

Summary

Study of the quality of training of doctoral students as FNP stipend-holders: Quantitative study

Marta Łazarowicz-Kowalik i Aleksandra Czerniawska

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Study

The aim of the study was to analyze the quality of training of doctoral students who held stipends from the Foundation. For 10 years FNP has supported the development of researchers, among other things by enabling doctoral students to gain research experience in teams led by outstanding scientists. Scientists chosen in competitions receive funds to finance teams, including stipends for doctoral students. The high quality of the training and research preparation offered in these programmes is one of the priorities. Thus the study largely had an evaluative aim. The other aim was to gather information about the doctoral training of stipend-holders from the START programme. This programme has been carried out by the Foundation since 1993, enabling recognition and support for young scientists with significant research attainments. In practice, the laureates of this programme receive a stipend near the end of their work on the doctorate or after receiving the doctorate. The Foundation's influence over the course of the winners' doctoral studies is thus relatively small in this case, and the stipends are awarded for scientific achievements regardless of the place or manner of study. On the other hand, the attainments of the START programme laureates (selected in a very difficult competition, with a success rate of about 10%) largely depend on the quality of the education gained during the course of preparing for the doctorate. From this perspective, their experiences at this stage of their career seem to be a good point of reference for studying the standards for educating doctoral students in Poland.

The study took the form of an online questionnaire. The questions concerned primarily the respondents' motivation to work on the doctorate, cooperation with their supervisor (promotor), the greatest challenges at this stage of their career, the benefits gained from the effort invested in working on the doctorate, and the respondents' future professional plans. Those invited to

participate in the study were (1) stipend winners of all editions of the MPD, WELCOME and TEAM POIG 2008–2012 programmes (the “funded group”), (2) laureates of the 2017 START programme (control group 1), and (3) persons who sought a START stipend in 2017 but did not receive one (control group 2). In total, 1,963 individuals were invited to participate in the study, and responses were received from 473, meaning a response rate of 24.09%. Of the sample studied, 58% had received their doctorate at the time of the study and 42% had not yet received their doctorate.

Key conclusions

The most often selected reason for pursuing doctoral studies was a desire to work in science. The desire to gain new knowledge, self-fulfilment, and a fascination with the specific topic were also important.

It typically had taken the respondents 4–5 years to obtain the doctorate (78% of responses). The average time to obtain a doctorate was 5.52 years. Persons who at the time of the study had not yet completed their doctorate were asked how much time they had devoted to that purpose so far. The average response was 3.6 years, but the group also included people for whom the process of earning their doctorate had been prolonged somewhat beyond the average time (6 years, 9.9%, and over six years, 4.7%).

Most of the respondents perceived work on the doctorate as an intellectual adventure; 82.5% of them agreed with the statement that thanks to this, they found themselves in an intellectually stimulating environment. The overwhelming portion of them were satisfied with their decision to pursue doctoral studies. The respondents believed that their research was important for the growth of their field, but few of them believed that the research would find practical application. They also rarely had a sense of the social usefulness of their own work.

Differences between the funded group and the control group (START stipend) appeared in the case of four statements. Persons from the funded group more often appreciated that thanks to the work on their doctorate they found themselves in an intellectually stimulating environment. In turn, the persons from the control group more often believed that their research would find application in practice, is important for the growth of science, and is socially useful.

For most of the respondents, taking up work on their doctorate did not require them to change their place of residence, or even to change institutions. Barely 20% moved to another city (including 1.7% to another country), and one in seven respondents changed universities. Their selection of a supervisor was dictated primarily by the supervisor’s specialty and research field, but the second most common reason was earlier cooperation, e.g. on the master’s thesis. Among persons who were studying within FNP programmes, the stipend was a very important reason for selection of the supervisor. Persons from this group also more often indicated the supervisor’s international cooperation. Persons from the control group were more often guided in selection of their supervisor by previous cooperation, previous personal acquaintance and good contact, an invitation to cooperate or encouragement from the adviser, or the adviser’s standing within the Polish academic community.

Changing advisers during the course of doctoral studies was rare, and generally was connected with formal requirements (e.g. a mentor obtaining his or her postdoctoral degree). A clear majority of the respondents also stated that they would select the same adviser again. The relatively few respondents (16%) who would choose a different adviser explained their disappointment by the adviser’s lack of competence (weak scientific level, little scientific activity, little experience advising doctoral students) or lack of involvement. Such disappointment was more often declared by

respondents funded by FNP at the stage of their doctoral studies (winners of stipends in Innovative Economy programmes) than by laureates of the START programme.

