



CENTRO
DE PSICOLOGIA
DA UNIVERSIDADE
DO PORTO

Center for Psychology at University of Porto CPUP

Plan of Activities for 2018-2022

[Extract from proposal presented to FCT as part of the 2018 funding application]

10.2 Summary in English for general dissemination purposes

The Center for Psychology at University of Porto (CPUP) gathers researchers from several domains of Psychology. In the past five years, CPUP has attracted new researchers, expanded its technical resources, increased its commitment to excellence in research and, as a result, it strengthened its visibility in the international scientific community. Our goals for the 2018-2022 period include pushing further these levels of (1) excellence and (2) internationalization, with a new emphasis on (3) translational research and (4) knowledge transfer: along with making high-quality science that is visible to our peers, we now want to bring science closer to society and make it visible to everyone, as much as possible.

We are equipped with strong foundations, and we have clear sub-goals. Concerning (1) excellence in research, we already initiated research in frontline topics (e.g., brain mapping of language using resting-state fMRI; brain bases of healthy sexual behaviour and dysfunction; work-family reconciliation in the 24/7 economy; real time psychophysiological and linguistic markers of expressive writing; impact of cross-cultural programs on ethnic prejudice and relations with immigrants), which we intend to expand. We own methodological tools (e.g., fMRI know-how) and equipment (EEG, Eye-tracking, ECG/SCR) that allow us to move forward in innovation and robustness. Our collaboration with colleagues from other research fields (e.g., Bioengineering, Sports, Music, Medicine) is already vast and awaits consolidation. Concerning (2) internationalization, we have set well-defined sub-goals, related to journal impact factors and open data policies. We are already part of a large number of international networks, in many of which we occupy leadership roles. A major opportunity for expansion is the PhD Program in Human Sexuality (unique in Europe and with a strong international focus), which will increase the ability to attract students and scholars worldwide. Regarding (3) translational research, we have two sub-goals, namely demonstrating the practical implications of our previous finding (e.g., new intervention programs based on previous cancer studies), and expanding the scope of our current translational focus into new topics, such as the application of subjective group dynamics theory to the realm of extremisms. Last but not least, the challenge of reaching (4) an integrated approach of knowledge transfer follows a long-lasting, though yet unstructured tradition of CPUP, which only awaits organized action.

A transversal strategy will be maximizing the scientific and logistic synergies within the Center, namely those concerning aggregating topics (e.g., ageing, sexuality, work-family balance), technical facilities (EEG, Eye-tracking, ECG/SCR) and knowledge transfer. To be closer and more visible to society, we will be more integrated.

10.3 Summary in English for evaluation

The Center for Psychology at University of Porto (CPUP) gathers researchers from several domains of Psychology. The research conducted in the past five years was critical to solve various research problems, such as determining the effects of deviance on group cohesiveness, the structure of successful child-teacher interaction, the critical factors to cognitive-emotional regulation in infertile couples, the impact of work-family-balance modalities in children's outcomes, the feasibility of resting-state functional Magnetic Resonance Imaging in mapping brain networks, the type of parafoveal dysfunction in dyslexic adults, or the practices subtending writing quality in school-aged children. We validated a number of assessment tools, and tested several intervention programs targeting depression, sexual problems, or writing. Our research inspired policy-making in the domains of health (national plan for preventing depression), education (national curriculum guidelines) and civil rights (legislative proposal on child-adoption by same-sex couples), and we created new protocols with local and national institutions. We attracted funding from several sources (e.g., Bial Foundation, EEA Grants, FCT). We expanded our technical resources and lab facilities, thus attracting new post-doc researchers. We were active in scientific training at the PhD level, with an increasing number of full-time PhD students and a direct involvement in three different PhD programs.

In the past five years, CPUP increased its commitment to excellence in research and, as a result, it strengthened its visibility in the international scientific community. Our goals for the 2018-2022 period include pushing further these levels of (1) excellence and (2) internationalization, with a new emphasis on (3) translational research and (4) knowledge transfer: along with making high-quality science that is visible to our peers, we now want to bring science closer to society and make it visible to everyone, as much as possible.

