REBALANCE

Engaging Physiotherapists and gymnasts in the digital performance of their profession for distance guidance in physical exercise

REBALANCE Project

2021-2-NL01-KA220-VET-000049424

R1/A1 NEEDS VERIFICATION PHASE REPORT

R1/A1

Date of Issue: 15/11/2022
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Executive Summary

Work is a significant part of our life since we spend at least 1/3 of our day. The Covid-19 outbreak brought an immediate change in our work style and many people were forced to work permanently from home. Within the work from home concept, people exaggerating working hours reduce their movement and the balance of their physical activity. The limited physical activity and the non-ergonomic equipment worsen the body structure, and continuous aches in the back, neck, knees, and hands appear more recently.

The COVID-19 restrictions brought in place the home fitness concept due to convenience and safety. These activities are based either on videos or fitness apps without the personalised guidance from professionals that can encounter the existing musculoskeletal problems of the user. This is a current challenge that appeared for professionals such as physiotherapists and trainers since they cannot assure that their guidance to their patients or clients would be enough to ensure that the execution of these activities would be successful at home without harming themselves.

Physiotherapists and trainers can provide their services in real-time. When instructing clients from a distance, they may lack the technical skills and knowledge to effectively guide them and ensure that their end practitioners do not harm themselves.

The Rebalance project aims to solve these problems by identifying the following needs:

- The need to enhance training on performing physical exercises in circumstances when a physiotherapist or trainer is not available in real-time, using digital methods.
- The need for physiotherapists and trainers to improve their services by implementing digital solutions that allow them to provide individualised assistance to their patients/clients, even if they can't teach them in real-time.
- To increase awareness about the negative effects of long periods of sitting on one's physical structure and health.

To meet the detailed requirements, we want to develop an accessible online solution improving the conditions in which physiotherapists and trainers may guide persons from a distance without having to deal with generic training apps. Professionals who take part in our program will learn how to use new technologies in their industry, develop their digital abilities, and receive a final, free-to-use product to operate in their daily activities.

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1. Introduction

The goal of the activity was to gather feedback on the needs of Physiotherapists and Professional Sports Trainers while they practice their profession from a distance.

Furthermore, we wanted to analyse in an indirect way the profile of their clients.

For this reason, we conduct research through 2 ways in the consortium countries:

- Anonymous Survey
- Consultation rounds with semi-structured interviews and anonymous record keeping.

For the reasons of the research P2- TUAS researched and gathered the references for the creation of the templates and after the feedback of the partners, launched the research.

The partners contributing to the in-Survey phase were ATERMON, TUAS, HESO, LSU, CEPROF and partially ATU.

The partners executing the Consultation rounds were TUAS, LSU and CEPROF.

The participants in both steps were:

- Physiotherapists
- Sports Trainers/ Coaches
- VET trainers
- University professors

2. Survey Results

In this phase, we gathered 90 answers with 88 answers having replied to all the questions.

People were reached through emails and direct contacts of consortium members. The partners who executed the survey were ATERMON, TUAS, HESO, LSU and CEPROF

2.1 Analysis of results

1.Country of Origin

The majority of the participants come from Lithuania (37). Then 14 participants from Cyprus, 12 from Netherlands, 12 from Finland, 10 from Portugal, 4 from Ireland and 1 with a Greek origin.

1. Country

● The Netherlands	12
● Finland	12
● Cyprus	14
● Ireland	4
● Lithuania	37
● Portugal	10
● Other	1
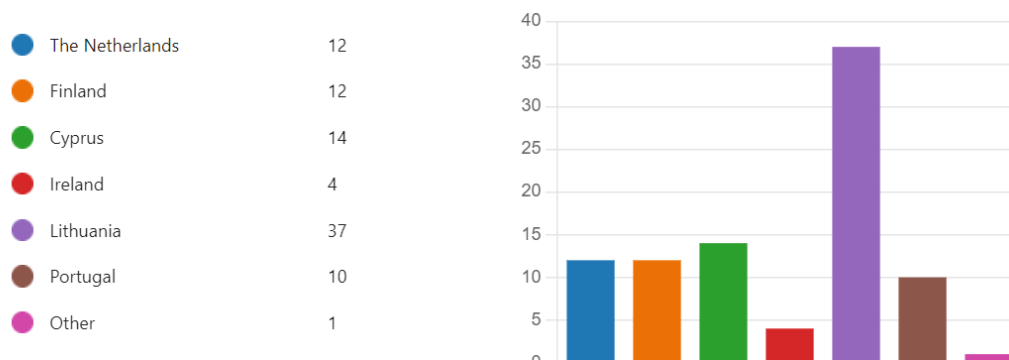
1 Origin of Survey Participants

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2. Gender

The majority of the participants were Female (68%)

2. Gender

● Female	61
● Male	27
● Prefer not to say	2
● Other	0

2 Participants gender statistics

3. Age group

The majority of the professionals belong to the age group of 25-34 and 35-44. Our participants are in their very active professional years.

3. Age

● under 18	0
● 18-24	6
● 25-34	29
● 35-44	25
● 45-54	20
● 55-64	9
● 65 and older	1
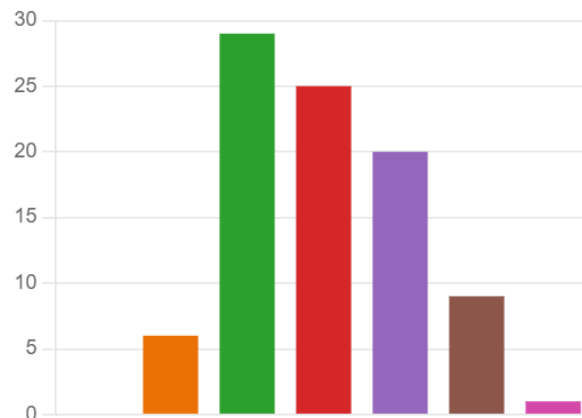
Figure 3 Participants' Age group

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4.Profession

The majority of the participants belong to the Sports field.

More detailed 33% are Physiotherapists, 34% are Gymnasts/ Fitness Trainers and 15% are Coaches, 12% are VET trainers and 8% University Professors.

4. Profession

🔵	Physiotherapist	29
🟠	Vocational Education and Traini...	10
🟢	Gymnast/ Fitness Trainer	30
🔴	Coach	13
🟣	University Professor	7

Figure 4 Participants' profession

Some Insights related to other questions of the survey.

- The majority (93%) of the Coaches answered "No" to Question 8, saying that they didn't have experience with any digital practice in their profession during Covid-19.
- 100% of the Coaches replied "No" to Question 25, saying that their clients didn't have multiple conditions.
- The majority of the Coaches (93%) answered "No" to Question 37, saying that there was no national guideline for data management and privacy.
- The majority of the University Professors (86%) have experience of more than 10 years in their field.
- The majority of the Gymnasts/ Fitness Trainers (97%) No to Question 35, that they used no Research Electronic Data Capture platform.

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5.Education

The majority of the participants own a master's degree. 22% of the participants don't have a University Degree.

5. Education

Secondary Level	0
Higher non-university degree	11
Incomplete Higher University st...	2
Incomplete Higher non-universi...	1
Vocational Education and Training	6
Bachelor's Degree	25
Master's Degree	30
PhD	11
Other	3

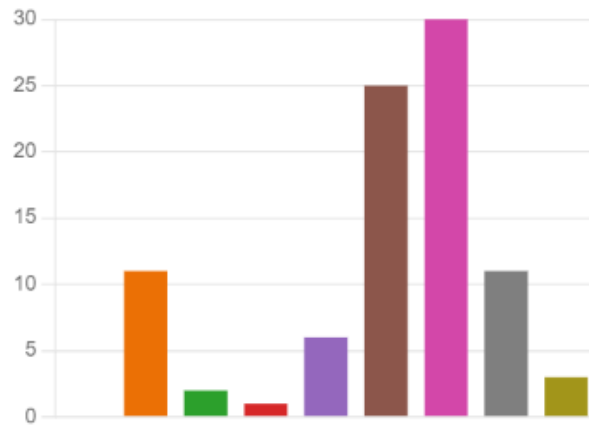*Figure 5 Participants' Educational Level*

6. Years of practicing

The majority of the participants have been working in their sector for more than 10 years.

6. How long have you practiced your profession?

less than 6 months	0
6 months to 1 year	2
1 to 3 years	13
3 to 5 years	10
5 to 10 years	19
10 years and over	45
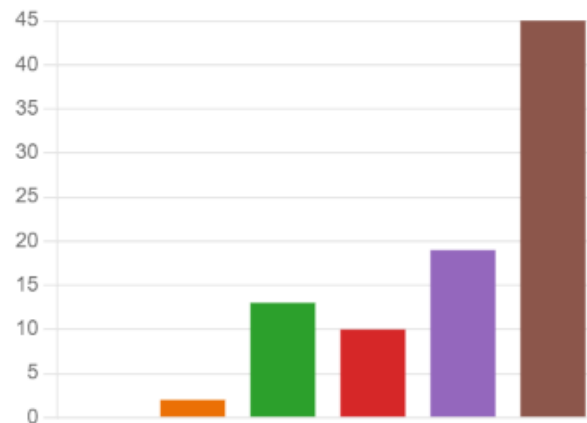
Figure 6 Field working experience.

