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Abstract:	<p>This Deliverable reports on the activities carried out by WP11.5 Education Programme Coordination (EP) from April 2016 to end of March 2018. The EP fosters active involvement of different stakeholders, from PhD students to experts, in creating and tailoring the educational content for today's students and future leaders in the field of neuroscience, ICT and medicine. Participants from 47 different countries around the world have attended the educational events organised by the EP in this period.</p> <p>The report includes information on the EP's <i>modus operandi</i>, its physical and online activities, measures to increase the student community and ECTS accreditation of the HBP Curriculum.</p> <p>Compared to the previous funding period, the EP was able to increase the number of educational activities and offers provided to early career researchers, as well as their participation, more than two-fold. Furthermore, thanks to targeted efforts towards improving gender balance, 43.17% of early career researchers who attended the EP events were female. Overall more than 90% of participants rated highly their overall satisfaction with EP events.</p> <p>In addition, the report briefly describes the EP communication and outreach measures, as extensive communication and social media activity resulted in steady audience growth. The EP has established several strategic partnerships with organisations inside and outside of European borders.</p> <p>In view of the next funding phase, the ECTS accreditation process has been established in collaboration with the Medical University Innsbruck, allowing early career researchers to collect ECTS credits after successfully completing selected online courses.</p>		
Keywords:	Education, Training, Interdisciplinary, Curriculum, Student Community Building		

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1. Introduction

The Human Brain Project (HBP) Education Programme (EP) supports the HBP in reaching its goals and objectives. It offers innovative, interdisciplinary learning packages, tailored to HBP requirements, to early career researchers working in and across the fields of neuroscience, information and communication technology (ICT), and medicine. Sustainable usage of the HBP Research Infrastructure relies on the availability of a significant number of appropriately educated and trained early career researchers who are equipped to use this type of resource- The HBP Education Programme is also a vehicle to disseminate project developments and results to the research community.

To facilitate interdisciplinary scientific work, our training is focused on providing participants with additional knowledge on topics outside their specialty. In addition to educational activities focused on science, the HBP Education Programme also organises training sessions on horizontal topics essential for a successful career in science: ethics, intellectual property rights, and translation and exploitation of research. Interdisciplinary teaching is growing, to provide access to new concepts and scientific tools in brain research, which are becoming increasingly complex as the field becomes more competitive¹.

The HBP Education Programme is carried out by a team of professionals experienced in content design, event organisation, communication and dissemination of information. The team maintains the HBP Education Programme website on which information on past, current and future events is openly available to the public. A range of communication channels are used, including videos from educational events recorded by the team, which are uploaded on a dedicated YouTube channel, and the e-library on the HBP Education website², and are openly available for online learning. The EP's main achievements are the development and execution of a blended learning strategy, comprising the HBP Curriculum, the integration of lectures and hands-on sessions on the HBP Platforms in its education activities and the development and implementation of a Massive Open Online Course (MOOC) exploiting contributions to the 3rd HBP School.

The events organised by the HBP Education Programme are open to early career researchers outside and inside the HBP, and special measures have been taken to support gender-balanced participation.

This document describes how the HBP Education Programme coordinates and organises transdisciplinary education in the HBP, the programme's target audience, the teaching and training approaches it applies and, most importantly, the results it achieved from April 2016 to March 2018.

¹ Akil H., Balice-Gordon R., Lopes Cardozo D., et al, Neuroscience Training for the 21st Century, June 1, 2016, Neuron 90: 917.

² education.humanbrainproject.eu

2. HBP Education Programme strategy

The commitment to strengthen the European scientific and research landscape is one of the driving forces behind the HBP and its EP. The EP's focus is on educating and training early career researchers; specifically:

- Master students already carrying out research
- PhD students
- Researchers who have received their doctoral degree within the past three years at the time of their application for training in the EU and wider Europe.

However, the EP also attracts early career researchers outside Europe and has participants coming from all over the world, as the graph below shows.

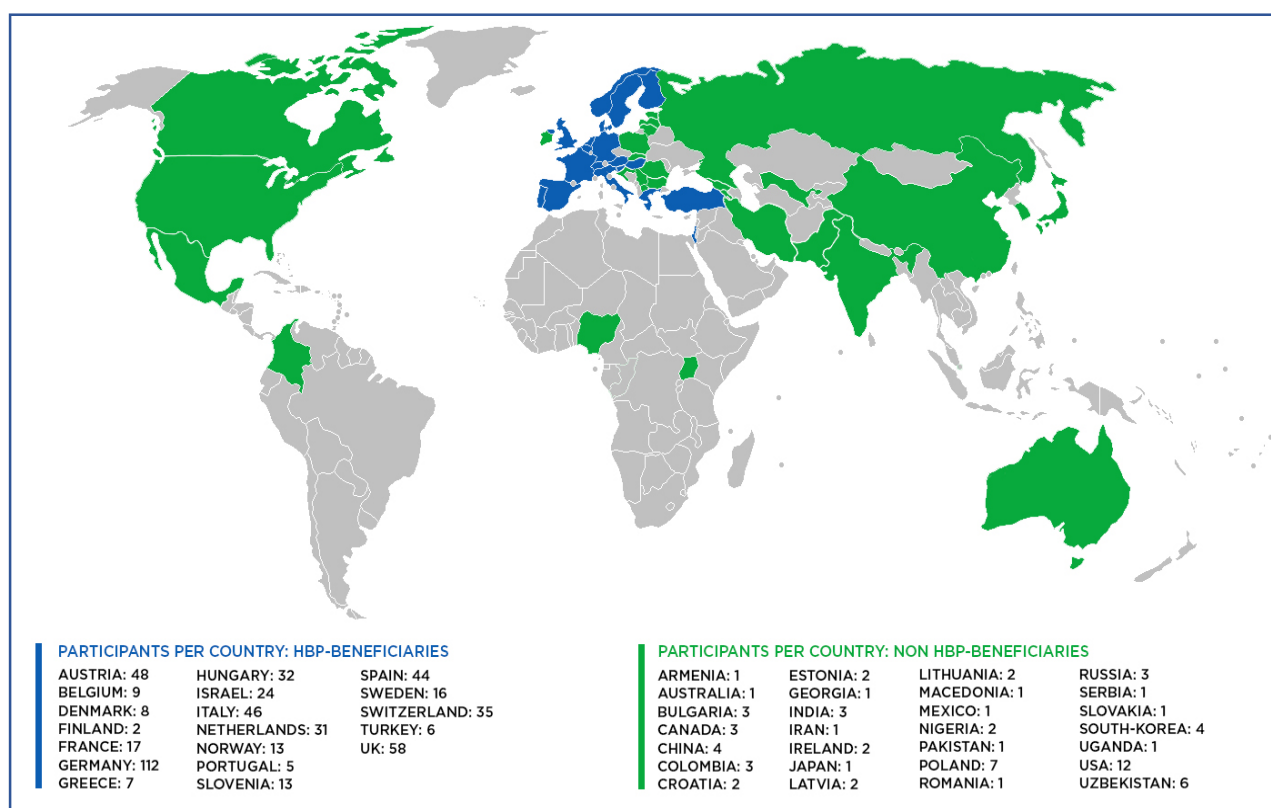


Figure 1: HBP Education Programme - participants per country

Figure 1 shows the distribution of participants in HBP Education Programme Events between HBP beneficiary countries and non-HBP beneficiary countries. Please note that this figure does not take into account multiple attendances, i.e. in case one participant attended more than one event, he/she is only counted once in the above graph.

The channels used by the EP to make its activities known allow much wider audiences to be reached. However, it is most valuable for the Project to focus on the education of the groups of early career researchers specified above, as they are actively contributing to the Project's research and are in a position to adopt the HBP infrastructure and make use of HBP results in the future. Therefore, they should be educated according to the HBP's needs and to use its Research Infrastructure. Quality and quantity of education and training are an integral part to generate impact in the early career researchers' community. The EP's strategy is to offer both physical education and training events with a high tutor-student ratio, to ensure maximum engagement and learning benefit and teaching quality for the participant. On the other hand, it also organises conferences and online courses to educate and train a broader audience. As it is a matter of balance between quality (interaction between participants and the faculty) and productivity (number of participants) of an educational activity, different approaches are implemented to achieve maximum impact with regard to the student-faculty ratio. A high student-faculty ratio

means allowing more participants to attend an educational event, which gives priority to high productivity at the potential cost of quality of interaction between a large number of students and the speakers/tutors; for example, at HBP Student Conferences. A low student-faculty ratio optimises quality at the cost of lower productivity, meaning that fewer participants are allowed to take part in an event. However, a higher quality of interaction with speakers is therefore possible; for example, at HBP Schools³.

The EP seeks collaborations with research institutes and organisations as well as universities in Europe and worldwide to exploit synergies and to use existing tools and materials to further promote its programme.

2.1 Strategic partnerships and collaborations

The EP is dedicated to establishing different partnerships and collaborations within the HBP and with external research institutes and universities worldwide for creating synergies between the HBP Education Programme and other existing education initiatives relevant for the HBP. These partnerships and collaborations are formalised in writing via Memoranda of Understanding or by verbal consent.

With regard to collaborations outside the consortium, the EP has made various efforts towards further strengthening the knowledge generated by the HBP by forming several alliances with the global neuroscience community.

2.1.1 *Letters of Intent for Partnerships*

2.1.1.1 Else Kröner MD Fellowship Programme

A Letter of Intent was signed on 30 August 2017 between the Else Kröner MD Fellowship Programme “Düsseldorf School of Neuroscience” at Heinrich Heine University (HHU) Düsseldorf and the Education Programme of the Human Brain Project.

Both institutions agree to mutually exchange information about their educational programmes, as well as provide access to young researchers. Else Kröner MD fellows are offered different educational opportunities organised by the HBP Education Programme, such as lab visits, lectures, seminars and workshops. In exchange, Human Brain Project MD and PhD students can access the education programme of the Else Kröner MD Fellowship Programme.

The information exchange is in progress and nominations for lab visits are expected to be received during the SGA2 period.

2.1.1.2 Heinrich Heine University Düsseldorf:

The purpose of this Letter of Intent, signed on 31 May 2017, is to promote co-operation in the field of teaching between the Master Study Programme in Translational Neuroscience at Heinrich Heine University (HHU) Düsseldorf and the Education Programme of the Human Brain Project.

Established cooperation includes exchanging education opportunities for HHU Master students in Translational Neuroscience and for Master students of the Human Brain Project. The Human Brain Project offers lab visits, lectures, seminars and workshops for HHU Master students to attend. Master students of the Human Brain Project are able to participate in the HHU e-learning programme of the Master Study Programme in Translational Neuroscience.

³ Teresa A. Sullivan, Christopher Mackie, William F. Massy, and Esha Sinha, Editors, National Research Council, Improving Measurement of Productivity in Higher Education. Panel on Measuring Higher Education Productivity: Conceptual Framework and Data Needs, (2012).

The education opportunities and knowledge exchange will move forward during the SGA2 period.

2.1.2 *Other partnerships and collaborations*

2.1.2.1 Allen Institute for Brain Science (USA)

The EP has established a collaboration with the Allen Institute for Brain Science (AI) in the USA in late 2015. It mainly focuses on the joint organisation of events. So far, two training events have been jointly organised and two further events received teaching contributions from the AI. On 1 July 2016, a one-day FENS Satellite Workshop was organised in Copenhagen, Denmark, on the subject of 'Cells, circuits and computation: Expanding the horizons of big data analysis'.

At the end of November 2016, the 3rd HBP School on Future Neuroscience took place in Obergurgl, Austria. It was a 6-day advanced course with contributions from the HBP as well as the AI. An additional outcome of this collaboration is the Massive Open Online Course 'How to study the multi-scale brain'⁴ to which the speakers and tutors from the Allen Institute for Brain Science as well as the speakers and tutors from the HBP agreed to contribute. In July 2017, the AI presented its Brain Atlas at two EP workshops, one addressing young researchers not specialised in neurobiology, and one addressing young researchers not specialised in medicine. As an upcoming collaboration, a technical workshop on the subject of 'Investigating neural substrates of perception and cognition with large-scale data' will take place at the FENS Forum on 7 July 2018 in Berlin.

2.1.2.2 Society for Neuroscience Training Committee (USA)

The EP established a collaboration with the Society for Neuroscience (SfN) by being represented by the EP project leader, Alois Saria, on the SfN Training Committee. He has established a communication channel to the Training Committee that helps the EP in promoting its programme in the US neuroscience community. As a result, the recent open calls for HBP schools and workshops were disseminated by SfN to their approx. 30,000 members, and recent developments of the INCF training space (see above) were discussed in the past meeting of this committee on 13 November 2017 in Washington, D.C.

