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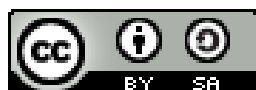
Health Literacy in Physiotherapy Education

Project-Based Learning in Health Literacy –
a guide for implementation

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1. Introduction to Project Based Learning

Project-based Learning (PjBL) is a student-centered teaching model that organizes learning around curriculum- relevant projects. Despite the diversity of definitions and the lack of a universally accepted theory in PjBL (Du & Han, 2016), some common criteria have been identified in the literature: 1) projects and problematics are realistic and central to the curriculum/discipline; 2) projects involve students in a constructive research process; 3) projects are led and conducted by students; 4) projects are extended over a certain period of time (several days, weeks, or months); 5) PjBL involves students' understanding of a topic, their collaboration in a working team, their responsibilities in the design, implementation and delivering the final product; and their reflection on the project process and project outcomes. Importantly, PjBL provides students the opportunity to overtake a leadership role and requires them to collaborate and consult with a wide range of stakeholders (Forbes & Martin, 2020).

PjBL shows similarities with problem-based learning, related to focusing on open-ended questions or tasks, to providing authentic applications, to developing collaboration and teamwork abilities, creativity and imagination, critical thinking and problem-solving skills, and to emphasizing students' independence and enquiry. But in contrast to the problem-based learning, PjBL integrates various subjects, it can be conducted over prolonged time window, and it follows predefined steps including project plan and performance. PjBL might be based on predefined scenarios but most commonly it involves real-world, fully authentic tasks and settings (Larmer, 2014).

Complex real-world problems require stakeholders' involvement in the problem-solving process. The stakeholders have specific knowledge of the system and their interests and goals influence the perception of the problem (Figure 1) (Stauffacher et al., 2006).
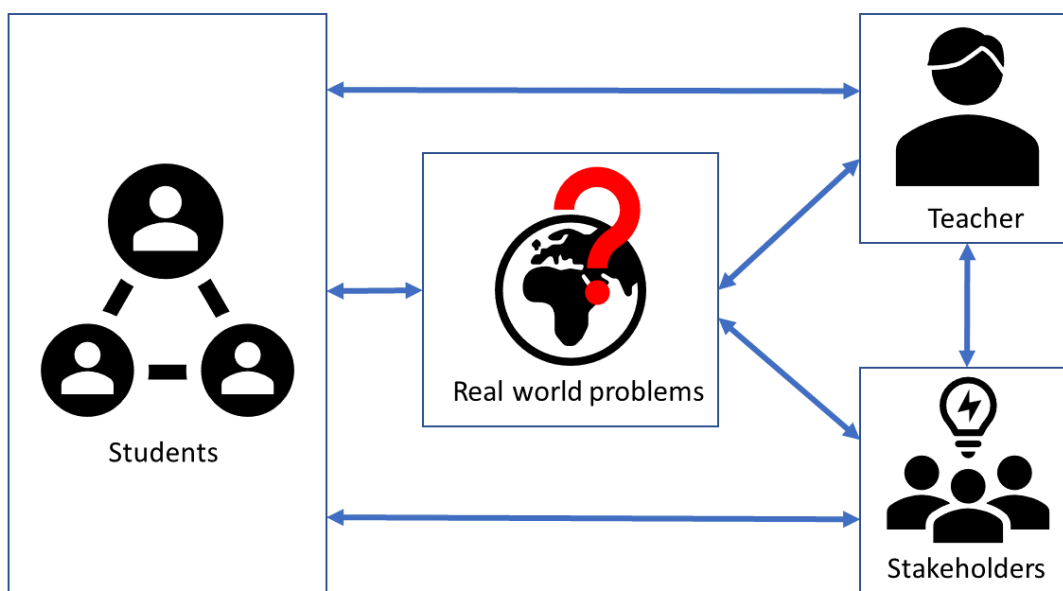

Figure 1. Stakeholder's Involvement in Project-based Learning adapted according to Stauffacher et al. (2006)

The main purpose of developing the PjBL method is to create effective learning opportunities for learners to work collaboratively in groups, to answer a driving question, to solve a problem, or to tackle a challenge with an aim of creating an end product (Bell, 2010).

