




# BMJ Open Continuing education programme on vaccines for primary healthcare professionals: mixed-method protocol

María González-Cano-Caballero,<sup>1</sup> Marina García-Gámez ,<sup>2</sup>  
 Eloísa Fernández-Fernández ,<sup>3</sup> Eloísa Fernández-Ordoñez,<sup>2</sup>  
 María Dolores Cano-Caballero,<sup>4</sup> Cristina Guerra-Marmolejo 

**To cite:** González-Cano-Caballero M, García-Gámez M, Fernández-Fernández E, *et al.* Continuing education programme on vaccines for primary healthcare professionals: mixed-method protocol. *BMJ Open* 2022;**12**:e060094. doi:10.1136/bmjopen-2021-060094

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-060094>).

Received 13 December 2021  
 Accepted 13 May 2022



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

<sup>1</sup>Department of Nursing, School of Nursing, Physiotherapy and Podiatry, University of Seville, Seville, Spain

<sup>2</sup>Department of Nursing, Faculty of Health Sciences, University of Málaga, Málaga, Spain

<sup>3</sup>Costa del Sol Hospital, Marbella, Spain

<sup>4</sup>Department of Nursing, Faculty of Health Sciences, University of Granada, Granada, Spain

## Correspondence to

Eloísa Fernández-Fernández;  
 eloisa.fernandez.fernandez@juntadeandalucia.es

## ABSTRACT

**Introduction** Vaccination is a fundamental intervention in disease prevention; therefore, the advice and recommendations of health professionals have a major influence on the population's decision to be vaccinated or not. Professionals must have sufficient competencies to carry out their work and recommend vaccination with evidence-based knowledge. The aim is to design and validate a strategy to improve professional competencies in vaccination to positively influence adherence and increase vaccination rates in the population.

**Methods and analysis** Training will be designed based on evidence and previous studies and piloted with healthcare providers. To test changes in knowledge, a pretest and post-test will be conducted. To test feasibility, a think-aloud method will be used with participants and triangulated with focus groups using SWOT (strengths, weaknesses, opportunities and threats) analysis. Transfer will be measured using the questionnaire 'factors for the indirect evaluation of transfer' and an efficacy questionnaire 1½ months later; for satisfaction, an ad hoc questionnaire will be used. A summative approach will be used for the analysis of the focus groups and descriptive and bivariate statistics for the questionnaires.

**Ethics and dissemination** This study was approved by the Andalusian Research Ethics Committee, Spain (approval number: 0524-N-20). The results will be made available to the public at journal publications and scientific conferences.

## INTRODUCTION

Vaccination is an important intervention to achieve disease prevention and eradication.<sup>1</sup> The current pandemic caused by COVID-19, which has already caused more than 453 million infections and more than 6 million deaths worldwide,<sup>2</sup> has demonstrated the importance of vaccine programmes.<sup>3</sup> Worldwide, the vaccination rate with the complete COVID-19 regimen is approximately 53%, although there is much variability between countries. While some countries, such as Portugal or the United Arab Emirates, have vaccination rates of more than 90%, others, such as Nigeria, have vaccination rates of only

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The use of several methods to check the feasibility of the educational intervention can be considered a strength.
- ⇒ Measuring transfer of learning allows us to know whether the participants apply what they have learned to their work.
- ⇒ The use of think-aloud methods allows for the identification of areas for improvement in training.
- ⇒ One limitation may be that the health professionals who are most willing to be trained are those who agree to participate, which may affect the results.
- ⇒ Another possible limitation is the dropout of course participants.

4% of the population.<sup>4</sup> No medical breakthrough has succeeded in saving as many lives as vaccination.<sup>5-8</sup>

The information that health professionals hold about vaccines is not always based on the recommendations offered by the latest studies.<sup>9</sup> In Spain, 30% of respondents to the 'Barometro Sanitario survey' stated that they were not adequately informed about vaccines by health professionals.<sup>10</sup> In line with this, other research showed that 24% of respondents stated that their doubts about vaccines are a consequence of poor information provided to them about vaccines.<sup>11</sup> Some studies suggest that health professionals are unaware of, for example, vaccine storage, coadministration of vaccines and other products, as well as sometimes the current vaccine schedule.<sup>12</sup> We found other studies in which paediatricians and paediatric nurses have doubts about at least one vaccine, as well as doubts about the efficacy or adverse effects of vaccines.<sup>13 14</sup> The same doubts were found in a recent study conducted in Italy, where the lack of confidence in the COVID-19 vaccine was one of the main reasons given by participating healthcare workers, where 33% were classified as hesitant to vaccinate.<sup>15</sup>

Some authors suggest that health professionals require more skills when dealing with situations where patients take a negative stance on vaccination.<sup>16</sup> These doubts or gaps in health professionals' knowledge negatively affect the intention to convey information about vaccines to patients.<sup>17</sup> The advice and recommendations of health workers have a strong influence on citizens when making decisions about their own and their family's health.<sup>18</sup>

There have been many advances in vaccinology, so there is a need for continuing education, which is not always accessible or of adequate quantity or quality.<sup>19</sup> Continuing education enables professionals to acquire the necessary skills and to develop their capacity for innovation.<sup>20</sup> Such training is essential as health professionals who participate in such activities are more likely to make evidence-based clinical decisions than those who do not.<sup>21</sup>

Among these activities is learning using information and communication technologies (ICTs) or e-learning,<sup>22</sup> which was widely used at all levels of education during the COVID-19 pandemic. This type of learning is a useful tool for lifelong learning that is widely disseminated at a low cost and is sometimes even preferred to traditional learning.<sup>23–25</sup> Courses using e-learning methodology have the advantage that professionals can access them whenever and wherever they want without having to attend in person. In addition, these courses allow the content to be easily updated and edited.<sup>25</sup>

However, some of the continuing education programmes that are offered are not based on the real needs of the professionals to whom they are addressed, which means that they do not meet all their needs or even, as we have seen in previous research, they are not offered at all.<sup>26</sup>

## OBJECTIVES

The study aim is to design and validate a strategy to improve professional competencies in vaccination, in a personalised way and using ICTs, to positively influence adherence and increase vaccination rates in the population.

