COMFOCUS

Community on Food Consumer Science

D 3.4 Report on Mentor Protocol and Effectiveness

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Executive Summary

Deliverable 3.4 Report on Mentor Protocol and Effectiveness provides detailed information on implemented processes of training the COMFOCUS fellows to become familiar with consumer behaviour approaches and infrastructure while achieving the set of scientific goals for each project. Report covers period starting from October 2023 when the first kick-off meetings with COMFOCUS fellows were organized. All TNA representatives contributed to the drafting of the report. From this point of view the report contains not only generalized information on the process of mentoring and guiding during the whole access period but also specific information following TNA specific conditions, knowledge, experiences and approaches. Using harmonized measures and protocols was generally endorsed to improve research consistency and comparability across labs. However, challenges with user-friendliness and integration into systems like Qualtrics underscored the need for ongoing adjustments. Providing clear, standardized guidelines and resources facilitated better study design, though some protocols and measures required customization to fit specific research contexts.

1. Introduction

Deliverable 3.4 Report on Mentor Protocol and Effectiveness provides detailed information on the processes of training the COMFOCUS fellows to become familiar with consumer behaviour approaches and the infrastructure they visit while achieving the set of scientific goals for each project. This process begins with identifying an appropriate mentor for each participant, a sufficient and effective preparation phase, an implementation phase using harmonized protocols and the COMFOCUS toolbox, data collection and processing, uploading data to COMFOCUS knowledge platform and reporting.

Deliverable follows from the task 3.4 – Mentoring and support for users and reflects the approaches and experiences of individual TNAs. Report on Mentor Protocol and Effectiveness includes following parts:

- Preparatory stage and assignment of mentor for COMFOCUS fellow,
- COMFOCUS support and using harmonized protocols,
- Data processing and reporting,
- Contribution to building the European Food Consumer Science Community.

COMFOCUS strives to pioneer a new approach to food consumer science across Europe through:

- **Integration and collaboration:** COMFOCUS represents a new paradigm in food consumer research by fostering integration and collaboration across institutions and countries. This approach breaks down traditional research frontiers to enable seamless sharing of data, methodologies and insights.
- **Impact on Policy and Industry:** The researchers have the potential to significantly influence food policy and industry practices in Europe. By providing scientifically sound data and insights into consumer behaviour, this collaborative effort can inform policy decisions on nutrition, public health and food labelling.
- **Sustainability and Long-Term Vision:** As a holistic package, COMFOCUS is designed with sustainability and long-term impact in mind.

All in all, mentor protocols provide a structured approach to supporting young scientists, PhD students, and postdocs by offering consistent guidance, professional training, and development. These protocols foster collaboration and the creation of new networks among early-career researchers within the food science community, potentially leading to new and innovative project opportunities in Europe. Harmonized research protocols ensure easier access to collaborative research in the scientific community, while also supporting professional growth.

2. Preparatory stage and assignment of mentor for COMFOCUS fellow

To describe the process of mentoring, guiding and directing COMFOCUS fellows during whole access period is to start by mentioning **the kick-off meetings** with COMFOCUS fellows with the aim to provide fundamental information on hosting TNA, research design, visit and overall access period. Program of the kick-off meeting included:

- Introduction of TNA team (and prospective mentors) and successful COMFOCUS fellows;
- Introduction of the way of guiding COMFOCUS fellows during the access period;
- Instructions and assistance for preparatory stage before research visit (admin and research support, use of the Handbook for COMFOCUS OPEN CALL 2 fellows);
- Q&A session.

Table 1 provides basic information about TNA, responsibilities for admin and research support and date of the kick-off meeting. During the preparatory phase, the participants had to obtain relevant information and support for the organisation of the research visit and support to finalize the research design. In addition, from the beginning the attention has been given also to communication and discussion within the COMFOCUS fellows to engage FAIR & RRI principles for a sustainable future of the community on food consumer science.

In harmony with this vision COMFOCUS 1st Community event took place on October 30th, 2023 (online). Consortium members, as well as International Advisory Board (IAB), stakeholders and selected applicants participated in the event and got an overview of the last months' work, shared by the COMFOCUS project members Machiel Reinders (Project Coordinator), Hans van Trijp (Scientific Coordinator), Ellen van Kleef (Scientific Coordinator), Elena Horska (Dean of the Faculty of Economics and Agriculture at the University of Nitra), Violeta Stancu (Aarhus University) and a member of the International Advisory Board (IAB) Sylvain Delplanque, who talked about the importance of COMFOCUS in today's science. Interesting discussions in five breakout rooms on different emerging technologies, led by the consortium members, aimed at identifying the specific values each emerging technology can bring to the participants' research. Over 51 participants attended the event. More information are available at the project website: https://comfocus.eu/2023/11/06/an-online-community-event-took-place-on-october-30-2023/

Each research project within COMFOCUS has been assigned a local TNA expert as a mentor who also acted as the primary contact point and guide throughout the research project. The role of the mentor is to provide continuous support and guidance, ensure adherence to established protocols and best practices, and foster a collaborative environment that promotes the fellow's professional growth and development. By leveraging the mentor's expertise and experience, the fellow is better equipped to navigate the complexities of their research and achieve their scientific objectives and contribute to the broader goals of COMFOCUS. The assignment of mentor was preferably based on their knowledge in the relevant field. Previous mentoring experience was an advantage. This approach ensures that the mentor has the necessary background to provide effective guidance and support.

