Reviewing one year milestone survey results

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A. Goal of the report

The funding of the project allowed for accepting three test-cohorts (in total 48 students) who were allowed to take IPSDS courses at no costs in exchange for participation in the evaluation. The goal of this report is to summarize key results of the one year follow-up survey conducted three times since 2017 (for the first cohort (n=16) in 2017 and 2018 and for the second cohort (n=15) in 2018).

B. Data sources

Data was collected via a web-based survey conducted a year after each cohort started the study (questionnaire can be accessed here). The response rate for the survey constituted 88% in 2017 (the survey was sent to 12 participants and 4 dropouts) and 85% in 2018 (the survey was sent to 26 participants and 1 dropout).

C. Key outcomes

Among key outcomes we focus on self-reported improvement of work performance, receiving a pay raise as well as changing one's position (within one's organization or changing to another employer).

In 2017, two out of 14 participants in the first cohort (21%) reported that the Program helped them receive a new position. In 2018, nine out of 22 respondents (41%) reported a position change that they perceived to be (at least partly) due to their participation in the program.

10 participants in 2017 (72%) and 17 in 2018 (77%) reported their improvement in work performance as a result of their participation in the IPSDS.

Furthermore, six respondents in 2017 (43%) and 7 (32%) in 2018 indicated that they received a pay raise.

D. Satisfaction with support and curriculum

Students were asked to report how difficult they found to receive IPSDS support in the following areas: IT (e.g.,Zoom, Moodle platform), course registration, curriculum, and career development (1- Not difficult at all, 2- A little difficult, 3- Somewhat difficult, 4- Very difficult). Figure 1 shows distributions of the variables in question. In both 2017 and 2018, median for all areas apart from the career development ranges between 1 and 1.5. The median for the career development constituted 2 for both years.

In addition, students were asked to what extent they think IPSDS curriculum matches their needs (1- Not at all, 2- A little, 3- Somewhat, 4- A lot). Figure 2 depicts distribution of the variable for 2017 (median=3. SD=0.83) and 2018 (median=4, SD=0.61).
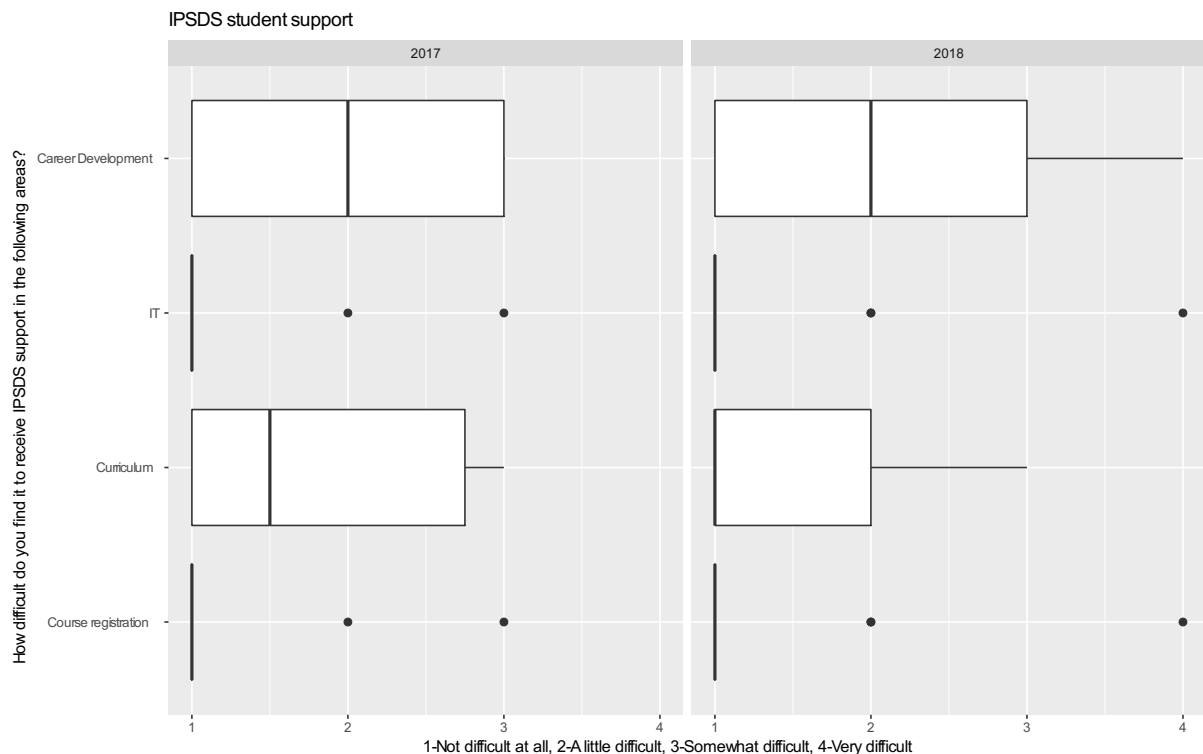