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7. Field of Work

The majority of the participants are in the Physical Exercise sector (Gym, Sports' Clubs) and independent practitioners. The answers in the Field other mentioned the following sectors:

- Sports Therapy,
- Companies and
- Sports School

7. In which field do you work?

Private Practice	20
Primary Healthcare	8
Hospital healthcare	6
School	5
University	7
VET centre	8
Gym	13
Sport Club	18
Other	4

Figure 7 Field of Work

8. Experience in Digital Practices

The majority had no experience with digital practice during the period of Covid-19.

8. Have you had some experience of digital practice (also referred to as telehealth or telemedicine) before COVID-19 pandemic?

Yes	18
No	71

Figure 8 Digital Practices Experience

Those replied with Yes mentioned the following extra information:

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- Teaching physical education classes at a distance
- Zoom classes with clients.
- Online clinical note taking systems.
- Remote appointments and workplace activities
- Reaching patients through Messenger and zoom
- During pandemic I still got my clients and occasionally sent them some materials that helped them to keep their training sessions.
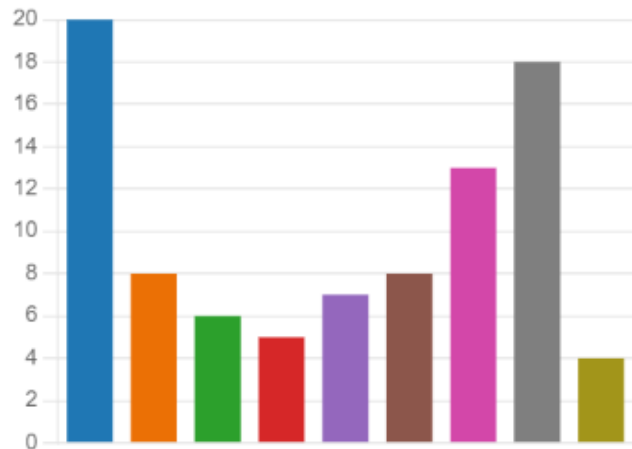- Online training
- During pandemic I reached out to my patients online
- Zoom & Skype
- I held classes with few of my clients online (group training)
- We were teaching the students via online platforms. Regarding the practical part it was difficult, and no online solution worked.
- Distance physical rehabilitation for older people
- Web conferences
- During covid I had to instruct patients with backpain from distance to train themselves
- I participated in the training of physiotherapists from the island of Madeira and the Azores (Portugal). Classes were face-to-face and via video conference.

10. Training on digital practice

The majority had no training around the digital practices in their profession.

10. Have you had any education/training for digital practice (also referred to as telehealth or telemedicine) since COVID-19 pandemic started?

| ● Yes | 20 |
| ● No | 69 |
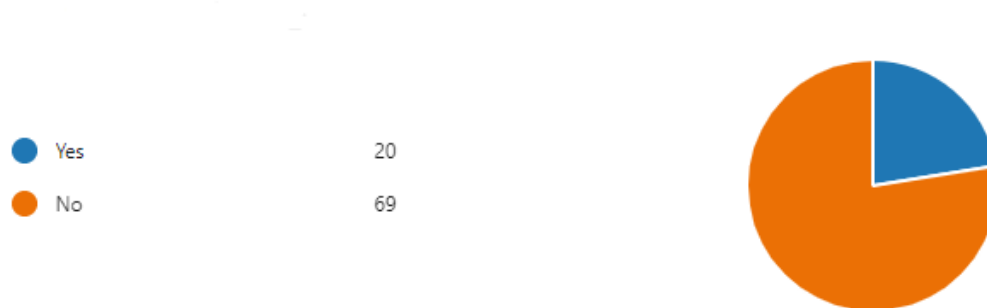
Figure 9 Training on Digital Practices

11. Explain

- Informal peer training
- Application use, protocols
- Deployment training for remote rehabilitation software
- Online Pilates
- Induction at the workplace
- Telehealth
- I have participated in training courses on how to use MS TEAMS, ZOOM and other platforms.

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- I teach telecommunications and information technology applications in rehabilitation and medicine.
- Webinar + written instructions
- Workouts
- Gymnastics training
- Use of virtual learning environments

12. Support in Digital Practice

Limited Support was given to the practitioners during the exercise of their profession in digital Environments. For the rest of the participants the question was not applicable since they didn't turn in and distance practices of their professions.

12. Did you get enough support when you started your digital practice?

	Yes	16
	No	40
	Not applicable	33
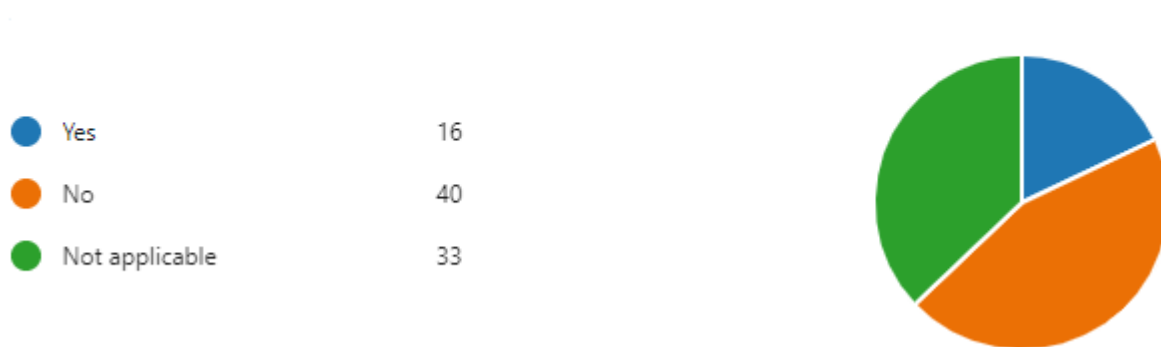
Figure 10 Support in Digital Practice

13. What type of Support

- peer support and direction
- Use of technology, IT support
- Extra education if needed, and the support of superiors.
- PC and app
- The parents of the athletes were willing to help both the little athletes and me to run high quality sessions. Other coaches also shared their advice and experience about distance training.
- We had a training inside the organization by our IT staff.
- Movendos app instructions for use
- guidance from a colleague on the use of the device and on the guidance methods
- From colleagues and the therapist in charge of the unit's tele-rehabilitation

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14. Need for more Training/ Education

71% of the participants need more education.

14. Do you feel like you need more education or support to execute digital practice in the future?

- Yes 63
- No 26
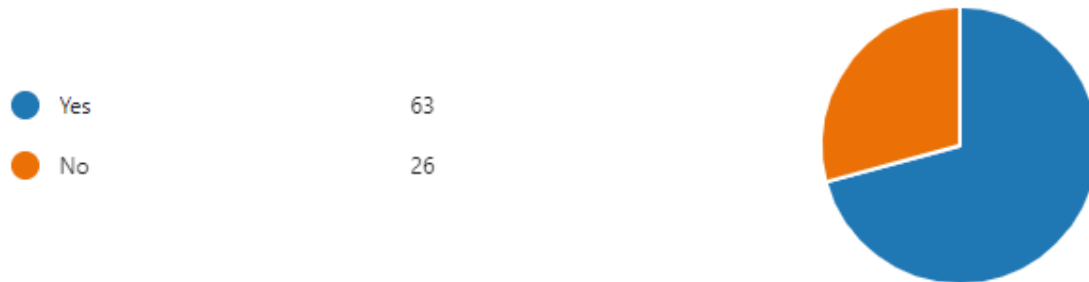
Figure 11 Need for more training/Education.

15. Types of technologies that require more education

The majority of the participants selected Video Communication, Smart Apps and Online communication with patients. A significant number mentioned Augmented Reality Technology.

15. What kind of technologies?

- Augmented Reality 24
- Virtual Reality 15
- Smart Apps 31
- Video Communication 34
- Online Communication with Pati... 24
- Online Consulting 30
- Other 1
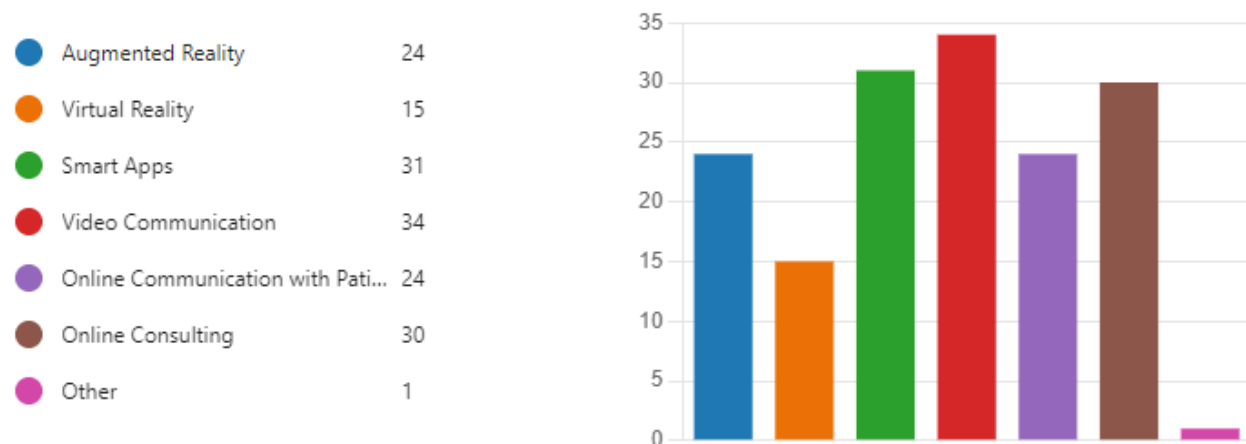
Figure 12 Technologies selected that require more focus in education.

