

## Summary

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### Analysis of the effects of the SKILLS

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Marta Łazarowicz-Kowalik i Aleksandra Czerniawska

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#### Study

The SKILLS project was conducted by the Foundation in 2011–2015 under Measure 4.2, “Development of R&D system staff qualifications and improving the awareness of the role of science in economic growth,” of the Human Capital Operational Programme.

The main aim of the project was to raise the skills of the project participants in the area of managing research projects, promoting science, and entrepreneurship. The project also included strengthening of the potential of young researchers in interdisciplinary cooperation and scientific communication. The SKILLS project enabled the Foundation to support scientists not so much in carrying out their research projects as in key skills for their work. The need for this type of support had been signalled for a long time by beneficiaries. Evaluations of FNP programmes had also pointed to the huge importance of “soft skills” for effective growth of scientists themselves, as well as projects, teams and entire research institutions.

The SKILLS project not only touched on various fields of development, but first and foremost took a great variety of forms: from training to individual support, and competitions enabling realization of the beneficiaries’ own projects. Altogether, these initiatives covered the following modules:

- TRAINING
- MENTORING
- COACHING
- INTERNSHIPS
- eNgage competition
- INTER popularization competition
- IMPULS competition
- Programme Officers’ Academy (which module was excluded from the study discussed below).

The aim of the study in 2018 was to analyze the influence of the specific components of the SKILLS project on scientific development over the perspective of several years. The study was based on in-depth interviews with participants.

## Key conclusions

Implementation of the SKILLS project confirmed the deficit of “soft skills” in the research community. This primarily involved team management, project management (including time management), as well as self-presentation, presentation of results and research projects, and commercialization. The interviews also found a need for psychological support concerning motivation, planning of actions, and reflection on the researchers’ own ambitions, goals and plans. The participants in the project (particularly the COACHING programme) stressed the emotional aspects of the scientific career which formal education does not prepare the researchers for, although these aspects are also vital to the effectiveness and attractiveness of research work. Most of the respondents pointed to a sense of uncertainty, rivalry, and a lack of self-confidence limiting them in their work. From this point of view, effects in the form of participants’ increased self-confidence also prove important.

Although by design the SKILLS project was addressed primarily to young researchers, in practice it proved much needed also by researchers at a more advanced career stage. Persons who had completed their postdoctoral degrees, particularly those working at smaller centres lacking an adequate research community, pointed to a kind of isolation and lack of support both in taking decisions on their own scientific growth and in managing their teams—not to mention the issue of commercialization.

All of the proposed forms were regarded by the participants as unique (in the case of TRAINING, the topics and selection of trainers were taken into consideration). This applied to the greatest extent to MENTORING and COACHING, the latter above all. The SKILLS project thus constituted an innovation not only for the Foundation’s operations, but also for the science system in Poland, providing the opportunity to test new tools for supporting researchers.

The SKILLS project offered researchers relatively little funds (awards in the IMPULS, INTER and eNgage competitions), but left them great leeway in how to apply the funds. Thanks to this, it was a good tool supporting innovative pilot ventures. In many instances, the INTER programme enabled bold new ideas to be pursued in the area of interdisciplinary cooperation, which would be hard to finance with other existing funding programmes. IMPULS often involved development of projects already being implemented, but allowed the laureates to relatively freely take the first steps on the new and difficult ground of commercialization. Thanks in part to the ease of applying funds, eNgage facilitated the popularization of science, which is generally an area that is overlooked and underappreciated in the research community.

The interviews confirmed the importance for Polish researchers of mentoring relationships with foreign scientists. Particularly in the case of the humanities and social sciences, the subjects indicated a sense of isolation and difficulty in breaking into the international scholarly circuit. In other fields as well, contact with a helpful scientist from the “centre” of scientific life gave participants access to valuable information unobtainable through formal communication channels. This involved particularly identification of research topics and potential collaborators, but also methodological issues, research techniques, and team management strategies. Significantly, thanks to the flexible and non-binding approach to the relations provided by INTERNSHIPS and MENTORING, participants succeeded in forming contacts which would otherwise have been difficult or impossible to form (proposing a joint project or other form of cooperation would have been much harder and probably much less effective than requesting mentoring or an internship). Having their own independent funding allowed contacts to be formed with scientists from outside

the participants' existing circle of colleagues. In many cases these contacts blossomed into lasting ties or cooperation and had a major impact on the further career of the SKILLS participants.

A great benefit of the SKILLS project from the participants' perspective was the mutual integration and opportunity to meet researchers from other centres and other fields of science who faced similar challenges. In many cases these acquaintances are maintained and used for cooperation.

The key conclusions on specific programmes are set forth in tabular form below.