Specific goals:

1. To design an intervention based on the use of ICTs for training in the field of vaccination.
2. To test the feasibility and acceptability of the intervention developed for training in the field of vaccination, by piloting it in the centres included in the research.
3. To analyse the degree of transferability of the training.

## METHODS AND ANALYSIS

### Study design

This protocol proposes to carry out a mixed study in primary health centres in Granada with a duration of 1 year, from May 2022 to May 2023. First, a training course on vaccines will be designed; the content of which will be based on the existing scientific evidence. The educational intervention will be set up on the Moodle platform,

which allows the construction of personalised learning, free of charge. Once the education intervention has been created, it will be piloted with a representative sample. For this part, pretests will be used to identify the previous knowledge of the participants on the subject. Once the training has been carried out, a post-test will be conducted, with the same content as the pretest, to check for changes in knowledge. To check the feasibility of the training, a think-aloud method will be carried out, which will be completed and triangulated with focus groups using SWOT (strengths, weaknesses, opportunities and threats) analysis. In addition, questionnaires will be used to check transfer and satisfaction with the education intervention.

### Selection of participants

The research will be piloted in primary healthcare centres in the province of Granada. Expert recommendations are to include between 30 and 50 subjects in the pilot studies.<sup>27</sup> In this case, to cover different professional profiles, in different primary healthcare centres serving diverse populations, the following will be carried out with 50 healthcare providers (nurses, primary health physicians and paediatricians) who meet the inclusion criteria. For this purpose, convenience sampling will be carried out in the primary healthcare centres. To be included in the sample, participants must comply with the following eligibility criteria: be a primary healthcare provider (primary health physicians, paediatricians and nurses), be willing to participate and have basic knowledge in the use of ICTs.

The focus groups will be carried out with the same participants as the training. Each focus group will be made up of between 4 and 12 professionals, as per the guidelines.<sup>28</sup>

### Data collection and measures

#### Design of the intervention

Considering previous research on continuing education on vaccines,<sup>29–31</sup> the blocks to be included will be: (1) relevance of preventable diseases, (2) vaccines included in the childhood and adult vaccine schedule, (3) vaccines in special situations, (4) administration and safety of vaccines and (5) communication strategies. For the creation of content, content based on scientific evidence will be used, so a review of the literature will be carried out. This content will be posted on the Moodle platform in the form of videos, slideshows and/or study documents. The aim will be to create materials that are dynamic, conducive to learning and interactive.<sup>32</sup>

The pretest/post-test questionnaire will be designed by the researchers based on the literature review and the information to be included in the course.

#### Piloting the intervention

Once the educational intervention has been designed, the training will be implemented in groups of five healthcare providers in the selected primary healthcare centres.

All sessions will be observed. The think-aloud method will be used during the development of the training.<sup>33</sup> This method consists of having the users verbalise their thoughts while they are using the product, thus allowing us to know what they are thinking. The researchers observe and take notes during whole process verbal language (questions asked, statements, comments, expressions, tone and volume of voice) and non-verbal language (gaze, way of sitting, gestures and facial expressions).<sup>34</sup> This makes it possible to identify areas for improvement in the training. In these cases, in addition to observation, the sessions will be audio-recorded. Before starting to use the training platform, it will be explained to the participants that while they are carrying out the tasks, they should speak out loud everything they would say to themselves if they had to be silent.<sup>35</sup>

### Evaluation of training results

The educational intervention will be evaluated using different questionnaires. The post-test will be repeated to check any changes in the level of knowledge. Transfer of learning, that is, the degree to which the training participants apply the knowledge, skills and attitudes acquired in the training in their work,<sup>36</sup> as well as satisfaction, will also be evaluated. For transfer of learning and satisfaction, the following will be used:

- ▶ The ‘factors for the indirect evaluation of transfer (FET)’ questionnaire, which seeks to evaluate and detect the factors that hinder or facilitate the transfer.<sup>37</sup> This questionnaire was developed by integrating several theories related to the transfer of training, based on training results (intent to transfer, achieved learning and deferred transfer) and on the three transfer dimensions (organisation, trainee and training).<sup>38</sup> This instrument was validated in two samples to ensure that it is suitable for application in public institutions and private companies, with a Cronbach’s alpha of 0.927.<sup>39</sup> It is composed of seven factors that are divided into three dimensions: participant, work environment and training dimensions. It is composed of 42 items that are answered on a 5-point Likert scale from 1 (not agreeing at all) to 5 (strongly agreeing). It will be applied at the end of the training.<sup>37</sup> The validated Spanish version of the questionnaire can be found in online supplemental annex 1.
- ▶ Satisfaction questionnaire on different aspects of the training. Questions will be asked about: compliance with the training programme, functioning and usefulness of the virtual platform, suitability of the duration, help and attention to students, quality of the teaching material, promotion of student motivation and participation. These points will be evaluated on a scale from 1 (very dissatisfied) to 5 (very satisfied). Two open questions will be included about the aspects that need to be improved and the most satisfactory aspects.

