as well as structuring and flexible process elements (Albers, et al., 2019). To apply agility and additionally introduce customer-centred innovation methods the ASD-Innovation Coaching framework focuses on an internal coach which follows the paradigm of systems engineering (Albers, et al., 2020). ASD-Innovation Coaching combines coaching approaches with product development theories to promote agility in the early phases of product development. Particularly important is the understanding of the technical development work and additionally the ability to apply coaching methods in the teams according to the situation and requirements (Albers, et al., 2020).

Process-oriented support offers the potential to increase agility in development work and to promote motivated and effective cooperation. By making the most of the tension between clear structures and flexibility in the processes, products with high innovation potential can be successfully developed. To realise this potential, requirements for

support activities, responsibilities and competences are set up. In previous research work a competence model was developed that enables people to coach agile working development teams to successfully create innovations (Niever, et al., 2019).

For the practical application of the ASD-Innovation Coaching Framework, there are defined activities and responsibilities. To support development teams in their work in the processes of ASD - Agile Systems Design, the nine core activities, which are shown in Figure 1, should be carried out. These generic activities take into account existing requirements for support activities in agile development teams. In doing so, these activities refer to the nine ASD principles (Albers, et al., 2019) and integrate the model understanding of PGE - Product Generation Development (Albers, et al., 2015). The activities are carried out individually, taking into account the situation and needs of the supported development team.

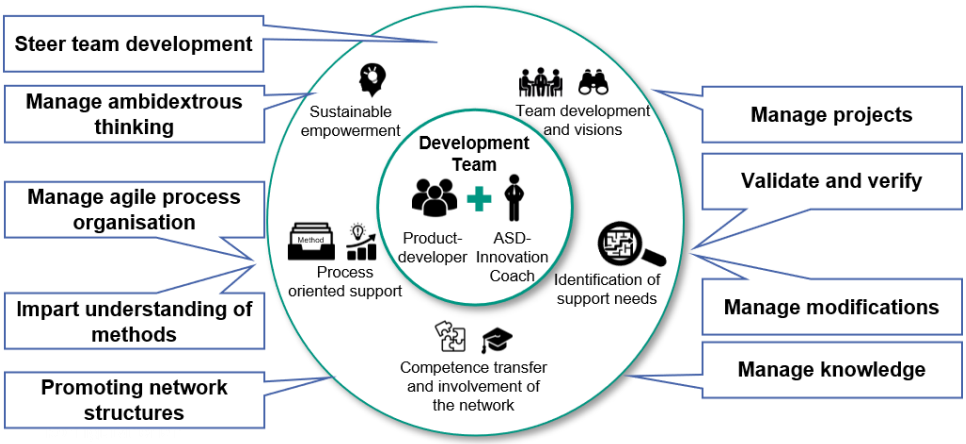

Figure 1: ASD-Innovation Coaching Activities (Albers, et al., 2020)

The responsibilities are shown in the inner circle. As an internal member of the development team, the ASD Innovation Coach is responsible for team development and common visions. In addition, there is the continuous review of the need for support in the project and the situational transfer of competences or knowledge integration through the inclusion of his network. In addition, he is responsible for supporting the development team in a process-oriented manner and for promoting long-term and sustainable innovative capacity (Albers, et al., 2020).

Based on the activities and responsibilities, requirements for a competence profile can be derived for realisation. In particular, the ability to work in a team, communication skills, socio-emotional skills as well as innovation and diffusion skills characterise the competence profile for covering the need for support throughout innovation projects. The collaboration and creativity potentials are essential for situational problem solving. Depending on the situation and team constellation, however, the requirements for the competence profile vary (Niever, et al., 2019).

Accordingly, conclusions can be drawn regarding the requirements for the training of such a competence profile. Because the activities for coaching agile development teams

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in the processes of ASD - Agile Systems Design require competences and experiences that have to be built up through an application-oriented training (Albers, et al., 2020).

To develop these competences a training concept is intended to expand the disciplinary, methodological, and social competences as well as elaboration and creative potential. To increase personal competences a combination of theory, practice and reflection sessions should be adopted to realize a systematic education of the required competences.