We are equipped with strong foundations, and we have clear sub-goals. Concerning (1) excellence in research, we already initiated research in frontline topics (e.g., brain mapping of language using resting-state functional Magnetic Resonance Imaging; brain bases of healthy sexual behaviour and dysfunction; work-family reconciliation in the 24/7 economy; real time psychophysiological and linguistic markers of expressive writing; impact of cross-cultural programs on ethnic prejudice and relations with immigrants), which we intend to expand. We own methodological tools (e.g., know-how on functional Magnetic Resonance Imaging) and equipment (Electroencephalogram, Eye-tracking, Electrocardiogram/Skin conductance response) that allow us to move forward in innovation and technical expertise. Our collaboration with colleagues from other research fields (e.g., Bioengineering, Sports, Music, Medicine) is already vast and awaits consolidation. Concerning (2) internationalization, we have set well-defined sub-goals related to journal impact factors and open data policies. We are already part of a large number of international networks, in many of which we occupy leadership roles. A major opportunity for expansion is the PhD Program in Human Sexuality (unique in Europe), which will increase the ability to attract international students and scholars worldwide. Regarding (3) translational research, we have two sub-goals, namely demonstrating the practical implications of our previous finding (new intervention programs based on previous studies on brain plasticity, dyslexia, cancer, fertility, or parenting), and expanding the scope of our current translational focus into new topics, such as the effects of rhythmic complexity

on healthy movement, or the application of subjective group dynamics theory to the realm of extremisms and the way individuals respond to perceived crises in social values. Last but not least, the challenge of reaching (4) an integrated approach of knowledge transfer follows a long lasting, though yet unstructured tradition of CPUP, which now invites awaits organized action.

To achieve top-level research we will continue to build an attractive and stimulating scientific environment so that junior and senior researchers develop to their best potential. Main strategies are to attract promising researchers through European Innovative Training Network programs, and prominent scientists through invitations for short-term visits; encourage bright PhD students/early career researchers to extended stays in leading departments and research labs; reinforce the research-based training of undergraduate students; attract funding from multiple sources. A transversal strategy will be to maximize the scientific and logistic synergies within CPUP. We will create center-level action structures to address aggregating topics (e.g., ageing, sexuality, work-family balance), and to manage multi-group applications for funding and technical facilities (e.g., electrocardiogram/skin conductance response, electroencephalography, eye-tracking, psychotherapy lab videographic facilities). These synergies will strengthen the multidisciplinary, integrated approach and the methodological robustness that are necessary to push further the (1) excellence, (2) internationalization and (3) translational dimension of our work. An additional line of synergic action will target an (4) integrated approach to knowledge transfer, by implementing a broad concept of knowledge exchange that views engagement of research with society as a bidirectional process, and by carrying out knowledge transfer according to a plan of dissemination strategically defined for the center as a whole. These four lines of synergic action will follow well-defined operational principles and will be regularly monitored (e.g., dissemination activities will be monitored for the impact on the creation of networks).

11. Description of the Plan of Activities for 2018-2022

11.1 Goals and strategy of the R&D Unit for 2018-2022 10 000

The main general goal of CPUP is to push further the scientific excellence of our research and our position in the international research front. For 2018-22, we set two additional goals: to strengthen translational research and to consolidate a strategy for knowledge transfer. Researchers will be called for a renewed commitment to high-quality knowledge exchange in an open and informed dialogue with society. More specifically, we will:

1. PUSH THE QUALITY OF RESEARCH TO A NEW LEVEL OF EXCELLENCE

Here, our goal is to address frontline research topics using proper tools and top-level scientific thinking. As several key questions of our time are multidisciplinary in nature, increasing interdisciplinary cooperation will be essential.

A. Frontline topics. We will strengthen fundamental and applied research in domains such as: brain mapping of language using resting-state fMRI; brain bases of healthy sexual behaviour and dysfunction; psychological and neurophysiological processes regarding integration of traumatic child experiences; work-family reconciliation in the 24/7 economy; real time psychophysiological and linguistic markers of expressive writing; impact of cross-cultural programs on ethnic prejudice and relations with immigrants.