Krajcik and Shin (2014) describe the following features for the learning environment of the PjBL:

- Projects start with a driving question that motivates students to initiate the project in order to solve a problem and encourage their learning.
- The focus on learning goals that require students to demonstrate mastery of key ideas and practices.
- Students explore the driving question by participating in problem-solving processes that are central to a given discipline. As students explore the driving question, they learn and apply important skills in the discipline.
- Students, teachers, and community members collaborate and share knowledge during finding solutions to the driven question, thus expanding the process of learning.
- During their practical activities, students are supported with learning technologies (for example mobile technologies for connecting in-class and out of class settings, or augmented reality technology and learning tools) which enable them to accomplish successfully the tasks.
- Students create a set of tangible results that address the driving question. These results are reflected by teachers and other students, and/or presented to stakeholders.

The High Quality Project-Based Learning (HQPBL) framework presents six criteria for implementing project-based learning (Mergendoller, 2018):

(1) Intellectual Challenge and Accomplishment (students learn deeply, think critically, and strive for excellence)
(2) Authenticity (students work on projects that are meaningful and relevant to their culture, their live, and their future)
(3) Public Product (student's work is openly shared with the public and discussed)
(4) Collaboration (students collaborate with other students in person or online and/or receive guidance from mentors and experts)
(5) Project Management (students utilize a project management process to ensure successful implementation and completion of the project)
(6) Reflection (students reflect on their work and their learning throughout the project)

Additional factors (i.e. culture, adequate learning, planning time for teachers, and flexible strategies for curriculum implementation and assessment methods) are important for the effectiveness of PjBL. Finally, the PjBL as a student-centered approach, considers the voice of all students, which makes it attractive for them and consequently increases the learning outcomes.

2. Project-based learning and project management

Regardless of the particular project design, the PjBL process can be compared to a project management process. The individual stages of the project management process describe the individual tasks to be performed by the of students' team (Gotzen, 2013):

Phases	Project based learning	Elements of project management
Preparation phase Project idea Project initiation	- Starting point: identify a complex problem - Students formulate a question by their own - They formulate learning objectives	- business case - Definition of the project aim - Definition of project limitations
Action phase/Plan Project planning	- Students organize the teamwork (leadership, responsibilities of members, communication in team; work assignments) - Students decide on their own how to organize and perform the work (determine structure and milestones)	- Project organization - Development of project plans (management tools, work packages, flow charts, time schedules, risks) - Definition of tasks, milestones and deliverables
Action phase/ Perform Project implementation and controlling	- Students work in close cooperation in team, they discuss, collect ideas, make decisions - Students and supervisors monitor the project progress, reflecting on the learning opportunities, unexpected problems and how to solve them	- Control of project progress, evaluation of risk factors and their effects, apply risk-mitigation measures - Evaluate deviations between project plan and project implementation - Optimize work
Presentation/Evaluation Project completion	- Presentation and documentation of the project results - Collective and individual reflection on the project (e.g., through portfolio)	- Project reports, visibility, communication and dissemination of results - Evaluation of project activities and results

Table 1. Project-based learning and project management

Since project management skills are required in the development of the projects during the PjBL, these skills need to be integrated in preceding teaching courses, as well as statistics and presentation skills. For more details see Chapter 6 "Implementation in the curriculum".

3. Project-based learning and health literacy

The PjBL integrates knowledge and practice in educational and in real-world settings. Thus the PjBL serves not only as a tool to improve HL competencies in students, but also to support people to obtain, understand, evaluate, and use information about health and health care through various communication channels and social resources. In this way it helps to promote their own health and well-being (WHO, 2022).

3.1 Health literacy competencies

In the PjBL students apply and extend their health literacy competencies through selecting and applying HL assessments and interventions for different client groups in various clinical settings.

They identify specific problems, discuss and prioritize them and formulate a physiotherapy-specific and HL-specific project topic. The conceptual framework for HL development can be used as a guide for students to identify a HL-relevant project topic (see 3.2).

HL competencies can be generally classified into 3 levels (Murugesu et al., 2018; Koh et al., 2013):
   a) **Micro-level**: focusses on the direct interaction between the health care provider and clients
   b) **Meso-level**: addresses the organization of care**,** with a particular focus on optimizing existing structures and processes
   c) **Macro-level**: involves the general preconditions for implementing good care into practice. This includes, in particular, policy and related activities at the organizational or national level

In the context of PjBL, students' projects usually target individual clients or specific client groups, therefore being most related to the competencies at the **micro-level**.