Humans as innovation drivers

Innovation Coaching puts the human at the centre of innovation development. Therefore, the aim must be to develop and transfer the competences of innovation coaches based on science about human abilities and needs to create a positive and sustainable learning experience. The need for discovering inventions that create value for human beings has always been a central element for the development of the human species (Hüther, G., 2016, p. 55). Natural *curiosity* about the environment, especially as a child, is an essential prerequisite for acquiring skills to live and create a good life and is the basis for continuous self-development (Naughton, C., 2016, p. 7).

Particularly in the current fast changing world, curiosity, continuous learning and awareness are the basis to find new ideas and original solutions that create value. There is a certain interest on researchers to find out which requirements must be ensured to provide the best possible surrounding for creating innovations. One main aspect of such a surrounding is to create space for *creativity*, as it can be understood as the "process of having original ideas that have value" (Robinson, K., 2011, p. 151). To ensure this space, leadership needs to provide, lead and exemplify a working culture that supports creative thinking. Previous research in neuroscience and psychology found out that there are several conditions that either support innovative thinking or hinder it. For example, *negative feelings* such as insecurity and fear restrict curiosity and creativity. As a matter of fact, creating new things brings along a certain amount of uncertainty. This uncertainty should not result in a feeling of insecurity and fear, as this would hinder the innovation process (Naughton, C., 2016, p. 140). Instead, the surrounding must transfer a safe and secure feeling.

Amy Edmondson found out that teams are more successful if they feel a *psychological safety* (Edmondson, A., 1999). This includes an open environment for exchanging and exploring new ideas, as well as a sincere support with possible failures during the process. Failures are even a necessary source to open up for new perspectives, to take new paths and to develop solutions and are therefore an important part of idea development and the learning process in general (Beck, H., 2020, p. 155).

Neuroscientists have found out that the motivation to learn is particularly high if the learning is of *personal relevance*. When something is important to you, enthusiasm arises in the search for a possible solution. These positive emotions activate new network areas of the brain. For this reason, it is very important to be aware of the personal value of a learning experience in advance to increase openness and motivation for the learning process. As a result, these positive emotions play a significant role for the long term anchoring of the knowledge (Hüther, G., 2016, p. 21). Intrinsic motivation is very high by a state called *Flow*. It describes the perfect personal condition between a challenge and safety of your own abilities concerning a task and results in a feeling of absend-

mindedness without a feeling for time (Csikszentmihalyi, M., 2018, p. 166). It engages creativity and a feeling of self-determination and has a deep impact on positive feelings.

Another key element to enhance the development of new inventions is to build up trustworthy *relationships* within the team. As part of the research field of positive psychology, relationships are a key element for human satisfaction and a positive working environment (Pfeifer, C., 2017, p. 30). To build up good relationships, *communication* is the key element (Watzlawick, P., 2016, p. 16). The communication between people and teams has a strong influence on the resulting feelings, as it is the basis to transfer appreciation. Whenever self-esteem feeling is attacked, communication and relationships suffer (Birkenbihl, V., 2005, p. 24). Knowledge about communication is therefore a main aspect for developing skills to enable other people.

Meaning has another positive impact on activities in terms of personal engagement. It is based on values, which give people orientation on what is desirable (Rashid, T., Seligman, M., 2019, p. 104). It also enables humans to follow abstract goals. Achieving goals increases the feeling of self-efficacy, confidence and, as a result, positive feelings (Rosso, B., Dekas, K., Wrzesniewski, A., 2011). To sum it up, the research of positive psychology and neuroscience plays a significant role in terms of creativity, learning motivation and teamwork.

Training Concepts

Based on these research insights a main goal of training concepts for coaching innovation teams is to create and enhance an innovators mindset by a positive and sustainable learning experience. Creating an effective learning environment is not just about offering convenience and familiarity to learners but to include human abilities and needs (Niever, et al., 2020).