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16. Specialisation of participants

The majority of the participants work in Sports and Sports Education and in treating Musculoskeletal conditions. The participants that replied with "other" work in School Education.

Others in Orthopaedics, Physiotherapy and Sports Rehabilitation.

16. Your area of specialisation (choose many if needed)

Area of specialisation	Count
Adult Physical and sensory disa...	3
Musculoskeletal	23
Orthopedics (total joint arthropl...	14
Rheumatology	2
Pediatrics	8
Neurology	12
Gerontology	4
Respiratory	2
Pelvic health (stress incontinenc...	7
Palliative Care	0
Pain clinic	4
Amputation	0
Sports	39
Education of Sports training/ co...	39
Education of Physiotherapy	10
Education in Sports Rehabilitati...	13
Other	4
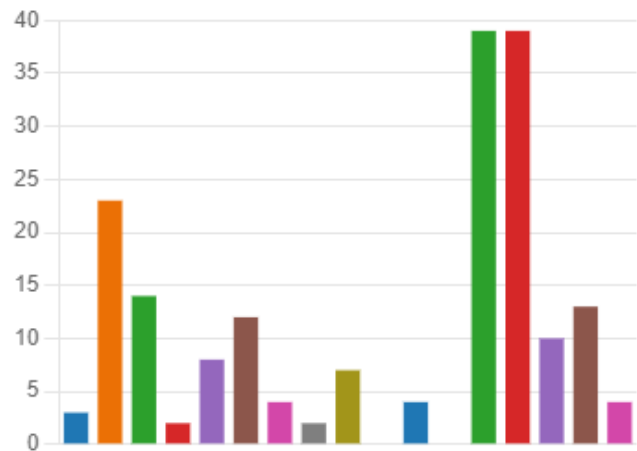
Figure 13 Specialisation of Participants

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17. Digital Practice per client

The majority had more than 10 digital sessions per client.

17. Using a typical client as example approximately how many digital/ online practice sessions would you have had?

● 0	10
● 1-2	15
● 3-4	13
● 5-6	10
● 7-8	3
● 8-10	7
● more	30
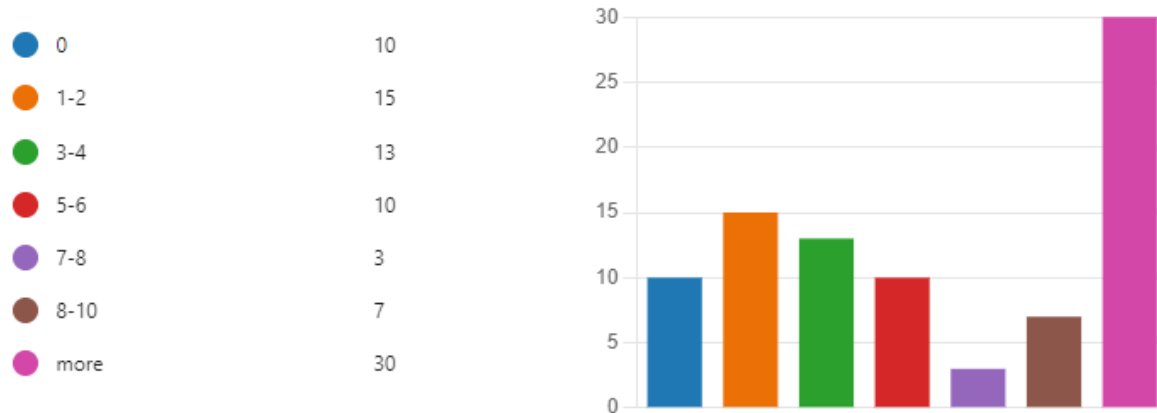
Figure 14 Digital Session per Client

18. Duration of Digital Practice

The majority mentioned that the sessions lasted up to 60 minutes.

Those mentioned the "other" option wrote the following:

- 1-1,5 hours
- 2 hours
- 10 participants with Not Applicable

18. Approximately how long did one digital practice session last?

● 20min	3
● 30 min	15
● 45min	24
● 60min	33
● Other	13
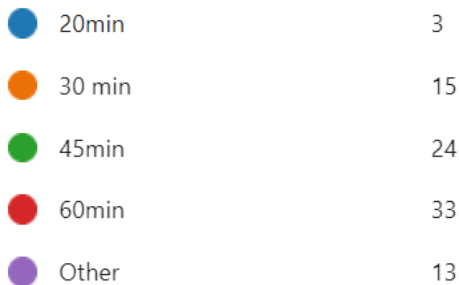
Figure 15 Duration of Digital Practice

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19. Types of technology used

The majority used the Online Communication Platforms and messaging services, internet and websites/ Web platforms, Videos, Emails and only 19 mentioned the Smart Applications.

7 replied that the question wasn't applicable to their case.

19. What types of technology have you used during the provision of your distant service (Choose many if needed)?

Technology	Count
Internet/Websites	48
Smart Applications	19
Videos	37
Online-meetings (Zoom, Skype, ...	72
Web platforms	22
Phone	27
Messaging	23
Robot-assisted rehab	0
Virtual reality	0
Augmented reality	0
Email	37
Video games	2
Online message boards	3
Texting	13
Other	7
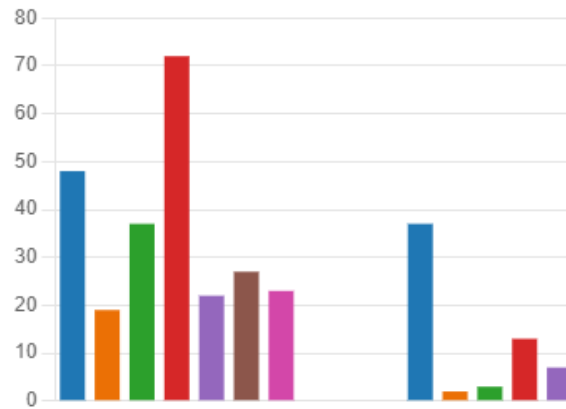
Figure 16 Types of used technologies

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20. Barriers in using Technology

Here we identify that presence is a requirement in these professions. The challenges in F2F, the need for education in modern technologies, the lack of educational and instructional materials online, the lack of technology equipment to clients, the online fatigue were some the options that collected more answers.

20. **Please identify any barriers in using technology with your clients?** (choose the 3 most common)

More Details

Barrier	Count
Being present.	31
learning to use technology	21
Challenges of hybrid model (F2F...	22
Adequate bandwidth	17
System and software requireme...	7
Privacy and Confidentiality	9
Written consent	4
Lack of supporting platforms	18
Lack of educational materials	21
Lack of education and support	12
Lack of technology for clients (s...	19
Work-from-home arrangements	21
Hardware & Software for imple...	2
Lack of equipment at patient's l...	17
Online fatigue	17
Time management	10
Extra time costs	12
Increased anxiety using technol...	15
Other	4
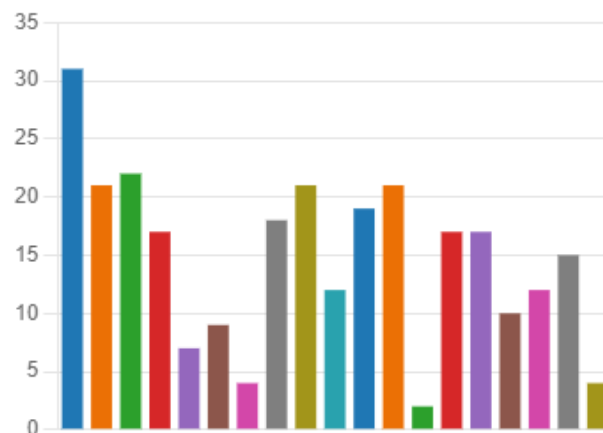
Figure 17 Barriers in using technology with clients.

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21. Favourable factors

The participants believe that all the factors mentioned in this question are important and in favour of digital practice in tehri professions.

21. Facilitators that helped improve the use of technology with you and your client: (choose the 3 most common)

- Best surroundings (ensuring qui... 40
- possibility of hybrid model (F2F ... 17
- Lower expences 41
- work-from-home arrangements 41
- Scheduling 37
- Other 6

Figure 18 Favourable factors in the digital practice

22. Additional expense for the client/ patient

The majority of the participants are not aware of additional expenses.