B. Methodological robustness and innovation. We will use, e.g.: co-registration of oculomotor behavior and electroencephalographic activity to clarify the role of overt attention in processing; intensive longitudinal methods with Information & Communication Technologies to build dynamic models of family and patient progress; multilevel and transactional methods to analyse children's participation in activities; randomized clinical trials to test the efficacy of interventions (e.g., mindfulness vs CBT, for women with sexual pain or men with erectile dysfunction); meta-analysis, to assess cross-cultural findings on core topics.

C. Interdisciplinary and multi-topic work. We will consolidate interdisciplinary exchanges. Examples of projects are:

- Neuroplastic effects of music vs sports training, with researchers from Sports Faculty
- Beat-based timing and movement in Parkinson's disease, with researchers from Sports Faculty, engineers from Fraunhofer, musicians from ESMAE (Porto renowned Music Institute), neurologists from the Faculty of Medicine (awaits funding decision)
- Matched stepped care approach to depression in routine care, with engineers from INESC TEC, and engagement of National School of Public Health, Portuguese College of Psychologists, Regional Health Administration
- Effectiveness of digital health tools in young couples' fertility and psychosocial adjustment, with researchers from Hospital S. João, University of Copenhagen, Chapman University (awaits funding decision)
- Elderly sport, mental health and resilience, with researchers from Sports Faculty and Sport Department of the Universidade Estadual de Campinas, Brasil
- Parenting intervention effectiveness in parents of overweighted/obese children, with researchers from the Nutrition Unit of the Pediatric Department of the Faculty of Medicine

Finally, regarding collaborations between RGs within our Center, our goal is to achieve an increased level of synergy under the aggregating topics of ageing, sexuality and work-family balance.

To achieve top-level research we will continue to build an attractive and stimulating scientific environment so that junior and senior researchers develop their potential. Main strategies are: (a) attract promising researchers through European Innovative Training Networks (ITN) programs and prominent scientists through invitations for short-term visits; (b) encourage bright PhD students/early career fellows to do extended stays in leading research labs; (c) reinforce research-based training of undergraduates; (d) attract funding from multiple sources.

2. INCREASE THE VISIBILITY OF CPUP IN THE INTERNATIONAL FRONT

Our goal is to increase the impact of international publications and expand our international collaborations.

A. To increase the impact of international publications, we will strive to augment publishing in Q1 journals, and stimulate adherence to Toward Optimized Practice guidelines (pre-registering research studies and publishing pre-registered reports, publishing pre-prints in leading archives, sharing data analysis scripts and complementary analysis together with the final report, providing information for replication, and promote reusability of data when adequate). We will introduce MSc and PhD students to open science practices and stimulate them to adhere to those practices during their dissertations. We will invite specialists in the publication process and prominent journal editors for seminars.

B. The expansion of international collaborations will be achieved by strengthening existing networks of strategic partnerships in North and South America and the EU. A major opportunity is the PhD Program in Human Sexuality (1st in Europe and with a strong international focus) which will increase the ability to attract international students and scholars worldwide. We aim to create new research networks when seeking funding for new research topics (e.g., antecedents to nationalisms). The organization and hosting of conferences will also contribute to this objective (European Society on Family Relations, 2018; European Association for Research on Adolescence, 2020), as well as the participation in task forces or special working groups (e.g., SIG5, SIG8, SIG12) or the participation in COST actions (e.g., CA16102 European Network on Individualized Psychotherapy Treatment of Young People with Mental Disorders; CA16207 European Network for Problematic Usage of the Internet; IS1401 European Literacy Network).

3. STRENGTHEN TRANSLATIONAL RESEARCH

The goal of strengthening translational research is twofold: first, some of our research has strong implications for social, educational, clinical, or health settings that have not been fully demonstrated yet, so they need to be. Second, we will expand the scope of translational research by capitalizing on previous fundamental research.