The didactic learning approach which creates a digital learning environment to train problem-solving capabilities of learners in interdisciplinary development teams that is applied in university teaching as well as corporate trainings is the Hybrid Learning concept (Schmidt, et al., 2019, Niever, et al., 2020). The concept is shown in Figure 2 and presents a cyclical and iterative model which combines the three core learning elements theory, practice and reflection. With the aim to transfer knowledge to ability this cycle enables the set up of trainings as a didactic support (Niever, et al., 2020).

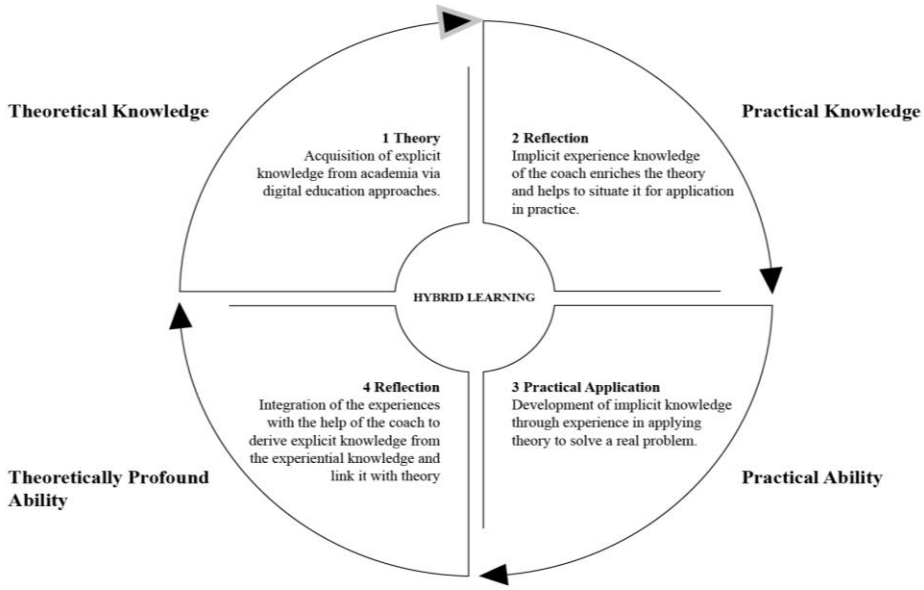

Figure 2: Hybrid Learning Concept (Niever, et al. 2020)

The Hybrid Learning Concept is based on the Action Learning approach (Revans, 2011). Action Learning is a practical learning process and environment to impart implicit knowledge to learners by solving a real and relevant problem. An iterative and reflective process guides learner in small groups to tackle and reflect together within their problem-solving activities. By sharing opinions, knowledge, and ideas about possible solutions the learning groups are running through the learning process to build up their problem-solving capabilities (Revans, 2011).

To categorize the goals of teaching the classification system of Bloom (1974) as well as the revised system of Krathwohl (2002) can be used. Bloom's Revised Taxonomy consists of six categories arranged from low to high level of complexity and abstraction. To perform high ranked abilities, it is necessary to master lower ranked abilities beforehand (Krathwohl, 2002).

Research Question and Research Design

According to the current understanding, Coaching in agile innovation projects is a very demanding task, in which the coach always has to react individually to unexpected situations in order to advance the team accordingly. Therefore, it is not reasonable to impart coaching knowledge and methods theoretically. The learner must be able to assess the current situation independently and find a suitable approach. This is mainly based on personal perception, experience and empathy which is a main aspect that must be trained practically.

This leads to the demand for a training concept to coach development teams to handle the complexity in their work and enable problem-solving capabilities. Training concepts for innovation coaches should be set up situation- or project-specific and accordingly scalable in terms of time and tailored to the target group. Therefore, the aim of this research is to explore and set up a training concept for ASD-Innovation Coaching to foster the agility in the early phases of product development. The following research questions arise in more depth:

- How should a training concept be designed to realize the competence profile of an ASD-Innovation Coach in a situation- or project-specific way?
- Which coaching skills and experiences should be built up and how can they be taught and experienced during the training?
- How can positive and sustainable learning experiences be built up?