Table 1: Information about TNA, admin and research support and dates of kick-off meeting with COMFOCUS fellows.

WP	Name of TNA	Admin support	Research support	Kick-off meeting
WP 10	Measure Consumer Behaviour Competence Centre (MCBCC), Wageningen, The Netherlands (WU)	Ellen Van Kleef ellen.vankleef@wur.nl	Ellen Van Kleef ellen.vankleef@wur.nl	October 6 and 10, 2023
WP 11	Cognition and Behaviour Lab, Aarhus, Denmark	Liisa Lähteenmäki liisal@mgmt.au.dk	Liisa Lähteenmäki liisal@mgmt.au.dk	October, 26, 2023
WP 12	UoS Psychology Research Infrastructure (PRI), Guildford, UK	Philip Dean p.dean@surrey.ac.uk	Philip Dean p.dean@surrey.ac.uk	02/11/2023 *(3 fellows)* 07/11/2023 *(2 fellows)* 09/11/2023 *(1 fellow)* 10/11/2023 *(3 fellows)* 13/11/2023 *(1 fellow)*
WP13	University of Göettingen, Göettingen, Germany	Clara Marie Mehlhose clara.mehlhose@uni-goettingen.de	Clara Marie Mehlhose clara.mehlhose@uni-goettingen.de	November, 7, 2023
WP 14	The Consumer Behavior Lab, Monells, Girona, Spain	Lluis Guerrero lluis.guerrero@irta.cat	Lluis Guerrero lluis.guerrero@irta.cat	September, 24 and October 9, 2023 (by email)
WP15	FARE Lab, UNIBO Bologna, Italy	Filippo Pini filippo.pini5@unibo.it	Matteo Vittuari matteo.vittuari@unibo.it	October, 27, 2023
WP16	Cognitive and Experimental Economics Laboratory (CEEL), Trento, Italy	Roberta Raffaelli roberta.raffaelli@unitn.it	Simone Cerroni simone.cerroni@unitn.it	October, 24, 2023
WP17	Laboratory of Consumer Studies, SUA Nitra, Slovakia	Jakub Bercik Jakub.bercik@uniag.sk Elena Horska Elena.horska@uniag.sk Jana Galova Jana.galova@uniag.sk	Jakub Bercik Jakub.bercik@uniag.sk	October, 5, 2023
WP18	FLAVORIA University of Turku, Finland	Mari Sandell masaarim@utu.fi mari.sandell@helsinki.fi	Mari Sandell masaarim@utu.fi mari.sandell@helsinki.fi	December/ January 2024

In joint meetings with TNA leaders before launching the fellowships, we considered the following factors for effective mentorship:

- Considering the research expertise of available mentors and the specific research goals of the fellow,
- Regular communication,
- Setting the milestones to ensure the progress in research project
- Alignment of approaches and expectations to the research project
- Mutual understanding of the scope of work, potential challenges and the resources available,
- Sufficient time for research preparation and implementation.

In summary, mentoring brings the following benefits to the fellow:

- Expert support during project creation and modification
- Infrastructure access and support while using cutting-edge technologies
- Support during the use of harmonized protocols and project implementation
- Collaborative opportunities: fellow can benefit from further research opportunities, including additional studies, co-authorship of scientific articles, etc.
- Administrative support including ethical issues.

The approach to mentoring reflected specific local conditions, resources and expertise.

At ***Measure Consumer Behaviour Competence Centre (MCBCC), Wageningen (WP 10)*** after scheduling a suitable time to visit the lab, an initial online meeting was held. In addition to TNA manager Dr Ellen van Kleef, other experts from our organization were involved in advising on the research design, recruitment, and optimal data collection. These included Dr. Rene de Wijk, Dr. Caspar Krampe, Dr. Betina Piqueras-Fiszman, and Prof. Dr. Hans van Trijp. The fellow prepared a research protocol, including the questionnaires and forms required for submission to the ethics committee. This was discussed via email and during preparatory online meetings. On the first morning of the fellowship, the research plan was reviewed again to make final adjustments and to initiate data collection. In addition to the fellow, usually two supervising researchers were involved, but the group's secretary and financial support staff also played a significant role in facilitating the practical aspects of the visit. Fellows worked either with the VR equipment or the Noldushub, which integrates various psychophysiological measures. The NoldusHub often required assistance from Noldus personnel, such as Dr. Harold Bult, especially when there were uncertainties or issues. They played the important role and help in processing the data.

At ***Cognition and Behaviour Lab at Aarhus University (WP 11)*** the fellows were contacted by the researcher in food consumer science who took care of the practical information and arrangements in relation to visit. The mentor specialising in the actual method and study field was involved in planning the visit and discussing the substance related issues closer to the actual visit. In total, there were four people involved in the visits. In the preparatory stage, in addition to the one researcher person taking care of practicalities with the support of relevant support staff at Aarhus University, there were two other persons involved in matters related to the content. During the visit, there were three people involved: one taking care of practicalities, one supervising the work and one supporting and supervising the work itself.