After filling in the questionnaires, focus groups will be held with the participants. The purpose of these focus

groups is to ‘validate’ the researchers’ interpretation of the participants’ expressions collected by the think-aloud method, as well as to fill in possible gaps. Once this first phase of the think-aloud method has been completed, the results obtained will be used to develop a script of questions for the focus groups. SWOT analysis will be incorporated into these groups. This analysis aims to obtain information on the negative and positive aspects of the educational intervention. These groups will also help in the interpretation of the quantitative data. All groups will be audio-recorded, and field notes will be taken.

Finally, 1½ months after the end of the training, a questionnaire will be administered again to check whether what has been learned has been applied in the workplace:

- ▶ Efficacy questionnaire, which is based on the same transference theories as the questionnaire FET, with a Cronbach’s alpha of 0.894, showing adequate internal consistency.<sup>39</sup> It is made up of one factor with six items that are evaluated on a 5-point Likert scale from 1 (not agreeing at all) to 5 (strongly agreeing). In addition, it has two more questions that allow us to distinguish between those who have transferred what they have learned and those who have not. For those who have not transferred, the reasons for not having done so are explored in question 8, and for those who have transferred, evidence of this is requested in question 9.<sup>37</sup> The validated Spanish version of the questionnaire can be found in the online supplemental annex 1.

### Data preparation and analysis

For the think-aloud method and the focus groups, after the fieldwork has been carried out, notes will be made of the first impressions and provisional conclusions we have obtained. Subsequently, the audios will be transcribed verbatim, accompanied by the annotations of the non-verbal language that were made during the sessions to try to combine all the information. After this, the transcriptions will be read, and the text will be divided into smaller elements for content analysis. In the case of the data obtained by the think-aloud method, categories will be obtained through an inductive approach. In the case of the focus groups, a summative approach will be used, that is, categories will first be obtained through a deductive approach derived from the SWOT analysis, and emerging categories will be identified after repeated reading of the transcripts (inductive approach). Coding will be carried out independently by two researchers and when there are discrepancies a third researcher will be used. Nvivo software (V. 12) will be used for coding. To guarantee the quality of the qualitative research, the criteria of Guba and Lincoln (credibility, transferability, dependability and confirmability) will be taken into account.<sup>40</sup>

For the analysis of the results obtained from the questionnaires answered during the piloting, we will use descriptive and bivariate statistics for the variables obtained. Dependent t-tests will be used to assess differences between the pretest and post-test responses,





provided that the data are normally distributed, which will be tested with the Shapiro-Wilk test. If this is not the case, its non-parametric alternative will be used. A comparison of means (ANOVAs) will be carried out to identify differences between profile variables, as well as simple and multiple linear regressions. To ensure the quality of the quantitative research, the reliability and validity of the questionnaires administered to this sample will be analysed. All analyses will be carried out with the R statistical programme.

### Patient and public involvement

Patients or the public were not involved in the design and development of the research.

### Ethics and dissemination

The present research was approved by the Andalusian Research Ethics Committee, Spain (approval number: 0524N-20). Written informed consent will be requested from all participants before the start of the study.

This project will be offered to the health district to form part of the training offered to their health professionals. The results will be made available to the public at journal publications and scientific conferences.

## DISCUSSION

Studies show that educational interventions by health professionals can increase the acceptability of vaccines, both those included in childhood immunisation schedules and the COVID-19 vaccine.<sup>41–43</sup> When health professionals do not provide sufficient information to parents about vaccines, this may lead them to doubt the efficacy of vaccines.<sup>11 44</sup> Sometimes it is their lack of knowledge on the subject that leads professionals to make unclear recommendations.<sup>26</sup>

Under normal conditions, it can be difficult to promote confidence in vaccination, and in the last year with the pandemic, it has become more complicated due to the controversy generated around vaccination.<sup>3</sup> This is compounded by the lack of information, especially if the population is adolescent and lives in underdeveloped countries. Health professionals have a fundamental role to play in ensuring that young people adhere to vaccination as a tool to reduce disease and, in this case, the pandemic.<sup>45</sup> It is therefore important that professionals are continuously educated to keep up to date with the evidence. Continuing education is useful for acquiring knowledge but also attitudes, skills and behaviours. As suggested by several authors,<sup>32 46</sup> it is important that this training is adapted to the needs of the students, that is, to the gaps in their knowledge, as we intend to do in this protocol. Continuing education for healthcare professionals leads to improved professional practice and better health outcomes for patients.<sup>47 48</sup> Furthermore, it can also benefit the healthcare system, as continuing education leads to changes in practice (based on evidence) which can lead to cost savings.<sup>49</sup>

As the main outcome, we hope to create an educational intervention that is tailored to the needs of the participants and fosters knowledge transfer. In turn, we believe that by increasing knowledge in healthcare professionals, they will convey evidence-based information through good communication with patients, which can lead to increased adherence to vaccination programmes. The results of this study could be shared with other professionals in different countries, which can help to share facilitators and training difficulties and thus improve it. These improvements can help professionals in different countries better respond to the demands of the population in terms of vaccines and thus have a positive impact on vaccination rates.