22. Did your client face additional expenses resulting limitations, that excluded them in receiving or partaking in digital therapy?

- Yes 9
- No 26
- I don't know 53

Figure 19 Additional Expenses

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23. Distance services

Evaluation of condition, Physical Training and Stretching are the top 3 selections. Other famous options are Education, Muscle strength and Endurance, Two-Way/ Real-Time Interactive Communication and Therapeutic Exercises.

23. Characteristics of interventions/services?

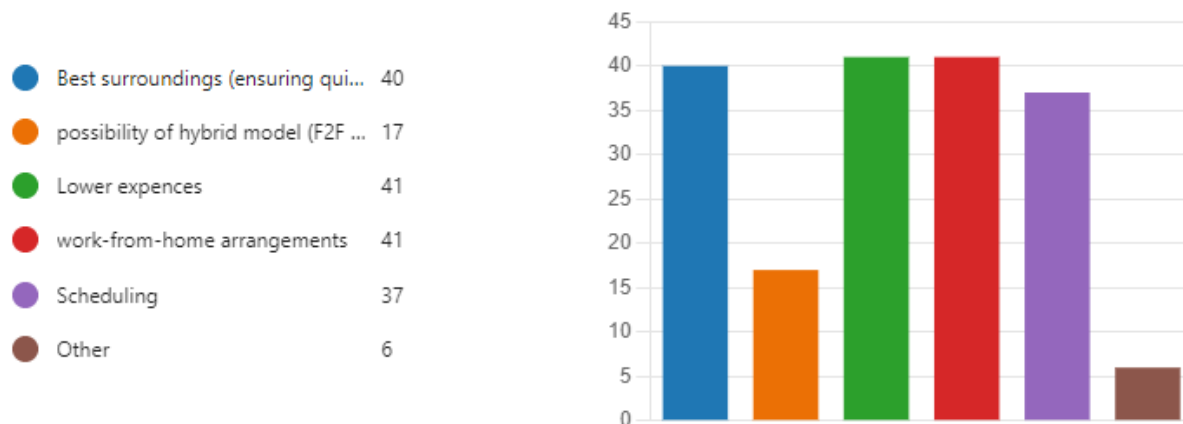| Characteristic	Value
Evaluation	36
Two-Way, Real-Time Interactive ...	29
e-visits	7
Remote evaluation of recorded ...	15
Telephone assessment and man...	7
Virtual check-in	5
Therapeutic exercises	25
Functional training	20
Physical training	35
Clinical pilates	4
Streching	34
Cardio	17
TRX	4
Aerobic's	12
Education	26
Range of movement	20
Muscle strength	27
Endurance	16
Pain	8
Special orthopaedic tests (shoul...	2
Berg Balance Scale	0
Timed up and go	1
Timed stance test	4
Six-minute walk test	2
Steps in 360-degree turn	2
Movement Assessment Battery f...	1
Step test	2
ABILHAND assessment	0
Active straight leg raise	3
Circumferential measures of the...	0
Other	6

Figure 20 Characteristics of Interventions

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24. Patients/Clients profile

The majority of their clients/ patients reach the professionals for sports and training advice and Physical Activity. Others suffer from Musculoskeletal conditions.

24. Describe your patient/client population

Category	Value
Cardiac rehabilitation	2
Pulmonary rehabilitation	2
Integumentary system disorders	0
Diabetes	2
Obesity	12
Musculoskeletal conditions (Lo...	30
Neurorehabilitation (Multiple scl...	9
Adult Physical and sensory disa...	1
Orthopedics	10
Rheumatology	4
Pediatrics	6
Gerontology	3
Women's and Men's health	17
Palliative Care	1
Pain	13
Sports advice/ training	52
Professional Athletes	16
Hip, knee etc. Replacement	6
Physical activity	32
Other	6
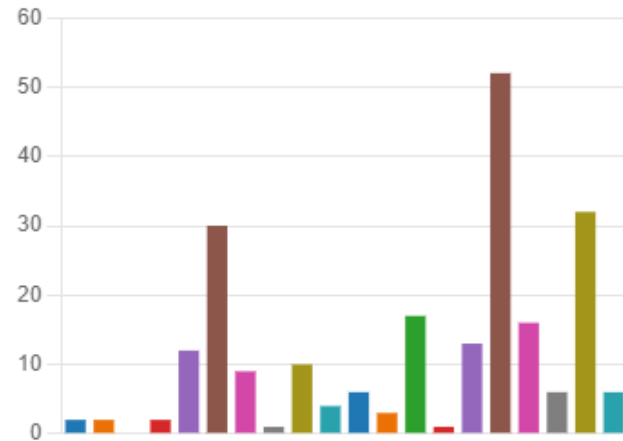
Figure 21 Patient/Client population

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25. Multiple Conditions

The majority doesn't have.

25. Did your clients have multiple conditions?
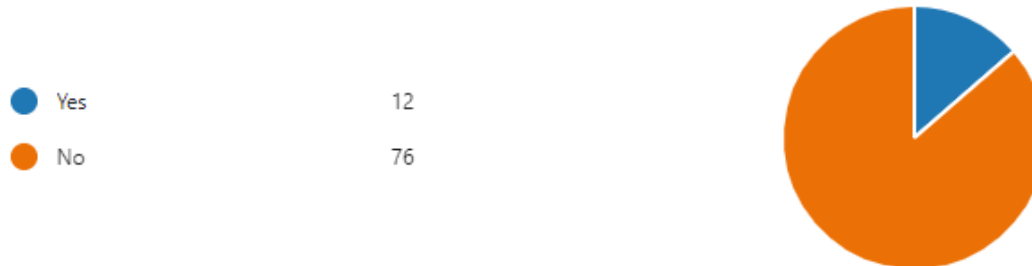

Yes	12
No	76

Figure 22 Multiple Conditions

26 If yes Refer to some.

- Cardiovascular + musculoskeletal
- Obesity and Osteoarthritis
- Complex Pain
- Multiple Musculoskeletal conditions linked to sedentary life and past injuries.
- They may have musculoskeletal problems and problems resulting from stress. Or they might be obese and have musculoskeletal problems resulting from sedentary lifestyle.
- memory/cognitive problems, neurological disease, hip fracture
- As a rule, clients have problems related to coping at home, functional capacity, and general health. There are usually several diagnoses, as in the elderly in general (heart and respiratory diseases, musculoskeletal disorders, fractures, osteoarthritis, neurological diseases, Parkinson's disease, memory disorders, etc.).

27. Clients' Age Group

The range of clients is big, covering people under 18 years until over 66. The majority of the clients that can be affected by work styles is at the age group 26-30 followed by 18-25 and 31-35.

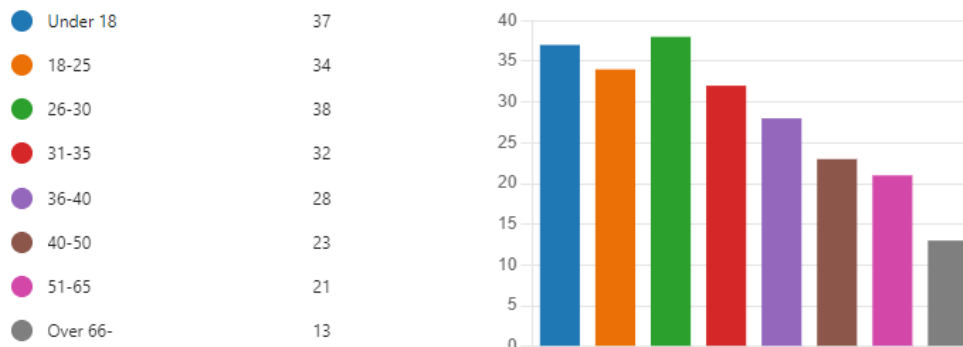27. Age group of your clients (choose many, if needed)

Under 18	37
18-25	34
26-30	38
31-35	32
36-40	28
40-50	23
51-65	21
Over 66-	13

Figure 23 Clients' Age Group

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28. Benefits in Digital Practice

Time efficiency, Comfort for the client and minimize travel distance are top 3 selections.

28. What benefits you see in digital practice? (You can choose more than one

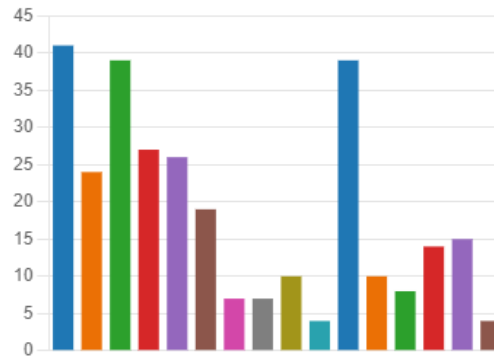| Benefit	Count
More time efficient	41
Reach more clients	24
Comfort for the client (exercise f...	39
Reduces operational expenses	27
Create innovation in providing s...	26
Provide access to services	19
improvements in patient's functi...	7
Makes follow-up treatments eas...	7
Addresses the disparity in acces...	10
Helps staff where workforce sho...	4
Minimize travel distance and ex...	39
Allowing for a more timely resp...	10
Allows other health care advoca...	8
Allows family members or careg...	14
Incurs less societal cost	15
Other	4

Figure 24 Benefits in digital practice

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29 Challenges in Digital Practice

Digital skills of patience and physical and expensive software are the top 3 selections.