At ***the University of Surrey and its Psychology Research Infrastructure (WP12)*** there was one person allocated for Admin and Research Support (Dr. Phil Dean), including mentorship. Other COMFOCUS Staff helped in planned meetings with fellows to discuss design and setup, put them in contact with interested researchers or help recruitment in liaison with mentor. Other staff helped in liaison with mentor (e.g. finance, legal, accommodation, etc.).

At ***the University of Göttingen (WP 13***) the assignment of a mentor for the fellow began with a careful matching process. They considered the research expertise of available mentors and the specific research goals of the fellow. Prior to the fellow's arrival, the mentor and fellow engaged in several preparatory discussions to align expectations, set objectives, and outline the research methodology. This included defining the scope of work, potential challenges, and the resources available. Regular check-ins were scheduled to ensure the research progressed smoothly. The number of people involved during the research visits typically included the fellow, the assigned mentor, and at least one additional researcher and 1-2 student assistants who supported the data collection. Depending on the project's complexity, this number differed from 1 – 3 persons.

The Consumer Behavior Lab - IRTA, Girona (WP 14) is a small laboratory, so in all cases the researcher responsible for contacting the visiting researcher, discussing the experimental design and carrying out the subsequent data analysis and discussion was the same person. More researchers from the centre participated in the explanation of the recommendations for the use of the different equipment, as well as in carrying out the field work and the subsequent extraction and filtering of the data, depending on the duration and complexity of the work. In all cases and before starting the stay, contact was made with the participant to set the dates of the study and to ask them for an initial proposal, as detailed as possible, of the activity to be carried out. Based on this first draft of the activity to be carried out, one or more on-line sessions were organised to discuss and finalise the experimental protocol of the study.

Once the study was defined, as well as the number of participants to be recruited, flights and accommodation were booked for the visiting researcher and the study was summited for approval by IRTA's ethics committee. In total, between 4 and 5 people participated, depending on the complexity of the study. Thus, there was always someone from the administration who oversaw managing the travel, accommodation and meals. This same person was responsible for informing the visiting researcher about the rules and functioning of the centre, as well as the internal security measures. Also, 3-4 researchers participated in the final discussion of the protocol, as well as in its implementation, pre-testing and execution. Depending on the complexity of the test, the participation of two researchers was necessary throughout the study (some studies were carried out in two different rooms simultaneously). This greater involvement of the centre's own staff was due to the difficulty of the visiting researcher to communicate with the study participants.

Each fellow hosting at ***FARElab Bologna (WP 15)*** had a contact person within the UNIBO research group, who supported him/her in writing the research project and identifying the best equipment within FARElab to complete the research project with excellent results. The support continues during the data collection and data analysis phases (As of the reporting date, only the first visit has taken place).

At ***Cognitive and Experimental Economics Laboratory (CEEL), Trento (WP 16***) mentors have been determined prior to the selection of the candidates, therefore everyone already knew what their responsibilities would be. This made the work together with the candidates much smoother and faster. All projects involve the UNITN COMFOCUS team (Roberta Raffaelli, Simone

Cerroni, Austeja Kazemekaityte) during all phases of the project. When possible, for data collection (experiments), we use the help of local student assistants.

Participants who applied for the internship at *the **Laboratory of Consumer Studies SUA Nitra (WP 17))*** were divided among 5 mentors according to expert experience and availability, all of them from the Institute of Marketing, Trade and Social Studies, active in collaboration with the Laboratory of Consumer Studies. Each mentor helped with preparation of experimental design, assistance with recruiting respondents, checking the completion of the set tasks and translation into English and Slovak. The management of this phase went smoothly in most cases and started at the kick-off meeting with fellows on October 5, 2023. Each fellow had a minimum of 5 people dedicated to the research stay to help in the following tasks:

- Administrative process (access manager prof. Elena Horská together with a team responsible for grant allocation, signing DDA at the university level and sending to WU, certificate award),
- The preparatory process of the experiment design/programming (mentor/consultant),
- Consultation and protocol compliance check (director of the Laboratory of Consumer Studies associate professor Jakub Berčík),
- A team of analysts involved in data processing, depending on the type of method used.

*At **FLAVORIA (WP 18)*** the key mentors were pre-decided based on the installations. Only 2 persons can help with Eye-tracking, 2 with Vicaar analytics and 2 with multisensory lab. The preparatory stage is the most demanding because study plan has needed to be designed before the actual visit. Persons involved during research visit include:

- Anni Kerttula (practical guidance in accommodation, travelling, cost support after the trip, time scheduling at Flavoria restaurant, recruiting study participants technical guidance at Flavoria multisensory lab).
- Mari Sandell (practical guidance in research, data collection, ethical issues, translation of questionnaires in Finnish),
- 2-3 persons helping with data collection and Compusense Cloud (Red Cap: data collection software, volunteer study participants).