**Twitter** Eloísa Fernández-Fernández @eloisaff79

**Contributors** MG-C-C has participated in the conceptualisation, methodology, validation and review and editing of the manuscript. EF-O and MG-G have in turn carried out the conceptualisation of the protocol. CG-M, MDC-C and EF-F have contributed to the methodology and formal analysis. EF-O, CG-M and EF-F have written the manuscript; preparation, review and editing of the original draft. MG-G has coordinated and supervised the completion of the manuscript.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

### ORCID iDs

Marina García-Gámez <http://orcid.org/0000-0001-9953-9812>

Eloísa Fernández-Fernández <http://orcid.org/0000-0002-5862-0902>

Cristina Guerra-Marmolejo <http://orcid.org/0000-0003-1520-6792>

## REFERENCES

- Galindo Santana BM, Arroyo Rojas L, Concepción Díaz D. Seguridad de las vacunas Y SU repercusión en La población. *Rev Cuba Salud Pública* 2011;37 [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S0864-34662011000100013&lng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-34662011000100013&lng=es)
- John Hopkins University & Medicine. Coronavirus resource centre. Available: <https://coronavirus.jhu.edu/map.html>
- Vanderpool RC, Gaysynsky A, Sylvia Chou W-Y. Using a global pandemic as a teachable moment to promote vaccine literacy and build resilience to misinformation. *Am J Public Health* 2020;110:S284–5.
- Our world in data. Coronavirus (COVID-19) Vaccinations. Available: <https://ourworldindata.org/covid-vaccinations>
- Comité Asesor de vacunas. Seguridad de las vacunas, contraindicaciones y precauciones. In: *Manual de vacunas en línea AEP*, 2016. <http://vacunasaep.org/documentos/manual/cap-3#6>

- 6 Fenner F, Donald A, *et al.* *Smallpox and its eradication*. World Health Organization, 1988. <https://apps.who.int/iris/handle/10665/39485>
- 7 Van Panhuis WG, Grefenstette J, Jung SY, *et al.* Contagious diseases in the United States from 1888 to the present. *N Engl J Med* 2013;369:2152–8.
- 8 Greenwood B. The contribution of vaccination to global health: past, present and future. *Philos Trans R Soc Lond B Biol Sci* 2014;369:20130433.
- 9 Pérez MRO, Violeta VB, Del Campo AV, *et al.* Cross-Sectional study about primary health care professionals views on the inclusion of the vaccine against human papillomavirus in the vaccine schedules. *Infect Agent Cancer* 2015;10:41.
- 10 Sanidad Mde. Servicios Sociales E Igualdad Barómetro Sanitario; 2017. [https://www.msssi.gob.es/estadEstudios/estadisticas/BarometroSanitario/home\\_BS.html](https://www.msssi.gob.es/estadEstudios/estadisticas/BarometroSanitario/home_BS.html)
- 11 Stefanoff P, Mamelund S-E, Robinson M, *et al.* Tracking parental attitudes on vaccination across European countries: the vaccine safety, attitudes, training and communication project (VACSATC). *Vaccine* 2010;28:5731–7.
- 12 Tuells J, Caballero P, Montagud Penadés E, *et al.* Conocimiento Y actitud hacia La inmunización en profesionales sanitarios de atención primaria. *Vacunus* 2009;10:78–84.
- 13 Picchio CA, Carrasco MG, Sagué-Vilavella M, *et al.* Knowledge, attitudes and beliefs about vaccination in primary healthcare workers involved in the administration of systematic childhood vaccines, Barcelona, 2016/17. *Euro Surveill* 2019;24.
- 14 Petek D, Kamnik-Jug K. Motivators and barriers to vaccination of health professionals against seasonal influenza in primary healthcare. *BMC Health Serv Res* 2018;18:853.
- 15 Di Gennaro F, Murri R, Segala FV, *et al.* Attitudes towards Anti-SARS-CoV2 vaccination among healthcare workers: results from a national survey in Italy. *Viruses* 2021;13:371.
- 16 Redsell SA, Bedford H, Siriwardena AN, *et al.* Health visitors' perception of their role in the universal childhood immunisation programme and their communication strategies with parents. *Prim Health Care Res Dev* 2010;11:51–60.
- 17 Rosen BL, Ashwood D, Richardson GB. School nurses' professional practice in the HPV vaccine decision-making process. *J Sch Nurs* 2016;32:138–48.
- 18 Scott K, Batty ML. Hpv vaccine uptake among Canadian youth and the role of the nurse practitioner. *J Community Health* 2016;41:197–205.
- 19 Choiseul I. El valor de las vacunas Notas estratégicas; 2016. <http://www.choiseul.es/images/stories/choiseul/papers/NotaEstrategica3-Vacunus.pdf>
- 20 World Economic Forum. Matching skills and labor market needs. building social partnerships for better skills and better jobs; 2014. <https://www.weforum.org/reports/matching-skills-and-labour-market-needs-building-social-partnerships-better-skills-and-better-jobs>
- 21 Casebeer L, Brown J, Roepke N, *et al.* Evidence-Based choices of physicians: a comparative analysis of physicians participating in internet CME and non-participants. *BMC Med Educ* 2010;10:42.
- 22 Garrison DR. *E-Learning in the 21st century: a community of inquiry framework for research and practice*. Taylor & Francis, 2016.
- 23 Olivieri JJ, Knoll MB, Arn PH. Education format and resource preferences among registrants of a pediatric-focused CME website. *Med Teach* 2009;31:e333–7.
- 24 Walsh K. Cost and value in e-learning: the perspective of the learner. *BMJ Simul Technol Enhanc Learn* 2018;4:201–2.
- 25 Al-Shorbaji N, Atun R, Car J, *et al.* eLearning for undergraduate health professional education. A systematic review informing a radical transformation of health workforce development. *WHO Press* 2015.
- 26 González Cano-Caballero M, Gil García E, Garrido Peña F, *et al.* [Opinions of Andalusian primary health care professionals]. *An Sist Sanit Navar* 2018;41:27–34.
- 27 García-García J, Reding-Bernal A, López-Alvarenga JC. Sample size calculation in medical education research. *Investigación en educación médica* 2013;2:217–24.
- 28 Krueger RA, Casey MA. *Focus groups: a practical guide for applied research*. Sage Publications, 2009.
- 29 Kornides ML, Garell JM, Gilkey MB. Content of web-based continuing medical education about HPV vaccination. *Vaccine* 2017;35:4510–4.
- 30 Leung SOA, Akinwunmi B, Elias KM, *et al.* Educating healthcare providers to increase human papillomavirus (HPV) vaccination rates: a qualitative systematic review. *Vaccine X* 2019;3:100037.
- 31 Chamberlain AT, Limaye RJ, O'Leary ST, *et al.* Development and acceptability of a video-based vaccine promotion tutorial for obstetric care providers. *Vaccine* 2019;37:2532–6.
- 32 Filipe HP, Silva ED, Stulting AA, *et al.* Continuing professional development: best practices. *Middle East Afr J Ophthalmol* 2014;21:134–41.
- 33 Van Someren MW, Barnard YF, Sandberg JAC. *The think Aloud method: a practical guide to modelling cognitive processes*. Academic Press, 1994.
- 34 Nielsen Norman Group. Thinking Aloud: The #1 Usability Tool. Available: <https://www.nngroup.com/articles/thinking-aloud-the-1-usability-tool/>
- 35 Charters E. The use of think-aloud methods in qualitative research an introduction to think-aloud methods. *Brock Education Journal* 2003;12.
- 36 Baldwin TT, Ford JK. Transfer of training: a review and directions for future research. *Pers Psychol* 1988;41:63–105.
- 37 Pineda-Herrero P, Quesada-Pallarès C, Ciraso-Calí A. *Factores para La Evaluación indirecta de la Transferencia – FET*. Universitat Autònoma de Barcelona, 2020.
- 38 Pineda-Herrero P, Quesada-Pallarès C, Ciraso-Calí A. Evaluation of training transfer factors: the FET model. In: Schneider K, ed. *Transfer of learning in organizations*. Springer International Publishing, 2014: 121–44.
- 39 Pineda-Herrero P, Ciraso-Calí A, Quesada-Pallarès C. ¿Cómo Saber Si La formación genera resultados? El modelo FET de evaluación de la transferencia. *Capital Humano* 2014;292.
- 40 Lincoln YS, Guba EG, Pilotta JJ, Sage Publications. *Naturalistic inquiry*, 1985.
- 41 Sitaresmi MN, Rozanti NM, Simangunsong LB, *et al.* Improvement of parent's awareness, knowledge, perception, and acceptability of human papillomavirus vaccination after a structured-educational intervention. *BMC Public Health* 2020;20:1836
- 42 Piñero Pérez R, Hernández Martín D, Carro Rodríguez Miguel Ángel, Pérez RP, Martín DH, MÁC Rodríguez, *et al.* Consulta de asesoramiento en vacunas: El encuentro ES posible. *Anales de Pediatría* 2017;86:314–20.
- 43 Wake AD. The willingness to receive COVID-19 vaccine and its associated factors: "vaccination refusal could prolong the war of this pandemic" - a systematic review. *Risk Manag Healthc Policy* 2021;14:2609–23.
- 44 González-Cano M, Garrido-Peña F, Gil-García E, *et al.* Sexual behaviour, human papillomavirus and its vaccine: a qualitative study of adolescents and parents in Andalusia. *BMC Public Health* 2021;21:1476
- 45 Marotta C, Nacareia U, Estevez AS, *et al.* Mozambican adolescents and youths during the COVID-19 pandemic: knowledge and awareness gaps in the provinces of Sofala and Tete. *Healthcare* 2021;9:321.
- 46 Ahmed K, Wang TT, Ashrafian H, *et al.* The effectiveness of continuing medical education for specialist recertification. *Can Urol Assoc J* 2013;7:266–72.
- 47 Forsetlund L, Bjørndal A, Rashidian A. Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* 2009;2009:CD003030.
- 48 Cervero RM, Gaines JK. The impact of CME on physician performance and patient health outcomes: an updated synthesis of systematic reviews. *J Contin Educ Health Prof* 2015;35:131–8.
- 49 Ravyn D, Ravyn V, Lowney R, *et al.* Estimating health care cost savings from an educational intervention to prevent bleeding-related complications: the outcomes impact analysis model. *J Contin Educ Health Prof* 2014;34 Suppl 1:S41–6.