Three main HL competency categories should be specifically addressed in PjBL:
1. Investigate lifestyle condition and risk factors in clients with limited HL
2. Develop health related educational skills in clients with limited HL
3. Achieve behavioural change and self-management in clients with limited HL

Students' projects can represent one or more of the following HL competencies (these can defined based on the individual needs of the respective study program):

Investigate lifestyle condition and risk factors
☐ A2.1 recognize client with limited HL
☐ A2.2 perform a client-centered assessments
☐ A2.3 establish a management plan

Health related educational skills
☐ A3.1 develop structured patient/health education
☐ A3.2 base patient education on evidence
☐ A3.3 provide individualized client centered education related to health and risk factors

Behavioral change and self-management
☐ A4.1 recognize individual needs for change by clients with limited HL
☐ A4.2 facilitate an effective self-management
☐ A4.3 foster behavior changes during long-term management

3.2 PjBL based on the conceptual framework for health literacy development

The WHO has developed an integrated conceptual framework for health literacy development (see Fig. 2) (WHO, 2022). This conceptual framework describes the settings and the health determinants which may influence the HL development and can be used as a supporting tool for the development of student's projects in the PjBL.

Health literacy is developed over time through social practices, education, and media, provided by health workers, systems, organizations and policy-makers. In their role as health workers and client educators, the physiotherapy students can support the clients' HL development in the process of PjBL. For instance, identifying particular clients' barriers to access health and health care information (availability of and physical access to information or services, quality of services, responsiveness of services, cultural safety, stigma, and gender inequity) can be targeted in the PjBL in order to identify effective strategies for overcoming them. Further, prevention and control of NCDs or other health problems through improved access and understanding of health-related information can be addresses in students# projects. Especially action area 4 "Target priority groups" from the conceptual framework appears to be particularly important for the PjBL. The target priority groups have limited access to health information or health care related to the prevention and control of NCDs or their needs are not met by current approaches to health service delivery. These groups are likely to be cultural minorities, migrants, people with disabilities, people with mental health problems, people with low education and socioeconomic status, young people, people with limited digital skills and access, and other marginal groups. Activities including identifying and prioritizing groups that are not effectively using health services, as well as application of HL principles when implementing digital services to maximize participation (WHO, 2022) are among the suggested topics when designing the projects for the PjBL.

Further, the following guiding questions from the contextual framework can be used in selecting the objectives for the PjBL:

1. What settings and health determinants may influence my clients?
   - History and geography
   - Armed conflict, humanitarian and emergency settings
   - Norms and cultures, health care
   - Traditional knowledge
   - Ancestral and religious requirements and beliefs
   - Regulatory, fiscal and legal environments
   - Economic and commercial environments
2. Does my project idea address all 5 actions of HL?
   - Accessing
   - Understanding
   - Appraising
   - Remembering
   - Using
3. Which way of learning do I choose in my project?
   - Community conversations
   - The Arts
   - Printed materials
   - Communication and interaction with health workers
   - Conventional mass media
   - Digital media
4. What barriers do I have to consider in my project idea?
   - Availability or physical access

- Language
- Service quality
- Cost or availability of universal health coverage
- Service responsiveness
- Racism and other discriminatory practices
- Cultural safety and stigma
- Information and communication technologies
- Gender inequality
- Complexity and comorbidity

4. Roles of teachers and students

Tutors: Teachers and students from higher semesters can be involved as tutors. During the project implementation phase, the tutors have a supervising and supportive role by: providing information on organizational procedures (i. e., preparation, presentation phase, risk management, reflection process), (Stauffacher et al. 2006:255). Regular meeting between the project group members and their tutor is organized at each project phase (see Tab.1).

Experts (optional): Experts can be recruited from the academic staff, not involved as teachers or tutors, or from external institutions (hospitals, rehabilitation centers), for example internship supervisors. As soon as the topics of the projects are determined, experts can be assigned. Experts control the physiotherapeutic and HL context of the planned action. For discussions with experts, students can take appointments (2-3 appointments).

Students: Students work independently in a group. The project manager of the group communicates with clients, tutors, experts or teachers and is responsible for keeping to the project schedule. A well-organized distribution of individual activities within the group and optimal communication and coordination are prerequisites for the success of the project. For the other project group members, the roles must be well distributed throughout the project phase (e.g. protocols, literature research, statistical evaluation).

5. Challenges and Potential Solutions in Project-based Learning

Harmer and Stokes (2014) identified challenges for students and academic staff and summarized potential solutions.