3. COMFOCUS Support and Using Harmonized Protocols

The use of biometric and neuroimaging methods in consumer behaviour research requires well-defined protocols to ensure a standardised approach and reliable results. To use these innovative technologies effectively, a series of protocols have been developed within WP6 and Task 6.1 to guide the use of emerging methods such as Eye Tracking, FaceReader, Galvanic Skin Response, Heart rate and EEG. TNA partner UNITN took the lead in this process, in close collaboration with other major partners such as WR, WU, UoS, IRTA, DIl, SUA, UTU and the commercial firm Noldus, which was also the WP6 leader. Work on these protocols took place from November 2021 to June 2022, preceded by a thorough literature study and the gathering of expert resources that were needed to develop robust and consistent procedures. As the market offers a wide range of devices, it was essential to develop manuals that consider their specificities and ensure a uniform setup. This will allow the creation of databases containing harmonised data that are important for comparative analyses. The protocols have been drawn up based on generally applicable standards and guidelines, while being adapted to the specificities of the individual devices.

Each TNA site was involved in the development of protocols according to its expertise and focus, maximising the contribution and quality of the results. Noldus, which has over 25 years of experience in biometric device development, provided its expert guidance in the process, ensuring the high standard of the protocols produced. The individual guidelines cover all key aspects of the research, including device calibration, data collection, data analysis and how to present the stimuli. Each tool had an assigned responsible partner - for example:

- FaceReader was managed by SUA and UTU;
- Galvanic Skin response: IRTA;
- Heart rate: WUR, EEG: Noldus, UoS and SUA;
- Eye Tracking was the responsibility of DII and UoS.

Harmonized protocols and guidelines are available on COMFOCUS website: https://comfocus.eu/library/ as follows:

- Guideline for Electrodermal Activity: https://comfocus.eu/wp-content/uploads/2024/02/COMFOCUS-protocol-EDA.pdf
- Guideline for Electroencephalography: https://comfocus.eu/wp-content/uploads/2024/04/COMFOCUS_protocol_EEG.pdf
- Guideline for Eye tracking: https://comfocus.eu/wp-content/uploads/2024/02/COMFOCUS-protocol-eye-tracking.pdf
- Guideline for Facial Expression Recognition: https://comfocus.eu/wp-content/uploads/2024/02/COMFOCUS-protocol-FER.pdf
- General guideline for measuring psychophysiological responses: https://comfocus.eu/wp-content/uploads/2024/02/COMFOCUS-protocol-General-Psychophysiology.pdf
- Guideline for heart rate measures: https://comfocus.eu/wp-content/uploads/2024/02/COMFOCUS-protocol-heart-rate.pdf
- Guideline for measuring food choice behaviour in reconstructed and virtual environments: https://comfocus.eu/wp-content/uploads/2024/02/COMFOCUS-protocol-heart-rate.pdf

The design of these protocols also considered the concepts identified in WP4 and it was necessary to adapt their design in terms of harmonisation with the requirements of WP5 and WP7, thus achieving a comprehensive and coherent approach to consumer behaviour analysis.

The design of these protocols was developed within the framework of WP6 and also considered the concepts identified in WP4. It was necessary to adapt their design in terms of harmonisation with the requirements of WP5 and WP7, thus achieving a comprehensive and coherent approach to consumer behaviour analysis. There is a link to the ontology via harmonized measures from WP4. However, the majority of data collected through emerging technology measures in OC2 are merely stored on a separate platform and are not part of the ontology.

This systematic and coordinated approach not only allows for high quality data collection and analysis, but also provides a competitive advantage by ensuring that the data collected is reliable and can be used at a global level for further research and applications in the field of neuromarketing and consumer behaviour.

This systematic and coordinated approach enables high-quality data collection and analysis, offering a competitive advantage by ensuring that the data gathered can be leveraged for further research and applications in neuromarketing and consumer behaviour. However, while some datasets, such as those from questionnaires, can be harmonized and standardized for

global use, the majority of data from emerging methods presents integration challenges due to inconsistencies in outputs, limiting their full application

In generally we can state that the standardized approach:

- Facilitates consistency across different research tasks, primarily based on declarative data provided by participants;
- Fosters collaboration in research;
- Enables comparability of the data;
- Enables comparability of the data, especially for declarative data obtained through a questionnaire;
- Very useful for fellows and it is very important to provide them in advance;
- The rigid structure of the protocols required slight modifications to better fit the new items in some case needed.

Below there are summarized the first experiences and opinion about using harmonized protocols in different TNA.

Below there is a summary of the first experiences and opinions about using harmonized protocols in different TNA, based on a survey conducted with TNA leaders regarding their experiences.

At ***Measure Consumer Behaviour Competence Centre (MCBCC), Wageningen (WP 10)*** the harmonized measures were used in preparing the questionnaires, which was frequently a topic of discussion—specifically, how to administer them efficiently to participants to ensure that responses could be easily harmonized and implemented. These measures were drawn from the EQT and are also available in the documents on the COMFOCUS website. The EQT was not very user friendly so help was often needed. The protocols for eye tracking, other psychophysiological measures, and Virtual Reality tools were utilized by the fellows. They indicated that these resources provided valuable guidance, as the literature offers few concrete instructions, and they served as a basis for integrating measurements, especially questionnaire data, since data obtained through evolving methods are not integrated.