2.1.2.3 International Neuroinformatics Core Facility Training Committee

Alois Saria was nominated as a guest member of the Training Committee of the International Neuroinformatics Core Facility (INCF), an international organisation for catalysing and coordinating the global development of neuroinformatics and advancing training in the field, governed by representatives/institutions from Japan, Australia, Canada, Malaysia, Norway, Sweden and the European Commission. In a meeting with the chair of the INCF training committee at the SfN meeting in Washington, D.C. on 12 November 2017, an agreement to draft a Memorandum of Understanding (MoU) to specify the collaboration was reached. The MoU is currently under review by the respective legal departments. Possible EP contributions to the INCF Training Space, which is currently under development (<https://training.incf.org>), will be discussed in an upcoming INCF training committee meeting on 9 April 2018

⁴ More information on this course can be found here: <https://education.humanbrainproject.eu/web/hbp-mooc>

2.2 The HBP Education Programme and its advisory boards

The HBP Education Programme (EP) is a service within SP11 for the whole HBP community and beyond that focuses on transdisciplinary education and training. The EP is managed by the HBP Education Programme Office (lead partner Medical University Innsbruck, Austria), and supported by several advisory committees as well as volunteer contributors.

The following chapter describes the different stakeholders and their interaction with the HBP Education Programme Office in more detail. Student Representatives and Ambassadors participate in advising the EPO as well, as further elaborated in Chapter 3.4 Building a community of early career researchers.

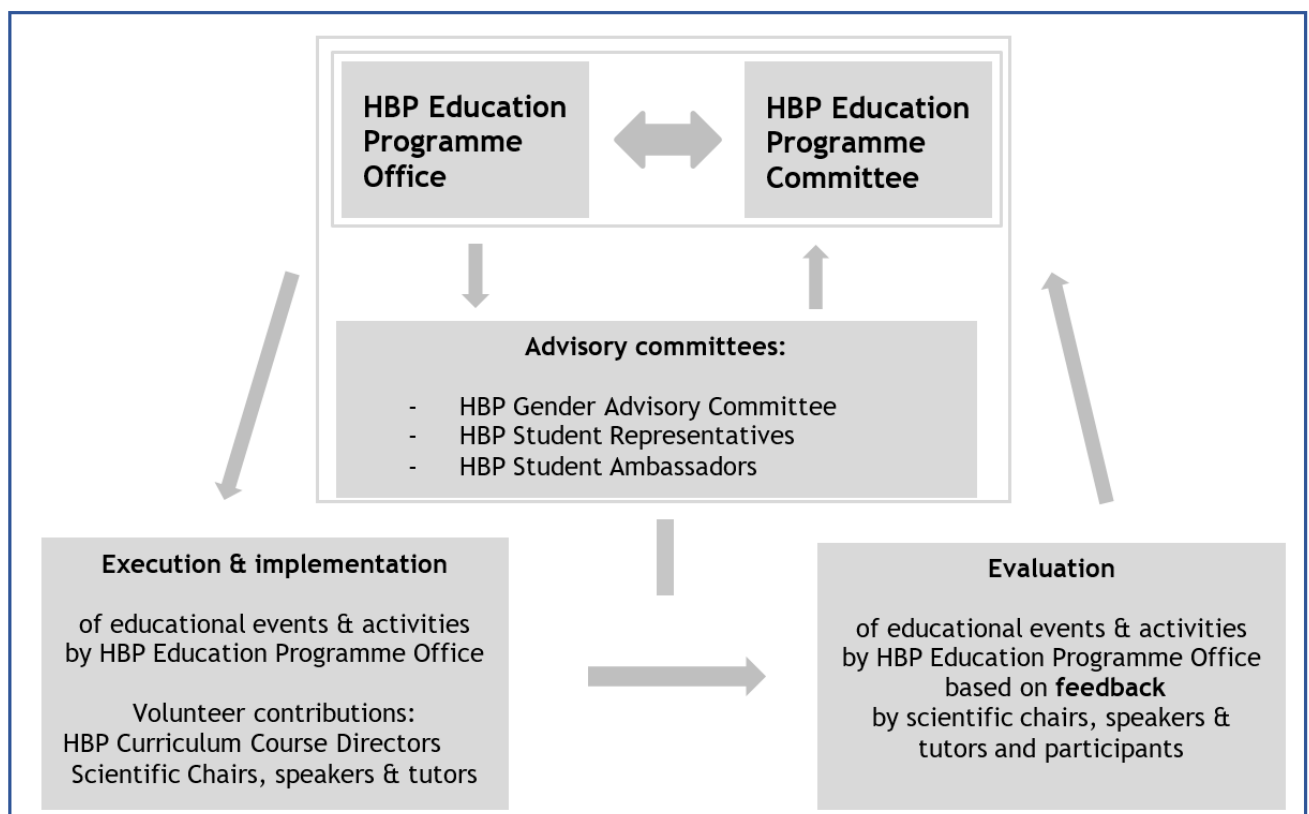


Figure 2: HBP Education Programme - Mode of operation and interactions

The above graph shows the HBP Education Programme operating cycle. The top rectangles demonstrate the interrelations of the EPO with the Education Programme Committee. The Education Programme Committee is the final decision-making body of the EP and approves or rejects the EP strategy. The EPO as well as the EDU PC take into account the advice of the Gender Advisory Committee and HBP Student Representatives. The outcomes of these interactions are displayed in the rectangle on the bottom left named Execution & implementation. It shows which stakeholders carry out the EP's educational events & activities, namely the HBP Education Programme Office and volunteer contributors such as HBP Curriculum Course Directors, Scientific Chairs, speakers and tutors. The effects and outcomes of Execution & implementation are then evaluated, as described by the rectangle on the right, Evaluation, which feeds back to the top rectangle again.

2.2.1 HBP Education Programme Committee

Established in the early Ramp-up Phase of the Project, the Education Programme Committee (EDU PC) is composed of representatives of each Subproject. The committee members were nominated by SP leaders. In regular physical meetings, video conferences and e-mail exchanges, the EP discusses its strategy and seeks the expertise and feedback of the Education Programme Committee members. For example, the EDU PC recommended to revise the initial plan for the

HBP Curriculum⁵, approved the first HBP Curriculum teaching cycle set-up and evaluated it after completion. Their recommendations and suggestions for improvement were taken into account by the EPO for the second HBP Curriculum teaching cycle. In addition to their advisory role, EDU PC members are helping to promote the EP within their communities. As the whole HBP is represented by the delegates, the EP can ensure that each HBP discipline is equally represented in the programme as EDU PC members report their activities in the EP to their SP. In addition to the SP representation, two elected early career researchers from the HBP student community are members of this committee to assure that the needs and expectations of early career researchers within and outside the project are considered.

Table 1: HBP Education Programme Committee members

Last name	First name	Gender	Affiliation	Country	SP
D'Angelo	Egidio	male	Università de Pavia	Italy	8
del Giudice	Paolo	male	Istituto Superiore di Sanità	Italy	3
Diesmann	Markus	male	FZ Juelich	Germany	6
Eickhoff	Simon	male	Heinrich Heine Universitaet Duesseldorf	Germany	2
Einevoll	Gaute	male	Universitetet for Miljo-og Biovitenskap	Norway	4
Grün	Sonja	female	FZ Juelich	Germany	5
Hellgren-Kotaleski	Jeanette	female	KTH Royal Institute of Technology	Sweden	6
Lester	David	male	The University of Manchester	UK	9
Marcus-Kalish	Mira	female	Tel Aviv University	Israel	8
Mohammed	Abdul	male	Karolinska Institutet/Linnaeus University	Sweden	12
Pavone	Francesco	male	Laboratorio Europeo per la Spettroscopia Non-lineare	Italy	1
Redolfi	Alberto	male	IRCCS Fatebenefratelli	Italy	8
Ros	Eduardo	male	Universidad de Granada	Spain	10
Sancho	Maria-Ribera	female	Barcelona Supercomputing Centre	Spain	7
Santuy	Andrea	female	Universidad Politécnica de Madrid	Spain	1
Saria	Alois	male	Medical University Innsbruck	Austria	11
Simidjievski	Nikola	male	Institut Jozef Stefan	Slovenia	8

⁵ The initial plan for the HBP Curriculum was to have live webinars carried out by high-level scientists on SP leader level followed by complementing workshops. The number of participants was limited to 30, for both webinars and workshops. The EDU PC recommended having the recorded lectures instead of webinars without any access limitations and to only limit the completing workshops to 30 participants.

2.2.2 *HBP Gender Advisory Committee*

Increasing participation by female researchers and scientists is of great importance to the HBP. The HBP Education Programme is represented in the HBP Gender Advisory Committee that has been initiated to support the Project and its partners to promote gender balance. The EP has a dual role in this Committee: On the one hand, strategies and plans are discussed to improve the gender balance in the HBP. On the other hand, the EP receives specific guidance and suggestions from the Committee and its collaborating partner, EAF Berlin, for improvement of the gender balance in EP activities.

2.2.3 *HBP Student Representatives*

Early career researchers working in the HBP are given a voice in the decision-making process for educational events and the selection of elected Student Representatives. Two Student Representatives - one female and one male - were elected by the HBP student community to the HBP Education Programme Committee, which defines the strategy and the work plan of the EP. The Student Representatives can be contacted at their dedicated email address: studentrep@humanbrainproject.eu.

The main tasks of the HBP Student Representatives are to:

- Act as a voice of the growing student community at HBP Education Programme Committee Meetings.
- Act as a link between the HBP student community, the Education Programme Office, HBP senior scientists and the HBP Consortium.
- Co-organise the HBP Student Conference.
- Organise networking events and student gatherings at HBP and HBP Education events.

The two SGA1 Student Representatives held office for 2.5 years and their term ended in March 2018. The election for the next Student Representatives was held in September 2017 and the handover of the position took place at the 2nd HBP Student Conference in Ljubljana in February 2018. The term of the two SGA2 Student Representatives starts in April 2018 and will end in March 2020.

Table 2: SGA1 HBP Student Representatives (SR) from April 2016 to March 2018

Last name	First name	Gender	Affiliation	Country	SP
Santuy	Andrea	female	Universidad Politécnica de Madrid	Spain	1
Simidjievski	Nikola	male	Jozef Stefan Institute	Slovenia	8

The input and feedback provided by Student Representatives and the collaborative organisation of Student Conferences with them was highly appreciated by the EP. In addition, Representatives had the chance to broaden their network across the Project and gain management skills for their future careers.

Table 3: SGA2 HBP Student Representatives (SR) from April 2018 to March 2020

Last name	First name	Gender	Affiliation	Country	SP
Diaz-Pier	Sandra	female	FZ Juelich	Germany	7
Urbain	Gabriel	male	Ghent University	Belgium	10

2.2.3.1 Statements from nominated Student Representatives


Figure 3: HBP Student Representatives until end of March 2018

Dr Andrea Santuy (middle) and Dr Nikola Simidjievski (2nd from right). Quote by Andrea Santuy: “[...] During this period, I’ve learned management, protocol and leading skills, I can say it has improved my profile and CV. I have enjoyed very much this time, it has been a pleasure to work with the EPO, and great opportunity to meet both top-notch scientists and students, I can say without any doubt that it has enlarged my network. Working with Nikola has been very interesting, coming from different backgrounds we had different perspectives which forced us to learn about other points of view, which at the end has enriched the project. [...]”

Quote by Nikola Simidjievski: “The main reason for applying for the student representative was bridging the gap and improving the communication between students from different research domains in the HBP community. [...] On one hand, I focused on creating a network of students from different domains, and on the other, it was an

additional challenge to propagate the ideas and needs of this backbone of young researchers upwards to the senior scientists and the rest of the HBP community, both inside and outside academia. [...]

2.2.4 HBP Student Ambassadors

Student Ambassadors represent the student community in their HBP Subprojects (SPs). They help to strengthen the student community, raise awareness for the HBP Education Programme and serve as a communication channel between students and the Student Representatives.

Student Ambassadors are a point of contact for the Student Representatives, the Education Programme Office and the student community. They provide input from their SPs to ensure that the interests of all HBP students are equally represented in the HBP Education Programme. They help the Education Programme to transfer and distribute important information from the student community to the Student Representatives/Education Programme Office and vice versa. Student Ambassadors also support the promotion of the HBP Education Programme on a project-wide basis.

Student Community building activities are supported by EP dissemination and outreach activities. See Chapter 3.5 for education and training activities.