According to the Design Research Methodology (Blessing & Chakrabarti, 2009), an empirical based research was conducted. Therefore, an initial training concept was set up in 2017. This training concept was then iteratively validated and improved within the research environment of the Live-Lab ProVIL – Product Development in a virtual Idea Laboratory (Albers, et al., 2016). In the context of product development, live labs are research environments for development and method researchers that allow development processes, methods and tools to be studied under realistic conditions and with a high degree of controllability of the boundary conditions (Walter, et al., 2017). ProVIL is an annual open innovation project within the framework of university lectures to develop new products in cooperation with a corporate partner. The interdisciplinary development teams consist of mechanical engineering students as product developers and industrial engineers as innovation coaches. This setup offers the opportunity to explore procedural, personal and social aspects in the practical application of the training concept.
Systematically collecting data trough surveys with 42 and 27 participants, participating observations as lecturer as well as 40 qualitative reports of the innovation coaches led to an iteratively improved training concept. This training concept was then adapted and transferred into the training of 20 Innovation Coaches within a German technology company. With 8 qualitative interviews and additional questionnaires the training concept was validated regarding the application and success.

Results

Based on the fundamental understanding of ASD-Innovation Coaching, the competences of an ASD-Innovation Coach as well as the corresponding values and principles for becoming agile are imparted through an application-oriented training. The training concept is modular, scalable in time and target group-oriented, so that a situation- and project-specific training is realised. It is structured on a hybrid learning concept to train innovation coaching competencies. The modules itself focus on different aspects of the required skills, that consider the integration of methodical and social competence as well as problem solving capability. This modularity allows a structured knowledge transfer and enables a situation- and demand-oriented training based on an agile training concept.

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Core Values of the Training Concept

The learning experience is designed and based on the scientific knowledge of learning didactics, in particular action learning, as well as psychology and neuroscience insights. The competence development is mediated by the independent implementation of coaching methods within the training. Direct application of theoretical knowledge and methods in workshops within the learning groups and in the current project work enables the transformation of knowledge into skills. The practical application requires to deal with real challenges during the process.

Overcoming these challenges builds the participants' own confidence in their skillset and facilitates a positive and sustainable learning experience by realizing the core values of trust, meaning, positive emotions and reflection within the training.

These four basic values are based on the agile values and are a combination of scientific findings from the research areas of human development. Aspects from the context of psychological and neuroscientific research as well as positive psychology were considered and linked to creativity-promoting elements as well as curiosity and motivation research. To realize a positive and sustainable learning experience in the ASD-Innovation Coaching training, these sub-elements were taken up and consciously conveyed.

Learning Content and Structure

The core values and didactic structure of the training offers a positive and sustainable learning experience. For the practical applicability along an innovation project, it must be modular and scalable in terms of time. The relevant content for building up the competence profile of an ASD-Innovation Coach is structured in separated modules and conveyed in a way that is appropriate for the target group.

To impart the knowledge and skills of the ASD-Innovation Coaching competence profile, the essential content is applied in practical projects in the sense of the hybrid learning approach. Therefore, the training is set up according to a modular structure. The setup is based on the individual, project-specific conditions for the implementation of a positive and sustainable learning experience. This enables the practical applicability of the training concept through the demand-oriented adaptability in university but also innovation projects and the promotion of elaboration abilities to carry out ASD-Innovation Coaching activities.

The training consists of eight modules on the topics of innovation, product development, agility, business models, coaching, team development, communication and problem solving. In the modules, different contents and methods are developed and applied to build up the competences in the best possible way. Figure 3 shows the modules, which are divided into the areas of innovation and coaching.

The order of the individual modules can be varied according to need of the project or development process. This enables the temporally scalable use of the contents according to individually corporate requirements.