The approach at ***Cognition and Behaviour Lab, Aarhus, Denmark Aarhus (WP11)*** was to develop a course for the visitors so that they could develop their own study design to be carried out later in their own laboratory. All fellows had the relevant equipment available at home. The reason for this approach was that the two-week visit was too short to enable any meaningful data collection. The fellows are aware of the COMFOCUS requirements and plan to submit the data to the COMFOCUS database once they have collected the data. They aim to make this process more tangible and concrete by detailing how the data integration and submission will function during the course of COMFOCUS's existence.

At ***the University of Surrey Psychology Research Infrastructure (WP 12)*** they sent harmonised guidelines to Fellows at early stage to read and incorporate in design. They pointed fellows toward COMFOCUS Toolbox to setup study and look for harmonise measures to use (e.g. if wanted to use food neophobia), but if measure did not exist in harmonised measures (or close equivalent not possible to use), fellows used their own scales. Harmonized guidelines were used for setting up standard questionnaires (technique related and demographics and psycho-physiological data collection) in Qualtrics and shared them with Fellows when then made Qualtrics account. At the same time, the setting up of developing methods was done according

to protocols created within WP6. When finalising setup (and analysis) the harmonised measures were used as the guidelines to ensure noting is missed to the standard guidelines. During use of harmonised guidelines some positive and negative features were identified.

Positive features:

- Good basis to discuss setup and reasons for harmonisation good basis to discuss setup and reasons for harmonization is provided by the data obtained in WP4 and the setup of evolving methods according to WP6 protocols, clear methods and open science;
- Document for fellows to go through by themselves and come back to discuss.;
- Give fellows a bank of "approved" measures to use (mostly worked as envisioned;
- Harmonized guidelines used also in some ways (and the harmonised Qualtrics surveys) in other studies. The feedback for the guidelines was especially positive in these researchers which leads to recommendation to make them open (i.e. publish them in open format with DOI).

Negative features:

- Some measures still required translation or adaptation;
- The demographics options, such as ethnicity, country of birth, and job family, were extensive and not in alphabetical order, making them hard to find for participants. There were duplicate options that needed to be manually corrected. Some demographic questions were repetitive and required logic gates to prevent participants from being asked the same question multiple times. Additionally, there were issues with missing or incorrect answer types, which took time to fix;
- The harmonized demographics section was very lengthy, and fellows were initially reluctant to include all of it. Participants found this section frustrating, although the experience improved after the adjustments.

Experiences of TNA at the ***University of Göttingen (WP 13)*** with using the harmonized protocols provided by COMFOCUS has been overall positive. The standardized approach facilitated consistency across different research tasks. This standardization not only improved the comparability of data across different studies but also made the training process for new fellows more efficient. However, in some cases, the rigid structure of the protocols required slight modifications to better fit the specific context of the research. Also, some scales were not well balanced when it came to the formulation of the items, and they had to be adjusted by inventing additional items. Overall, the use of harmonized protocols enhanced the reliability of the findings and fostered collaborative research efforts.

Harmonised measures and protocols at the ***Consumer Behavior Lab, Monells, Girona (WP 14)*** have always been used and have varied according to the study. Sociodemographic measures have been included in all of them. Depending on the study, measures such as the Food Neophobia Scale, Quality expectations, Hedonic assessment, etc. have been included. In addition to these harmonised measures, other scales and measures specific to each study that were not included in the harmonised measures were also added. Simultaneously, procedures were established to adjust the given protocol according to the chosen emerging method. The assessment of the scales has been carried out using different platforms depending on the needs of the study and the existence of the participants' own platforms to which they had access. To date, everything has worked correctly and there have been no relevant incidents.

Cognitive and Experimental Economics Laboratory (CEEL), Trento, Italy (WP 16) evaluates harmonized protocols as were helpful for both the participants and the hosts. Participants could get acquainted with the requirements and the process of the study, prepare better for the actual study and data required. For the hosts, harmonized protocols worked as a checklist of what was needed to be done and reported.

The evaluation of harmonized protocols was overall positive, as they were helpful for both participants and hosts. The standardized approach facilitated consistency across different research tasks, allowing participants to familiarize themselves with study requirements and processes, thereby improving their preparation for the study and the data collection involved. For hosts, the protocols functioned as a comprehensive checklist of necessary tasks and reports, enhancing the efficiency of their workflow. However, some cases required slight modifications to the protocols to better fit the specific research context, such as adjusting scales that were not well-balanced by introducing additional items. Overall, the use of harmonized protocols improved the comparability of data across different studies, streamlined the training process for new fellows, enhanced the reliability of the findings, and fostered collaborative research efforts.

Laboratory of Consumer Studies in SUA Nitra (WP 17) considers the protocols for obtaining harmonized data using biometric and neuroimaging (EEG) methods as very useful and prepared at an understandable level. It is a useful tool that will help more researchers not only within the COMFOCUS community. However, specific steps and protocols for processing measured/recorded data and forms of making them available within the COMFOCUS knowledge platform are lacking.