A. Empirical demonstration of practical implications: One major tool to achieve this is carrying out well-controlled intervention programs. This applies to, for instance, brain plasticity studies, and the impact of music and sports training in well-defined conditions; dyslexia studies, and the potential effects of a parafoveal preview management program; interventions on women with breast cancer or parents facing child cancer based on cancer studies; promoting reproductive health in citizens and patients based on fertility studies; promoting positive parenting based on developmental studies.

B. Expand the scope of translational research: Based on our previous fundamental research, we intend to address a number of topics that are translational in nature, for example: the effects of rhythmic complexity on healthy movement; the application of subjective group dynamics theory to the realm of extremisms and the way individuals respond to perceived crises in social values. With regard to research in partnership with stakeholders, two industrial companies will enable us to study the process of knowledge transmission in order to propose a modeling of this process and to build a system of diagnostic and intervention.

4. STRATEGY FOR KNOWLEDGE TRANSFER

The goal of consolidating an effective transfer of knowledge will be grounded on two key strategies. One is to implement the broad concept of knowledge exchange that views engagement of research with society as a bidirectional process with mutual benefits. By promoting awareness and access to outputs, CPUP is committed to make a real contribution to society, informing the future direction of policy and practice; reciprocally, interactions with community/institutions/business may bring direct benefits to CPUP by inspiring research, learning from first-hand and professional knowledge, and creating synergetic practice-based collaborations. The other strategy is to carry out our knowledge transfer activities according to a dissemination plan strategically designed for CPUP as a whole. These strategies will allow us to achieve two major improvements we wish to introduce: the diversification of communication tools and targets; the monitoring the impact of knowledge transfer through innovative methods similar to those used to evaluate publications and citations, as well as

indicators of societal benefits in terms of improvement of health, social well-being and quality of life. Specifically, and per target:

A. Peers: The amount of participations in scientific congresses is satisfactory and needs not be increased. We will favor participating in meetings which enable the creation of international networks. Researchers who travel on CPUP funds will be asked to report on the mission including explicit reference to networking outcomes.

B. Stakeholders: Associations, institutions and companies that may benefit from our research will be identified and contacted for sharing and discussing findings. Seminars, training sessions will be organized for practitioners and policy briefs addressed to policymakers. Researchers will report, yearly, the nature of contacts and type of feedback. We will also maintain contact with local entities to know their research needs, and involve social actors in the research process. Stakeholders will thus influence the research to be done, so that findings can be used for the orientation of their practice or for professional training.

C. General public: We will renovate our investment on social media (Facebook, Twitter) and make available on YouTube short videos to disseminate our research findings. We will also encourage participation of our members in national and local debates in TV programs and in the press.

11.2 Organization of the R&D Unit for 2018-2022

The Center for Psychology at University of Porto (CPUP) is organized into five research groups (RG): Culture, Normativity and Diversity; Development and Education; Relationships, Change Processes and Well-Being; Neurocognition and Language; and Human Sexuality. The identity of each RG is defined by preferred theoretical and methodological approaches as well as specific objects of study. Each group has a coordinating Principal Investigator, PhD members, nonPhD members - typically, full-time PhD students on scholarships, and external collaborators. Currently, most members (76% of PhD members) are affiliated with the University of Porto, Faculty of Psychology and Education Sciences (FPCEUP), our main management institution. Nine percent of PhD members are affiliated with Maiêutica, our partner management institution, and 15% come from several higher education or other institutions, with which we have established partnership agreements for research purposes.

The management structure of CPUP comprises a Director and Vice Director, an Executive Board composed by the PIs of each RG together with the Director and Vice Director, a Scientific Committee gathering all the PhD members who assign at least 30% of their time to research, and an External Advisory Board composed by experts of internationally recognized scientific merit. The Executive Board meets on the first Wednesday of each month to define strategies and goals for the scientific project of CPUP and to deal with ongoing issues. The dates of these meetings are publicized beforehand so that members can bring up topics to be discussed or decided upon. The minutes of the meetings are made available to all integrated members of CPUP through the CPUP site in Sigarra, the University of Porto internet information system. The Scientific Committee meets at least once a year for the presentation, discussion and approval of CPUP strategic plan and other relevant major issues.