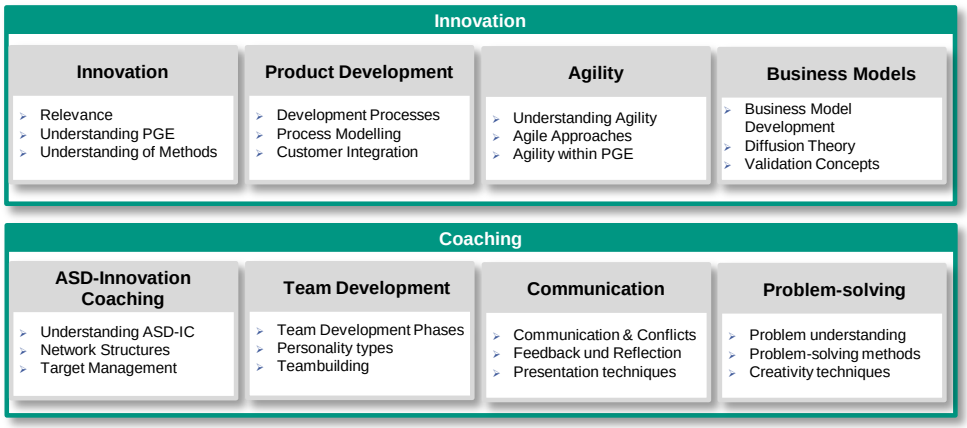

Figure 3: ASD-Innovation Coaching Training Modules

The learning objectives of the individual modules of the training are set up according to the Bloom's Revised Taxonomy within the taxonomy levels of remember, understanding, application, analysis, evaluation and synthesis. Throughout the modules, the experiences gained from the practical applications in the courses as well as the practical project work are personally reflected upon and made transparent to the other learners by applying coaching methods. Based on predominantly visual methods for pictorial representation of experiences, open exchange is encouraged to enable different perspectives and insights into other project situations. Coaching skills are based on experience and empathy and represent a continuous learning process. The moderated linking of experiences with theory enables a collective gain in knowledge.

Didactic structure and Hybrid Learning

A process of hybrid learning includes aspects of theoretical knowledge transfer (Hybrid Learning Phase 1), reflection of the experienced knowledge (HLP 2), the practical application of this knowledge (HLP 3) as well as a reflection of the practical learning experience (HLP 4) (Niever, M. et al., 2020). Hybrid learning can be applied across the overall training, but also within individual content modules. The process of hybrid learning has been supplemented by several aspects for the training of innovation coaches based on scientific findings.

Phase “Opening” of each module starts with a phase of personal arrival of the participants in the classroom. The aim is to make the individual participants familiar the learning process and to create space for personal exchange, positive emotions, and motivation. For this purpose, each event was started with private questions to encourage personal exchange.

Phase “Awareness” stimulates the ability to remember (HLP 4) the knowledge that has been learned so far. Furthermore, personal experiences in the context of this knowledge are specifically asked and exchanged, as well as critically questioned. It will be worked out in which form the learned knowledge is relevant for the application, so

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that this knowledge will be retained by the participants as an essential learning experience for the long term.

Phase “Learning” opens the space for a new learning field. Theoretical foundations for a field of knowledge are laid in the form of a lecture or supplementary sources of knowledge (HLP1). The knowledge transfer is supported by the targeted involvement of the learning group through interaction and questions.

Phase “Apply” serves to apply the theoretical knowledge in a protected learning environment (HLP 3.1). Exercises are implemented in small groups, which are then shared and discussed in the plenum (HLP 4). Each module is followed by a phase of “Experience” of practical application in the project work with the team (HLP 3.2).

The experiences of the application in the protected learning environment are an important prerequisite for the necessary confidence in the realization of the methods in their own teams. Nevertheless, the independent application in project work brings with it a certain degree of uncertainty, as one must react spontaneously to unexpected reactions of the group. In this phase the greatest competence and experience is build-up, which is an essential learning goal of the Innovation Coach training.

In the entire learning experience the relevant factors from scientific findings for a positive and sustainable learning experience are integrated. Especially phase “Opening” focuses on creating a safe, trustworthy and open-minded learning environment. Targeted questions create a positive association, as well as the demonstration of active listening expresses appreciation to the participants. To create this space, common principles of cooperation were worked out at the beginning of the learning course. Everyone made transparent how one wishes to deal with each other in the digital space. For example, it is essential not to interrupt each other and to listen attentively. In the joint exchange during this phase, special attention is paid to involve each participant and giving them an equal say. This creates an understanding of equal commitment.