Others mentioned:

- No opportunity to correct, help with exercise."
- Privacy Policy
- Compatibility between software and, for example, the legality (security) of patient records/connections.
- The quality of telecoms connections varies from region to region.
- Lack of kinaesthetic body correction/adjustments
- Low social connection

29. What challenges you see in digital practice? (You can choose more than one)

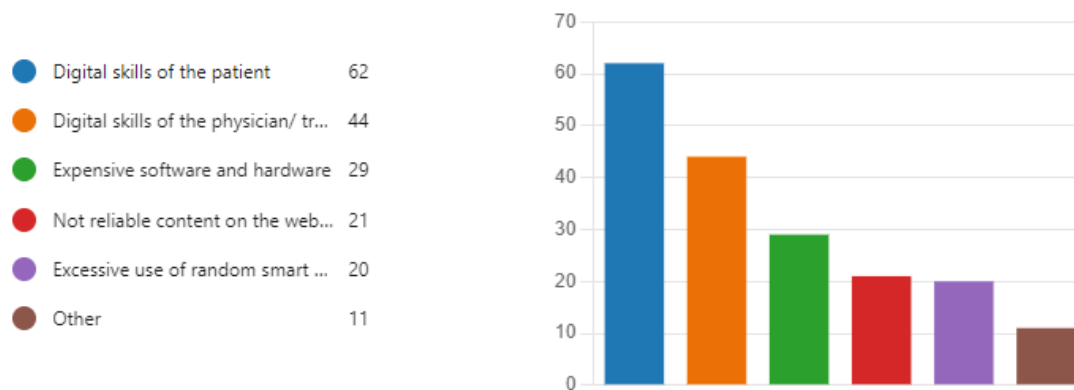|	
Digital skills of the patient	62
Digital skills of the physician/ tr...	44
Expensive software and hardware	29
Not reliable content on the web...	21
Excessive use of random smart ...	20
Other	11

Figure 25 Challenges in Digital Practice

30. Briefing after digital practice

The replies are almost equal to yes and no.

30. Did you brief and practice the use of planned technology with each patient before their function at home?

Yes	42
No	46

Figure 26 Briefing after digital practice.

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31. How did you encourage and maintain dialogue and adherence during digital practice?

One of the key issues in digital practice with clients and especially with students was good planning before the sessions and follow-ups after them. It was also important to evaluate the session after what worked or didn't and what should be changed in the next session. Some sort of homework/ own exercises were given. Presentations of the didactic material to be used were needed. As well as. exemplification of what is intended. Training sessions were scheduled according to times that were convenient for the clients or their parents. With younger athletes, compartmentalization of training and communication with both children and parents was important.

All the instructions and procedures needed to be explained in   more detail and ensured that clients understand correctly, as well as allow the client to make   mistakes. Interactivity and innovativeness in the contents were emphasized. Communication was experienced to be more intensive online than in person. Asking the client about the experiences and feelings about the session through conversation was important. Involving the client/students to process like this, and by creating different tasks to help them be more active was mentioned. One of the ways to activate from behind the screen was a request to keep the cameras open.

During digital practice constant monitoring and request for specific feedback was essential to keep the clients from injuring themselves. The need to pay attention to everyone in larger groups was essential. Experts described in their answers a lot of positive reinforcement, encouragement, check ins, appreciation, praise, larger variety of exercises and innovations, games, contests to keep up the motivation. Some used an activity calendar, training diary or Physiotools programs or –app for this, or for students, online workshops during the course were organized. Communication worked through messages, phone, post, or e-mails too. The goals were set based on follow-up results, through interaction and real effort to understand and meet the needs of the clients. The intensity of the meetings was planned according to how much support the client needed. And the goals were set together through active dialogue.

32. Satisfaction of the practitioners with their digital practices

The majority mentioned that they are satisfied or partly satisfied with their practices.

32. Satisfaction in Likert scale

Figure 27 Satisfaction of the practitioners with their digital practices

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33. Feedback from patients

The majority asked for feedback after the digital practice.

33. Did you ask you patients for feedback about digital practice?

🔵 Yes	64
🟠 No	24

Figure 28 Feedback from patients

34 External Stakeholder in Satisfaction Survey

The majority didn't involve external evaluators.

34. Did you engage an external stakeholder to do the satisfaction survey?

🔵 Yes	13
🟠 No	75

Figure 29 External Stakeholder in Satisfaction Survey

35 Use Research Electronic Data Capture Platform

The majority didn't use such a platform.

35. Was there any Research Electronic Data Capture platform used?

🔵 Yes	12
🟠 No	76

Figure 30 Use Research Electronic Data Capture Platform

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36 If yes please refer.

- Those you used mentioned the following platforms:
- Pegasos
- Diarium
- Woof questionnaire/form.
- Acute
- Mediatri
- Sairaanhoitopiirin Desktop and Oberon software
- Lifecare

37 National Guidelines on data management

The majority mentioned that they weren't aware of National guidelines in data management in their professional practice.

37. Was there available any national guidelines addressing data management and data safety?

● Yes	19
● No	69

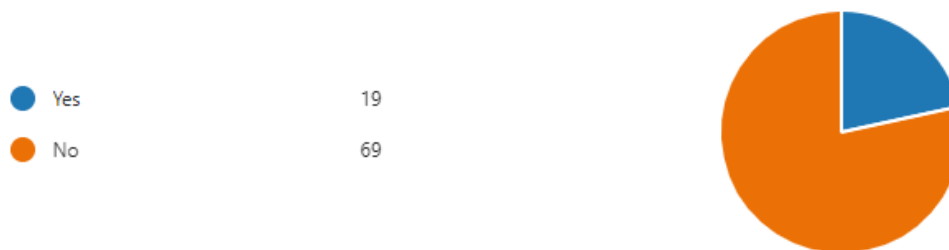*Figure 31 National Guidelines on data management*

38 Agreement on Written Consent
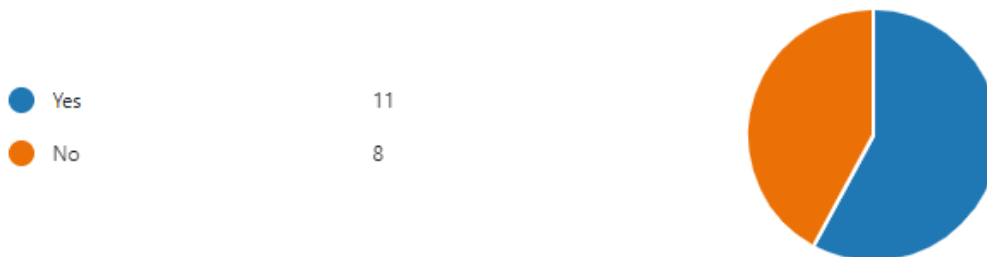
38. If so, did you agree on written etc. consent?

● Yes	11
● No	8

Figure 32 Agreement on Written Consent

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2.2 Conclusions from Survey

The representatives participating in the survey were from the groups that this project aims to focus on and invest in, **Physio and Sports**. Our professionals belong to the age groups **25-34 and 35-44**, meaning that they are in their **highly active professional years**. The educational level is mixed, having practitioners with Academic and non-Academic (VET) background. The participants are quite experienced in their fields since the majority have from **5 and over 10 years of experience.** The majority had no experience with digital practice during the period of Covid-19 so here we identify the need for their introduction in these practices and increase their skills and experience.

The major digital practices that they applied **were web communication via Zoom and Skype basically for instructions and checking up the patients**. **Not a new platform with custom solutions or the application of technologies related to telehealth or telemedicine** were referred to in precision. The majority had no education in such a field. **71% of the participants require more education,** especially in Video Communication, Smart Apps and Online communication with patients. A considerable number mentioned Augmented Reality Technology. Furthermore, the majority reported **limited support** during this period for the execution and continuation of digital performance in their profession. The field of specialization of the majority of the participants was **Sports and Sports' Education and in treating Musculoskeletal conditions.**

The majority of those who had online sessions with patients/ clients reported that they had more than 10 online sessions per client. Most of the session lasted **60 to 45 minutes**. The majority used **the Online Communication Platforms and messaging services, internet and websites/ Web platforms, Videos,** Emails and only **19 mentioned the Smart Applications**. The use of smart technologies or advanced options was limited.

As difficulties in digital practices, we identify that presence is a requirement in these professions. The challenges in F2F, the need for education in recent technologies, the lack of educational and instructional materials online, the lack of technology equipment to clients, the online fatigue was some of the options that collected more answers.

The favourable factors in the digital practices were selected as follows:

- Best surroundings,
- easier scheduling,
- lower expenses

There is no clear view whether there was an additional cost for the clients in the digital practices.

