Website - Web measure study

The aim was to develop an innovative website supporting both the implementation and dissemination activities of the IMPACT project. The website was developed during the first year and it was used for online measurement including innovative functions providing automatic feedback to PE teachers and students, for online teacher education (webinars) and for dissemination in the remaining part of the project.

Following its development, six studies were conducted investigating a) the intentions of PE teachers to use Information Technology (IT) to promote their pupils' PA levels, and b) the utility and the effectiveness of the website/ web-measure with regard to the aims of this project. More specifically, in Greece only, we examined the **intention** of PE teachers at the experimental group to ask their pupils to **use online surveys** in order to monitor their PA levels. An online survey was delivered to them (n = 40 participants) with two items during the implementation of the IMPACT intervention (e.g., I INTENT/ I am DETERMINED to ask my pupils to use online surveys to monitor their PA levels). Responses were given in a 7-point Likert scale from 1 (Very unlikely) to 7 (Very likely). Results showed that PE teachers are highly intent to ask their pupils to use online surveys to monitors their PA levels (M = 5.54 ± 1.11; Figure 1).

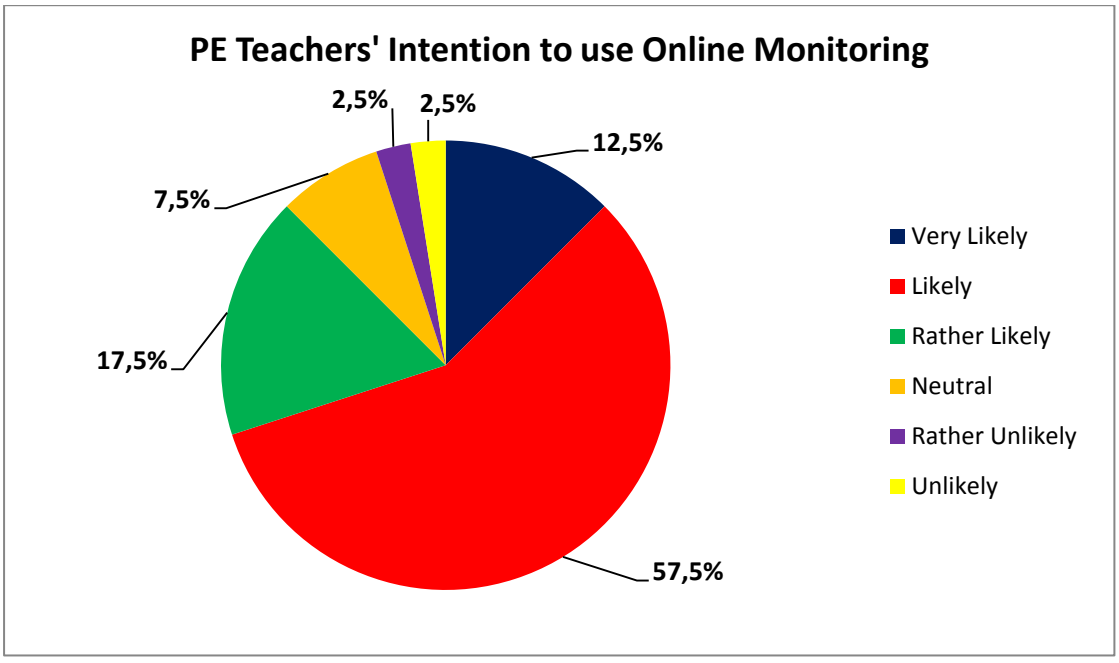

Figure 1. PE teachers' intention to ask their pupils to monitor their PA levels through online surveys

Similarly, using a sample of Greek PE teachers from the experimental group (n = 45; 22 males and 23 females), we tried to explore if they used the **FEEDBACK tool** to monitor their

pupils' PA levels and to set goals to be more physically active during the implementation of IMPACT intervention, how easy/ important/ useful they found it and if they intent to use it next year. An online survey was delivered to them with six items during the implementation of the IMPACT intervention (e.g., Did you use FEEDBACK tool to monitor your pupils' PA levels; How many times did you use FEEDBACK tool to monitor your pupils' PA levels; How easy/ important/ useful did you find FEEDBACK tool; Next school year, do you intent to use FEEDBACK tool to monitor your pupils' PA levels). Responses were given in a 2-point scale (YES/ NO), in a 3-point scale (1 time, 2 times, more than 2 times) and in 7-point Likert scales from 1 (Very Difficult/ Not Important at All/ Very Useful) to 7 (Very Easy/ Very Important/ Very Useful). Thirty one PE teachers reported that they used FEEDBACK tool to monitor their pupils' PA levels at least for once (Figure 2), while 14 responded that they did not use it at all.