Table 4: HBP Student Ambassadors from April 2016 onwards⁶

Last name	First name	Gender	Affiliation	Country	SP
Armendariz	Marcelo	male	KU Leuven	Belgium	2
Bogdan	Petrut	male	University of Manchester	UK	9
Diaz-Pier	Sandra	female	FZ Juelich	Germany	7
Klijn	Wouter	male	FZ Juelich	Germany	7
Lupascu	Carmen Alina	female	National Research Council	Italy	6
Modenato	Claudia	female	Centre Hospitalier Universitaire Vaudois	Switzerland	8
Mosinska	Agata	female	EPFL	Switzerland	5
Morgan	Andrew	male	University of Glasgow	UK	3
Turégano	Marta	female	Universidad Politécnica de Madrid	Spain	1
Urbain	Gabriel	male	Ghent University	Belgium	10

⁶ SP4, SP11 and SP12 vacant. SP12 has currently no young researchers; SP11 is management and coordination only; EP did not manage to recruit someone from SP4

2.3 The HBP Education Programme execution and implementation

2.3.1 *Scientific chairs, speakers and tutors in the EP*

After consulting the EDU PC and its various advisory committees, the execution and implementation of the EP starts. The consultation is a recurring process that affects the implementation and execution. On average, the EP starts with the planning, implementation and promotion of its activities between 10 months (educational event) and 1.5 years (HBP Curriculum) prior to the execution. The EP recruits Scientific Chairs from within the HBP or from the external scientific community. These scientists and researchers design the scientific content for specific EP teaching and training events and in addition suggest potential speakers and tutors, also coming from within and outside the Project. The administrative work related to the execution and implementation is carried out by the HBP Education Programme Office. It includes everything from logistics to application management, participant and speaker management and promotion via various channels.

2.3.1.1 Acknowledgements

All advisory committee members, expert panels, Scientific Chairs as well as speakers and tutors participate in the HBP Education Programme as an in-kind contribution to the Project. A total number of 307 volunteers have invested their efforts in teaching and training activities during the period from April 2016 to March 2018. These in-kind contributions would be worth a total of at least EUR 1.2 million⁷. Volunteer contributors have been recruited from HBP Partners as well as from external universities and research institutes worldwide.

A detailed list of EP volunteer contributors over the past two years can be found in several tables attached in [Annex A](#) of this document due to better legibility.

2.3.2 *HBP Curriculum Course Directors*

HBP Curriculum Course Directors were nominated in the late Ramp-up Phase by the HBP Education Programme Committee. In contrast to the HBP Education Programme Committee, that provides general feedback, guidance and expertise representing the whole HBP, the group of HBP Curriculum Course Directors acts as a panel of experts that develops the [HBP Curriculum](#). Its mandate comprises defining student learning needs, identifying lecturers for online courses as well as setting-up programmes for workshops based on the online courses. The SGA1 HBP Curriculum Course Directors are affiliated with the HBP Consortium.

Table 5: HBP Curriculum Course Directors from April 2016 onwards

Last name	First name	Gender	Affiliation	Country	Course
Ashery	Uri	male	Tel Aviv University	Israel	Brain medicine for non-specialists
Bar-On	Dana	female	Tel Aviv University	Israel	Intellectual property rights,

⁷ Calculation: average hourly consultant rate vary between € 165 and € 200. We took the lower number, multiplied it by 8 hours a day, speakers stay for an average of 3 days at an Education Event, multiplied by 307. Please note that this number does not include event preparation and post-processing time. For references see: https://www.kimbleapps.com/site/wp-content/uploads/2015PS Pricing_Kimble.pdf; or <https://www.ecn-eu.com/by-invitation/a-consultants-guide-to-profit-part-2/6>

					translation and exploitation of research
Lester	David	male	University of Manchester	UK	ICT for non-specialists
Mohammed	Abdul	male	Karolinska Institutet/Linnaeus University	Sweden	Research, ethics and societal impact
Schwarzer	Christoph	male	Medical University Innsbruck	Austria	Neurobiology for non-specialists
Saria	Alois	male	Medical University Innsbruck	Austria	Neurobiology for non-specialists

3. Making an impact on the education of future generations

The HBP Education Programme Office has successfully achieved its main objective for the SGA1 funding period: the coordination of a programme of multi-disciplinary education for early career researchers working on the frontiers between neuroscience, ICT and medicine. Compared to the previous funding period, the EP was able to increase its educational activities and offers from 161 to 363 and thus also increased the average number of participants per event as the following chapter shows.

Table 6: HBP Education offers in numbers - comparison October 2013 to end of March 2016 vs. April 2016 to end of March 2018

Education activities and offers	October 2013 to end of March 2016	April 2016 to end of March 2018
Total	161	363
HBP Schools	2	3
HBP Student Conferences	0	2
HBP Workshops ⁸	3	0
HBP Curriculum - online courses	0	5
HBP Curriculum - completing workshops ⁹	0	6
Online lectures on e-library (excluding HBP Curriculum online courses)	156	342

⁸ This format was only carried out in the previous funding period of the HBP and is now superseded by the HBP Curriculum workshops.

⁹ This format was not carried out in the previous funding period, it supersedes the HBP Workshops.

Massive Open Online Course (MOOC)	0	1
Career Building Workshop for female postdocs & PhD students	0	1
EP supported events	0	3

The EP's teaching and training offers address early career researchers at different career levels. The offers range from basic to advanced courses and also cover online learning. A targeted approach is followed with regard to gender-sensitive training for female and male young researchers.

Table 7: HBP Education physical event participants in numbers: Comparison October 2013 to end of March 2016 vs. April 2016 to end of March 2018

	Early career researchers Oct.'13 to end of Mar. '16	Speakers & tutors Oct.'13 to end of Mar. '16	Early career researchers Apr.'16 to end of Mar. '18	Speakers & tutors Apr.'16 to end of Mar. '18
Total:	157	99	454	188
Male:	96	83	258	134
Female:	61	16	196	54
Ratio:	39% female / 61% male	16% female / 84% male faculty	43.17% female / 56.83% male	28.72% female / 71.28% male

From April 2016 to March 2018, the HBP Education Programme Office organised 12 physical events and reached out to 454 early career researchers. This compares to 157 early career researchers from within and outside the HBP in the previous phase that were educated by 188 speakers and tutors. The gender ratio for early career researchers is 43.17 % female to 56.83 % male, while speakers and tutors are distributed into 28.72 % women and 71.28 % men. As the numbers show, in SGA1, the EP was able to reach out to almost three times as many early career researchers as it did in the preceding Ramp-Up Phase.

3.1 Evaluation of the EP and meeting student learning needs

After the completion of an event, the educational activities are evaluated by the HBP Education Programme Office. The EP has developed a standardised evaluation process. It includes several questions to investigate the participants' benefits generated at a specific educational offer and to see whether the student learning needs defined for a specific educational activity have been met. The opinions of speakers and tutors, as well as of participants, are considered. The evaluation results for each activity are included in a summary report and provided to the HBP Consortium via the EMDESK project reporting tool. In addition, recurring recommendations and comments by participants and speakers are reported back to the advisory committees and considered for future education strategy revisions by the EP. In total, 13 EP physical events were evaluated from April 2016 to March 2018 using a standardised evaluation form, which was sent out via SurveyMonkey.

There are two versions of the questionnaire, one for event participants and one for faculty. 302 (N=302) early career researchers and 78 faculty members (N=78) provided feedback.¹⁰

On a scale from 0 ("Failed") to 5 ("Excellent"), 92.1% of students and 96% of faculty members marked their overall satisfaction with the event with a rating of 4 or 5. Participants rated highly the interaction with experts and early career researchers, the scientific content, broadening of participant's overview, acquisition of new information and organisation of training. The faculty members rated highly the quality of the scientific programme and the assistance by organising staff.

Additional numbers and figures regarding the EP evaluation are provided in [Annex B](#).

3.2 Building a community of early career researchers

The EP dedicates special efforts to building a community of early career researchers and facilitating the interaction and sharing of transdisciplinary knowledge sharing within the community by implementing and executing a project task, T11.5.4 HBP Student Community Building and Knowledge Transfer.

For HBP discoveries and infrastructure usage to transcend the Project framework, it is imperative to create a knowledgeable and well-connected network of scientists. Therefore, building a strong knowledge base within the community of early career researchers is an important focus of the EP, as they are the generations that are going to drive scientific innovation and discovery in the near future, and whose work should carry on well after the Project ends. In addition to educational activities, the EP provides ample opportunities for early career researchers to meet their peers from different countries and backgrounds, and create connections with world-renowned experts in the field. Such an environment dedicated to promoting education and collaboration is invaluable for researchers who are interested in pursuing other potential opportunities that arise from networking, such as working on common projects or organising lab visits. Additionally, with help from their most active peers who volunteer as HBP Student Representatives and Ambassadors, early career researchers gladly disseminate information about the EP to their peers and help the EP further grow its target user base with every successful event.

3.2.1 *HBP Schools*

HBP Schools are advanced courses for selected early career researchers trained by expert scientists. They are mainly lecture-based, with additional training sessions for certain techniques (e.g. usage of HBP Platforms) and soft skills as, for example, gender awareness in research. The EP provides scientific programmes of transdisciplinary education that helps training early career researchers in the skills required by the HBP. Three HBP Schools were organised in the past two years and a total of 114 early career researchers have been educated:

- 3rd HBP School FUTURE NEUROSCIENCE - The multiscale brain: From genes to behaviour, Obergurgl University Centre, Austria, 28 November - 4 December 2016
- 4th HBP School FUTURE COMPUTING - Brain science and artificial intelligence, Obergurgl University Centre, Austria, 12-18 June 2017
- 5th HBP School FUTURE MEDICINE - Brain disease neuroscience influencing clinical diagnoses and treatments by data mining analysis- and modelling-driven neuroscience, Obergurgl University Centre, Austria, 27 November - 3 December 2017

¹⁰Please note that questions included in the surveys vary depending on the type of event. Therefore, the total numbers of respondents vary for the various questions.

3.2.2 *HBP Student Conferences*

HBP Student Conferences provide a forum for exchange of new ideas among early career researchers working across various aspects of neuroscience, brain medicine and computer science relevant to the Human Brain Project. They bring together talents from across Europe and beyond, and provide an open forum for exchange of new ideas and presenting their own work through public talks and poster sessions. The scope of the conference offers a plethora of opportunities for extensive scientific discussions, both intra- and interdisciplinary, among peers and faculty through a variety of discussion sessions, lectures and social events. Two HBP Student Conferences were organised by a student organising committee in cooperation with the EP. The programmes included presentations by early career researchers as well as talks by highly recognised scientists:

- 1st HBP Student Conference: Transdisciplinary research linking neuroscience, brain medicine and computer science, 8-10 February 2017, Campus of the University of Vienna, Austria
- 2nd HBP Student Conference: Transdisciplinary research linking neuroscience, brain medicine and computer science, 14-16 February 2018, Central Post Office, Ljubljana, Slovenia

A total of 126 early career researchers attended the HBP Student Conferences.

3.2.3 *EP online courses and completing workshops - HBP Curriculum*

The HBP Education Programme and the HBP Curriculum Course Directors have developed a distance learning course programme, the HBP Curriculum. The courses aim at addressing early career researchers outside their area of specialisation (e.g. neuroscience for computer scientists). This is complemented by offering teaching in transversal competencies relevant to the Project's goals, such as research ethics, broader ethical issues raised by scientific research, intellectual property rights (IPR) management and other legal and organisational solutions for exploiting project results. It is a blended teaching approach that combines online courses and complementing workshops. The first teaching cycle comprises five courses and a total of 43 video lectures are available online throughout the year for self-education:

Specialist courses for non-experts:

- Brain medicine for non-specialists
- ICT for non-specialists
- Neurobiology for non-specialists

Complementary courses:

- Research, ethics and societal impact
- Intellectual property rights, translation and exploitation of research

Participants can sign up for "teaching cycles". The first teaching cycle started on 15 February 2017 and was completed in September 2017. It offered young researchers the possibility to educate themselves via online lectures and then attend complementary workshops, where they also had the opportunity to take an exam related to the respective online courses.

Five workshops took place in June and July 2017:

- ICT for non-specialists, 21-23 June 2017, EITN, Paris, France
- Understanding the brain: Neurobiology for non-specialists, 3-5 July 2017, Medical University Innsbruck, Austria
- Brain medicine for non-specialists: New horizons in clinical neuroscience, 5-7 July 2017, Medical University Innsbruck, Austria

- Research, ethics and societal impact: Responsible research: How to deal with animals and ICT in science - an ethical approach, 10-12 July 2017, Karolinska Institutet, Stockholm, Sweden
- Entrepreneurship in neuroscience: Intellectual property rights, translation and exploitation of research, 17-19 July 2017, Villa Toskana, Leimen, Germany

A total of 121 early career researchers attended the workshops and 55 took an exam, which 41 of them passed. Videos recorded during the first teaching cycle were viewed 6,652 times online.