# Factores para la Evaluación indirecta de la Transferencia - FET

Pilar Pineda-Herrero, Carla Quesada-Pallarès, Anna Ciraso-Calí

## Prefacio

En los últimos años, la investigación del grupo EFI-GIPE, de la Universidad Autónoma de Barcelona, se ha centrado en evaluar la transferencia de la formación de forma indirecta (Pineda, Quesada, y Ciraso, 2011; Quesada, 2012). El recorrido realizado ha permitido crear el primer modelo de factores de la transferencia en el contexto español: el modelo FET de Factores para la Evaluación de la Transferencia. El Grupo EFI-GIPE<sup>1</sup> desea agradecer en particular a quienes participaron en las diversas fases del proyecto.

## Dirección actual de autoras

Pilar Pineda-Herrero. Edificio G6, despacho G6/148. Facultad de Ciencias de la Educación. Campus de la UAB. 08193 Bellaterra (Cerdanyola del Vallès). Correo electrónico: [pilar.pineda@uab.cat](mailto:pilar.pineda@uab.cat)

Carla Quesada-Pallarès. Edificio G6, despacho G6/249. Facultad de Ciencias de la Educación. Campus de la UAB. 08193 Bellaterra (Cerdanyola del Vallès). Correo electrónico: [carla.quesada@uab.cat](mailto:carla.quesada@uab.cat)

Anna Ciraso-Calí. Edificio G6, despacho G6/215. Facultad de Ciencias de la Educación. Campus de la UAB. 08193 Bellaterra (Cerdanyola del Vallès). Correo electrónico: [anna.ciraso@uab.cat](mailto:anna.ciraso@uab.cat)

## Citación APA 7<sup>a</sup> edición

Pineda-Herrero, P., Quesada-Pallarès, C., Ciraso-Calí, A. (2020). *Factores para la Evaluación indirecta de la Transferencia – FET*. Universitat Autònoma de Barcelona.