The same applies to the exchange of experiences in phase “Awareness”. One important aspect here is to respond to personal experiences together and to share mistakes and problems with each other equally. In this way, everyone becomes aware that each individual is confronted with similar challenges and that they can support each other.

Phase “Learning” conveys new knowledge in the form of an interactive lecture. The theoretical knowledge transfer is designed in a way that after a few contents, questions will be asked to the participants. These may be just short feedback, such as polls appropriate to the topic. Each participant is asked to submit a short contribution. On one hand, attention is kept permanently high through regular involvement. On the other hand, the questions asked convey that one is interested in the opinion and experience of each individual and that it will be included in the further learning process.

Phase “Apply” serves primarily to apply methods and to get to know them in the form of a personal experience. Small teams are formed in which some participants also take on the role of team members themselves. In this way, an understanding is created of the effectiveness of the methods on one's own topic. For example, the method of strengthening feedback is practiced in small groups. Afterwards, the participants report on what this experience has changed for them. In this way it is possible for the coach to assess subsequently on which method achieve the best possible effect in group work.

It is essential that the learning experience during the modules exemplifies and conveys important elements that the coaches themselves should implement in their

project groups in the phase “Experience” to create a holistically positive and sustainable learning experience, also for their team members.

Evaluation Results

The evaluation of the training concept for ASD-Innovation Coaching shows the contribution that the developed training concept makes to imparting the required knowledge and skills of an ASD-Innovation Coach. The empirical studies in the Live-Lab ProVIL as well as in a corporate training program were used to determine the practical applicability, completeness and usefulness of the training concept.

The practical applicability of the modular concept based on the hybrid learning approach was extensively confirmed. The action-oriented learning could be applied in the practical application in ProVIL as well as in the corporate practice. This shows that the training concept can be specifically adapted to the requirements of different development projects and processes. Furthermore, the perceived completeness of the training content was comprehensively confirmed by the learners. The basic knowledge and theoretically profound skills of an ASD-Innovation Coach can be imparted based on the training concept, so that the learners feel empowered to carry out the coaching activities.

To evaluate the competence building, the learners' knowledge was asked according to their knowledge level through self-assessment after each content module within ProVIL 2020. Figure 4 shows the comparison of self-assessment based on knowledge of the activities of an ASD-Innovation Coach between the second and the sixth module. Based on the self-assessment, it can be seen that the knowledge along Bloom's Revised Taxonomy has increased significantly. At the almost end of the training, a total of 93.7% of the learners stated that they were able to apply the tasks of an ASD-Innovation Coach. Half of these learners are also able to analyse them.