The first teaching cycle has been evaluated and completed in September 2017. The 2nd teaching cycle started in March 2018 with an adapted offer of 52 online lectures. The completing workshops will take place in parallel from 4-6 July 2018 in Berlin, prior to the FENS Forum.

- ICT for non-specialists
- Neurobiology for non-specialists - studying the brain
- Brain medicine for non-specialists - New horizons in brain medicine: From research to clinics
- Research, ethics & societal impact - Dual use and Responsible Research: Ethical challenges
- IPR, translation & exploitation of research: Entrepreneurship in neuroscience - Turning science into invention & innovation¹¹

The 2nd teaching cycle¹² brings several innovations. The online courses have been accredited by the Medical University Innsbruck, Austria, in agreement with all contributing partners. They will be offered as one course called 'HBP Curriculum: Interdisciplinary Brain Science' consisting of five modules. It is again a combination of online courses and course-completion workshops, including the possibility to take exams while participating in a course-completion workshop. Upon successful completion of the exams, ECTS credits will be awarded:

- MODULE: Brain medicine for non-specialists: 2,5 ECTS
- MODULE: Neurobiology for non-specialists: Basics: 1 ECTS; Advanced: 1 ECTS. Total 2 ECTS
- MODULE: ICT for non-specialists: 1,5 ECTS
- MODULE: Research, ethics and societal impact: 1,5 ECTS
- MODULE: Intellectual property rights, translation and exploitation of research: 2,5 ECTS

Early career researchers successfully completing all five modules can acquire a total of 10 ECTS.

An additional 6th module on the subject of cognitive systems is planned for the 2nd teaching cycle. To assess the demand for this topic, a call for applications for a workshop on cognitive systems was launched and 98 applications were collected. 29 early career researchers participated in a workshop from 13-15 March 2018 at the Technical University of Munich. The development of the online part will start in April 2018 in cooperation with cognition experts of the Human Brain Project.

¹¹ <https://education.humanbrainproject.eu/web/2nd-hbp-curriculum-workshop-series>

¹²Brain medicine for non-specialists:

https://www.youtube.com/playlist?list=PLvAS8zldX4Ch53Alp6dnocY3y_vN6CNDV

Neurobiology for non-specialists →basics:

<https://www.youtube.com/playlist?list=PLvAS8zldX4CjnhvgwUOeESUWaPc4TErSg>

Neurobiology for non-specialists →advanced:

<https://www.youtube.com/playlist?list=PLvAS8zldX4CjyKJIscaGAANV5QMDw13dD>

ICT for non-specialists:

<https://www.youtube.com/playlist?list=PLvAS8zldX4Cg1En5Z3J0zku8w0QiSwNdS>

Research, ethics and societal impact:

<https://www.youtube.com/playlist?list=PLvAS8zldX4Cg0nslO6gT39Ncl7Pnm8-XH>

Intellectual property rights, translation and exploitation of research:

https://www.youtube.com/playlist?list=PLvAS8zldX4Ch1aNWMv85rbk_3xJPoakC7

3.2.4 *Lab Visits*

Lab visits are an opportunity for young scientists to acquire new technical or conceptual expertise. In May 2017, the HBP Education Programme started compiling a growing directory of lab visit opportunities offered by HBP Partners. Early career researchers from within and outside the Project had the chance to apply for more than 30 lab visits at 11 laboratories. To date, two early career researchers have completed a lab visit. Several partners have already expressed an interest in continuing their offer to host lab visits in the upcoming SGA2 phase. Information on vacancies and contact details for the lab visits are available on the HBP Education website: <https://education.humanbrainproject.eu/web/lab-visits>.

3.2.5 *EP supported events*

The EP supported the organisation of three events organised by HBP Consortium members. Young Researchers Events were organised in April 2016 and September 2017 to promote the HBP and its Research Infrastructure to early career researchers. The EP's assistance ranged from maintaining registrations to speaker invitations and logistics, as well as onsite support.

A FENS Satellite Event was organised by the EP in July 2016 in Copenhagen, Denmark. The EP liaised with HBP Partners and the Allen Institute for Brain Science, helped to set up a programme and took care of the logistics. Thanks to the EP support, 125 early career researchers and senior scientists were introduced to the HBP and its research infrastructure.

3.2.6 *HBP Career Building Workshop*

A workshop addressing female post-doctoral researchers and advanced PhD students was organised for the first time in March 2018, with 16 participants. The workshop was part of the EP targeted approach on gender awareness. The aim was to support the participants in their career development and prepare them for leadership roles in the scientific community. The workshop offered personal skills training, provided information on scientific career building and provided personal career planning, as well as a session on successful self-presentation.

3.3 EP Communication and publication

The EP has established several communication channels to promote its activities as well as the Project's results. In addition to an internal newsletter, it maintains

- an EP website¹³
- a YouTube channel¹⁴
- a Twitter account¹⁵
- a Facebook account¹⁶
- a LinkedIn account¹⁷
- a ResearchGate account¹⁸

¹³ <https://education.humanbrainproject.eu/>

¹⁴ <https://www.youtube.com/channel/UCLk-mLm3F6oyLbE8FTWNlaA>

¹⁵ https://twitter.com/HBP_Education

¹⁶ <https://www.facebook.com/hbpeducation>

¹⁷ <https://www.linkedin.com/company/hbpeducationprogramme/>

¹⁸ <https://www.researchgate.net/project/HBP-Education-Programme>

Table 8: HBP Education communication channels - April 2016 to March 2018

	Social media: Facebook	Social media: Twitter	HBP Education newsletter	Youtube channel
Average reach/post	509	2318	734	60
Total number of posts	276	322	22	342
Followers/subscriptions	968	739	1296	400

The numbers have continuously increased, which shows a growing interest in the EP, its activities and the HBP in general.

3.3.1 *EP Newsletter*

The EP introduced its own newsletter in June 2016 and has published 22 editions until March 2018. The newsletter is sent out once a month to promote the EP's programme and activities. In the beginning, there were 439 recipients, which have increased to a total number of 1296. This is an average increase of 40 subscribers per month. The principal recipients are young researchers, however, anybody interested in receiving news from the EP has the possibility to subscribe to the newsletter via the Education [website](#).

3.3.2 *EP Publication*

As an outcome of the first HBP Student Conference, a first publication entitled "1st Human Brain Project Student Conference" will be available soon (ISBN: 978-2-88945-421-1; DOI 10.3389/978-2-88945-421-1). The EP and participants of the 1st HBP Student Conference on 8-10 February 2017 are cooperating with Frontiers to publish the abstract proceedings of the conference. A total of 50 abstracts were submitted by participants. A first feedback provided by the publishing house is being incorporated at the time of reporting.

3.4 Gender in EP education and training

During SGA1, the EP has implemented a targeted approach to improve on the gender balance in its activities. The measures address young female researchers primarily, but also target male young researchers. As a first step, Scientific Chairs/Directors were instructed to consider both female and male speakers and tutors when setting up EP activities. As a result, female participation in EP activities, as both speakers and tutors, has increased from 16% in the RUP to 28.72% in SGA1. The EP has further implemented an internal guidance that favours female participants over male participants with equal qualifications. Since this measure was introduced, female participation has increased from 39% to 43.17 %.

Teaching and training sessions addressing both female and male young researchers were offered at the 3rd HBP School on Neuroscience at the end of November 2016 in Obergurgl, Austria, as well as at the 2nd HBP Student Conference from 14-16 February 2018 in Ljubljana, Slovenia. Together with EAF Berlin, the EP organised a career building workshop for female PhDs and post-docs on 8 March 2018 in Madrid, Spain, and was also involved in the organisation of the first HBP Conference on Gender and Diversity on the topic of "Promoting Innovative Leadership".

The EP is committed to further considering gender topics for both female and male young researchers in its educational activities.

3.5 EP outlook

As this report shows, the EP has been fully operational since April 2016. It has implemented and executed 12 physical educational events and increased its online educational offering. The EP will maintain its established physical event structure from April 2018 onwards and continue with the organisation of HBP Schools, HBP Student Conferences and HBP Curriculum workshops. In addition, the EP will put a stronger focus on HBP Platform User Training Sessions (HBP Research Infrastructure) and dedicated a Task to this activity. This results from the positive feedback that was collected during several physical events that included training sessions on HBP Platforms.

The EP is open to the whole scientific community and fosters collaboration and co-operation with scientists outside the HBP. This approach will be followed and extended, as Scientific Chairs for physical events will be identified via open calls for expression of interest and not upon individual suggestions, as was the case before. The EP thereby seeks to counter past criticism and improve transparency. Also, future Scientific Chairs will need to consider a stronger focus on HBP Platforms (HBP Research Infrastructure) and their interdisciplinary aspects, as well as usage.

Through its innovative and interdisciplinary training formats, the HBP Education Programme provides early career researchers with the necessary skills and tools to work successfully within the framework of the Human Brain Project Research Infrastructure.

Annex A: Scientific Chairs, Committee Members & Teaching Contributors

Table 9: Scientific Chairs and Committee Members

Last name	First name	Gender	Affiliation	Country	Events
Armendariz	Marcelo	male	KU Leuven	Belgium	2nd HBP Student Conference
Ashery	Uri	male	Tel Aviv University	Israel	1st Brain medicine workshop
Bar-On	Dana	female	Tel Aviv University	Israel	1st Entrepreneurship workshop; 2nd Entrepreneurship workshop
Bogdan	Petrut	male	University of Manchester	UK	2nd HBP Student Conference
Canova	Carlos	male	FZ Juelich	Germany	2nd HBP Student Conference
D'Angelo	Egidio	male	Università de Pavia	Italy	5th HBP School
Davison	Andrew	male	Centre Nationale de la Recherche Scientifique/Unit of Neuroscience Information and Complexity	France	1st ICT workshop
Destexhe	Alain	male	French National Centre for Scientific Research	France	5th HBP School
Draganski	Bogdan	male	Centre Hospitalier Universitaire Vaudois	Switzerland	5th HBP School
Gewaltig	Marc-Oliver	male	École Polytechnique Fédérale de Lausanne	Switzerland	2nd HBP YRE
Gilbert	Terri	female	Allen Institute	USA	3rd HBP School
Hill	Sean	male	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School
Jirsa	Viktor	male	Aix-Marseille University	France	5th HBP School
Karasenkov	Vitali	male	Heidelberg University	Germany	1st HBP Student Conference
Kherif	Ferath	male	Centre Hospitalier Universitaire Vaudois	Switzerland	5th HBP School

Knoll	Alois	male	Technical University of Munich	Germany	1st Cognitive systems workshop
Lester	David	male	University of Manchester	UK	1st ICT workshop
Mahfoud	Tara	female	King's College London	UK	1st HBP Student Conference
Marcus-Kalish	Mira	female	Tel Aviv University	Israel	5th HBP School
Massimini	Marcello	male	University of Milan	Italy	5th HBP School
Meier	Karlheinz	male	Heidelberg University	Germany	4th HBP School
Menzel	Miriam	female	FZ Juelich	Germany	1st HBP Student Conference
Modenato	Claudia	female	Centre Hospitalier Universitaire Vaudois	Switzerland	2nd HBP Student Conference
Mohammed	Abdul	male	Karolinska Institutet/Linnaeus University	Sweden	1st Ethics workshop, 2nd Ethics workshop
Mosinska	Agata	female	École Polytechnique Fédérale de Lausanne	Switzerland	2nd HBP Student Conference
Pavone	Francesco	male	University of Florence	Italy	5th HBP School
Röhrbein	Florian	male	Technical University of Munich	Germany	1st Cognitive systems workshop
Santuy	Andrea	female	Universidad Politécnica de Madrid	Spain	1st + 2nd HBP Student Conference
Saria	Alois	male	Medical University Innsbruck	Austria	1st Brain medicine workshop, 1st Neurobiology workshop
Schwarzer	Christoph	male	Medical University Innsbruck	Austria	1st Neurobiology workshop, 2nd Neurobiology workshop
Simidjievski	Nikola	male	Jozef Stefan Institute	Slovenia	1st + 2nd HBP Student Conference
Tanevski	Jovan	male	Jozef Stefan Institute	Slovenia	1st HBP Student Conference
Walter	Florian	male	Technical University of Munich	Germany	1st Cognitive systems workshop