Communication between CPUP and participant institutions is mediated by the involved researchers in interaction with the Director and Executive Board of CPUP, and respective administrative offices.

Both management institutions of CPUP, FPCEUP and Maiêutica, recognize the important role of research for achieving high-standards in the scientific and technological quality of their institutions, and cooperate closely with CPUP in offering managerial support through their own resources. FPCEUP offers support through the *CRIA desk* (Research Support Centre), the *Communication Office*, the *ICT Office*, and other administrative offices, as does Maiêutica through equivalent administrative services. Furthermore, one qualified staff member is hired full-time to support management and administrative tasks of CPUP.

As a new step to capitalize on our human resources, we will create task forces (TF) with members from different RGs to implement the strategic options of CPUP that require a differentiation of processes tapping (1) knowledge transfer, (2) scientific synergies, (3) sharing of resources, and (4) multi-group funding applications. These TF will elaborate a plan of activities and prepare an annual monitoring report to be discussed in a plenary session at a CPUP annual meeting.

1. Organizing and monitoring transfer of knowledge

The task force on knowledge transfer and public engagement (KTPE-TF) will develop CPUP members' competence on how to better interact with society for mutual benefit. The KTPE-TF will elaborate a plan of communication and dissemination of CPUP research and activities. Informed by each RG, the plan will include the definition of target groups (decision-makers, scientific community, private sector, civil society, media, general public and other stakeholders), tools for dissemination, monitoring and evaluation, time plan for the production of dissemination deliverables and an overview of upcoming events. Thematic seminars on knowledge transfer directed to researchers and PhD students will be organized.

2. Implementing strategies to create scientific synergies (SS) around aggregating topics

One of the main obstacles to a more integrated workflow among CPUP members and between RGs is the lack of time and opportunities for interaction. The SS-TF will enforce initiatives towards more informal and formal communication, such as:

- a. An extended annual general meeting, with a full-day agenda including the presentation and discussion of the annual activity report, the task forces monitoring reports, and a participatory decision on corrective measures to be taken in order to achieve CPUP goals.
- b. At least once-a-year, each RG will promote an open group meeting where other groups are invited to participate.
- c. New internal communication channels will be introduced: a trimestral digital newsletter with news on CPUP outputs (recent publications, knowledge exchange activities) and upcoming events; web pages at the CPUP site with a brief presentation of researchers.
- d. A formal event for researchers to develop their skills will be organized, where PhD students and post-doc researchers from all RGs will have the opportunity to present their research in five minutes with one single image to display. Judges may be composed by prominent people of the general public with no research background.

3. Sharing of resources and equipment (SRE-TF)

CPUP has been using several strategies to favor better sharing of resources, both intellectual and instrumental. The SRE-TF will cooperate to manage lab equipment (e.g., high-quality recording facilities, ECG/SCR, EEG, eye-tracking, videographic acquisition) and to provide technical training. We will also encourage shared-data policy, giving internal and external researchers the opportunity to reanalyze data and test new research questions. We are fully compliant to open-science policy via the University of Porto Repository, and we are also taken initiatives towards open-science data.

In collaboration with the UP Engineering Department, a collaborative team was created to launch open access databases adapted to psychological sciences.

4. Promoting and managing multi-group applications for funding

With its increasing expansion, internationalization, and collaborations with other institutions, CPUP is aware of the need to enhance opportunities to share resources and exchange ideas within and between RGs that may lead to multi-group applications for funding. Over the years we have successfully paired with several international and national institutions in applying and conducting funded research projects. This allowed us to team up with researchers from adjacent research domains and to follow a cross-fertilization strategy that originated innovative approaches to complex psychological research problems and collaborative protocols with key institutions. This task force will share experiences and devise ways to facilitate the emergence of such initiatives.