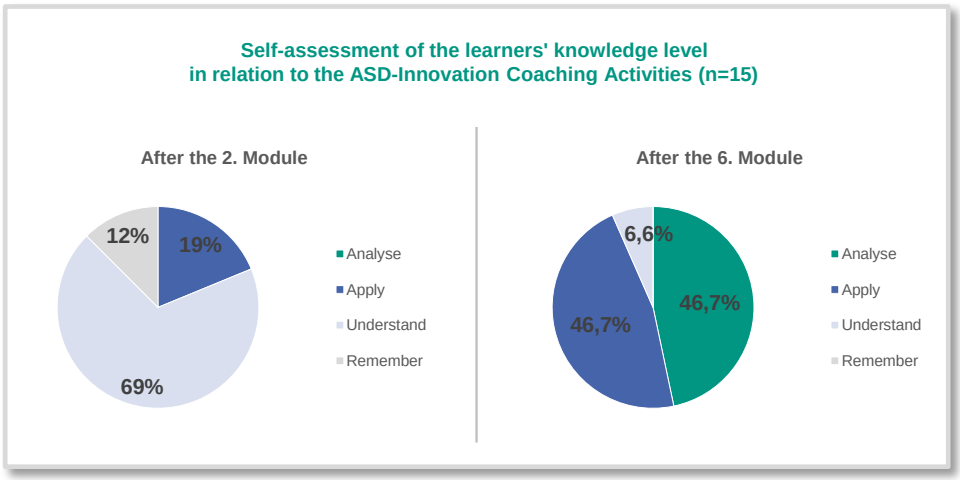

Figure 4: Evaluation of Learners´ Knowledge Level in ProVIL 2020

The high perceived benefit of the participants of the ProVIL project as well as the corporate training could confirm the usefulness extensively. This is shown by the strong increase in self-assessed competence levels along Bloom's Revised Taxonomy. In addition, the contribution to success was demonstrated by the extensively confirmed relevance of the training contents for the support activities in innovation projects.

With the goal of further developing the learners' theoretical knowledge into theoretically profound skills, the evaluation studies clarify the success factor of direct application and reflection of the learning contents and methods in a real project with unsolved problems. This promotes the ability to elaborate and enables the learners to use the imparted skills in their role as ASD-Innovation Coach.

Based on the core values of the training, positive and sustainable learning experiences were generated in the case studies conducted. The building of trust is promoted by the open, equal and appreciative communication within the learning group. A trustful learning environment is built up through transparency and the open exchange of experiences. At the same time, these interactions and self-experiences also provide opportunities to link positive emotions with the contents and thus promote sustainable knowledge. The motivation to learn is promoted through the sense by which personality types are perceived and personal goals are made conscious. The deepening practical application and continuous reflection serve the ability to elaborate and promote the learning experience.

These assessments were further confirmed by a qualitative content analysis of the retrospective protocols of the participants. It was comprehensively confirmed that the competences of an ASD-Innovation Coach in the area of teamwork, communication skills, methodological competence, socio-emotional competence as well as innovation and diffusion competence were conveyed and significantly expanded.

Discussion

The hybrid learning approach for direct application of learning contents in trainings and in project work enables the successful learning process. The learning contents, action learning approach and building an appreciative communication culture leads to a positive and sustainable learning experience.

Additionally, the modular structure of course lessons enables to flexibly structure the training based on the demand and is very much adjustable according to individual framework conditions of innovation processes in diverse companies.

Overall, the training concept based on hybrid learning builds up the coaching competencies sustainably and realizes a systematic education. Building trust, meaning, positive emotions and reflection plays an important role for the learning experience itself and in acquiring the skills sustainably.

The fact that the training concept has only been extensively validated in university innovation project must be viewed critically. An initial validation has been taken place in the corporate environment and confirmed first positive results. Nevertheless, an extensive validation in the application in the entrepreneurial environment should follow.

Conclusion and Outlook

The training concept for ASD-Innovation Coaches is designed to educate good and experienced coaches in agile development projects of manufacturing companies. Their competencies foster the problem-solving competences in development teams to accomplish the ability to design innovations. The modular structure of the training enables a transparent and clear learning process. As a result, the training concept can be specifically adapted and successfully applied in different innovation processes in practice. The participants acquire necessary competencies to successfully lead innovation teams. However, the skills can be applied in other professional roles as well, due to the growing demand of problem-solving capabilities in the future of work. Therefore, the training should be scaled to further universities, training companies and departments. To achieve this, a detailed guidance for future lecturers for performing the training as a positive and sustainable learning experience is needed. This guidance would help to guide through the training contents by integrating the psychological, communicational, and creativity aspects in a very practical and adjustable manner.

References

Albers, A. et al., 2016. (2016). ProVIL – Produktentwicklung im virtuellen Ideenlabor. ENTWERFEN ENTWICKELN ERLEBEN 2016. Beiträge zur virtuellen Produktentwicklung und Konstruktionstechnik, pp. 185-197.

Albers, A. et al., 2020. Forcing Creativity in Agile Innovation Processes through ASD-Innovation Coaching. Proceedings of the Sixth International Conference on Design Creativity (ICDC 2020), pp. 231-238.

Albers, A. et al., 2019. The Product Developer in the Centre of Product Development: A Systematic Literature Review on Describing Factors. Proceedings of the 22nd International Conference on Engineering Design (ICED 2019), pp. 1843-1852.

