Thüringer Agentur für Europäische Programme e.V.

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Competence catalogue

elaborated within the project

„Strategic partnerships in the field of medical education with focus on innovative educational content and labor market relevance”

(MEDIC)

Project number **2020-1-DE02-KA202-007407**

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1 Introduction - The MEDIC Project

The aging of the population and the increasing need for care services is not a specific country problem, but characterizes all industrialized countries in a similar way.

Long-term care is a general risk of life, which will affect the majority of the population not only in the partner countries in the course of their lives. This development is reflected in a cross-border increasing need for care, which in Europe can no longer be met from the pool of existing specialists and the available potential of the countries. The nursing labor market must find answers and solutions to increase the effectiveness and efficiency of the care process and its secondary processes, without losing sight of the care recipient as a human being. It applies to both inpatient and outpatient care. This describes Care 4.0 with all its innovative facets such as digitalization and robotics, although aspects of environmental protection in the nursing process are by no means forgotten ("Green Nursing Home"). Digitalization and robotics certainly will be implemented at different speeds in the countries of the project partners. But they will come to bring relief to the caregivers in the nursing process. The vocational training in these fields must be able to cope with these practical requirements and prepare the learners for the development on the job market towards "Nursing 4.0". Another aspect is to interest young people in the nursing profession, to win them over and keep them in the job long term, to teach them to cope with the stress and strain, and not to succumb to any demotivation or even leave the job. The present project wants to make a contribution to this by developing the competence profile of a nurse 4.0 (IO 1) and comparing it with the current standard profile

(HCEU matrix). The new competency requirements received in comparison will be developed as selected learning content on the topics of digitalization, robotics, environmental protection and prevention of demotivation at the workplace, all implemented in modern learning formats (IO 2). The vocational training content will be performed as guided case-related and problem-oriented learning by means of a webinar, self-learning modules, role-playing games or as gamified versions in a class set or digital output.
In order to convey these new teaching contents and formats, curricula for the education and training of trainers will be developed (IO 3), implemented as part of the LTTA and feedback for optimization processes will be obtained. Any existing or revised curricula and the new role of practical guides in training in Germany are taken into account, included and considered by the partners in terms of application in their country.

The project develops anticipatory, modular training content that reflects the development process in nursing and enables learners to make a smooth transition into the labor market. The project also sees itself as an integral part of the EU's senior policy in the sense of finding solutions for the care of elderly people in need of nursing services by developing and implementing learning content on telecare / telenursing as well as ambient assisted living systems.

Another important aspect for the project team is to raise awareness of one's own contribution to environmental protection during the various phases of the care process. At the same time the described examples of Good Practice and patterns of action should serve as concrete guidance and motivation. An important aspect related to dissemination activities is the dissemination of information about changes in the job profile. In particular, digitalization in the

fields of electronic nursing documentation, technical assistance systems and telecare / telenursing as well as robotics is setting new standards in the attractiveness of the profession and can help attract young people to a vocational training in this field.

2 Project partners

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3 Intellectual Output 1 - Competence catalogue nurse 4.0

The aim of the project with regard to the catalogue of competencies was to summarize the most important competencies that have emerged in the context of digitalization in nursing, in addition to those already included in the educational curricula. For this purpose, the project partners' labor market analyses, the various nursing education curricula of the partner countries and selected studies (such as the study of the Academy for Continuing Education Bremen from 2018 on competency models, as well as the NA BIBB "Making professional competencies visible across Europe" and the study of the Ruhr University Bochum on digital competencies in nursing) were used. Furthermore, the various discussions and presented results in the Austrian Federal Economic Chamber on qualification frameworks, the subject of the work and different competency models (such as Erpenbeck, Grote and Rosenstiel, 2013 and the Leibniz Information Center, 2020) were decisive. The requirements of Care 4.0 with a focus on digitalization and their associated competencies were the priorities behind the foundation of the catalogue. For the framework of the term competence, the OECD definition was adopted, which states:

> *"A competence is the ability to successfully manage complex demands in specific situations. Competent action includes the use of knowledge, cognitive and practical skills as well as social and behavioral components (attitudes, feelings, values and motivations). A competence, for example, is therefore not reducible to its cognitive dimension; it involves more than that. "*

The labor market analysis and the content of Nursing 4.0 show that digital technologies in nursing, but also in general, open up new possibilities for reorganizing work processes both within and across facilities. However, the increasing balancing act between economic and social aspects of nursing work in highly paced processes also plays a major role in motivation and demotivation. During the project activities, it became very clear that there is currently intensive and international work being performed on the digital transformation of nursing work environments and the reflection of this technological change on the trainees' ability to act professionally. The intensity, however, is very different. The extent of the content is predominantly found in Germany, which led to a strong exchange process within the project partnership. Overall, it can be said that the present project with its results operates in the midst of the innovation taking place in the nursing field. Regarding the motivation to use digital technologies and the change in behavior patterns of those in care, the professional added value was considered and integrated in the module to prevent demotivation on the job.