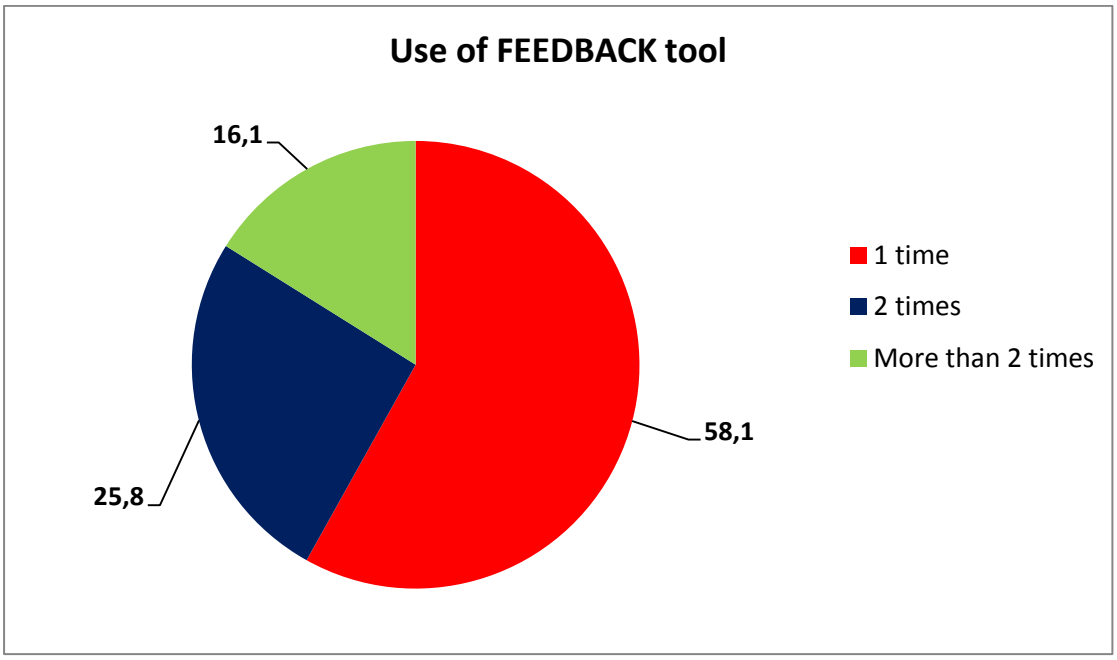

Figure 2. Use of FFEDBACK tool

More specifically, 32.3% of the PE teachers found FEEDBACK tool rather easy or very easy to use (*M* = 5.13 ± .89; Table 1), 45.2% found it important or very important (*M* = 5.39 ± .88; Table 2) and 48.4% found it useful or very useful to increase their pupils' PA levels (*M* = 5.45 ± .85; Table 3). They also reported that they intent to use it again at the next school year (51.6%; *M* = 5.45 ± 1.15; Table 4).

Table 1. How easy did PE teachers find FEEDBACK tool

	Frequency	Valid Percent	Cumulative Percent

Neutral	8	25.8	25.8
Rather Easy	13	41.9	67.7
Easy	8	25.8	93.5
Very Easy	2	6.5	100
Total	31	100	

Table 2. How important did PE teachers find FEEDBACK tool

	Frequency	Valid Percent	Cumulative Percent
Neutral	5	16.1	16.1
Rather Important	12	38.7	54.8
Important	11	35.5	90.3
Very Important	3	9.7	100
Total	31	100	

Table 3. How useful did PE teachers find FEEDBACK tool

	Frequency	Valid Percent	Cumulative Percent
Neutral	4	12.9	12.9
Rather Useful	12	38.7	51.6
Useful	12	38.7	90.3
Very Useful	3	9.7	100
Total	31	100	