The respondents' generally stated expectations for their supervisors related to professional competence or personality traits. This had to do first and foremost with the relevant knowledge and experience, but also standing in the scientific community, including in the international arena. In addition to this, friendliness and eagerness to help also counted. A frequently mentioned expectation was the supervisor's accessibility and availability. The great majority of the respondents rated the frequency of their contacts with their supervisor positively, with about a third indicating daily contact, a third weekly contact, and a third irregular contact "as needed." Although the frequency of doctoral students' contact with their supervisor clearly depends on the type of research conducted, the responses indicate a clear correlation: the more frequent the contact, the greater the satisfaction.

In their research work doctoral students do not rely solely on their supervisors. About half of them (54.8%) were also looked after by other researchers. One in eight had a co-adviser, and a third had the support of an assistant adviser. A fourth of the respondents were also mentored by another scientist (e.g. a postdoc in the adviser's team). Colleagues on the team were also an important source of support for doctoral students (75.2%). About half of the respondents received help from scientists at foreign research centres, and less often from scientists at other Polish institutions.

Most of the respondents (70%) were involved in international cooperation during the course of their doctoral studies. Less often (60%) this involved cooperation with other teams or centres in Poland. Cooperation with other doctoral students within one's own team was also quite common (68%). A little over half of the respondents were involved in interdisciplinary cooperation. About half of the respondents participated in foreign internships, and somewhat fewer (42.3%) in international study visits. They much more rarely visited other Polish institutions. A fourth of respondents declared that they had cooperated with partners from outside science during their work on the doctorate. Participation in activities involving international cooperation (foreign conferences, meetings and workshops, international cooperation, foreign internships) was much more often declared by persons preparing their doctorate in teams funded by FNP. The same applied to cooperation with other doctoral students in their own team and other teams, including foreign teams.

The problems during doctoral studies most often cited were a mismatch between instructional offerings and the doctoral student's needs (52.6%) and stress (47.6%). Many respondents also complained about difficulties reconciling personal or family life with work on their doctorate, as well as their weak financial situation or financial instability. There were very rarely difficulties involving inadequate competence of the supervisor or limited access to laboratories, apparatus or literature.

Persons from the group funded under the Innovative Economy Operational Programme generally had better conditions for working on their doctorate than the START programme laureates did; primarily thanks to the high stipend, they had a more advantageous financial situation. They also rated more highly the instructional offerings and time-effectiveness of their studies. They less often had problems accessing labs, apparatus and literature.

The satisfaction with their doctoral studies and work on their doctorate declared by the clear majority of the respondents did not exclude contact with ethical abuses. The practice of listing among the authors of publications persons who were not involved in creation of the publication was encountered by 41.9% of the respondents. Phenomena that were less frequently encountered but nonetheless present included exerting excessive pressure to obtain positive research results (24.5%)

and inadequate recognition of contributions to the creation of publications (e.g. depriving a person of the position of principal author) (21.1%). The last abuse examined in the study was unauthorized use of the respondent's work by other persons, which was experienced by 12.7% of the respondents.

Among the benefits gained from doctoral studies, the respondents mentioned most frequently personal growth and self-actualization (92.4%), skills at conducting individual research (91.1%), knowledge of the subject matter and methodology (90.9%), an increased sense of self-confidence (73.8%), and obtaining contacts enabling further cooperation (70.2%). Somewhat over half of the respondents appreciated general skills useful on the labour market, such as analytical skills (59.0%), and the experience of mobility and international cooperation (56.8%). The benefit declared the least often (37.4%) was knowledge and skills of great market value/increasing the chances for well-paid work.

Persons who had completed their doctorate and were employed (or undergoing a fellowship) perceived a clear impact of their research training on their future career. They said that it helped them find work and that a doctorate was significant for their employer. Nearly all of them used their subject-matter knowledge and research skills in their work. Only 4.9% of the respondents worked in a non-scientific position; 15.5% had at least partially scientific tasks, and 79.6% defined their work as scientific.

Another strength on the labour market is the network of contacts and relationships carried over from working on the doctorate. Somewhat over half of the respondents admitted that their adviser or other research institution staff helped them find work.

The respondents who had not taken up work yet said they believed that research training would provide good preparation for their first job and anticipated that they would obtain an interesting job. But they were sceptical about the opportunities for finding well-paid work.

Most of the respondents were interested in continuing scientific work (87.9%). This group included people who were open to other possibilities ("I would like to work in science, but don't rule out other possibilities"—33.3%), some who would like to combine scientific work with work in another sector (8.2%), and those who prefer scientific work but recognize the limited opportunities for finding such employment (15.8%). Of the respondents, 6.5% wanted to work outside of science, and 2.1% would prefer employment in practical implementation of research results. Although the respondents saw before them great possibilities for scientific development, they were concerned about the uncertainty associated with research work and the profession of a scientist.