Table 10: Event speakers and tutors

Last name	First name	Gender	Affiliation	Country	Events
Abbott	Rosemary	female	Cambridge Cognition Examination	UK	1st Ethics workshop
Abrams	Mathew	male	International Neuroinformatics Coordinating Facility	Sweden	1st Ethics workshop
Agostinho	Alexandra	female	Medical University Innsbruck	Austria	1st Neurobiology workshop
Aicardi	Christine	female	King's College London	UK	1st HBP Student Conference
Akl	Mahmoud	male	Technical University of Munich	Germany	2nd HBP YRE
Alessandro	Ambrosano	male	Scuola Superiore Sant'Anna	Italy	2nd HBP YRE
Allegra Mascaro	Anna Letizia	female	University of Florence	Italy	1st HBP Student Conference
Amunts	Katrin	female	FZ Juelich, Heinrich-Heine-Universität Düsseldorf	Germany	1st HBP YRE
Anastassiou	Costas	male	Allen Institute	USA	FENS Satellite 2016
Angelidis	Emmanouil	male	Fortiss GmbH	Germany	2nd HBP YRE
Ashery	Uri	male	Tel Aviv University	Israel	1st Neurobiology workshop, 1st Brain medicine workshop
Bakken	Trygve	male	Allen Institute	USA	3rd HBP School
Bakken	Trygve	male	Allen Institute	USA	FENS Satellite 2016
Bar-On	Dana	female	Tel Aviv University	Israel	1st Entrepreneurship workshop
Ben-Bashat	Dafna	female	Tel Aviv University	Israel	1st Brain medicine workshop
Billaudelle	Sebastian	male	Heidelberg University	Germany	4th HBP School
Bitsch	Lise	female	DBT Foundation	Denmark	1st Ethics workshop
Bogdan	Petruț	male	University of Manchester	UK	2nd HBP YRE
Brenninkmeijer	Christian	male	University of Manchester	UK	1st ICT workshop
Bressler	Eyal	male	Founder Dr. Eyal Bressler & Co.	Israel	1st Entrepreneurship workshop
Bzdok	Danilo	male	RWTH Aachen University	Germany	3rd HBP School
Chandra	Sona	female	Takeda Pharmaceutical Company	Switzerland	1st Entrepreneurship workshop
Cheng	Gordon	male	Technical University of Munich	Germany	4th HBP School
Cichon	Sven	male	University of Basel	Switzerland	1st Brain medicine workshop
Cichy	Radoslaw	male	Freie Universität Berlin	Germany	2nd HBP Student Conference
Collman	Forrest	male	Allen Institute	USA	3rd HBP School
Courcol	Jean-Denis	male	École Polytechnique Fédérale de Lausanne	Switzerland	2nd HBP YRE

Cubero	Marta	female	University of Innsbruck	Austria	1st Neurobiology workshop
Cui	Jing	female	Centre Hospitalier Universitaire Vaudois	Switzerland	3rd HBP School
Dahmen	David	male	FZ Juelich	Germany	1st ICT workshop
Dando	Malcolm	male	University of Bradford	UK	1st Ethics workshop
Davison	Andrew	male	Centre Nationale de la Recherche Scientifique/Unit of Neuroscience Information and Complexity	France	1st ICT workshop
De Felipe	Javier	male	Universidad Politécnica de Madrid	Spain	1st Neurobiology workshop
De Vries	Saskia	female	Allen Institute	USA	3rd HBP School
Denker	Michael	male	FZ Juelich	Germany	2nd HBP YRE
Destexhe	Alain	male	Centre Nationale de la Recherche Scientifique	France	3rd HBP School, 5th HBP School
Dickscheid	Timo	male	FZ Juelich	Germany	1st Neurobiology workshop
Draganski	Bogdan	male	Centre hospitalier universitaire vaudois	Switzerland	1st Brain medicine workshop
Džeroski	Sašo	male	Jozef Stefan Institute	Slovenia	4th HBP School
Edenhofer	Frank	male	University of Innsbruck	Austria	1st Neurobiology workshop
Einevoll	Gaute	male	Norwegian University of Life Sciences	Norway	1st HBP Student Conference
Erö	Csaba	male	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School
Farisco	Michele	male	Uppsala University	Sweden	2nd HBP Student Conference
Fernaud	Isabel	female	Universidad Politécnica de Madrid	Spain	2nd HBP Student Conference
Fleischhacker	W.Wolfgang	male	Medical University Innsbruck	Austria	1st Brain medicine workshop
Frias	Rafael	male	Karolinska Institutet	Sweden	1st Ethics workshop
Gait	Andrew	male	University of Manchester	UK	2nd HBP YRE
Gewaltig	Marc-Oliver	male	École Polytechnique Fédérale de Lausanne	Switzerland	2nd HBP Student Conference, 2nd HBP YRE
Giladi	Nir	male	Tel Aviv University	Israel	1st Brain medicine workshop
Gilbert	Terri	female	Allen Institute	USA	1st Neurobiology workshop, 1st Brain medicine workshop, 3rd HBP School, FENS Satellite 2016
Gilson	Matthieu	male	Universidad Pompeu Fabra	Spain	5th HBP School
Grübl	Andreas	male	Heidelberg University	Germany	1st ICT workshop
Grün	Sonja	female	FZ Juelich	Germany	2nd HBP YRE

Harris	Emma	female	De Montfort University	UK	1st Ethics workshop
Hausott	Barbara	female	Medical University Innsbruck	Austria	1st Neurobiology workshop
Heinis	Thomas	male	Imperial College London	UK	4th HBP School, 2nd HBP Student Conference
Hicham	Naim	male	Takeda Pharmaceutical Company	Switzerland	1st Entrepreneurship workshop
Hill	Sean	male	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School
Hillegaart	Viveka	female	Karolinska Institutet	Sweden	1st Ethics workshop
Huguenard	John	male	Stanford University	USA	5th HBP School
Hunt	Jonathan	male	Google DeepMind	UK	1st Cognitive systems workshop
Iavarone	Elisabetta	female	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School, FENS Satellite 2016
Indiveri	Giacomo	male	ETH Zurich	Switzerland	4th HBP School
Jamnik	Mateja	female	Cambridge	UK	1st ICT workshop
Jutzeler	Arnaud	male	Centre Hospitalier Universitaire Vaudois	Switzerland	3rd HBP School
Karasenkov	Vitali	male	Heidelberg University	Germany	1st HBP YRE
Kavathatzopoulos	Iordanis	male	Uppsala University	Sweden	1st Ethics workshop
Kharchenko	Alona	female	Technical University of Munich	Germany	1st Cognitive systems workshop
Kherif	Ferath	male	Centre hospitalier universitaire vaudois	Switzerland	1st Brain medicine workshop, 5th HBP School, 3rd HBP School
Klimaschewski	Lars	male	Medical University Innsbruck	Austria	1st Neurobiology workshop
Kmiec	Iwona	female	Medical University Innsbruck	Austria	1st Neurobiology workshop
Kocev	Dragi	male	Jozef Stefan Institute	Slovenia	1st HBP Student Conference
Koke	Christoph	male	Heidelberg University	Germany	1st ICT workshop
Koschak	Alexandra	female	University of Innsbruck	Austria	1st Neurobiology workshop
Kugele	Alexander	male	Heidelberg University	Germany	1st ICT workshop
Kummer	Kai	male	Medical University Innsbruck	Austria	1st HBP Student Conference
Lai	Yi Ming	male	University of Leeds	UK	1st HBP YRE
Laufer	Ralph	male	TEVA	Israel	1st Brain medicine workshop
Laure	Erwin	male	KTH Royal Institute of Technology	Sweden	4th HBP School
Ledmyr	Helena	female	International Neuroinformatics Coordinating Facility	Sweden	1st Ethics workshop

Leergaard	Trygve	male	University of Oslo	Norway	1st Neurobiology workshop
Lester	Dave	male	University of Manchester	UK	1st ICT workshop, 4th HBP School, 1st HBP YRE
Luo	Qingming	male	Huazhong University of Science and Technology	China	3rd HBP School
Mahmud	Hossain	male	Fortiss GmbH	Germany	2nd HBP YRE
Mansvelder	Huibert	male	Vrije Universiteit Amsterdam	Netherlands	3rd HBP School
McIntosh	Anthony Randal	male	University of Toronto	Canada	2nd HBP Student Conference
Meier	Karlheinz	male	Heidelberg University	Germany	4th HBP School
Menon	Vilas	male	Allen Institute, Janelia	USA	3rd HBP School
Migliore	Michele	male	National Research Council	Italy	1st Neurobiology workshop
Mitchell	Christine	female	Harvard University	USA	1st Ethics workshop
Mohammed	Abdul	male	Karolinska Institutet/Linnaeus University	Sweden	1st Ethics workshop
Muckli	Lars	male	University of Glasgow	UK	1st Cognitive systems workshop
Muller	Eilif	male	École Polytechnique Fédérale de Lausanne	Switzerland	FENS Satellite 2016
Muller	Jeff	male	École Polytechnique Fédérale de Lausanne	Switzerland	2nd HBP YRE
Müller	Eric	male	Heidelberg University	Germany	4th HBP School, 1st HBP YRE
Nachtschatt	Ulrike	female	Medical University Innsbruck	Austria	3rd HBP School
Nasuti	Mirco	male	Centre Hospitalier Universitaire Vaudois	Switzerland	2nd HBP YRE
Nat	Roxana	female	Medical University Innsbruck	Austria	1st Neurobiology workshop
Nilsson	Dan-Eric	male	Lund University	Sweden	4th HBP School
Oden	Lena	female	FZ Juelich	Germany	2nd HBP YRE
Paolucci	Pier	male	Italian National Institute for Nuclear Physics	Italy	1st HBP YRE
Pavone	Francesco	male	Laboratorio Europeo per la Spettroscopia Non-lineare (LENS)	Italy	3rd HBP School
Pehle	Christian	male	Heidelberg University	Germany	2nd HBP YRE
Pennartz	Cyriel	male	University of Amsterdam	Netherlands	1st Cognitive systems workshop
Petkoski	Spase	male	Aix-Marseille University	France	5th HBP School
Petrovici	Mihai	male	University of Bern, Heidelberg University	Switzerland	4th HBP School, 1st HBP Student Conference
Pinheiro	Barbara	female	Medical University Innsbruck	Austria	1st Neurobiology workshop

Plesser	Hans-Ekkehard	male	Norwegian University of Life Sciences	Norway	1st Cognitive systems workshop
Poewe	Werner	male	Medical University Innsbruck	Austria	1st Brain medicine workshop
Prescott	Tony	male	The University of Sheffield	UK	1st Cognitive systems workshop
Püspöki	Zsuzsanna	female	Centre Hospitalier Universitaire Vaudois	Switzerland	2nd HBP YRE
Ramaswamy	Srikanth	male	École Polytechnique Fédérale de Lausanne	Switzerland	1st HBP YRE
Redolfi	Alberto	male	IRCCS Fatebenefratelli	Italy	5th HBP School
Reimann	Michael	male	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School
Resta	Francesco	male	Laboratorio Europeo per la Spettroscopia Non-lineare	Italy	5th HBP School
Rhodes	Oliver	male	University of Manchester	UK	4th HBP School
Rizzi	Sandra	female	University of Innsbruck	Austria	1st Neurobiology workshop
Röhrbein	Florian	male	Technical University of Munich	Germany	1st Cognitive systems workshop, 1st HBP Student Conference
Roig	Gemma	female	MIT	USA	2nd HBP Student Conference
Romani	Armando	male	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School, 2nd HBP YRE
Rommelfanger	Karen	female	Emory University	USA	2nd HBP Student Conference
Rosanova	Mario	male	University of Milan	Italy	5th HBP School
Rosenmund	Tanja	female	Spark Berlin	Germany	1st Entrepreneurship workshop
Roskams	Jane	female	Allen Institute	USA	FENS Satellite 2016
Rosert	Christian	male	École Polytechnique Fédérale de Lausanne	Switzerland	FENS Satellite 2016
Rozell	Björn	male	Karolinska Institutet	Sweden	1st Ethics workshop
Salles	Arleen	female	Uppsala University	Sweden	2nd HBP Student Conference
Santos Sierra	Sandra	female	Medical University Innsbruck	Austria	1st Neurobiology workshop
Saria	Alois	male	Medical University Innsbruck	Austria	1st Neurobiology workshop, 1st Brain medicine workshop
Schreiber	Korbinian	male	Heidelberg University	Germany	4th HBP School
Schuller	Bernd	male	FZ Juelich	Germany	2nd HBP YRE
Schwarzer	Christoph	male	Medical University Innsbruck	Austria	1st Neurobiology workshop
Sharma	Kenny	male	Technical University of Munich	Germany	2nd HBP YRE
Sivan	Yesha	male	Tel Aviv University	Israel	1st Entrepreneurship workshop