Table 4. PE teachers' Intention to use FEEDBACK tool

	Frequency	Valid Percent	Cumulative Percent
Unlikely	1	3.2	3.2
Rather Unlikely	1	3.2	6.5
Neutral	2	6.5	12.9
Rather Likely	11	35.5	48.4
Likely	11	35.5	83.9
Very Likely	5	16.1	100
Total	31	100	

In the fourth study we conducted, one hundred sixty two PE teachers (n = 162) from 4 countries took part (FR: 28; GR = 51; IT = 46; TR = 37). They completed an online questionnaire measuring their **intention** (3 items; e.g., I intent to use Information Technology - IT in order to promote my pupils' PA levels), their **perceived behavioral control** (3 items; e.g., How confident are you to use Information Technology - IT in order promote your pupils' PA levels) and their **attitudes to use IT to promote their pupils' PA levels** (4 items; e.g., For me, to use Information Technology - IT in order to promote my pupils' PA levels is good/ pleasant/ interesting/ useful). All responses were given in 7-point Likert scales from 1 (e.g., Very Unlikely or Totally Disagree or Very bad/ Very unpleasant / Very boring/ Very useless) to 7 (e.g., Very likely or Totally agree or Very good/ Very pleasant/ Very interesting/ Very useful respectively). Means, standard deviations, reliabilities and correlations between the examined variables are presented below in Table 5.

Table 5. PE teachers' Intention, Perceived Behavioral Control and Attitudes to use IT

	M ± SD	α	1	2	3
1. Intention	5.04 ± 1.36	.76	-		
2. PBC	4.79 ± 1.26	.80	.34**	-	
3. Attitudes	5.41 ± 1.35	.96	.44**	.62**	-

Notes. PBC: Perceived Behavioral Control; *M* = Mean; *SD* = Standard Deviation; α = reliability; ** $p < .01$

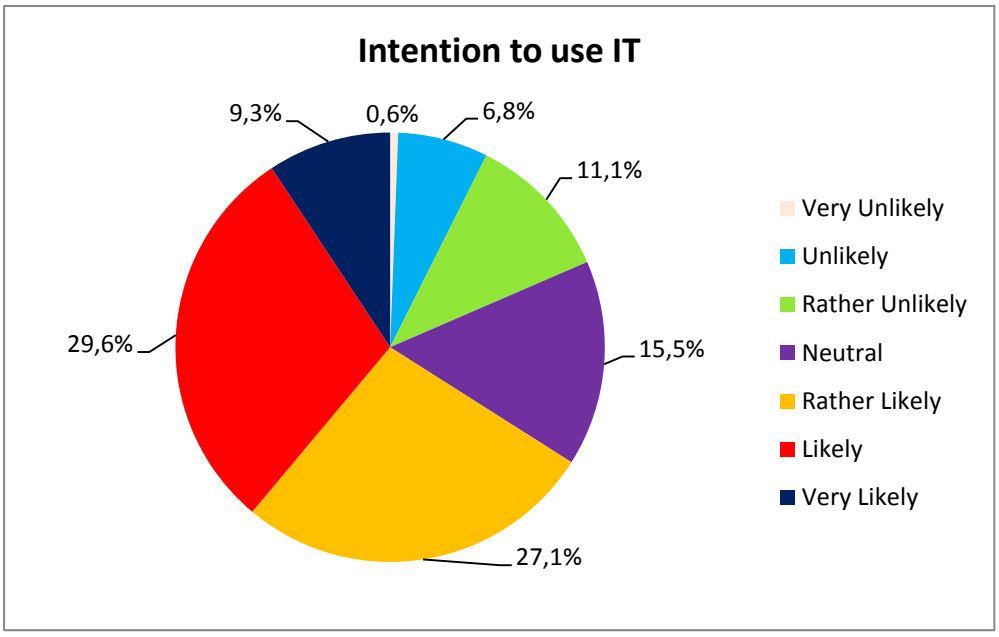

Figure 3. PE teachers' Intention to use IT to promote their pupils' PA levels

More specifically, 38.9% of the PE teachers' reported that they intent to use IT to promote their pupils' PA levels (Figure 3) and 25.3% of them reported that they are confident to use IT (Figure 4).