	<b>What was successful?</b>	<b>What was a problem?</b>
MENTORING	<ul style="list-style-type: none"> <li>• Direct contact with outstanding scientists who would otherwise be hard to contact (e.g. through scientific cooperation)</li> <li>• Assistance focused on the individual needs of the participant (not the research project)</li> <li>• (Often) including the participant in the mentor's scientific work and network of contacts</li> <li>• Help in selecting research topic, team management, and building networks of cooperation</li> <li>• Disseminating patterns for relations between more experienced and less experienced researchers</li> <li>• Reinforcing FNP's image as an institution focused on scientists' needs</li> </ul>	<ul style="list-style-type: none"> <li>• (Sometimes) unclear aims of mentoring relations</li> <li>• Lack of supervision of mentoring process (accessibility of mentor, achievement of goals)</li> <li>• Great importance of the "human factor," e.g. the engagement and personal characteristics of mentor and mentee</li> <li>• (Sometimes) misuse of the mentoring formula to maintain not very helpful scientific contacts or to initiate and continue research cooperation</li> </ul>
COACHING	<ul style="list-style-type: none"> <li>• Assistance focused on participant's individual needs</li> <li>• (Often) assistance in team management, work organization, and planning of own career</li> <li>• Attention to non-scientific aspects of research work, e.g. issues of uncertainty, rivalry, low self-esteem, burnout</li> <li>• (Often) new strategies for supporting young researchers by programme participants</li> <li>• Reinforcing FNP's image as an institution focused on scientists' needs</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequately defined aims of COACHING</li> <li>• (Sometimes) mismatch of this form of support to the actual needs and possibilities of the participant</li> </ul>
INTERNSHIPS	<ul style="list-style-type: none"> <li>• Assistance focused on the individual needs of the participant (not the research project)</li> <li>• Effective method of gaining new skills in relatively short time</li> <li>• (Often) forming cooperation with host centre</li> <li>• (Often) a step toward a longer foreign stay, e.g. postdoctoral fellowship</li> <li>• (Partially) making up for lack of postdoctoral fellowship</li> <li>• (Sometimes) overcoming sense of isolation of researchers working at smaller centres</li> </ul>	<ul style="list-style-type: none"> <li>• (Sometimes) mismatch between the conduct of the internship and the participants' real needs</li> <li>• (Sometimes) deep sense of frustration with conditions for research work in Poland (thus, e.g., taking up permanent work abroad)</li> </ul>

	<ul style="list-style-type: none"> <li>• Facilitating mobility for further career stages (after postdoc), when it is hard to find the right framework (and funding) for an excursion of several months outside of a traditional research project</li> </ul>	
INTER	<ul style="list-style-type: none"> <li>• Stimulus to seek new ideas for interdisciplinary cooperation</li> <li>• (Often) implementation of bold interdisciplinary projects</li> <li>• New, cross-disciplinary networks of contacts</li> <li>• (Often) new knowledge and skills from another field of science</li> <li>• New perspective on one's own research ideas from persons outside one's own discipline</li> <li>• Openness to cooperation with representatives of other fields of science</li> <li>• (Sometimes) conducting the first small project of their own by persons at an early career stage</li> </ul>	<ul style="list-style-type: none"> <li>• Unclear connection of programme aims: conducting interdisciplinary research and popularizing science</li> </ul>
eNgage	<ul style="list-style-type: none"> <li>• Realization of ventures popularizing science</li> <li>• Development of concepts for action</li> <li>• Cooperation with schools and teachers</li> <li>• Uniqueness</li> </ul>	<ul style="list-style-type: none"> <li>• Little variety in the types of projects implemented</li> <li>• (Sometimes) lack of participants' preparedness to carry out the form of cooperation undertaken by them (e.g. distribution of project products, publications etc)</li> <li>• Ambiguity related to copyright and rules for distribution of project products</li> </ul>
IMPULS	<ul style="list-style-type: none"> <li>• Impulse to develop implementation research</li> <li>• Experience gained in contacts and communications with business world</li> <li>• New perspective on own research ideas from the eyes of business</li> <li>• (Sometimes) launching own commercial activity</li> <li>• (Sometimes) conducting the first small project of their own by persons at an early career stage</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on scientific aims rather than implementation</li> <li>• Too early stage of research to seriously move to implementation</li> <li>• Ambiguity related to copyright to developed solutions (conflict concerning exploitation of patent between researcher and university)</li> </ul>
TRAINING	<ul style="list-style-type: none"> <li>• Large number of beneficiaries</li> <li>• Integration of scientists, including representatives of different fields of science</li> <li>• Well-selected topics and trainers, high quality of training</li> </ul>	<ul style="list-style-type: none"> <li>• (Sometimes) difficulties matching content of training to individual needs</li> <li>• Little flexibility in planning training (due to rigid procedure for selecting trainers)</li> </ul>