Albers, A. et al., 2019. A systematic approach to situation-adequate mechatronic system development by ASD - Agile Systems Design. Procedia CIRP, 84, p. 1015–1022.

Albers, A., Rapp, S., Birk, C. & Bursac, N., 2017. Die Fruehe Phase der PGE - Produktgenerationsentwicklung. Beitraege zum 4. Stuttgarter Symposium für Produktentwicklung (SSP).

Beck, H. (2020). *Das neue Lernen heißt Verstehen*. Berlin: Ullstein Buchverlage GmbH.

Blessing, L. T. M. & Chakrabarti, A., 2009. DRM, a design research methodology. London: Springer.

Bloom, B. S., 1974. Taxonomie von Lernzielen im kognitiven Bereich. s.l.:s.n.

Birkenbihl, V., 2005. *Kommunikationstraining*, mvg Verlag/Redline GmbH, Heidelberg

Csikszentmihalyi, M., 2018. Flow und Kreativität. New York: Klett-Cotta Verlag.

Edmondson, Amy., 1999. Psychological safety and learning behavior in teams. Administrative Science Quarterly. 44., p. 250-282.

Hüther, G., 2016. *Mit Freude lernen - ein Leben lang*. Gättingen: Vandenhoeck & Ruprecht GmbH.

Krathwohl, D. S., 2002. A Revision of Bloom's Taxonomy: An Overview. s.l.:s.n.

Naughton, C., 2016. *Neugier - So schaffen Sie Lust auf Neues und Veränderung*. Berlin: Ullstein Buchverlage GmbH.

Niever, M. et al., 2020. SMART EDUCATION CONCEPT FOR PRODUCT DEVELOPMENT TEAMS IN AGILE INNOVATION PROJECTS. Digital Proceedings of TMCE 2020. TMCE 2020 Repository , p. 431–444.

Niever, M. et al., 2019. The Future of Innovation Coaching in Product Engineering: A Systematic Approach to Deriving the Future Competence Profile and its Development through Strategic Potential Identification. Proceedings of the Collaborative European Research Conference 2019, pp. 299-310.

Peters, C., Simmert, B., Eilers, K. & Leimeister, J. M., 2019. Future Organization Report 2019, St. Gallen: Institut für Wirtschaftsinformatik.

Pfeifer, C. (2017). *Positive- Psychologische Forschung im deutschsprachigen Raum-State of the Art*. Lengerich: Pabst Science Publishers.

Rashid, T., Seligman, M. (2019). *Positive Pychotherapy - Workbook.* New York: Oxford University Press.

Revans, R. W., 2011. Action Learning: Its Origin and Nature. In: M. Peder, Hrsg. Action learning in practice. s.l.:s.n., pp. 5-14.

Robinson, K. (2011). *Out of Our minds: Learning to be Creative* (2. Edition). Chichester, West Sussex, UK: Capstone Publishing Ltd.

Rosso, B., Dekas, K., Wrzesniewski, A. (2011). On the meaning of work: A theoretical integration and review. Research in Organizational Behavior, Volume 31, p. 91-127.

Schmidt, K. L., Selter, S., Schröder, J. & Hahn, C., 2019. Hybrides Lernen verbindet Wissen und Können. Hochschule Karlsruhe - Technik und Wirtschaft. Forschung Aktuell 2019, pp. 46-50.

Schmidt, T. S. et al., 2019. Agile Development of Physical Products: An Empirical Study about Potentials, Transition and Applicability, Neubiberg: Universitätsbibliothek der Universität der Bundeswehr.

Walter, B., Albers, A., Benesch, G. & Bursac, N., 2017. ProVIL – Produktentwicklung im virtuellen Ideenlabor: Anwendungs- und Implementierungsmodell eines Live-Labs. Beiträge zum 4. Stuttgarter Symposium für Produktentwicklung (SSP).

Watzlawick, P. (2016). *Man kann nicht nicht kommunizieren*. Bern: Hogrefe Verlag.

World Economic Forum, 2., 2020. The Future of Jobs Report 2020, s.l.: s.n.