Solodkin	Ana	female	UC Irvine	USA	5th HBP School
Sonkin	Konstantin	male	Tel Aviv University	Israel	1st Entrepreneurship workshop
Sperner-Unterweger	Barbara	female	Medical University Innsbruck	Austria	1st Brain medicine workshop
Spiegler	Andreas	male	Aix-Marseille University	France	5th HBP School
Stimberg	Marcel	male	Institut de la Vision	France	1st HBP YRE
Stokes	Alan	male	University of Manchester	UK	1st ICT workshop, 1st HBP YRE, 4th HBP School
Sun	Ron	male	Rensselaer Polytechnic Institute	USA	1st Cognitive systems workshop
Tani	Jun	male	Okinawa Institute of Science and Technology	Japan	1st Cognitive systems workshop
Tasic	Bosiljka	female	Allen Institute	USA	FENS Satellite 2016
Taylor	Peter	male	Newcastle University	UK	5th HBP School
Terhorst	Dennis	male	FZ Juelich	Germany	2nd HBP YRE
Tidona	Christian	male	BioMed x	Germany	1st Entrepreneurship workshop
Ulfhake	Brun	male	Karolinska Institutet	Sweden	1st Ethics workshop
van Albada	Sacha	female	FZ Juelich	Germany	5th HBP School
Van Geit	Werner	male	École Polytechnique Fédérale de Lausanne	Switzerland	3rd HBP School, FENS Satellite 2016, 1st HBP YRE
Vertkin	Irena	female	Tel Aviv University	Israel	1st Entrepreneurship workshop
von Arnim	Axel	male	Fortiss GmbH	Germany	2nd HBP YRE
von Papen	Michael	male	FZ Juelich	Germany	2nd HBP YRE
Walter	Florian	male	Technical University of Munich	Germany	1st Cognitive systems workshop
Waters	Jack	male	Allen Institute	USA	3rd HBP School
Weidel	Philipp	male	FZ Juelich	Germany	1st HBP YRE
Wenning	Gregor	male	Medical University Innsbruck	Austria	1st Brain medicine workshop
Whitby	Simon	male	University of Bradford	UK	1st Ethics workshop
Winfield	Alan	male	University of the West of England, Bristol	UK	1st Ethics workshop
Young	Alexandra	female	University College London	UK	5th HBP School
Zernig	Gerald	male	Medical University Innsbruck	Austria	1st Neurobiology workshop

Table 11: Online lectures speaker

Last name	First name	Gender	Affiliation	Country
Achiron	Anat	male	Sheba Medical Center	Israel
Auriel	Eitan	male	Tel Aviv University	Israel
Baier-Bitterlich	Gabriele	female	Medical University Innsbruck	Austria
Bakken	Trygve	male	Allen Institute	USA
Bandtlow	Christine	female	Medical University Innsbruck	Austria
Ben Bashat	Dafna	female	Tel Aviv University	Israel
Born	Jan	male	University of Tübingen	Germany
Bornstein	Natan	male	Tel Aviv University	Israel
Bressler	Eyal	male	Founder Dr. Eyal Bressler and co.	Israel
Bzdok	Danilo	male	RWTH Aachen University	Germany
Cichon	Sven	male	University of Basel	Switzerland
Collman	Forrest	male	Allen Institute	USA
Dando	Malcolm	male	University of Bradford	UK
De Vries	Saskia	female	Allen Institute	USA
Dehaene	Ghislaine	female	French Alternative Energies and Atomic Energy Commission	France
Dehaene	Stanislas	male	French Alternative Energies and Atomic Energy Commission	France
Destexhe	Alain	male	Centre Nationale de la Recherche Scientifique	France
Dickscheid	Timo	male	FZ Juelich	Germany
Draganski	Bogdan	male	Centre hospitalier universitaire vaudois	Switzerland
Ehrlich	Michael	male	New Jersey Institute of Technology	USA
Einevoll	Gaute	male	Universitetet for Miljo-og Biovitenskap	Norway
Erö	Csaba	male	École Polytechnique Fédérale de Lausanne	Switzerland
Ferraguti	Francesco	male	Medical University Innsbruck	Austria
Fleischhacker	W. Wolfgang	male	Medical University Innsbruck	Austria
Frackowiak	Richard	male	Centre Hospitalier Universitaire Vaudois	Switzerland
Frias	Rafael	male	Karolinska Institutet	Sweden
Frisoni	Giovanni	male	IRCCS Fatebenefratelli	Italy
Furber	Steve	male	The University of Manchester	UK
Gazith	Ehud	male	Tel Aviv University	Israel
Gerstner	Wulfram	male	École Polytechnique Fédérale de Lausanne	Switzerland
Gewaltig	Marc-Oliver	male	École Polytechnique Fédérale de Lausanne	Switzerland
Giladi	Nir	male	Tel Aviv University	Israel
Gilbert	Terri	female	Allen Institute	USA

Ginzburg	Iris	female	Tel Aviv University	Israel
Göbel	Rainer	male	Maastricht University	The Netherlands
Grant	Seth	male	University of Edinburgh	UK
Grübl	Andreas	male	University of Heidelberg	Germany
Grün	Sonja	female	FZ Juelich	Germany
Harris	Emma	female	De Montfort University	UK
Heinis	Thomas	male	Imperial College London	UK
Hill	Sean	male	École Polytechnique Fédérale de Lausanne	Switzerland
Hillegaart	Viveka	female	Karolinska Institutet	Sweden
Kherif	Ferath	male	Centre Hospitalier Universitaire Vaudois	Switzerland
Klimschewski	Lars	male	Medical University Innsbruck	Austria
Lachaux	Jean-Philippe	male	Universite Lyon 1 Claude Bernard	France
Laufer	Ralph	male	TEVA	Israel
Lester	David	male	The University of Manchester	UK
Levkoviyy	Hilik	male	Tel Aviv University	Israel
Luo	Qingming	male	Huazhong University of Science and Technology	China
Maass	Wolfgang	male	Technische Universität Graz	Austria
Mansvelder	Huib	male	Vrije Universiteit Amsterdam	The Netherlands
Meier	Karlheinz	male	Heidelberg University	Germany
Menon	Vilas	male	Allen Institute	USA
Mitchell	Christine	female	Harvard Medical School	USA
Mortone	Maryann	female	University of California	USA
Muller	Jeff	male	École Polytechnique Fédérale de Lausanne	Switzerland
Nimrodi	Shlomo	male	Tel Aviv University	Israel
Offen	Daniel	male	Tel Aviv University	Israel
Pavone	Francesco	male	Laboratorio Europeo per la Spettroscopia Non-lineare	Italy
Porsdam Mann	Sebastian	male	Harvard Medical School	USA
Quarta	Serena	female	Medical University Innsbruck	Austria
Reimann	Michael	male	École Polytechnique Fédérale de Lausanne	Switzerland
Reindl	Markus	male	Medical University Innsbruck	Austria
Romani	Armando	male	École Polytechnique Fédérale de Lausanne	Switzerland
Rose	Nikolas	male	King's College London	UK
Santos-Sierra	Sandra	female	Medical University Innsbruck	Austria
Saria	Alois	male	Medical University Innsbruck	Austria
Schwarzer	Christoph	male	Medical University Innsbruck	Austria
Segev	Idan	male	The Hebrew University of Jerusalem	Israel
Singewald	Nicolas	male	University of Innsbruck	Austria



Sivan	Yesha	male	Tel Aviv University/Hong Kong Polytechnic University	Israel
Sperner-Unterweger	Barbara	female	Medical University Innsbruck	Austria
Stahl	Bernd	male	De Montfort University	UK
Tidona	Christian	male	BioRN GmbH/BiomedX Innovation Center	Germany
Van Geit	Werner	male	École Polytechnique Fédérale de Lausanne	Switzerland
Warshay	Danny	male	Brown University	USA
Waters	Jack	male	Allen Institute	USA
Winfield	Alan	male	University of West of England	UK
Zernig	Gerald	male	Medical University Innsbruck	Austria

Annex B: Evaluation of the EP

Participant rating

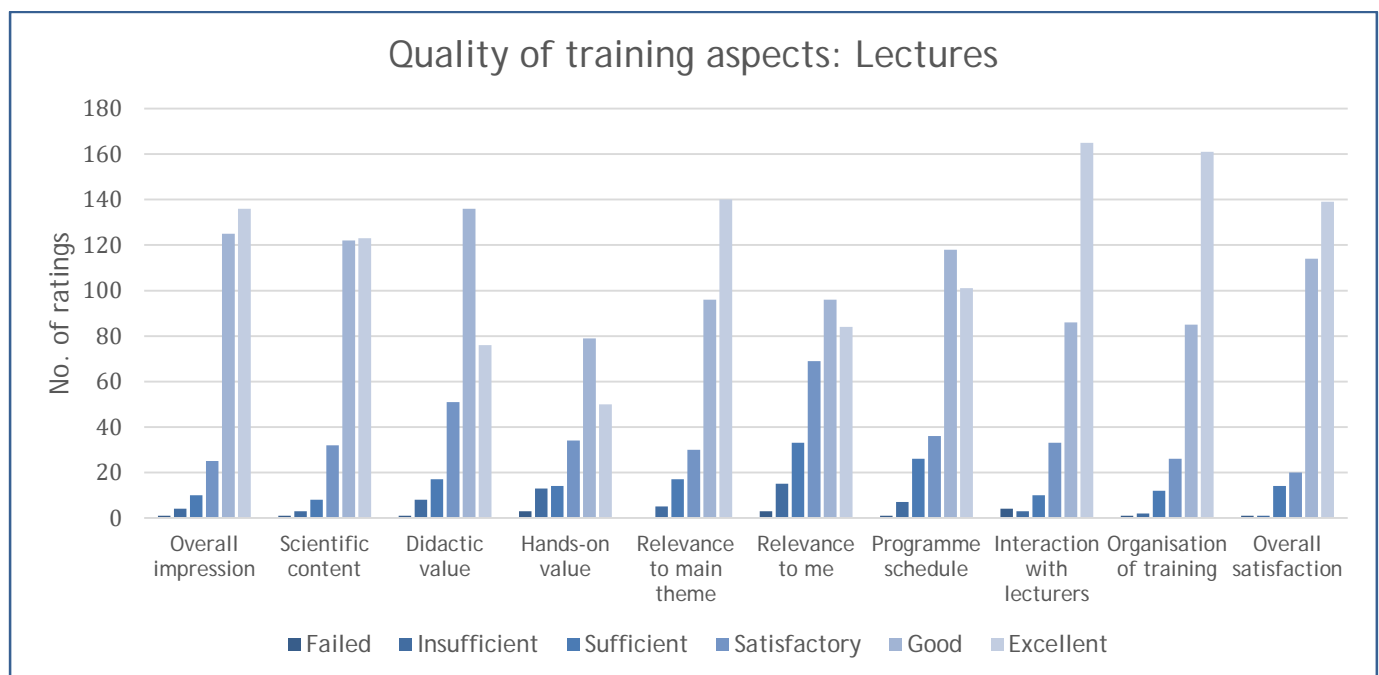


Figure 4: Participant evaluation of lectures - HBP Education Programme events SGA1

Participants were asked to evaluate the quality of the training aspects of the lectures based on the following criteria: Overall impression, scientific content, didactic value, hands-on value, relevance to main theme, relevance to me, programme schedule, interaction with lecturers, organisation of training sessions, overall satisfaction.¹⁹

Most aspects were rated excellent or good by the vast majority of participants (79 % of total ratings are distributed between these two categories).

With regard to lectures, the aspects with the best ratings were “interaction with lecturers” and “organisation of training” with weighted averages of 4.29 and 4.35, respectively. In comparison, the category “relevance to me” was rated least satisfactory by respondents (weighted average 3.64).

¹⁹ The ratings are weighted as follows: Failed = 0, Insufficient = 1, Sufficient = 2, Satisfactory = 3, Good = 4, Excellent = 5. “N/A” answers were considered as “no answer” and thus not included in the evaluation.