The most important competencies for a professionally meaningful digitalization were chosen as a benchmark. In addition, the ethical aspect of digitalization and its impact on interactions and relationships was given attention during the scope of the project. This is also reflected in the module on human-robot-human interaction. The journal "Forschung aktuell" highlights (08/2020 issue) that competencies for comprehending the requirements and consequences of digitally supported processes, for developing strategies of resilience promotion and stress management, and for nurses' participation in the design and reorganization of their own work environment are hardly mentioned in curricula and competence areas. This was furthermore

confirmed in the research on the labor market development within the scope of the project, there was a strong focus on technical aspects. However, it should be noted, that the competence-based German curriculum includes some competencies that touch on these areas.

After evaluating all the work, the project partners agreed to include the competencies listed in Fig. 1 for the selected areas of digitalization and process design – basic digital knowledge, data management and analytical competence, application competence, assessment competence, human-robot-human interaction competence and competencies on environmental protection - in the competence catalogue.

4 Selected competencies in the developed catalogue

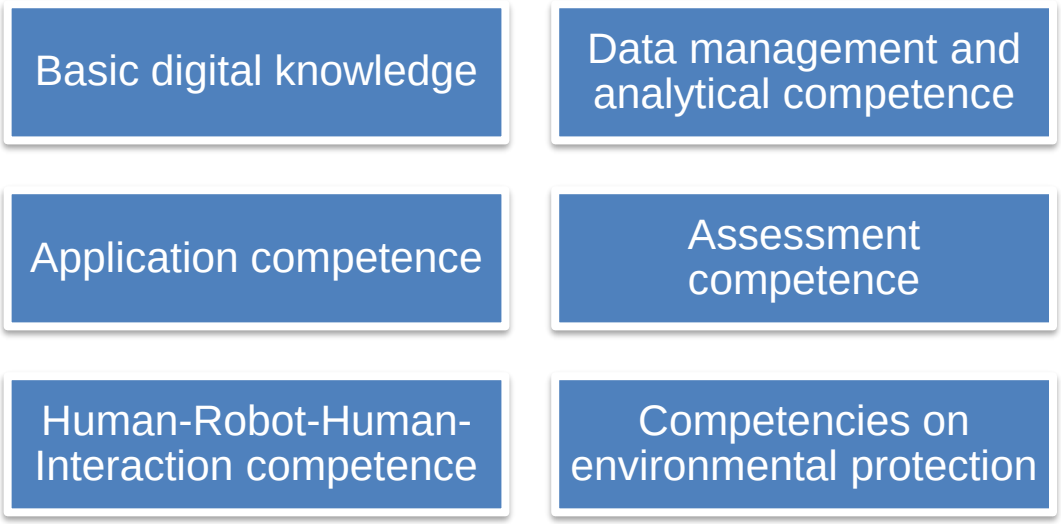

Fig. 1 Competencies of the MEDIC competence catalogue

4.1 Basic digital knowledge

This competence includes diverse insights into current digital developments, the ability to recognize the impact of digitalization on the professional environment and society, as the understanding of the transformative effect behind it. In addition, combined with the basis of acquired knowledge, the ability to acquire information, the competence to engage in lifelong learning, it provides the ability to identify the trends caused by digitalization and to anticipate further changes based on upcoming innovations or solutions. Basic knowledge includes ready-to-use knowledge of the function, field of application and purpose of digital technologies, knowledge and experience in the use of hardware and software (standard applications in nursing documentation, office, electronic communication) as well as application-ready knowledge on data protection and data security. This involves the management of clinical data (findings, diagnoses, laboratory data, etc.), the handling of large amounts of data (Big Data) and data analysis. Digital technologies can be used in a modular form. This means that they can be enhanced by a wide **variety of modules** and adapted to the specific needs of each facility. It has long been recognized that digitalization is the engine of a modern and competitive healthcare system. Efforts to provide infrastructures that promote progress are correspondingly great. The focus is on **competencies** for secure digital communication and solutions in healthcare. It is certainly worth considering here that the digital solutions applied in the work environment vary greatly from institution to institution. The objective is to impart the ability to learn basic principles in the field by using examples and to be able to apply what has been learned to the specifics of the practical work.

4.2 Data management and analytical competence

Data management competence (digital documentation system) means practical skills and abilities to apply digital technologies in terms of data analysis, including setting up the documentation system, selecting the right tools, reporting (statistical or quantitative analysis), maintaining data quality (automated monitoring and alerting), collecting, generating, maintaining, cleaning and analyzing data using databases. In addition, conversion of digital inputs into structured information collections, such as creation of a digital master sheet, creation of a care measures plan (care planning), application of digital assessments, and digital evaluations. This competence includes the ability to make autonomous and active decisions in order to identify suitable processes for digitalization on the field and to implement them practically. To a high degree, this competence will enable professionals to plan, manage, and sustainably integrate or actively participate in the integration of predictive modeling (dashboards) and multivariate testing (score cards).