The evaluation of the protocols for obtaining harmonized data using biometric and neuroimaging (EEG) methods has been overall positive. The standardized approach facilitated consistency across diverse research tasks, making it a valuable tool that benefits researchers not only within the COMFOCUS community. This included harmonized protocols for questionnaire surveys developed within WP4, which are linked to ontology and instrument settings according to protocols created within WP6. This standardization improved the comparability of data across various studies and eased the training process for new fellows. However, some specific steps and protocols for processing the measured/recorded data and the methods for making them available within the COMFOCUS knowledge platform are lacking. In certain instances, the rigid structure of the protocols required adjustments to better suit the specific research context. Despite these challenges, the harmonized protocols have significantly enhanced the reliability of findings and fostered collaborative research efforts.

At ***FLAVORIA University of Turku, Finland (WP18)*** harmonized protocols work only for questionnaire concerning background information of the study participants. So far harmonized protocols have been not so easy to use.

At ***Cognition and Behaviour Lab, Aarhus, Denmark Aarhus (WP11****) and* ***FARElab Bologna (WP 15)*** data have not been available at time of reporting.

The experience with using the harmonized protocols provided by COMFOCUS for questionnaires concerning background information of study participants has been somewhat varied. While the standardized approach facilitated some consistency across different research tasks, it proved challenging to implement effectively. The harmonization aimed to improve the comparability of data across various studies and streamline training for new fellows, but in practice, the protocols were not always easy to use. In some cases, the rigid structure required modifications to fit the

specific research context better. Additionally, some scales were not well-balanced, necessitating the creation of additional items to ensure accuracy. Despite these challenges, the use of harmonized protocols holds potential for enhancing the reliability of findings and fostering collaborative research efforts, though more flexibility and refinement are needed.

4. Data Processing, Using Data from Research, Data Collections

Based on the TNA experiences the data processing and data collection account significant challenges together with high pressure on time and computational resources for analysis. Feedback from TNAs reflects challenges and difficulties as well. It seems that time has been the biggest barrier and created stressful situations. The only way out of this situation is to consider intensive time after research visit to finalize the process of data processing and upload the data to Comfocus Toolbox.

This process is a very important step forward towards building food consumer science community through Open Science and FAIR data and optimize the reuse of FAIR data for further research. For uploading the data all fellows use data criteria template developed by WP9. There is no template for the emerging technology data. However, it is important to keep in mind when uploading the emerging technology data that it should be also understandable for other researchers (by for example including a codebook) and shared as well. At the time of reporting, there were 9 datasets in the toolbox including both WP9 type of self-report data through online EQT and datasets as outputs from using emerging technologies.

At ***Measure Consumer Behaviour Competence Centre (MCBCC), Wageningen (WP 10)*** data collection went smoothly for most fellows' visits, largely because participants were incentivized with an attractive voucher. They primarily used students and staff as participants, which had the advantage of allowing questionnaires to be administered in English, saving time. However, the Noldushub occasionally encountered difficulties in processing signals, leading to delays in data collection. This required adjustments and flexibility from both the fellows and the researchers. Exporting data from the Noldushub was also challenging, especially when fellows wanted to extract additional insights from the videos. This process was labour-intensive and required assistance from Noldus. Both the fellows and researchers learned a great deal about handling this type of data, and later fellows benefited from the experiences of earlier ones. However, harmonizing the data after the visit for integration proved difficult for many participants. It turned out to be a manual, labour-intensive, and tedious task, for which most fellows had little time or motivation.

The University of Surrey Psychology Research Infrastructure (WP 12) reports that is difficult to design, setup, train, run and analyse data for a study in 2 weeks. Even when drawing it out to try and front-load some of these things (design, setup, some recruitment), this is not possible. The short period of 2 weeks causes stress for the fellows & huge time pressure for the mentor. This a lot to learn for the fellow in one go and they feel like they are failing and feel time pressure to get sample size. For the mentor it is more than a full-time job when they are here, and a full-time job in preparation for their arrival.

Most of researchers have no previous training in what about to do, they do not know the systems in the hosting university at all, they are not joining an already running setup, there are overarching demands of COMFOCUS that also need setup and adapted (forms, procedures, data setup etc) and data needs to be good enough publish and formatted correctly, and as it all has to happen in 2 weeks there is no time to let them work out things themselves and come back

with solutions as we only 2 weeks are available. Fellows also (in their experience) have limited time to meet to do design & setup before arrival and design is needed before ethical application (1-2 months), which is needed before recruitment (hard to get good sample size in 2 weeks). This means that the study becomes "as good as we can get" to try and get this in time with some hope of collecting the data. This means a lot of design and setup needs to be postponed until they arrive as well.

Data Analysis (& design / setup) is hampered by the fact that fellows might not have software needed for the setup or analysis (and licences cannot be transferred to them easily) in some cases. So, analysis *needs* to be done together or within the 2 weeks. Getting data into a format for COMFOCUS takes even more time. Getting it into a format that could be published is especially difficult, due to "best we can do" design and setup and sample sizes low due to recruitment issues. We are having to recruit more people after the fellow has gone to "top-up" the task.