## Uso del documento



Esta obra está sujeta a la Licencia Reconocimiento-NoComercial-CompartirIgual 3.0 España de Creative Commons. Para ver una copia de esta licencia, visite <http://creativecommons.org/licenses/by-nc-sa/3.0/es/> o envíe una carta Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

<sup>1</sup>Grupo EFI-GIPE de la Universidad Autónoma de Barcelona, Facultad de Ciencias de la Educación.



## El Modelo FET o Factores de Evaluación de la Transferencia

### 1. Dimensiones y factores del Modelo FET

El modelo FET integra diferentes teorías relacionadas con la transferencia de la formación (Pineda-Herrero, Quesada-Pallarès, y Ciraso-Calí, 2014). Los siete factores que componen el modelo FET se dividen en tres dimensiones: dimensión del participante, dimensión de la formación y dimensión del entorno de trabajo (Tabla 1).

Dimensión del participante	Dimensión del entorno de trabajo	Dimensión de la formación
Satisfacción con la formación	Rendición de cuentas para la aplicación	Orientación a las necesidades del puesto de trabajo
Motivación para transferir	Posibilidades del entorno para la aplicación	
Locus de control interno	Apoyo para transferir	

Tabla 1. Dimensiones y factores del modelo FET.

El modelo fue validado en dos muestras diferentes para garantizar su adecuación tanto en instituciones públicas como en empresas privadas. Primero, en 2011 se validó con una muestra de 1,525 trabajadores de la administración pública española de 5 comunidades autónomas, participantes en formación<sup>2</sup>. El modelo obtenido predice en un 32.8% la transferencia realizada por el trabajador en formación. Segundo, el modelo fue aplicado en formación financiada por la Fundación Tripartita para la Formación en el Empleo en 2012, cuya muestra se compuso de empresas privadas. La muestra de 2,708 trabajadores en formación validó el modelo FET que predice el 68.2% de la transferencia de las actividades formativas orientadas a la innovación (Quesada-Pallarès, Ciraso-Calí, Pineda-Herrero y Janer-Hidalgo, 2014).

### 2. Instrumentos del Modelo FET y codificación de ítems

El Modelo FET dispone de dos herramientas básicas (Cuestionario FET y Cuestionario CdE) que pueden utilizarse como un conjunto o por separado.

#### 2.1. El cuestionario FET

Está formado por 42 ítems (Tabla 2) a valorar en una escala Likert de 5 puntos (1: nada de acuerdo, 5: totalmente de acuerdo), que recogen la percepción del participante acerca de los factores del modelo presentados anteriormente. De este modo, se obtiene un diagnóstico de los factores que determinan la transferencia.

Factor	Código	Ítems
Satisfacción con la formación	SaFo	1, 5, 8, 14, 17, 19
Rendición de cuentas para la aplicación	RCA	12, 24, 26, 30, 32, 35,41
Orientación a las necesidades del puesto de trabajo	ONP	7, 16, 21, 25, 28, 36, 40
Posibilidades del entorno para la aplicación	PEA	3, 10, 13, 15, 22, 23, 29, 33, 34, 42
Motivación para transferir	MoTr	2, 9, 20, 31, 37
Locus de control interno	LoCl	11, 27, 39
Apoyo para transferir	APTTr	4, 6, 18, 38

Tabla 2. Codificación del modelo FET

<sup>2</sup>En el estudio ETAPE (Evaluación de la Transferencia en la Administración Pública Española), realizado en 2011 bajo la dirección de Pilar Pineda, en el que han colaborado los Institutos de administración pública de Aragón, Castilla-La Mancha, Castilla y León, Comunidad Valenciana y Galicia.



Igualmente, se contemplan seis ítems referentes al perfil del participante en formación, de elección múltiple, en función del ítem: género, edad, cargo en la organización, nivel educativo, motivos de participación en la formación, y horario en el que ha desarrollado la actividad formativa.

El trabajador en formación rellena el cuestionario justo antes de finalizar la formación (ya sea en cuestionario en papel u on-line) y suele tardar alrededor de 7 minutos.

## 2.2. Escalas independientes del modelo FET

Además de los factores anteriores, en el modelo FET se desarrollaron dos escalas independientes adicionales que pueden ser usadas para ampliar la información sobre la intención de transferencia y el aprendizaje logrado (Tabla 3), ya sea como variables dependientes, independientes o mediadoras.

Factor	Código	Ítems
Escala de Transferencia (intención de transferencia)	InTr	43, 44, 45, 46
Aprendizaje Logrado	ApLo	47, 48, 49, 50, 51

Tabla 3. Escalas independientes del modelo FET

## 2.3. Cuestionario de Eficacia (CdE)

Los objetivos del cuestionario CdE son: 1) identificar el grado de aplicación de lo aprendido por parte de los participantes, a su puesto de trabajo; y si se ha aplicado el FET previamente, 2) conocer la capacidad predictiva de los factores. Se compone de un único factor de 6 ítems a valorar mediante una escala Likert de 5 puntos (1: nada de acuerdo, 5: totalmente de acuerdo), con enunciados sobre el grado percibido de aplicación de los aprendizajes, los cambios en la actuación profesional como consecuencia de la formación, la mejora del rendimiento, y el alcance de los objetivos profesionales.