4.3 Application competence

Application competence should be understood as the practical skills in dealing with digital technologies relevant to the workplace, such as - use of information and communication technology (smartphones, apps, computers, tablets, etc.), specifics in dealing with technology (behavior in the event of disruptions in communication or the system), but also the ability to adjust what has been learned, to transfer it to other areas of application and to adapt it. In other words, it is about personal skill as a prerequisite for working efficiently and purposefully with digital technologies in general, including specifics of care client/nurse/physician communication (concerns when technology is interrupted, communication in acute situations), telematics (electronic medical records, video consultation) and telemonitoring (remote monitoring options). The application-oriented perspective focuses on the targeted selection of systems that can be used to convey fundamental knowledge. Diverse systems - let's call them application software - should be able to be used effectively and efficiently by trainees in a wide variety of technical and real-life areas. These are of importance in school, private as well as professional everyday life. Without sufficient concrete application competence, the digital transformation in nursing cannot be accomplished. In general, hardly anyone in today's society can do without it.

4.4 Assessment competence

This competence is essential for further personal development and collaboration in innovation processes. This includes being able to independently select and evaluate relevant information for the care processes and estimate the expected or actual benefits.

This competence includes the ability to recognize one's own emotions as well as patterns of interpretation and action in interactions (care recipients, colleagues, family members, managers, technology) and to understand the bio-psycho-social integrity and individuality of care recipients in the context of the use of digital technologies.

Important for the prevention of demotivation on the job is the recognition of over- and underchallenging, the consequences of digitalization for the job role and the associated necessary changes, such as self-confidence and self-awareness, setting up the workplace and work tools, shift scheduling including the recognition of qualification needs and integration of further training offers into the personnel development strategy. Here, value systems, a sense of responsibility, new behaviors and also the competence to shape relationships play an increasingly important role. Also important is the ability to find one's own activities and initiatives, to give and also accept feedback, to discover for oneself how important a change is.

The acquisition of this competence includes the ability to deal with oneself in a caring manner, to contribute to maintaining one's own personal health and to be able to take advantage of the support available.

4.5 Human-robot-human-interaction competence

The nursing robots can take over routine tasks, freeing up more time for nurses to provide personalized care to patients.

The technical competencies for operating care robots include things such as understanding the potential and limitations of robots in assistance with personal hygiene, feeding, and service as well as the abilities to operate and effectively communicate with the robots.

In addition, it is important to note that the "social" robots actually promote human-to-human interaction and, consequently, have a positive impact on patients.

In terms of human-robot-human interaction, it is important to maintain sufficient emotional distance from the working device when dealing with emotion robots/companion robots and also not to be guided by prejudices or false expectations regarding acceptance by patients.

4.6 Competencies on environmental protection

In the course of today's challenges regarding the environmental pollution and climate change, it is also essential for modern nursing professionals to deal with the topic of environmental awareness as well as to acquire competencies on environmental protection and sustainability. However, the matter is so extensive and multifaceted that reducing it to a single competence would not be expedient here.

Primarily, the competencies on environmental awareness and protection enable the nursing staff to implement concepts and guidelines for the economic and ecological design of the facility. They require a wide range of knowledge about the relationship between the environment, economy and hygiene, as well as about the development and optimization of material flows. There is already selected knowledge available about the changes in society as a whole, such as sustainability in everyday work, the promotion of regionality, and the use of alternative products. However, sustainability must not be just an unwieldy term, but the practical implementation of small steps in teaching and in everyday professional life. This begins with an understanding of the consequences of climate change for health and healthcare.

Competencies on environmental awareness and sustainability include resource-conserving and reflective behavior, which is manifested in the efficient use of all resources that are applied. Competencies in this area guide care specialists in the **use of resources** that are required within care facilities to:

- pay attention to economy and efficiency,

- strengthen the idea of a circular economy,
- use alternative, environmentally friendly products where appropriate,
- reduce emissions and waste that are harmful to the environment and health,
- optimize existing equipment and to assess projects and construction work according to their environmental impact,
- take ecological aspects into account in procurement and disposal,
- document and monitor all material and resource flows.

In addition, these competencies include awareness of the importance and empowerment of promoting regionality in the use of food and other resources. Every care facility is an important part of a community. Therefore, active cooperations with local service providers or suppliers promote the regional economy and protect the environment at the same time. This also includes the usage of the garden for the kitchen, as well as the consideration of the seasonality of products.

Finally, it is important to note that digitalization also plays a role in environmental pollution while at the same time offering solutions to a lot of aspects of it. In a high proficiency, competences on environmental protection give the ability to manage this relationship successfully and to use it to the advantage of both subjects.

5 Conclusion

The competencies for a care professional in the context of digitalization and social innovation have been summarized and underlined in this catalogue. The acquirement of these competencies is to be promoted by means of selected teaching and learning modules (IO 2). These modules relate to the skilled execution of electronic documentation processes, telecare/care, human-robot-human interaction, prevention of on-the-job demotivation, and the increased environmental awareness and protection. It is important to note here that the competencies to be acquired for the qualitative execution of care processes 4.0 will be required in different constellations and characteristics in practice (equipment and development status of the care facilities in context of digitalization). However, the trainees must be able to master this through the training they have received or through the competence of lifelong learning.

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