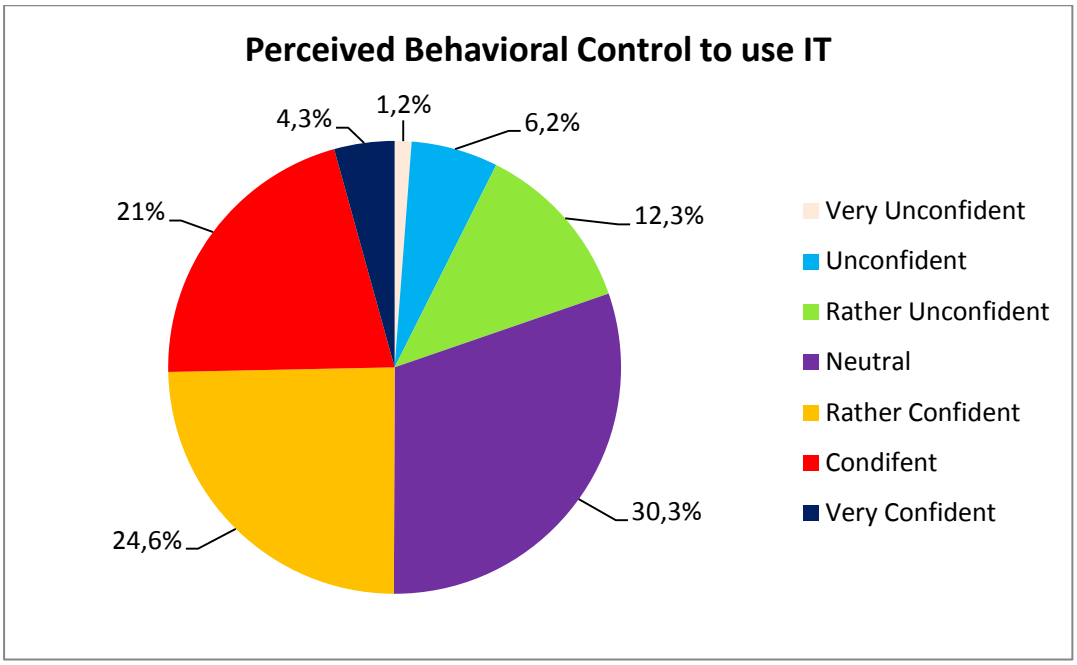

Figure 4. PE teachers' Perceived Behavioral Control to use IT to promote their pupils' PA levels

Regarding their attitudes towards IT, 53.7% reported that it is good or very good to use IT to promote their pupils' PA levels (Table 6). Similarly, 53.7% reported that they found it pleasant or very pleasant to use IT to promote their pupils' PA levels (Table 7). Also, more than half of them (55.5%) reported that they found it interesting or very interesting to use IT to promote their pupils' PA levels (Table 8). Finally, 43.2% of the PE teachers reported that it is useful or very useful to use IT to promote their pupils' PA levels (Table 9).

Table 6. How good did PE teachers find the use of IT to promote their pupils' PA levels

	Frequency	Percent	Cumulative Percent
Very Bad	2	1.2	1.2
Bad	3	1.9	3.1
Rather Bad	10	6.2	9.3
Neutral	27	16.7	25.9
Rather Good	33	20.4	46.3
Good	42	25.9	72.2
Very Good	45	27.8	100.0
Total	162	100.0	

Table 7. How pleasant did PE teachers find the use of IT to promote their pupils' PA levels

	Frequency	Percent	Cumulative Percent
Very Unpleasant	5	3.1	3.1
Unpleasant	4	2.5	5.6
Rather Unpleasant	9	5.6	11.1
Neutral	27	16.7	27.8
Rather Pleasant	30	18.5	46.3
Pleasant	51	31.5	77.8
Very Pleasant	36	22.2	100.0
Total	162	100.0	

Table 8. How interesting did PE teachers find the use of IT to promote their pupils' PA levels

	Frequency	Percent	Cumulative Percent
Very Boring	3	1.9	1.9
Boring	3	1.9	3.7
Rather Boring	10	6.2	9.9
Neutral	25	15.4	25.3
Rather Interesting	31	19.1	44.4
Interesting	42	25.9	70.4
Very Interesting	48	29.6	100.0
Total	162	100.0	

Table 9. How useful did PE teachers find the use of IT to promote their pupils' PA levels