13. Ethical Issues

13.1 Ethical issues

Our research involves two major ethical questions: it is carried out with human subjects (ETHICAL ISSUE 2) and we collect personal data (ETHICAL ISSUE 4). As standard procedures, we adopt the Declaration of Helsinki and studies are approved by an ethical committee, from the University or from the institution where the study takes place (e.g., hospitals). Moreover, intervention research focused on clinical conditions is registered whenever possible (e.g., clinicaltrials.gov). Depending on the setting (e.g., schools, organizations), prior institutional authorizations may be requested as well. Research projects are implemented in line with approved protocols, though amendments may be required when there is uncertainty about how a study progresses (e.g., in community-based participatory research methods). The specific safeguards that we take to address major ethical questions of our research are described next.

Concerning the involvement of human subjects, these can be healthy or unhealthy volunteers, including vulnerable individuals (e.g., children, patients, sex workers, prisoners). We care for our participants and implement several provisions to respect their autonomy along the research process. Before data collection we obtain informed consent from prospective participants, written to be easily and fully understandable. When participants are unable to give consent, their assent is obtained along with the informed consent from the legal representative. Participants are treated as intelligent and autonomous human beings capable of understanding information, making decisions on their own, and providing voluntary agreement to participate. Without undue influence, we clearly inform participants that they are free to withdraw from the study at any time and may decline to respond to any question or perform any task. Specific provisions are taken to protect vulnerable individuals' rights and welfare, such as assessing their decision capacities, requiring permission from two persons, or having a specialist during data collection. To avoid exploitation, participant selection is essentially based on scientific justification. Participants are informed on unlikely, but possible, physical, psychological, legal, social, and economic harm, as well as expected benefits. Research risks are minimized by using established data-collection methods.

Our research typically uses non-invasive methods which are designed and implemented to reduce task-related anxiety and to be as comfortable as possible (e.g., inclusion of breaks, quiet rooms, etc). Yet, some techniques may cause discomfort (e.g., electroencephalography, neuroimaging, plethysmography, thermography). To circumvent this, participants are made aware of the potential

discomfort and given an informative flyer that explains the basics of the technique, including what can and cannot be known from the data, the kind of discomfort that might arise, and useful strategies to deal with it. To ensure the safety of participants, the process of data collection is closely monitored. When extreme discomfort or anticipated risks are observed, the experiment is interrupted immediately. When intervention research takes place, we assure that participants in control or less effective treatment groups are given the opportunity to participate in the most effective intervention after study completion.

At the end of data collection, we enforce a debriefing process to give participants further information on the study and their participation (this is mandatory when the initial disclosure of the purpose of the study may influence their responses). We emphasize our gratitude towards participants and, in some studies, offer incentives as compensation for participation (e.g., vouchers, course credits, gifts), as long as they are not unduly influential or attractive. Participants are also provided with a contacting e-mail to inquire about the study, should they wish to do so, and when results are available they may be informed on the main findings.

Concerning the collection and processing of personal information, we take several provisions to safeguard participants' privacy and ensure data confidentiality. We create coded identifications for data collection and analysis, and keep identifiers separate and secure. Typically, the data collected are used solely for the purpose of the study (secondary data analysis may be conducted with fully anonymized data and, if possible, with agreement in the original consent). Following FCT recommendations, and after data curation, some datasets can be made available in open-access repositories. When collecting sensitive personal information, our researchers seek approval from the Portuguese Data Protection Authority. All physical and digital materials are securely stored at the University and only available to authorized researchers. We are strongly committed to raise the awareness of graduate students regarding ethical questions. When they are involved in studies with sensitive personal information, they are invited to sign a legal form stating that no material will be moved or transferred to any personal device. We are also determined about incidental findings (e.g., clinical conditions, abuse or neglect, intent to harm). Participants are thoroughly informed on the likelihood of such findings and free to decide to be, or not to be, informed on these. However, when applicable, participants' intentions may be overridden by legal regulations. Confidentiality is also a concern when publishing and disseminating our findings. Depending on the design, data can be reported at the group or individual level. When reporting requires individual reference, we use pseudonyms and conceal any potentially identifying information. Specific attention is given to research methods that may reveal participants' identity (e.g., focus group, videotaping). The conditions for disclosure must be agreed and authorized by all involved persons prior to dissemination.

Porto, CPUP, February 2018

Extract from the proposal for funding presented to the Portuguese Foundation for Science and Technology