Analysing the client/ patient population it is mentioned that the top 3 services they reached for a digital solution were Evaluation of condition, Physical Training and Stretching. Other famous options are Education, Muscle strength and Endurance, Two-Way/ Real-Time Interactive Communication and Therapeutic Exercises. **The majority of the participants' clients/ patients reach the professionals for sports and training advice and Physical Activity. Others suffer from Musculoskeletal conditions.** The range of ages of clients is big, covering people under 18 years until over 66. The majority of the clients that **can be affected by work styles are in the age group 26-30 followed by 18-25 and 31-35.**

During the online practices the motivation was kept active via:

- dialogue and constant communication for encouragement,
- mutual contribution by the practitioner,
- game-like practices,
- inclusion of a family member in the training process,
- frequent questions about the condition and difficulty.

Feedback from patients was requested at frequent times.

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We identify a need as well for national guidelines and knowledge of data management.

3. Consultation Rounds Results

After the survey, the answers were analysed and the questions about the topics that came up were formulated, three partners TUAS, LSU and CEPROF executed the consultation rounds to gather more/latest information and confirm the findings of the survey. One question formula was created for physiotherapists and one for VET trainers. TUAS interviewed 9 physiotherapists, LSU interviewed 7 gymnastics coaches and CEPROF 4 VET teachers and 1 Physical Counsellor.

3.1 Partner 1 TUAS

Number of Participants: 9

Background: Physiotherapists. 8 physiotherapists from Finland and 1 Finnish physiotherapist working abroad participated to this interview.

Replies to the questions:

What technologies have you used with your digital practice?

Different platforms for video, audio, and chat (ACUTE, DIARIUM -Navisect-health, VideoVisite, Zoom, Teams, Skype) were used. Also, WhatsApp, e-mails, phones, iPad, tablets, small cameras, microphones, YouTube- or different kinds of professionally made – instruction videos, PhysioTools - videos and pictures/instruction & app, PhysioBuddy App., Health village- Finnish web pages.

How has the digital practice worked for you and your clients?

When asked about the benefits of digital practice, one of the most common answers was that it increases accessibility when there is no transportation or too long distances/ hard to leave home/client wants the therapist from further away. It also minimizes travelling (both client and therapist), time and costs and is an ecological option for rehabilitation. A wider client population for a therapist was also achieved. The benefits were more specific if the target group was well identified; it increased effectiveness and subjective benefit of the clients.

Technology mainly worked well, especially on the therapist's part. But sometimes, especially for senior citizens, the need to manually guide the clients on how to use the technology was essential.

For some of the clients, these new skills of technology opened up a new, more active way of living.

The instructions given in long-distance guidance were instantly integrated into everyday life at home. The experts also thought that it was important to give specific instructions. On the other hand, some experts pointed out that the preventive perspective was also an important one. for example, breaks during workdays, daily exercise, exercise counselling, rest positions, and pain control in acute situations.

In this context the experts felt that the ergonomic instructions were easy to guide the client, sometimes using the materials they had at home like ironing boards, cardboard boxes etc. Some experts were wondering what physiotherapy and personal training/sport guidance /coaching are when executing digital practice. Also, communication became more official.

When asking about the problems the need to examine the client first, before starting the home exercises was pointed out. Also, the secure way to identify was perceived as troublesome (the need to check e-mail, technology, and technical skills first). Sometimes it was hard to secure the client, for example not falling/fainting alone in their houses. Some clients needed an assistant.

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One issue was the poor connections and devices, data protection issues, no sound available in the computers or just not working, small rooms to function, just one camera angle, lighting of the rooms, clients' clothing (colours, loose clothes etc. for vision). Sometimes young adults did not have a computer, so they used phone/WhatsApp instead. The equipment for training was sometimes missing or not optimal.

What was the general profile of your clients?

Most clients suffered from musculoskeletal problems, needed artificial joint pre-/postoperative rehabilitation, some had neurological disabilities, and some were senior clients 65-80 years old or students /work-aged clients 18-55 years old. Few had ACL - or Rotator cuff -problems. A lot of them had been office workers before Covid-19 and started to work from home. Some didn't have specific problems, just worried about not moving enough or needed info on how or how often to pause the workday. Some clients needed F2F guidance after the first online check-up -meeting.

The frequency was usually 1-3 times, 1-2 times a week/5-10 week, 45-60min/ 2 times approximately. In balance-group 12 weeks/once a week/one hour.

Some who work from home did not have any ergonomic equipment reported, just some re-organizing homes or building standing workplaces with boxes or ironing boards. Long-distance guidance was best if minor symptoms. For example, radiation symptoms in upper- or lower limbs mostly needed examinations in person. Online there is a need to think more the visual/verbal/written guidance when manual guidance is not possible.

What was the content of your guidance? (For example, what kind of instructions?)

Physiotherapy online was mostly interviewing, assessing resources, lecturing, pain relief assessments and instructions. Examinations and observations were done, but they were experienced difficult to do online. Most of the therapy part was personal guidance online of the client's familiar exercises. And there was a big role in the client's assessment (f.e. half-weight reservation after operation). But it also included giving new and further instructions, guidance, and exercises online.

Occupational physiotherapists did an ergonomic assessment for tables, chairs, and mice. A lot of strength training, movement therapy and other active rehabilitation. Some gave kinesiotape – instructions. Also, balanced guidance was held for groups, but it required the first visit in person to ensure safety.

Did you ask your patients for feedback about digital practice? (And how? What was the feedback usually about?)

Some asked, mainly in person/oral feedback. Some made a phone call after 3 months about the implementation. Some did not ask at all.

The feedback was good and presented as a handy option for work-age people, it gives new chances, for example, if you are too sick/ill to go to the reception. Most people still preferred rehabilitation in person. The reason to continue digital practice was mainly distance.

What would be the ideal platform for digital practice/guidance in your field of expertise? (Best ideas and innovations?)

The platform should be an all-in-one –version – everything in one place. Mobile, easy to join and easy to use with video, sound, and messages. It needs to make possible the importance of visualizing the

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training/movement to the client. Targeted videos or a place to load specific videos or instructions for clients online, maybe weekly time schedules. An instant way to give feedback to the client. In the best case, scenario movement sensors would be added.

Need to screen the red flags online (if clients are there by themselves). Have digital paths to follow (in Finnish: digihoitopolut/ Terveyskyla.fi) and the platform would give you a place to communicate with your client and give and get feedback about the exercises. Ready phrases for documentation. A reward system for clients' motivation /interactive diary for clients' training /timetables/ Schedules.

3.2 Partner 2 LSU

Number of Participants: 7

Background: Gymnastics coaches

In this interview participated 7 gymnastics coaches (aerobic and rhythmic gymnastics – 2 and 5 accordingly) who are working in private clubs and municipality sports schools.

The working experience varied from 6 to 33 years. Some of them are working only with sport elite sportsmen, while others as well with recreational groups. 3 of them, during Covid-19, worked additionally with adult women for group functional training or Pilates training.

During Covid-19 most of them have worked just online, and some of them had the opportunity to work in small groups face to face, but it was very complicated when it was allowed to work just in small groups with no possibility to mix the groups. For the coaches, it was more complicated and much more time-consuming to have hybrid groups online and physically.

Replies to the questions:

Questionnaire about Physiotherapists and Sports professionals

What technologies have you used with your digital practice?

For the digital practice they used MS teams, Zoom, Google meet programs were used with the patients.

How has the digital practice worked for you and your clients?

It was quite complicated at the beginning as not all patients were used to digital technologies. They needed extra time to get used to sharing their screens, and to put cameras and microphones on. The benefit for a specialist was saving time and money (no need to travel to work), but in some cases, the home environment was not proper for digital practice, sometimes children being at home interrupted training sessions; sometimes internet connection was not proper to share the view.

What was the general profile of your clients?

Patients were quite different, but mostly with musculoskeletal complaints, with some sessions once a week, with others – twice, but no more than twice. Interventions in some cases lasted for 4 weeks, in some – more (6 or 8 weeks), but these patients worked independently according to the prepared exercise programme by a specialist and were instructed once a week by the same specialist.

What were the main problems or issues of your clients that you've used digital practice with?

The clients mainly had back, neck and wrist pain issues.

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What was the content of your guidance?

Instructions included proper body posture teaching, proper ergonomic principles and how to do self-massage in the neck and shoulder area.

Did you ask your patients for feedback about digital practice?

During feedback, patients mentioned that they did not always understand how to perform proper movements, how much effort to put into exercise, and what the ROM of exercise should be.

What would be the ideal platform for digital practice/guidance in your field of expertise?

The ideal platform would be money free (Zoom was liked mostly, but it was free only for 45 minutes, so the session could last only 40 minutes).

Questionnaire for VET trainers

What technologies have you used teaching Physiotherapists and Gymnasts?

In the beginning for most of the coaches, it was challenging to use all these technologies. The majority of the coaches used ZOOM, others as well MS TEAMS, and one tried to google classroom, YouTube video films, fitness exercise routines etc.

Some of the coaches used interactive games, and dance classes which of course were difficult to find online. Some coaches were asked to search for materials in gymnastics online. Most of the coaches mentioned that this online work with a group of gymnasts was not effective. Of course, it was better than nothing – not just sitting on a couch, but at least some movement. According to the tests, the training of flexibility, 30 per cent, improved, while others worsened for different children. There was a lack of motivation and competition.