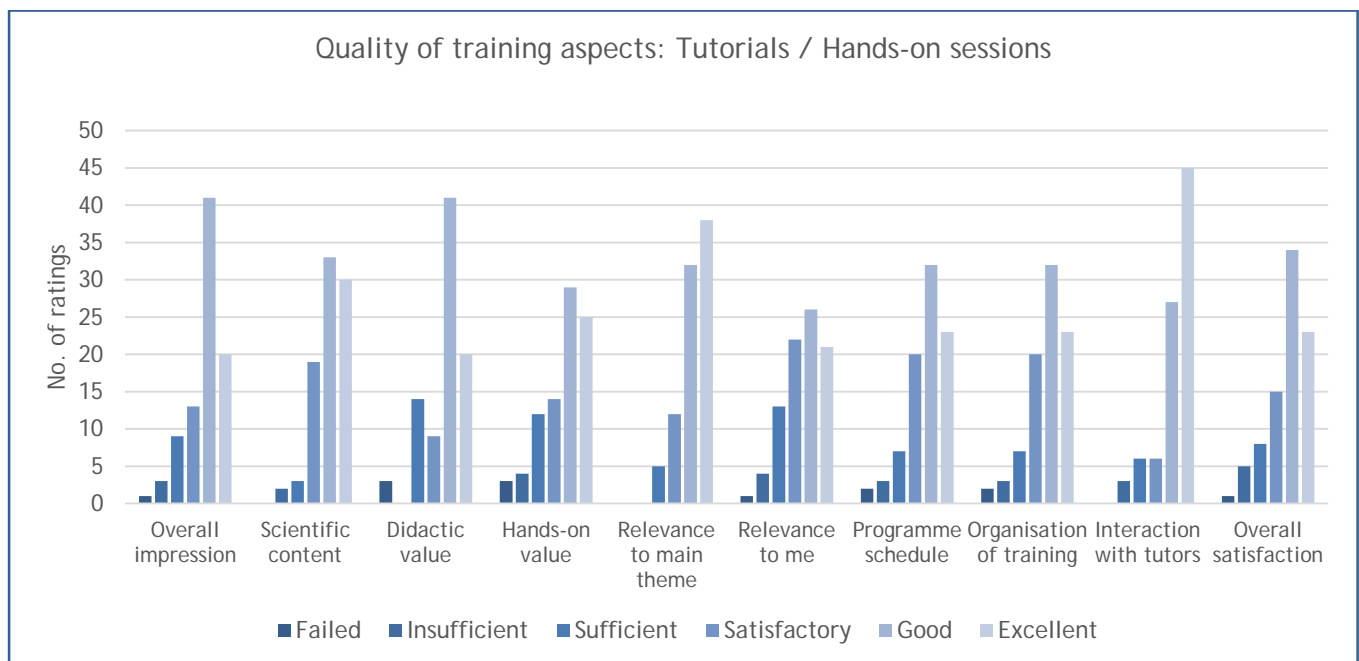


Figure 5: Participant evaluation of tutorials and hands-on sessions in HBP Schools²⁰

Participants were asked to evaluate the quality of the training aspects of the tutorials/hands-on sessions based on the following criteria: Overall impression, scientific content, didactic value, hands-on value, relevance to main theme, relevance to me, programme schedule, organisation of training sessions, interaction with tutors, overall satisfaction.²¹

The evaluations of hands-on sessions and tutorials are also dominated by “Good” and “Excellent” ratings (69 % of total ratings). The aspect participants rated best in this category was the interaction with tutors and experts (weighted average 4.21). Other aspects rated very good were the scientific content as well as the relevance of topics to the main theme of the Schools.

²⁰ This question was only included in the participant surveys for HBP Schools.

²¹ The ratings are weighted as follows: Failed = 0, Insufficient = 1, Sufficient = 2, Satisfactory = 3, Good = 4, Excellent = 5. “N/A” answers were considered as “no answer” and thus not included in the evaluation.

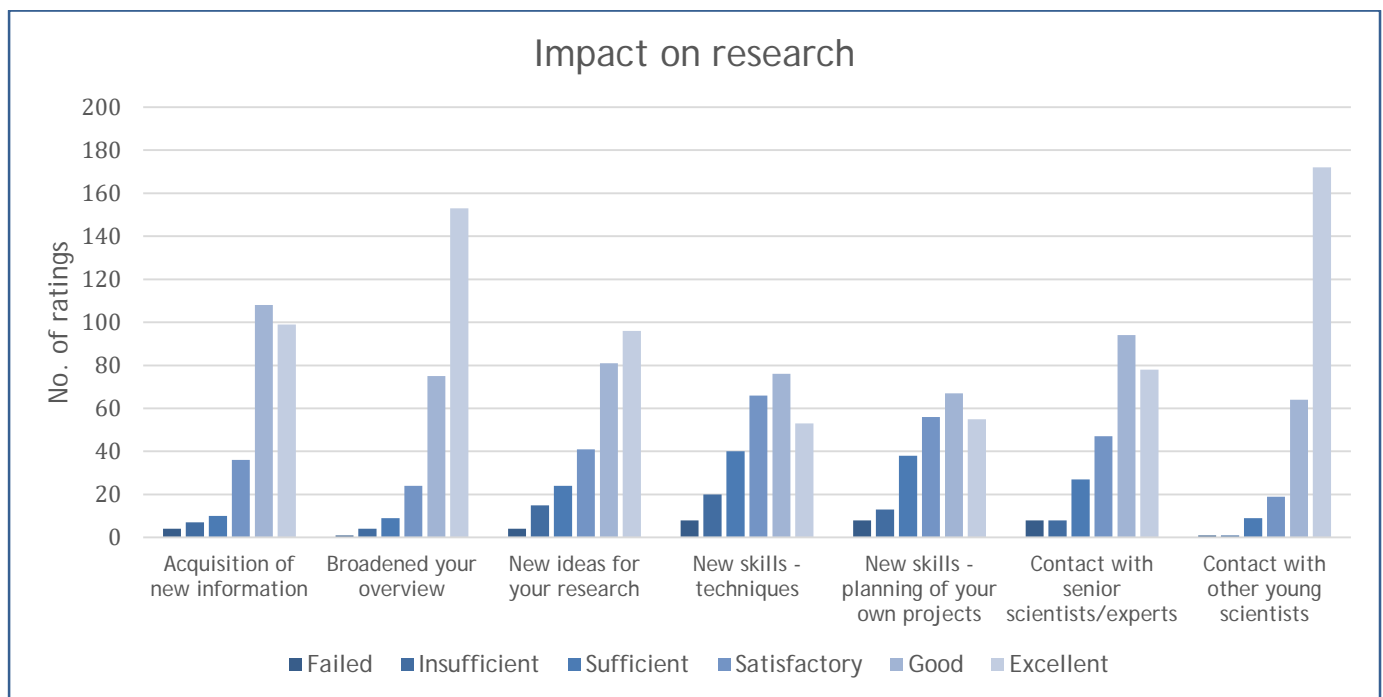


Figure 6: Participants' estimation of the impact HBP Education Programme events have on their research

Participants were asked to rate the following aspects on a scale from “Failed” to “Excellent”: Acquisition of new information, broadened your overview, new ideas for your research, new skills - techniques, new skills - planning of your own projects, contact with senior scientists, contact with other young scientists.²²

With regard to the impact on their own research, event participants appreciated the contact with other young/early career scientists the most; this category was rated with a weighted average of 4.48. Other well-rated aspects were the broadening of participants' overview and the acquisition of new information (weighted averages of 4.36 and 4.02, respectively). The answers regarding the acquisition of new skills were considered least applicable.

²² The ratings are weighted as follows: Failed = 0, Insufficient = 1, Sufficient = 2, Satisfactory = 3, Good = 4, Excellent = 5. “N/A” answers were considered as “no answer” and thus not included in the evaluation.

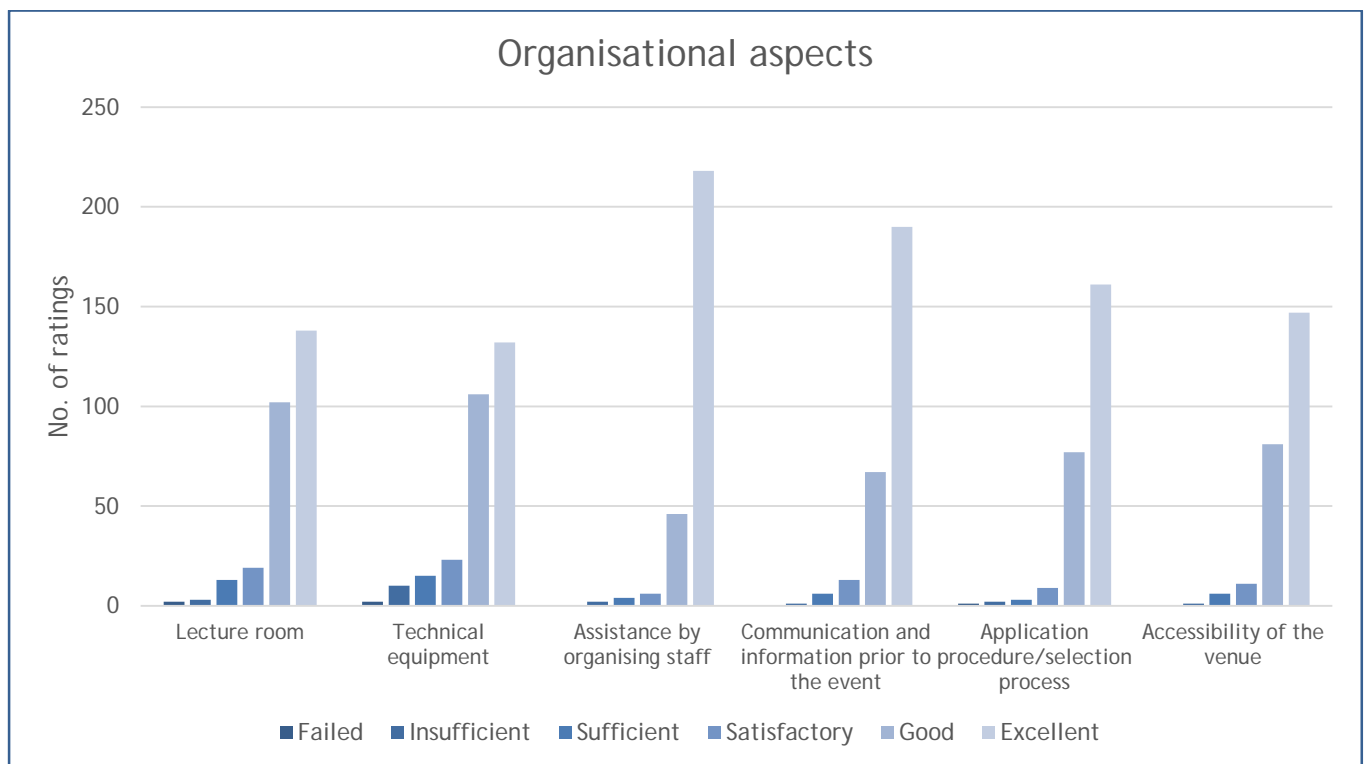


Figure 7: Participant evaluation of organisational aspects

Participants were asked to rate the following aspects on a scale from “Failed” to “Excellent”: Lecture room, technical equipment, assistance by organising staff, communication and information prior to the event, application procedure/selection process, accessibility of the venue.

The evaluations also ask participants to rate organisational and infrastructural aspects of the individual events. Over 90 % of the total ratings were either “Good” or “Excellent”, resulting in weighted averages ranging from 4.14 (technical equipment) to 4.72 (assistance by organising staff).

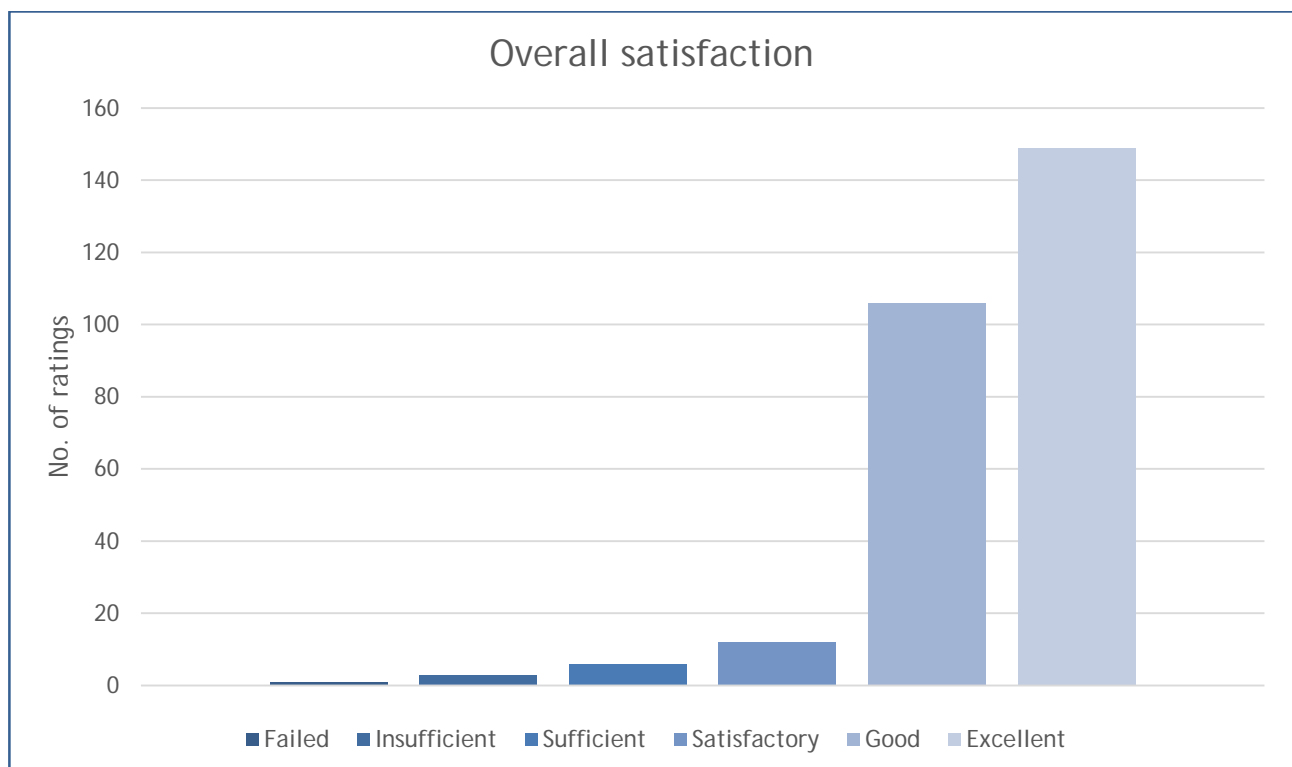


Figure 8: Overall satisfaction of participants

Participants were asked to rate their overall satisfaction with the events on a scale from “Failed” to “Excellent”.