Feedback from the ***University of Göttingen (WP 13)*** reports about extremely time-consuming and stressful data collection process due to the limited timeframe available for the researchers. Time constrains requested to adjust from one experiment to the next and experienced a steep learning curve regarding the effectiveness and efficiency of the procedures. Additional barriers included differences in working styles and cultural differences, which, while challenging, also made the work more engaging. Furthermore, due to the lack of prior experience with the methods used, a thorough initial training the first and very important requirement was to ensure that all participants were adequately prepared. While the harmonized protocols provided clear guidelines on data collection and initial processing, the sheer volume of data led to delays in processing times.

In ***Consumer Behavior Lab, Monells, Girona (WP 14)*** **i**n general, there have been no problems, except for equipment calibration difficulties in some participants, but these have not affected the quality of the study. All the data from the different studies have been extracted and analysed in different depths depending on the availability of the visiting researcher and the length of their stay at IRTA. In all cases, contact is maintained with them and on-line meetings continue to be held to carry out new analyses, discuss results and prepare joint scientific publications. As already mentioned, the main barrier in all the activity is a language barrier, which hinders contact between the visiting researcher and the participants in the study.

According to ***Cognitive and Experimental Economics Laboratory (CEEL), Trento, Italy (WP 16)*** the biggest problem in all the projects is related to the data collection. During COVID pandemic university changed rules and allowed only to run experiments online. After the rule was lifted, they noticed that students were very hesitant to participate in the in-person experiments. Moreover, institution maintained COVID rule to pay students via bank transfer. This has been another bottleneck in the process: since students do not receive immediate cash payment after their participation, they are less inclined to participate in the studies.

In addition, COMFOCUS timeline did not fit well with the regular schedule at the university. Due to exam sessions, holidays (when the university was closed) and other experiments run in the laboratory, there was to possible to collect data during summer. For this reason, there is a delay for the autumn semester.

2 weeks, which was established as an average time for COMFOCUS fellows to stay in the host institution and run the study, was found to be too short. To finish the study and collect enough

observations (also following recommendations from our guidelines on power analysis), studies have to be run for longer than 2 weeks. We understand that this might depend on the study design as well.

Finally, although a visit at the host institution is a useful experience for the fellow, the language represents a barrier because we run studies in Italian and none of our fellows speak Italian. Involving fellows in the data collection process (for them to learn something) produces additional workload to the team and the necessity to hire local student assistants.

Laboratory of Consumer Studies at SUA Nitra (WP 17) LSS report that data processing cannot be completed within the standard 2 weeks of a fellows' research placement due to several complicating factors. The variety of research topics and the challenges associated with creating questionnaires, particularly concerning predefined questions and matrices, contribute significantly to this delay.

Moreover, the implementation of emerging methods according to protocols within the individual research designs introduces additional complexities for participants in terms of familiarity with those methods. Many faced a substantial learning curve with the COMFOCUS Toolbox platform, which presents notable difficulties regarding User Experience (UX) and User Interface (UI) design, thereby hindering independent work.

The diversity of working styles and cultural backgrounds presented both challenges and opportunities, enriching the collaborative effort. To address these issues, thorough initial training was essential in preparing participants for their tasks, especially given their limited prior experience with the utilized methods. While harmonized protocols provide clear guidelines for data collection and initial processing, the substantial volume of data has ultimately contributed to further delays in completing the data processing.

At ***FLAVORIA University of Turku, Finland (WP18)*** they have had 2 fellows so far. Both have included questionnaire in their study design. In addition, also Eye Tracking data collection was included to one of those studies. So far data collection has been done using Compusense Cloud software.

5. Conclusions and contribution to building the European Food Consumer Science Community

The primary objective of Open Call 2 has been to achieve its goals of institutional integration, to provide researchers with access and guidance, and to collectively advance the field of food consumer science. The project aimed to unify the fragmented research community by integrating key infrastructures across Europe, facilitating resource sharing, and establishing harmonised protocols to standardise research practices. This approach entailed the assignment of mentors, the provision of structured guidance, and the offering of access to advanced research facilities and data resources.

While COMFOCUS made significant progress in fostering a collaborative environment and providing support for early-career researchers, several challenges emerged during implementation. Standardized protocols, though crucial for consistency, often lacked the flexibility needed to accommodate diverse research context. Furthermore, the two-week research visits proved inadequate for comprehensive data collection and analysis, placing undue pressure on fellows and mentors. Technical issues, such as difficulties with data extraction and software compatibility, further complicated the process, highlighting the need for improved technical support and more user-friendly tools. Additionally, for survey data, help was offered in guidelines, but still only a few fellows managed to do it. Other data have been just uploaded.

Despite these challenges, the project successfully laid a strong foundation for future collective efforts, demonstrating the potential of a unified approach to tackle complex research questions in food consumer science. The evidence indicates that enhanced data management systems, and tailored mentorship strategies are essential to fully actualise COMFOCUS's objective of establishing a genuinely integrated and advanced research community. The entire process of mentoring and supporting COMFOCUS fellows, as illustrated in Figure 1, encompassed three principal stages: the preparatory phase with mentor assignment and preliminary guidance, active support during research using harmonised protocols, and final data processing and reporting.