Another coach had tried ZOOM with a sports group because they react calmly in case of problems. It was more difficult with the recreational groups. Coaches bought ZOOM licenses because without licenses the training was limited to 45 min., therefore some users after this 45 min could not connect anymore.

One coach has mentioned that she has started to organise some Facebook competitions, disco evenings, films watching evenings and pyjama parties for gymnasts to motivate them to stay in sports. Distance training can be part of the preparation, but not for a professional competition.

How has the digital practice worked for you and your students?

The main barrier mentioned by most of the coaches was the lack of space and poor network. The older gymnasts didn't want to do training with the camera on. They made some videos of them exercising; therefore, it took too long to watch them and make some comments on them.

The digital practice worked for some, but not for others. At first sight, it is easy for a coach to work from home. However, this is very conditional - different conditions for the kids at home: not enough space; different technologies used - some use for the connection phone others uses the computer or big TV screen; "the Internet eventually disappeared", especially in rural areas; additionally various trickery began - TV cameras were placed at the appropriate angle that coach could not see all body parts.

The problem is that we can't slide out of the screen, fix errors, sprained legs, etc. In kids occurred a lack of motivation – "...why we need to exercise on the mat at home?". In the beginning, they were happy –

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something new, from home, and then it became boring, you had to think of something new all the time. Children were tired of working at home.

The coach herself cannot demonstrate, she used the help of older athletes to demonstrate the exercises, and this saved her during the training.

It worked because we could work on small details e.g., leg tension. After all, we always work in the hall using the space, high ceiling with not always enough time in a hall. The disadvantage is that the process has changed completely. Contact is very important in sports.

What are the main technologies for distant guidance that can be used in physiotherapy and physical exercise that your students need to get trained?

Not many other tools and options for virtual training. At the beginning through chat, then we just started working through zoom, after 2 weeks. Coaches must send their working plans, and group plans, upon request to the school administration, additionally school administrators could join the training, send photos, and record videos, therefore a large amount of space was lacking for storage.

Zoom competitions, clubs, and even multiple clubs. The Ms Teams with breakout rooms is a more convenient, virtual learning environment, catholicization of some video storage material. It could have been just a replacement for a training session if someone is not able to come to the training session then she or he can join online and do training in such a way.

Those platforms can be useful to some extent, but not during the season. Only during breaks - if you can't come to training, you can do sports by having training online. Adaptable, not as much as needed, but very well for keeping in shape and for psychological well-being. Connect by specific topics. The athletes could meet in advance and then perform.

What was the content of your guidance?

Focus on physical exercise demonstration and interactive activities taking advantage of things existing around the home of the user.

Did you ask your students for feedback about the digital practice?

Feedback was difficult since many users didn't want to present themselves on camera. Some feedback was given through the options with emoticons that each platform provides. Sometimes verbal feedback was efficient.

What would be an ideal platform to be used by physiotherapists and sports trainers for digital practice/guidance in their field of expertise?

The majority of the participants mentions the existing platforms with some modification related to the sound and the speech ability. No one mentioned a specific example that could cover a part of distant learning in physio and sports.

3.3 Partner 3 CEPROF

Number of Participants: 5

Background: 4 VET teachers and 1 Physical Counsellor

Replies to the questions:

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Questionnaire about VET Trainers and Sports professionals in Portugal

For these consultation rounds, CEPROF interviewed 4 VET teachers and 1 Physical Counsellor.

What technologies have you used to teach Physiotherapy and Gymnast?

For digital practices, Zoom was mostly used. Some VET teachers also included the classroom platform. Some communication was also conducted through WhatsApp.

How has digital practice worked for you and your students/athletes?

All experts explained that the adaptation was hard for both sides – the professional and the student/athlete – and it took some time for the practice to start feeling natural and productive. At a certain point, captioning the attention of the students started to be hard as the environment was becoming more distractive and pupils were tired of being stuck at home. As this happened, teachers adopted a different approach, creating entertaining activities and scenarios that could include the whole family.

What are the main technologies for distant guidance that can be used in physiotherapy and physical exercise that your students need to get trained?

All experts consulted admitted to using only conference tools (such as zoom and classroom) and using other online resources (like YouTube videos).

What was the content of your guidance?

The majority of the experts were PE teachers but, as the resources at home were limited, the PE classes were more focused on Pilates-type exercises, allowing students to move and exercise as much as possible with the resources available at home.

Did you ask your patients for feedback about digital practice?

When asking for feedback, all students/athletes admitted that at the beginning, it was hard and different, but, over time, with the realization that COVID and quarantine were something that was going to change lives (at least for a few months), people were more open to exercising the only way they could without leaving the house. Some admitted that the physical education classes were a different part of the routine that they would have whilst at home and considered it as a serotine boost, releasing some of the anger and boredom of being at home.

What would be the ideal platform for digital practice/guidance in your field of expertise?

All professionals admitted they would like to have a platform that works like zoom, where video-chatting between the involved parties would be possible, as well as maybe the ability to change, all participants, to the same background to avoid external distractions.

3.4 Conclusions

Their clients had mainly musculoskeletal problems including everything from low back pain and neck/shoulder pains to arm/wrist problems and artificial joint pre-/postoperative rehabilitation. Clients also had neurological problems, they were senior citizens with, for example, balance issues. The content of the sessions was mainly instructions, guidance of all sorts and lecturing.

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Experts need to consider the training materials and the final tool for professional exploitation was having a mobile and flexible platform, good cameras from different angles, and VR glasses to have more personal meetings online. Targeted videos for different problems were also needed since experts used YouTube or other free sources to find close enough examples for their clients. The experts often wondered about the easiest way to give feedback to their clients.

If experts made some material, instructions, or videos for their clients, they would have needed a place to load the specific videos or instructions for clients online and maybe include weekly time schedules. So, one place, clients or students' own space and own thing (specific instructions), where everything is in one place would be optimal. To make it easy to transfer information from one platform to another to make clients' paths as easy to follow as possible. Also, easy Digital paths to follow (for example in Finland: digihoitopolut/ Terveyskyla.fi)

Experts also pointed out the need to screen the red flags online, especially if a client is on the platform working by themselves.

When asking about the problems that home physical exercise causes to their training programs towards their clients, the need to examine the client first in person, before starting the home exercises was pointed out. Also considering the software and hardware and poor connections, the lack of proper devices, having small rooms at home and no place to adjust the cameras, just one camera angle, lighting of the rooms as well as the clients' technical skills and security of the training area at home were considered. There would also be a need to identify verification easily and use secured connections. Overall have clear operating instructions, to begin with.

Long-distance guidance does not replace face-to-face rehabilitation but is an extension of it/ extra tool.

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4.Final Conclusions

Taking into consideration the feedback provided through the survey and through the consultation rounds we identify multiple needs.

Regarding the education of Physiotherapists and Trainers, we need to provide them with a training curriculum that will broaden their horizons in the digital performance of their profession even teaching other professionals or instructing their clients and patients. Many professionals stuck to the options of web conferencing platforms without taking advantage of other web or mobile applications. Customization of the content provided is a must.

Furthermore, the consultation rounds provided significant feedback regarding the Web platform to perform their profession through digital resources. Mainly we need to focus on creating a platform that will serve the implementation of:

- Physical Exercise

- Examination/ Evaluation of the condition

- Deal with existing problems (musculoskeletal or post-operational)

- Ergonomic instructions

Sessions should be with predefined timing and apply to the schedule of the user. It is rather important to include small sessions like 10-minute exercises for stretching or regeneration and up to 45-minute sessions. Instructions should be very precise, and the platform will allow constant feedback between the user and the professional. Professionals must have access to constantly update this tool with more content to have added value to their everyday working life.

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Annex 1 Questionnaire of Survey

REBALANCE Survey

This is the Rebalance project's survey for physiotherapists, gymnasts, and VET's working with digital practice (also referred to as telehealth or telemedicine). This is a Co-Funded project under the Erasmus+ Programme of the European Union. You can find more information in the following link.

https://erasmus-plus.ec.europa.eu/projects/search/details/2021-2-NL01-KA220-VET-000049424

Work is a significant part of our life since we spend at least 1/3 of our day working. The Covid-19 outbreak brought an immediate change in our work style and many people were forced to work permanently from home. The limited physical activity and the non-ergonomic equipment worsen the body structure, and continuous aches in the back, neck, knees, and hands appear more recently. The COVID-19 restrictions also brought in place the home fitness concept due to convenience and safety.

This is a current challenge that appeared for professionals such as physiotherapists and trainers since they cannot assure that their guidance to their patients or clients would be enough to ensure that the execution of these activities would be successful at home without harming themselves.

MAIN OBJECTIVES/AIMS OF THE SURVEY:

To gather information on target groups educational needs, connection with new technologies and their profession and their challenges considering the home physical exercise trend.

To identify target groups needs considering the training materials and the final tool for professional exploitation.

To identify the problems that home physical exercise causes to their training.

programs

towards their clients.