	Frequency	Percent	Cumulative Percent
Very Useless	1	0.6	0.6
Useless	5	3.1	3.7
Rather Useless	5	3.1	6.8
Neutral	30	18.5	25.3
Rather Useful	35	21.6	46.9
Useful	35	21.6	68.5
Very Useful	51	31.5	100.0
Total	162	100.0	

Regarding county differences, significant differences were found on PE teachers' intention ($F_{3,158}$ = 7.276, p < .001), perceived behavioral control ($F_{3,158}$ = 6.167, p < .001) and attitudes ($F_{3,158}$ = 6.124, p < .001) between the 4 countries. Turkish and Italian PE teachers reported higher intention to use IT to promote their pupils PA compared to French and Greek colleagues. Turkish and Greek PE teachers reported higher scores on their perceived

behavioral control to use IT to promote their pupils PA compared to Italian and French colleagues. Finally, Italian and Greek PE teachers reported higher scores on their attitudes to use IT to promote their pupils PA compared to Turkish and French colleagues (Table 10).

Table 10. PE teachers' Intention, Perceived Behavioral Control and Attitudes to use IT by Country

	FRANCE (M ± SD)	GREECE (M ± SD)	ITALY (M ± SD)	TURKEY (M ± SD)
Intention	4.44 ± 1.39	4.63 ± 1.22	5.54 ± 1.48	5.43 ± .99
PBC	4.23 ± 1.31	4.99 ± 1.27	4.48 ± 1.22	5.34 ± .98
Attitudes	4.58 ± 1.41	5.87 ± 1.21	5.47 ± 1.40	5.31 ± 1.16

Notes. PBC: Perceived Behavioral Control; *M* = Mean; *SD* = Standard Deviation

Moreover, a **knowledge test** was delivered online twice (at the beginning and end of the project) to PE teachers that participated in the IMPACT project. The test included three questions related to health-related concepts, 4 questions related to goal setting theory and 13 questions related to empowering disempowering motivational climate. The findings suggested that the majority of PE teachers were not aware of these concepts. More specifically, 42.7% of the participants was not aware of the WHO's recommendations, while 57.8% were familiar with this knowledge (see Figure 5).

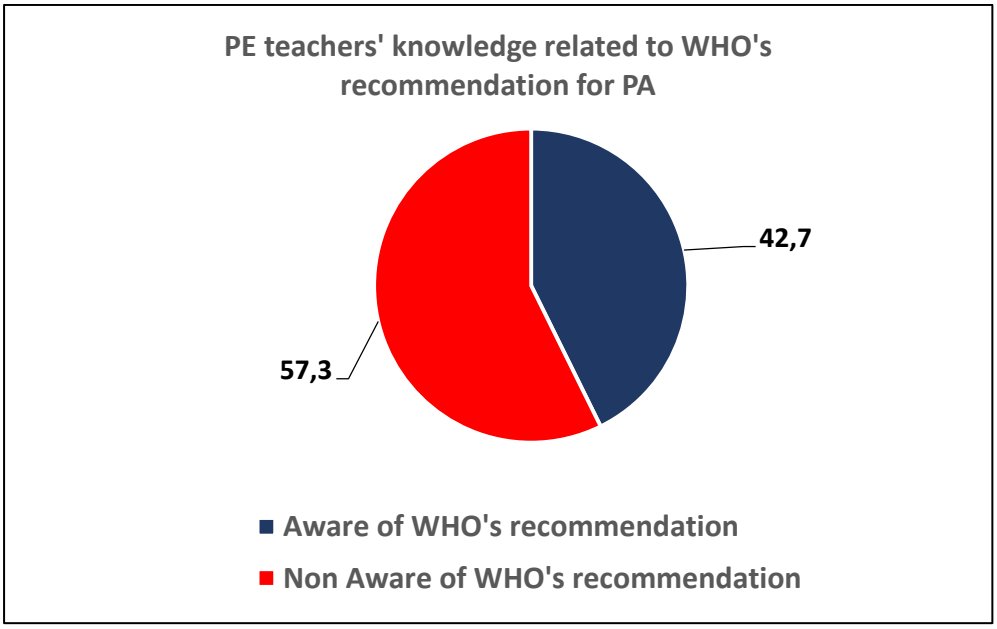

Figure 5. PE teachers' awareness of WHO's recommendations for PA

We also collected **qualitative data** from IMPACT Partners regarding the quality and effectiveness of the newly developed website to support the aims and activities of this