Table 2 Challenges and potential solutions in Project-based Learning

Identified challenge	Potential solutions
Group work	- allocate fixed or rotating group roles - provide formal training in group work for student prior and/or during the project - provide time and support for the groups to feel comfortable together - choose staff on the basis of their experience and skills in group work - provide staff training in group work and facilitation - apply between-group mentoring and review - clear guidelines and rule on the expectations regarding individual contribution to group work and how this will be assessed
Planning and preparation	- pilot the project - use a real-world problem as a driving question for the project - choose projects which can be scaled up or down depending on student numbers - advance identification of and negotiation with external partners
Scaffolding and student support	- provide a thorough briefing for students about the aims, methods and content of the project - use of past student experiences to help brief new students - use a sample of projects or written project guides - appropriate levels of scaffolding, often providing greater lecturer input in early stages and reducing as the project continues - provide appropriate materials and resources
Maintaining motivation	- choose projects which interest students and have real world significance - use a competitions between teams and prizes - showcase performance to external or professional audiences
Assessment	- assess appropriately to the task and the learning outcomes targeted - include several types of assessment (summative and formative; peer and staff; group and individual) - give formative assessment through cycles of feedback and revision - include time and space for students to reflect on their learning throughout the project
Staffing	- choose staff who understand and have experience in PjBL - train the staff in PjBL approaches - give access to materials and resources for lecturers regarding PjBL

Note. From "The benefits and challenges of Project-Based Learning: A review of the literature" by N. Harmer and A. Stokes, 2014, Pedagogic Research Institute and Oberservatory (PedRIO) Paper 6, p.31

6. Implementation in the curriculum

Recommended course description:

Name of the course:	Project-based learning in the context of health literacy
Type:	Seminar/workshop (Lectures, group work, supervision, self-reflection)
ECTS	4
Semester	Recommended in 6th semester /or end of studies (semester 5-8)

Content of the course

Lesson	Topics and content
4 ECTS	Project incl. tutorials at the end of each project phase Support and reflection on intervention planning and implementation
0.5* ECTS	Statistics and practical application of a software for data processing
0.5* ECTS	Learn and apply presentation techniques
0.5* ECTS	Video presentation/creation of a presentation, marketing video of the project

> *These seminars can be part of the course- as for example at FH JOANNEUM, Austria. The seminars can also take place in earlier semesters.

Students act as experts in physical therapy and develop a project to promote health literacy at the micro/meso level. In the context of project-based learning, the project process is planned and prepared, and an intervention to promote health literacy is selected and implemented based on the physiotherapy expertise. In addition, students acquire public relations skills in the form of live and video presentations.

Prerequisites: Knowledge from previous semesters on: health literacy, physiotherapeutic interventions, statistics, and management.

Learning outcomes: Students develop competencies in planning, creating, implementing and evaluating projects related to health literacy. They recognize specific problems, discuss and prioritize them and formulate a physiotherapy-specific and health literacy-specific project aim and objectives. Students are able to communicate and complete effectively their tasks in the project team. Students are familiar with the basics of public relations and marketing and can chose the appropriate methods for their project to implement it in a professional context. They are competent in presenting, reflecting and evaluating the project results.

Evaluation of the course (example FH JOANNEUM):

Percentage	Sub-sections

80%	Project (literature research, quality of content, implementation and documentation of the intervention, project assignment, project manual, project materials)
10%	Implementation of statistics
10%	Presentation skills

The presented course description serves as example and can be modified according to the specific curriculum of the HEI. Tranferability of the proposed course plan can be reached with: choosing the timing and the duration of the PjBL in the curriculum, modifying the ECTS number, and adapting the project objectives.

Recommended literature:
- World Health Organization (2022). Health literacy development for the prevention and control of noncommunicable diseases: Volume 1. Overview. Geneva: World Health Organization; 2022 (Health literacy development for the prevention and control of noncommunicable diseases). Licence: CC BY-NC-SA 3.0 IGO.
- use of agile project management tools

Delivery checklist

What?	Who?	When?
Project application (=assignment)		
Literature research		
Privacy statements		
Sponsorship agreements (optional)		
Concept of the project		
Project manual		
Abstract		
Presentation		
Project material		
Agreement to continue the project beyond the course (optional)		
Self-reflection		

7. Data protection

Students will be informed in class about the data protection regulation in the context of the project work and intervention. If visual or audio materials are created as part of the project work, a specially prepared data protection agreement must be signed and handed in.