Towards the VET providers, the goal is to identify the gap in the continuous training of these professionals in new technologies.

Thank you for taking the time to answer the following questions.

If you have any questions regarding this project or survey, please contact us through our website Contact form: https://rebalance.erasmusplus.website/contact.

BACKGROUND INFORMATION

1.   Country *

The Netherlands/ Finland/ Cyprus/ Ireland/ Lithuania/ Portugal/ Other

2.   Gender *

 Female/ Male/Prefer not to say/ Other.

3.   Age *

- under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and older

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4.   Profession *

- Physiotherapist
- Vocational Education and Training (VET) trainer
- Gymnast/ Fitness Trainer
- Coach
- University Professor

5.   Education *

- Secondary Level
- Higher non-university degree
- Incomplete Higher University studies
- Incomplete Higher non-university studies
- Vocational Education and Training
- Bachelor's Degree
- Master's Degree
- PhD
- Other

6.   How long have you practiced your profession? *

- less than 6 months
- 6 months to 1 year
- 1 to 3 years
- 3 to 5 years
- 5 to 10 years
- 10 years and over

7.   In which field do you work? *

- Private Practice
- Primary Healthcare
- Hospital healthcare
- School
- University
- VET centre
- Gym
- Sport Club
- Other

8. Have you had some experience of digital practice (also referred to as telehealth or telemedicine) before COVID-19 pandemic? *

    Yes/ No

9. Please explain *

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10. Have you had any education/training for digital practice (also referred to as telehealth or telemedicine) since COVID-19 pandemic started? *

Yes/ No

11.What kind of training? *

12.Did you get enough support when you started your digital practice? *

Yes/ No / Not applicable.

13.What kind of support? *

14. Do you feel like you need more education or support to execute digital practice in the future? *

Yes / No

15.What kind of technologies? *
- Augmented Reality
- Virtual Reality
- Smart Apps
- Video Communication
- Online Communication with Patient
- Online Consulting
- Other

16. Your area of specialisation (choose many if needed) *
- Adult Physical and sensory disabilities
- Musculoskeletal
- Orthopaedics (total joint arthroplasty, low back pain)
- Rheumatology
- Paediatrics
- Neurology
- Gerontology
- Respiratory
- Pelvic health (stress incontinence, pelvic and perineal pain)
- Palliative Care
- Pain clinic
- Amputation
- Sports
- Education of Sports training/ coaching

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- Education of Physiotherapy
- Education in Sports Rehabilitation and Exercise Sciences
- Other

17. Using a typical client as example approximately how many digital/ online practice sessions would you have had? *

- 0
- 1-2
- 3-4
- 5-6
- 7-8
- 8-10
- more

18.   Approximately how long did one digital practice session last? *

- 20min
- 30 min
- 45min
- 60min
- Other

19.   What types of technology have you used during the provision of your distant service (Choose many if needed)? *

- Internet/Websites
- Smart Applications
- Videos
- Online-meetings (Zoom, Skype, Teams…)
- Web platforms
- Phone
- Messaging
- Robot-assisted rehab
- Virtual reality
- Augmented reality
- Email
- Video games
- Online message boards
- Texting
- Other

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20. Please identify any barriers in using technology with your clients. (Choose the 3 most common) *

- Being present.
- learning to use technology.
- Challenges of hybrid model (F2F + virtual)
- Adequate bandwidth
- System and software requirements for safety of "patient data"
- Privacy and Confidentiality
- Written consent
- Lack of supporting platforms
- Lack of educational materials
- Lack of education and support
- Lack of technology for clients (smartphones, computes, connections)
- Work-from-home arrangements
- Hardware & Software for implementation
- Lack of equipment at patient's location (measuring tape, chairs, pillows, mattresses, resistant bands, weights...)
- Online fatigue
- Time management
- Extra time costs
- Increased anxiety using technology.
- Other

21. Facilitators that helped improve the use of technology with you and your client: (choose the 3 most common) *

- Best surroundings (ensuring quiet location, lighting, camera angle, and background adjustments)
- possibility of hybrid model (F2F + virtual)
- Lower expenses
- work-from-home arrangements
- Scheduling
- Other

22. Did your client face additional expenses resulting limitations, which excluded them in receiving or partaking in digital therapy? *

Yes / No / I don't know.

CONTENT

23. Characteristics of interventions/services? *

- Evaluation
- Two-Way, Real-Time Interactive Communication
- e-visits
- Remote evaluation of recorded video or images
- Telephone assessment and management services
- Virtual check-in

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- Therapeutic exercises
- Functional training
- Physical training
- Clinical Pilates
- Stretching
- Cardio
- TRX
- Aerobics'
- Education
- Range of movement
- Muscle strength
- Endurance
- Pain
- Special orthopaedic tests (shoulder/elbow)
- Berg Balance Scale
- Timed up and go.
- Timed stance test
- Six-minute walk test
- Steps in 360-degree turn

24.   Describe your patient/client population *

- Cardiac rehabilitation
- Pulmonary rehabilitation
- Integumentary system disorders
- Diabetes
- Obesity
- Musculoskeletal conditions (Low-back pain, Osteoarthritis, pre-/postoperative, joint impairment, muscle imbalances, pain management, amputations)
- Neurorehabilitation (Multiple sclerosis, Parkinson's, Stroke)
- Adult Physical and sensory disabilities
- Orthopaedics
- Rheumatology
- Paediatrics
- Gerontology
- Women's and Men's health
- Palliative Care
- Pain
- Sports advice/ training
- Professional Athletes
- Hip, knee etc. Replacement
- Physical activity
- Other

25.   Did your clients have multiple conditions? *

Yes/ No

26.   Please refer to some *

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27.   Age group of your clients (choose many, if needed) *

- Under 18
- 18-25
- 26-30
- 31-35
- 36-40
- 40-50
- 51-65
- Over 66-

28. What benefits do you see in digital practice? (You can choose more than one *

- More time efficient
- Reach more clients.
- Comfort for the client (exercise from the place of preference)
- Reduces operational expenses.
- Create innovation in providing services to clients.
- Provide access to services.
- improvements in patient's function (Havran...)
- Makes follow-up treatments easier.
- Addresses the disparity in access to services.
- Helps staff where workforce shortages exist.
- Minimize travel distance and expenses.
- Allowing for a timelier response to client for care and feedback
- Allows other health care advocates to participate.
- Allows family members or caregivers to participate.
- Incurs less societal cost.
- Other

29.   What challenges do you see in digital practice? (You can choose more than one) *

- Digital skills of the patient
- Digital skills of the physician/ trainer / educator
- Expensive software and hardware
- Not reliable content on the web/ Trustworthy resources
- Excessive use of random smart applications
- Other

30.   Did you brief and practice the use of planned technology with each patient before their function at home? *

Yes/ No

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32.	Satisfaction in Likert scale * (Not at all satisfied/ partly satisfied/ Satisfied / More than satisfied/ Very satisfied)

- Compared to normal sessions, in your opinion, what was the adherence of your patients/clients

- How satisfied were you in general with digital practice session.

- How satisfied, in your opinion, were your patient/client s.

33.	Did you ask your patients for feedback about digital practice? *

Yes/ No

34.	Did you engage an external stakeholder to do the satisfaction survey? *

Yes/ No

36.	Which platform? *

37.	Was there available any national guidelines addressing data management and data safety? *
Yes/ No

38.	If so, did you agree on written etc. consent? *

Yes / No

40. If you would like to participate in the consultation round, the second phase of the project, please fill in your email here:

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Annex2 Questionnaires of Consultation Rounds

Questionnaire for physiotherapists and sport coaches:

1. What technologies have you used with your digital practice?
(And why? Or what would you need more/ to be different?)

2. How has the digital practice worked for you and your clients?
(Problems, benefits etc. for both professional and clients)

3. **What was the general profile of your clients?** (Are they following a sedentary life? / Are they office workers? / Are they working from home? / Do you have information if they obtain ergonomic equipment's at home? / How frequently do they ask for exercise instructions /   how long do they work? etc.)

4. **What were the main problems or issues of your clients that you've used digital practice with?**
(= where should be the target our instructions in the platform, back pain, neck shoulders etc.)

5. **What was the content of your guidance?**
(For example, what kind of instructions?)

6. **Did you ask your patients for feedback about digital practice?**
(And how? What was the feedback usually about?)

7. **What would be the ideal platform for digital practice/guidance in your field of expertise?**
(Best ideas and innovations?)

Questionnaire for VET trainers:

What technologies have you used teaching Physiotherapists and Gymnasts?
(And why? Or what would you need more/ to be different?)

How has digital practice worked for you and your students?
(Problems, benefits etc. for both professional and clients)

What are the main technologies for distant guidance that can be used in physiotherapy and physical exercise that your students need to get trained?

What was the content of your guidance while teaching from a distance?
(For example, what kind of instructions?)

Did you ask your students for feedback about digital practice?
(And how? How was the feedback?)

What would be an ideal platform to be used by physiotherapists and sports trainers for digital practice/guidance in their field of expertise?
(Best ideas and innovations?)