Existe un séptimo ítem (con la misma lógica que los anteriores) que permite seccionar el cuestionario entre los que afirman haber transferido poco o nada (valores de 1 o 2) y que por lo tanto responden la pregunta 8; por otro lado, los que afirman haber transferido (valores de 3, 4 o 5) responden la pregunta 9. La pregunta 8 explora los motivos por los que no se ha podido transferir; mientras que la pregunta 9 pide que se evidencie la transferencia realizada mediante ejemplos.

Su administración es entre 2,5 y 3 meses después de la finalización de la formación, a la misma muestra de trabajadores que respondieron el FET, vía on-line normalmente.





## Anexos

### 1. Cuestionario FET

#### CUESTIONARIO DE “FACTORES PARA LA EVALUACIÓN INDIRECTA DE LA TRANSFERENCIA - FET”

Este cuestionario evalúa la aplicación de la formación, dentro del estudio que realiza el grupo EFI-GIPE (UAB).

Los datos serán tratados confidencialmente y servirán sólo para la evaluación de la formación. Es necesario que rellene el cuestionario **completamente**, sin dejar ninguna pregunta.

Las preguntas que aparecen a continuación se centran en la **formación que justo acaba de finalizar**.

**Importante.** Puede haber preguntas parecidas: sirven para verificar estadísticamente su validez. Por favor, responda a todas.

#### A. PERFIL DEL PARTICIPANTE EN LA FORMACIÓN

Por favor, rellene con mayúsculas o **marque con una cruz**, según convenga. Escoja **sólo una opción de respuesta** por pregunta, y asegúrese de responder todas las cuestiones.

1. Género del/a participante:  Hombre  Mujer  Ninguna de las anteriores
2. Edad:
3. ¿Cuál es su cargo en esta empresa?  
Directivo/a  Mando intermedio  Técnico/a  Trabajador/a cualificado  Trabajador/a no cualificado
4. ¿Cuál es su nivel educativo?  
Ninguno  Educación primaria o equivalente  Educación secundaria obligatoria o equivalente   
Formación profesional de grado medio  Bachillerato  Formación profesional de grado superior   
Diplomatura o Licenciatura  Posgrado o máster  Doctorado o superior
5. ¿Cuál ha sido el motivo por el que ha participado en esta formación?  
Era obligatorio realizar la formación  Mi jefe/a me animó a hacer la formación   
Desde Recursos Humanos me recomendaron hacer la formación  He participado por iniciativa propia
6. Horario de la formación: Dentro de la jornada laboral  Fuera de la jornada laboral  Ambas

#### B. VALORACIÓN DE ASPECTOS CLAVE DE LA FORMACIÓN

Por favor, marque el número (del 1 al 5) a la derecha de cada pregunta que refleje más claramente **su opinión**. No hay respuestas correctas ni incorrectas. Escoja **sólo una opción de respuesta** por pregunta, y asegúrese de responder todas las cuestiones.

-----  
1-Nada de acuerdo 2-Poco de acuerdo 3-De acuerdo 4-Bastante de acuerdo 5-Totalmente de acuerdo  
-----

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1 La formación en la que he participado me ha gustado.  | 1 | 2 | 3 | 4 | 5 |
| 2. Me gustaría que la formación realizada me ayudara a desarrollarme profesionalmente.          | 1 | 2 | 3 | 4 | 5 |
| 3. Son las otras personas, las que me impiden aplicar la formación a mi lugar de trabajo.       | 1 | 2 | 3 | 4 | 5 |
| 4. Cuando aplico la formación a mi puesto de trabajo, cuento con la ayuda de mis compañeros/as. | 1 | 2 | 3 | 4 | 5 |