8. Best practice examples

At FH JOANNEUM Graz (Austria), projects in the way of PjBL are already implemented by the students in the 6th semester. Some of these projects had a special focus on health literacy. These best practice examples can be found in Appendix B.

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Appendix A - Project phases and learning outcomes

Project phase	Learning outcome	Existing materials
1. Project management		Introduction/Guideline for teachers
2. Preparation phase		
a. Select clients group	A2.1 recognize client with limited HL	L02, L03, L04, L05, CHAT, HLQ
b. Define the problem and formulate research question	A4.1 recognize individual needs for change by clients with LHL	L02, L03, L04, L05; L10, recognizing LHL (comm.skills)
c. Literature research/current state		
d. Select methodology/intervention		
3. Action phase		
a. plan	A2.1 recognize client with limited HL	L02, L03, L04, L05, CHAT, HLQ
	A3.1 develop structured patient/health education	L12
	A3.2 base patient education on evidence	
	A4.1 recognize individual needs (possibilities) for change in clients with limited HL	L10; PEVA Videos
b. perform	A2.2 perform a client-centered assessments	L04, CHAT
	A2.3 establish a management plan	SDM (comm. skills)
	A3.3 provide individualized client centered education related to health promotion and risk factors	L10, L11, L12, L13, L14, reflection tool
	A4.2 facilitate an effective self-management	L10, L11, L12, L13, L14, reflection tool

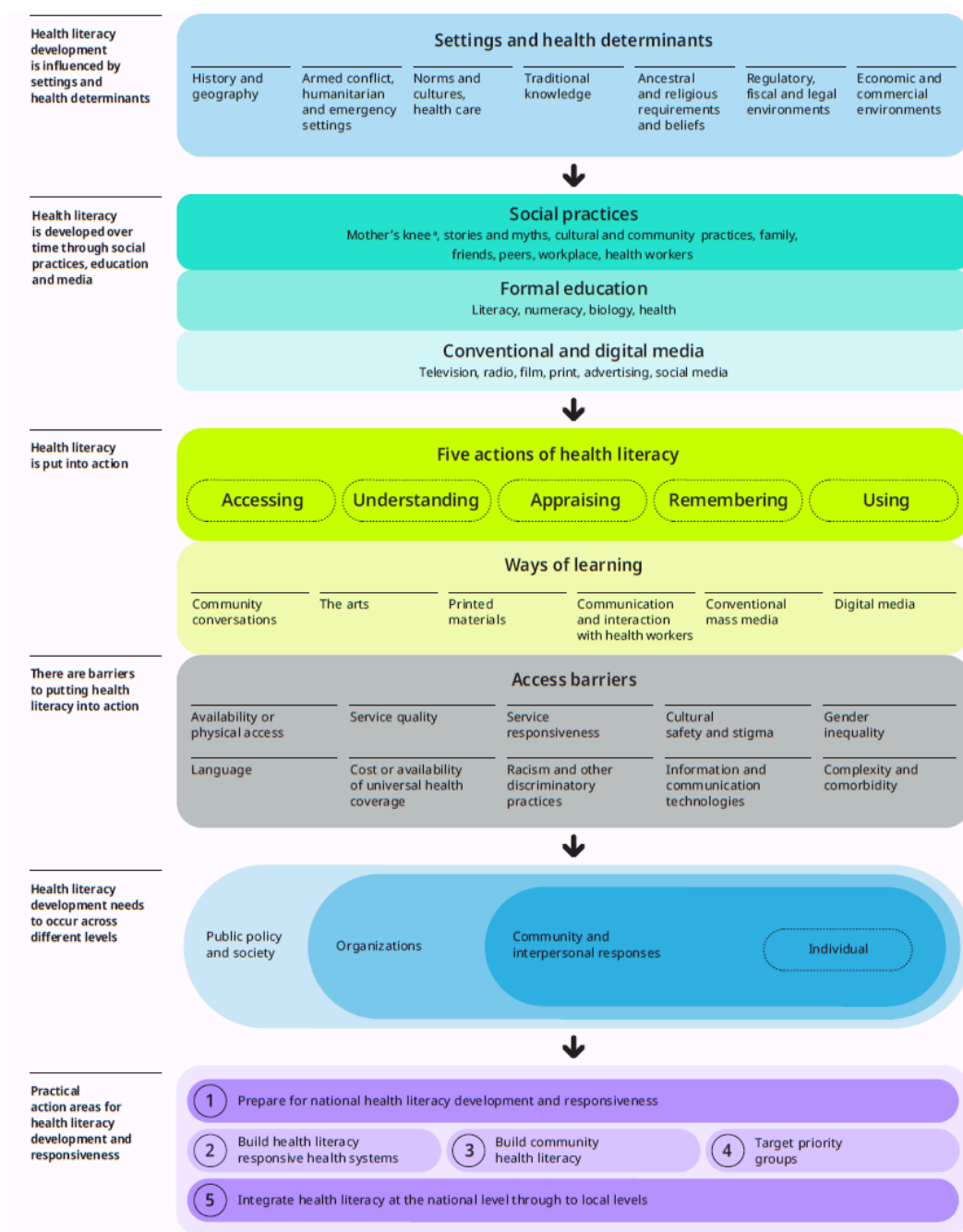| | A4.3 foster behavior changes during long-term management |
| c. collect data | |