project. More specifically, during Athens final Meeting (28-29 of November 2019), the coordinator of the IMPACT Project organized a semi-structured, focus group interview with open-ended questions in order to evaluate the effectiveness of IMPACT Project (e.g., online questionnaires, educational material, website, webinars). The interview lasted around 20 minutes. The participants were 13 partners from the Universities implementing the IMPACT Project in their countries (University of Thessaly, Greece; University of Grenoble-Alpes, France; University of Padova & Free University of Bozen, Italy; Hacettepe University, Turkey; Autonomous University of Barcelona, Spain), 2 partners from Educational Institutes (Institute of Educational Policy in Greece, ANKARA MEM) and 2 partners from Physical Education Associations (EUPEA, DSLV).

Initially, the Coordinator of IMPACT Project asked partners "*if the IMPACT tools we developed helped to PE teachers training and to pupils to increase their out of school PA*". They all agree that they are helpful. A partner from Italy said that "*he agree but we need to improve several things, e.g. to improve the content of the webinars*". One partner from EUPEA said that "*IMPACT added a value; we created educational material that is applicable to PE teachers*". Then, the Coordinator asked about "*the IMPACT measures and how can they help PE teachers*". A colleague from France said that "*all measures are useful in order to identify and monitor students' PA levels and the psychosocial variables that affect their PA levels*. *But we still need to develop a monitoring tool that will monitor more effectively the where, when, how and with whom a pupil is planning to participate in out of school PA*". One partner from University of Thessaly also agreed with this proposal. A colleague from Spain said that "*the measures are useful, but we need to examine more factors that influence pupils PA, for example we need to add variables related to family or neighborhood (environmental factors)*". Then, an Italian colleague said that "*the IMPACT survey is too long, we need to change it and connect it more with the PE teachers training*". The Coordinator of IMPACT asked them "*who can benefit from IMPACT measures and findings*". A colleague from Turkey said that "*PE teachers and pupils can benefit from IMPACT measures and findings. Also, university students can benefit from our measures and findings if we train them*". Then, the Coordinator asked "i*f PE teachers or parents have directly benefited from our measures or findings*". A partner from EUPEA said "*we need to focus more to the policy makers*". A partner from Turkey said "*that parents or PE teachers can have benefits from our measures because they can monitor - evaluate their children/ pupils physical activity levels*". Then, the colleague from EUPEA added that "*our measures might help them understand that they have a significant role to increase their children PA*". Prof Papaioannou said that we

need to involve and train also the parents in order to increase their children PA levels. The Coordinator asked "*if the webinars delivered and received well in all 4 countries*". A colleague said "*yes regarding France*". Also, a partner from Italy responded "*yes*". He also mentioned that "*in Italy they send an e-mail to PE teachers participating in these webinars asking them free comments about the educational material. He said that only positive comments they received*". A colleague from Turkey also responded "*yes*" about Turkish webinars. The Coordinator asked "*if the 5-6 webinars can be helpful in the future and if we can use them for in-service training*". A partner from Turkey said "*yes they are helpful and deliverable*". Similarly, a colleague from Span agreed "*that are helpful*". A partner from Greece said that "*we need to connect them with the Dissemination. We need to keep them online (open access), to translate them in other languages, to use them for asynchronous training*". A partner from France said that "*PE teachers need more practical examples, the content was great, it was ok, but we need to add some more practical things. She said that the webinars are ok for pre-service PE teachers, but for in-service teachers we need to add more applicable examples*". A colleague from an Educational Institute said "*we need to connect them with PE teachers' certification*". Moreover, a colleague from Greece proposed that "*we need to give Vocational Credits for the PE teachers participating in our webinars*". The Coordinator asked "*if the IMPACT website is useful and if we can use it for further training*". They all agreed that it is. A partner from a PE teacher Association also said that "*it is useful and that it is important to have it free - open access*".

Finally, In T2 measure, 4129 pupils responded to an item asking them to clarify the **way they prefer to complete the IMPACT questionnaire** (online or traditionally with pencil and paper). The vast majority of them (80.6%) answered they would prefer to complete the online questionnaire (n = 3329), while only 19.4% of them (n = 800) responded that they preferred the traditional way of completing the questionnaire (pencil and paper).