5. La formación ha sido interesante.	1	2	3	4	5
6. Mi jefe/a incentiva que yo introduzca cambios a partir de la formación.	1	2	3	4	5
7. La formación realizada ha respondido a las necesidades de mi puesto de trabajo.	1	2	3	4	5
8. La formación ha sido amena.	1	2	3	4	5
9. Me gustaría que la formación realizada me ayudara a mejorar mi trabajo.	1	2	3	4	5
10. Para mí, aplicar los aprendizajes de la formación a mi lugar de trabajo es difícil.	1	2	3	4	5
11. Que yo aplique la formación al puesto de trabajo, depende de mí.	1	2	3	4	5
12. He establecido un compromiso con mi organización para aplicar lo que he aprendido.	1	2	3	4	5
13. El azar tiene un papel importante en mi aplicación de la formación.	1	2	3	4	5
14. El formador/a ha realizado un buen trabajo.	1	2	3	4	5
15. No dispongo de los recursos necesarios para aplicar la formación.	1	2	3	4	5
16. La formación tiene relación con las necesidades de mi carrera profesional.	1	2	3	4	5
17. Estoy contento/a con la formación realizada.	1	2	3	4	5
18. Mis compañeros/as facilitan que introduzca cambios en mi puesto de trabajo a partir de la formación.	1	2	3	4	5
19. En la formación se han dado orientaciones sobre cómo aplicar la formación.	1	2	3	4	5
20. Acostumbro a tener ganas de poner en práctica lo que he aprendido en la formación.	1	2	3	4	5
21. Los ejercicios realizados en la formación han sido similares a mis tareas en el puesto de trabajo.	1	2	3	4	5
22. Elementos que no se pueden controlar (suerte, coincidencias,...) influyen en mi aplicación de la formación.	1	2	3	4	5
23. La carga de trabajo diario no me permite aplicar la formación a mi lugar de trabajo.	1	2	3	4	5
24. Mi jefe/a me convoca a una entrevista para revisar qué aplico en mi trabajo a partir de la formación.	1	2	3	4	5
25. En la formación se han dado ejemplos cercanos a mi realidad laboral.	1	2	3	4	5
26. Mi jefe/a quiere que yo aplique la formación a mi puesto de trabajo.	1	2	3	4	5
27. Depende de mí el éxito en la aplicación de la formación.	1	2	3	4	5
28. La formación se ha vinculado con lo que necesito para realizar mi trabajo.	1	2	3	4	5
29. Mi institución no me facilita los recursos que necesito para aplicar la formación.	1	2	3	4	5
30. Después de la formación, explico a mi jefe/a los cambios introducidos en mi puesto de trabajo.	1	2	3	4	5
31. Cuando curso una formación, me siento capaz de aplicarla.	1	2	3	4	5
32. Mi jefe/a me felicita cuando aplico en mi puesto de trabajo lo que he aprendido en la formación.	1	2	3	4	5
33. No puedo decidir cómo ni cuándo aplico la formación a mi lugar de trabajo.	1	2	3	4	5
34. Cuando cambio mi forma de trabajar a partir de la formación, mis compañeros/as se oponen.	1	2	3	4	5
35. Mi jefe/a me pide evidencias de la aplicación de la formación.	1	2	3	4	5
36. La formación me permite alcanzar los objetivos de mi puesto de trabajo.	1	2	3	4	5
37. Una vez finalizada la formación, tengo ganas de poner en práctica lo que he aprendido.	1	2	3	4	5
38. Mis compañeros/as se interesan por lo que aplico de la formación en mi lugar de trabajo.	1	2	3	4	5
39. El fracaso en la aplicación de la formación, depende de mí.	1	2	3	4	5
40. Los materiales de la formación han sido similares a los que utilizo en mi trabajo.	1	2	3	4	5
41. Mi jefe/a quiere saber qué aplico de la formación a mi puesto de trabajo.	1	2	3	4	5
42. No me veo capaz de introducir cambios en mi lugar de trabajo a partir de la formación.	1	2	3	4	5

**Por favor, compruebe que no ha dejado ninguna pregunta en blanco, de lo contrario su cuestionario no es válido.**



## 2. Escala Intención de transferencia

Factor	Código	Ítems
Intención de transferencia	InTr	43. Quiero aplicar los aprendizajes de la formación a mi lugar de trabajo. 44. Me gustaría aplicar los aprendizajes de la formación a mi lugar de trabajo. 45. Tengo la intención de aplicar los aprendizajes de la formación a mi lugar de trabajo. 46. Confío en poder aplicar los aprendizajes de la formación a mi lugar de trabajo.

## 3. Escala Aprendizaje logrado

Factor	Código	Ítems
Aprendizaje Logrado	ApLo	47. En la formación, he mejorado habilidades que ya tenía. 48. En la formación, he profundizado en conocimientos que ya tenía. 49. He adquirido conocimientos nuevos en la formación. 50. La formación me ha permitido actualizar mis conocimientos. 51. He desarrollado habilidades nuevas en la formación.

## 4. Cuestionario CdE

### CUESTIONARIO de EFICACIA de la FORMACIÓN – CdE -

Este cuestionario evalúa la aplicación de los aprendizajes por parte de los participantes en formación, dentro del estudio que está realizando el grupo EFI-GIPE (UAB, España).

Por favor, contesta a todas las preguntas que siguen. Recuerda que los datos serán tratados confidencialmente. Si tienes problemas contestando el cuestionario, te puedes poner en contacto respondiendo al mail que has recibido.

A continuación, te haremos preguntas acerca de **en qué grado has aplicado los aprendizajes que adquiriste en la formación mencionada**. Lee cada pregunta y marca el número (del 1 al 5) a la derecha de cada ítem que refleje más claramente **tu opinión**.

1–Nada de acuerdo 2-Un poco de acuerdo 3- De acuerdo 4-Bastante de acuerdo 5-Totalmente de acuerdo

1. He aplicado a mi puesto de trabajo los aprendizajes adquiridos durante la formación.	1	2	3	4	5
2. Debido a la formación, he modificado mi actuación profesional.	1	2	3	4	5
3. La formación me ha permitido mejorar mi rendimiento profesional.	1	2	3	4	5
4. La formación me ayuda a alcanzar los objetivos de mi puesto de trabajo.	1	2	3	4	5
5. Debido a la formación, he introducido cambios en mi forma de trabajar.	1	2	3	4	5
6. Las personas con las que trabajo han dicho que mi rendimiento profesional ha mejorado debido a los aprendizajes adquiridos durante la formación.	1	2	3	4	5
7. He aplicado bien los aprendizajes a mi puesto de trabajo.	1	2	3	4	5
8. Por favor, indica cuál de los siguientes factores te ha influido para no aplicar los aprendizajes de la formación a tu puesto de trabajo de manera adecuada <b>SÓLO APARECE SI RESPONDEN 1 o 2 EN LA P.7</b>					
No tengo tiempo	Sí	No			
No me siento lo bastante seguro/a como para aplicar estos aprendizajes	Sí	No			
No tengo el suficiente apoyo de las personas con las que trabajo	Sí	No			
No es una prioridad de la organización	Sí	No			
El contenido de la formación no es útil para mi trabajo actual	Sí	No			
Todavía no he realizado tareas vinculadas a esta formación	Sí	No			
Otros (especificar)	Sí	No			
9. Piensa en lo que has aprendido y pon ejemplos (3 aproximadamente) de cómo lo estás aplicando cuando vas al trabajo. <b>APARECE SI MARCAN 3 O MÁS EN LA P.7 [respuesta abierta]</b>					