| 4. | Evaluation phase |

| 5. | Dissemination phase |

Appendix B - Integrated conceptual framework for health literacy development

Fig. 1.2. Integrated conceptual framework for health literacy development

Conceptual framework for health literacy development in World Health Organization (2022). Health literacy development for the prevention and control of noncommunicable diseases: Volume 1. Overview. Geneva: World Health Organization; 2022 (Health literacy development for the prevention and control of noncommunicable diseases). License: CC BY-NC-SA 3.0 IGO.

Appendix C - Project examples

Project 1

Project name:	Just for me(n)
Topic:	**Training for men before prostatectomy**
Clients:	Men with prostate cancer in the preoperative phase of a planned prostatectomy
Aim:	Preparation of informational materials and training programs to shorten postoperative rehabilitation time and increase patient self-efficacy
Description:	The project uses evidence-based guidelines from the literature on the design of preventive therapy for men undergoing prostatectomy. Preoperative management is prepared for clients and presented in a simple form (considering also clients with insufficient HL level), followed by objective and subjective evaluation of the measures. A combination of modern online-based tools and comprehensive flyer are used. An information flyer is handed out to clients at the first visit of the client in the clinical practice. Using videos uploaded on an online platform, clients are provided with a consistent and constructive exercise program for pelvic floor training. Additionally, contacts to a multidisciplinary team and useful tools and links are also provided to the client. In this way, communication between the client and the therapists is facilitated for the men, which enables increased use of health care services and promotes the self-management.
Health literacy focus:	Images and videos with information are made available on an online platform. The focus is set on accessibility and the use of simple language and on drawing pictures.

Project 2

Project name:	Stand still!- Fall prevention
Topic:	**Fall prevention for elderly**
Clients:	Community-dwelling elderly people
Aim:	Develop awareness of fall prevention and teaching exercises that can be carried out independently by the clients. This should increase motivation and self-efficacy in older people.
Description:	Based on the state of the art, information materials and exercises are selected and designed to be used in easily accessible places (general clinical practice, public health facilities).
Health literacy focus:	Posters and postcards with exercises and information about fall risk in simple language.

Project 3

Project name:	Strong in life
Topic:	**Activity training for elderly**
Clients:	Community-dwelling elderly people
Aim:	Offer simple strengthening training for older people and increase awareness for active ageing.
Description:	Based on literature analysis, strengthening exercises for different parts of the body using objects from everyday life were selected. Guided training sessions are available for older people. A possibility for consultation with

	experts in healthy ageing is provided during and after the training sessions.
Health literacy focus:	Simple exercise instructions and everyday objects used for training.

Project 4

Project name:	Movement beyond eyesight
Topic:	**Strength and endurance training for people with visual impairments**
Clients:	Community dwelling elderly people with visual impairments
Aim:	Develop an exercise program including a home exercise program using audio format
Description:	Individuals with visual impairments show an increased risk of falls because, in addition to the restricted vision, they may have reduced muscle strength and balance capacity. An exercise program including a home exercise training is developed for a geriatric health care center. The exercises focus on improving strength, balance, and flexibility. The exercises are offered in various levels of difficulty. An audiobook and spoken content (digital audio format with 26 exercise sequences) are developed for this purpose. Possibilities of training progression are also described in the audio files.
Health literacy focus:	Empowerment by using existing resources of the target group. The clients' self-efficacy is promoted and thus health literacy is improved. In the long term, improved self-confidence and body awareness are expected, which will promote healthy aging older people with visual deficits.