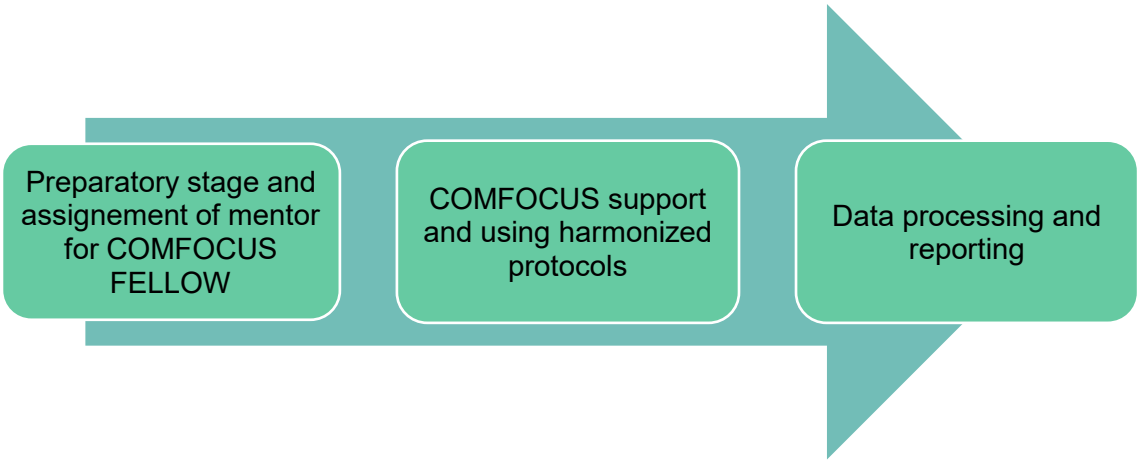

Figure 1: The process of guiding, mentoring and directing COMFOCUS fellows.

Mentorship has represented a fundamental component of the COMFOCUS approach, which has been designed with the objective of equipping early-career researchers with the necessary skills and support to advance their studies. Although the intention was to enhance researchers'

capabilities in experimental design, data analysis and ethical considerations, it is important to reflect on the actual outcomes achieved through this approach. The feedback from the fellowship programme indicates that, although the structured guidance provided a solid foundation for professional development, the effectiveness of mentorship varied depending on the alignment between the mentors' expertise and the specific needs of the fellows. Some researchers reported notable enhancements in their methodological abilities and assurance in navigating intricate research environments. Conversely, others perceived that the mentorship did not wholly align with their expectations due to discrepancies in expertise. This illustrates that while mentorship is a valuable instrument for fostering the professional growth of researchers, its efficacy hinges on meticulous matching and ongoing assessment of the mentoring relationship. Overall, mentorship contributed favourably to the professional advancement of fellows, yet further refinement in mentor selection and continuous support is essential to fully harness its potential benefits.

As the overall benefits of mentorship, we see:

- Professional growth
    - Fellows reported increased competence in research methodologies, including experimental design and data analysis.
    - Improved confidence in navigating complex research environments and applying advanced research techniques.
- Contribution to scientific advancement
    - Engagement in high-quality research projects that contributed to the advancement of food consumer science.
    - Participation in joint publications and collaborative research initiatives, indicating an active contribution to the scientific community.
- Networking opportunities
    - Establishment of professional connections with mentors and peers across Europe, which has the potential to influence future research directions.
    - Access to a broader research community, fostering opportunities for interdisciplinary collaborations and co-authorship.
- Influence on future research directions
    - Exposure to diverse research methodologies and perspectives, which has broadened the scope of future research agendas for many fellows.
    - Guidance in identifying emerging research areas and developing innovative research proposals.
    - Access to collaborative research opportunities to collaborate with mentors and peers on ongoing research projects, facilitating the sharing of resources and expertise.
    - Enhanced understanding of how to leverage institutional networks for future collaborative efforts.

Analysing the process of guiding, mentoring and directing COMFOCUS fellows using harmonized protocols lead us to the following lessons learned and conclusions:

- Time framework for all stages of research project is important factor of successfulness of research project;
- Consideration of previous professional skills and experience is very important;
- Understanding the importance of sharing the data for future food consumer science research and its implementation for theory, business practice and policy.

Benefits from the perspective of Early-stage researchers

- **Skills development and career progression:** Early-stage researchers will benefit from the structured mentoring and training provided by the COMFOCUS TNA support. This approach provides them with essential skills in experimental design, data analysis and ethical research practices, laying a solid foundation for their future careers in academia or industry.
- **Opportunities for collaboration and networking:** The collaborative nature of COMFOCUS allows early-stage researchers to work with experts and peers from different institutions across Europe. The opportunity to co-author papers and participate in meta-analyses will further enhance their research profile and open doors to future collaborative projects.

Benefits from the perspective of transnational access providers

- **Standardisation and consistency:** TNAs play a critical role in standardising research protocols and methodologies across the COMFOCUS network. By adhering to harmonised protocols, they ensure that data collected from different studies are consistent and comparable, leading to more robust and reliable research results by building on the FAIR (Findable, Accessible, Inter-operable & Re-usable) and Responsible Research & Innovation (RRI) data principles.
- **Improved research infrastructure:** By participating in COMFOCUS, TNAs gain access to a wider pool of research talent and resources. The integration of advanced technologies and methodologies within these institutions not only strengthens their research capabilities, but also positions them as leaders in food consumer science**.**

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