The vast majority of participants (92.1 %) rated their overall satisfaction with the respective events as either good or excellent (weighted average: 4.40).

Faculty rating

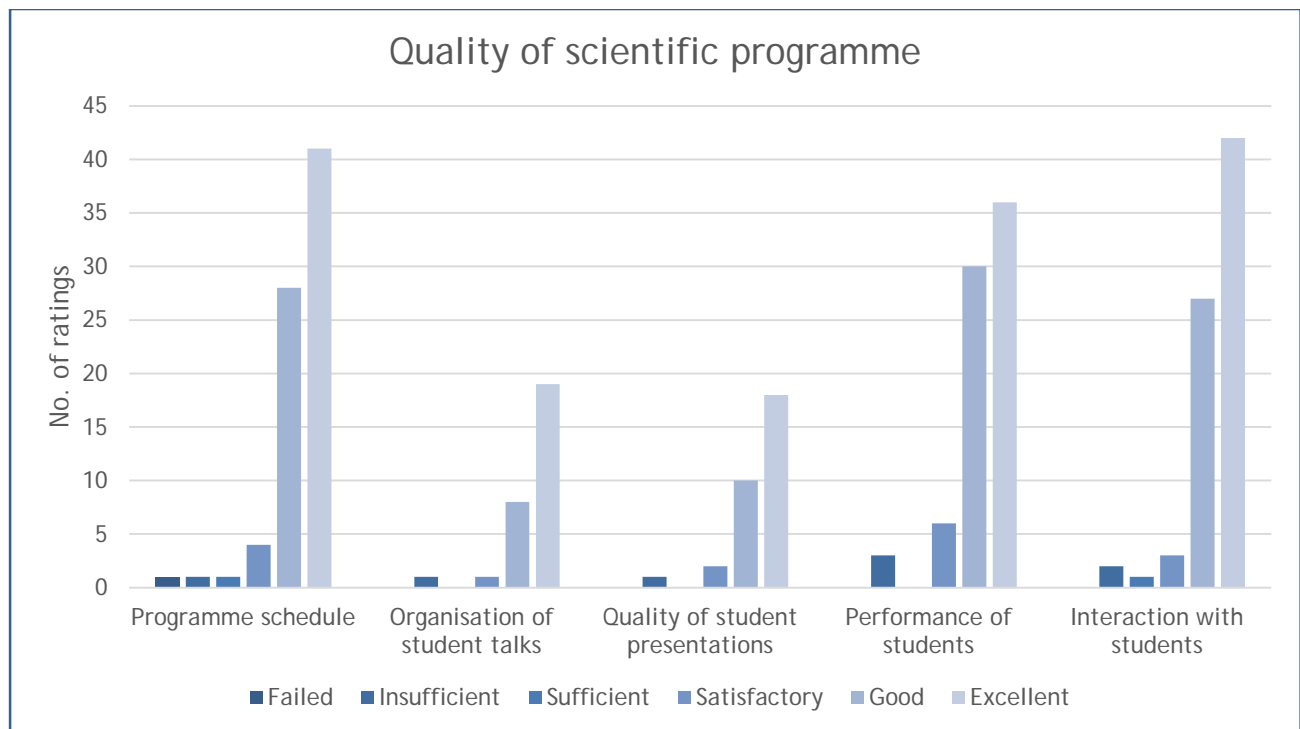


Figure 9: Faculty evaluation of scientific programmes

Tutors and lecturers were asked to evaluate the quality of the scientific programme based on the following criteria: Programme schedule, organisation of student talks²³, quality of student presentations²⁴, performance of students, interaction with students.

The vast majority of the faculty provided very high ratings for the quality of the scientific programme. Weighted averages range from 4.28 (performance of students) to 4.52 (organisation of student talks).

²³ This question was only asked in evaluations of HBP Schools and HBP Student Conferences.

²⁴ This question was only asked in evaluations of HBP Schools and HBP Student Conferences.

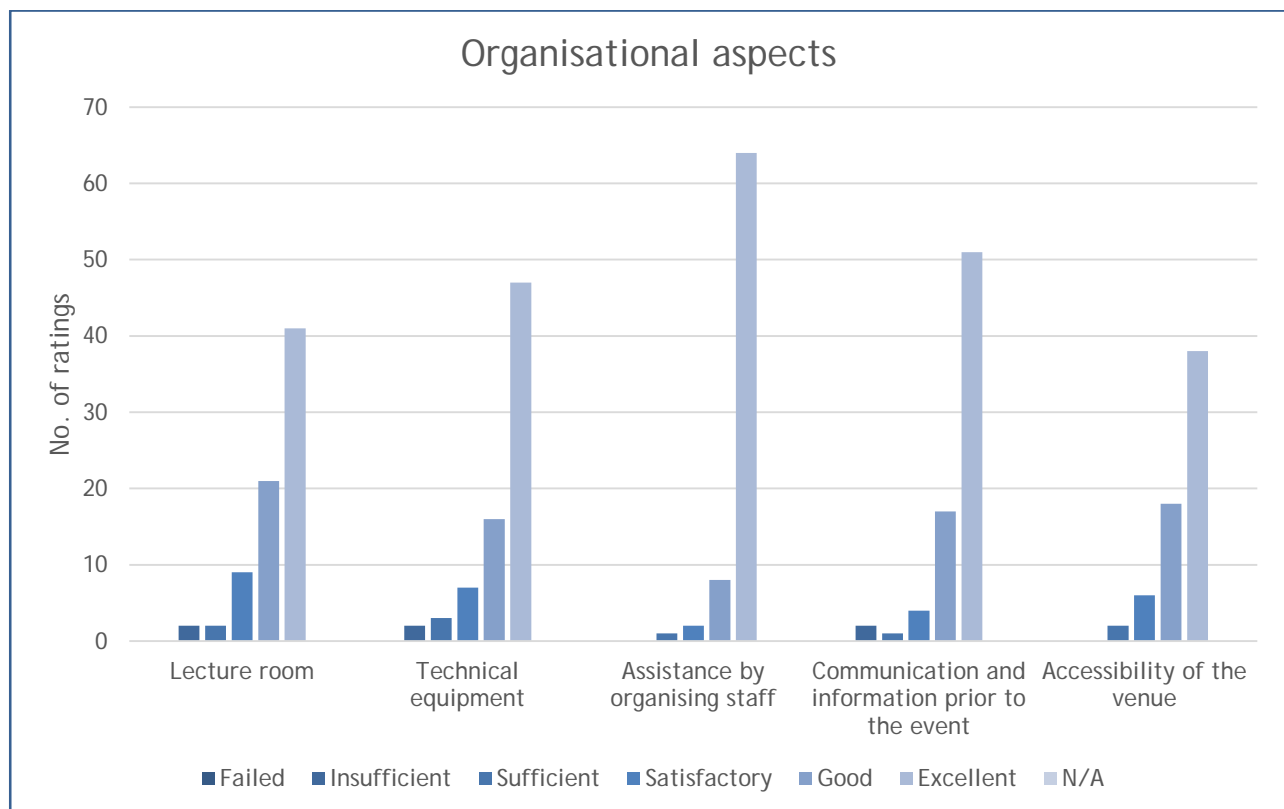


Figure 10: Faculty evaluation of organisational aspects

Lecturers and tutors were asked to rate the following aspects on a scale from “Failed” to “Excellent”: Lecture room, technical equipment, assistance by organising staff, communication and information prior to the event, accessibility of the venue.

As part of the evaluations, speakers and tutors were also asked to rate the organisational and infrastructural aspects of the various events. They provided very high ratings for all aspects. The category rated best was “assistance by organising staff” with a weighted average of 4.80. Two thirds of the total ratings received for this question were “Excellent”.

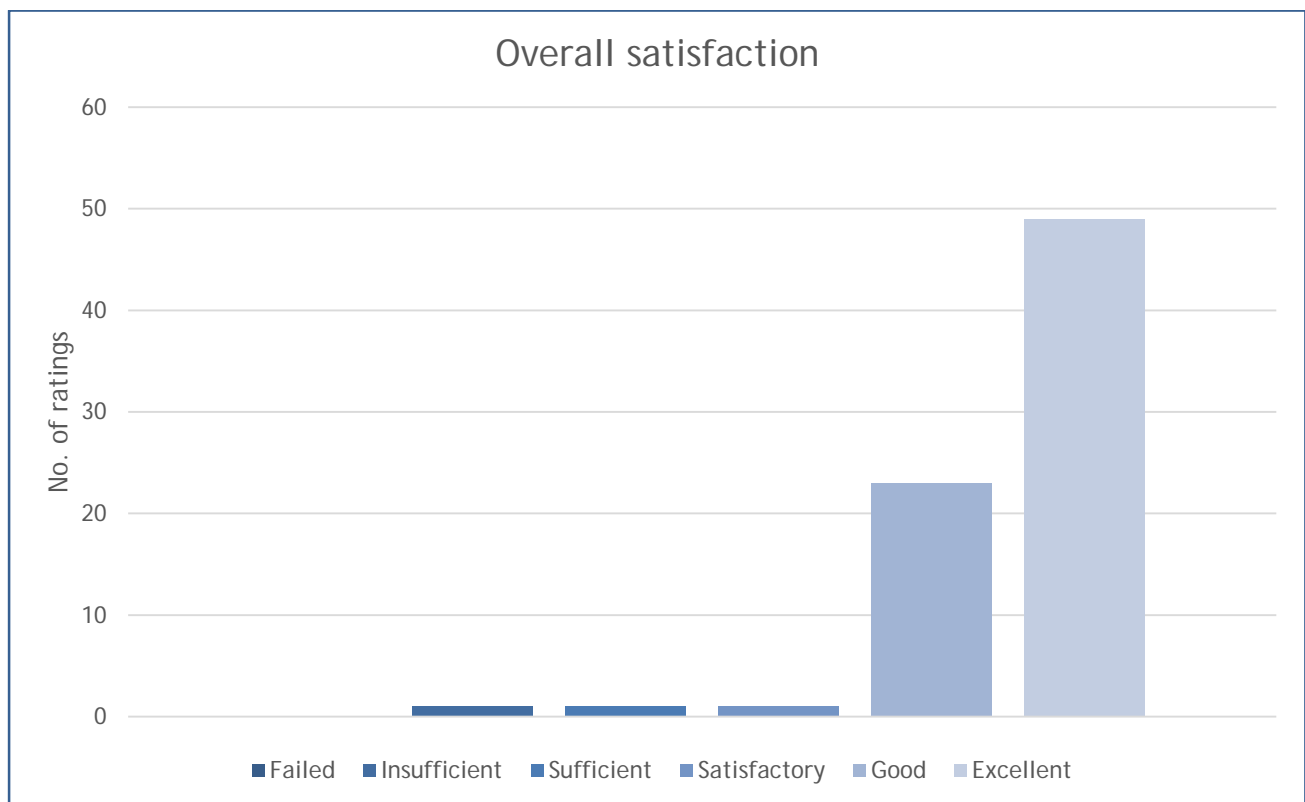


Figure 11: Overall satisfaction of faculty

Speakers and tutors were asked to rate their overall satisfaction with the event on a scale from “Failed” to “Excellent”.

The vast majority of participants (96 %) rated their overall satisfaction with the respective events as either good or excellent, resulting in a weighted average of 4.57.



Annex C: References

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Teresa A. Sullivan, Christopher Mackie, William F. Massy, and Esha Sinha, Editors, National Research Council, Improving Measurement of Productivity in Higher Education. Panel on Measuring Higher Education Productivity: Conceptual Framework and Data Needs, (2012).