Figure 1. Boxplots of how difficult students find to receive IPSDS support in the following areas: IT (e.g.,Zoom, Moodle platform), course registration, curriculum, and career development.
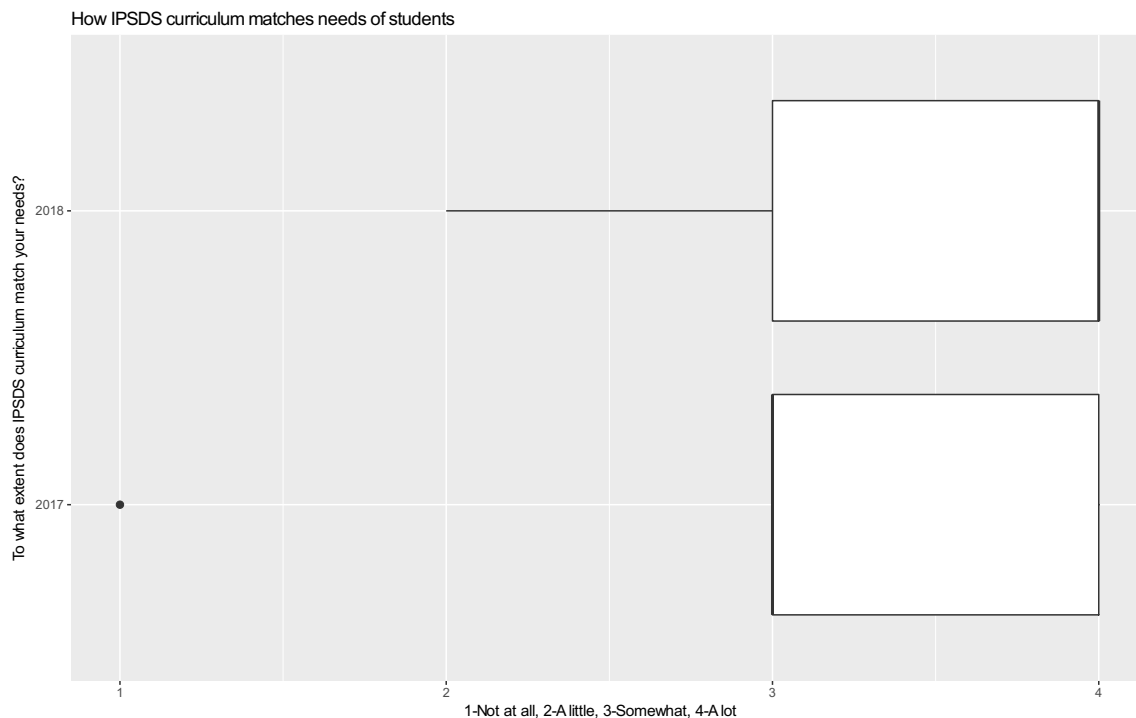
Figure 2. Boxplots for the question: "To what extent does IPSDS curriculum match your needs?"

In 2018, respondents were asked what subjects they would include that are not currently covered in the IPSDS curriculum. 14 out of 22 respondents (64%) provided their suggestions: non-probability samples; more courses on machine learning; more courses on statistical modeling; more courses on data visualization; time-series analysis; forecasting techniques; text mining; dashboards; official statistics; more training in R; statistics on a more advanced level.

E. Main challenges and work-life balance

At the start-of-the-program survey, students were also asked to report how satisfied they were with their work-balance: "How satisfied are you with the balance between the time you spend on your paid work and the time you spend on other aspects of your life?" (0 - Extremely dissatisfied; 10-Extremely satisfied). The median score for all the cohorts was 7 (SD=2.2). Both 2017 and 2018 one year follow-up survey surveys indicated a lower satisfaction with the work-life balance: for 2017 median=5, SD=2.5; for 2018 median=5, SD=2.4.

In addition, in both years, students were asked to describe main challenges that students faced during the program. In 2017, 13 out of 14 respondents (93%) indicated time balancing between work, other

responsibilities and studying as the main challenge they faced during the program. One respondent indicated not having enough practical experience with data as her/his main challenge. In 2018, 16 out of 22 respondents (73%) indicated lack of time and difficulties balancing their study workload with other aspects of their lives as their main challenge. Other listed challenges included internet connection, need to work and communicate more with other students, not enough R and statistical training in foundations, having to purchase books, understanding various accents of students/instructors.

F. Enjoying the program and students recommendations:

Table 1. lists responses to the open question "What have you been enjoying the most during the program?" for both years.

Responses in 2017, n=14, number of missing values=0	Responses in 2018, n=19, number of missing values=2
[1] "Getting new information in well structured courses. Thoughtful discussions with the teachers and other students"	[1] "The great mix of relevant topics, the very engaged and approachable instructors, the fact that most classes have an applied hands-on focus"
[2] "Diversity of courses and also diversity of topics in each of the course itself. The courses are designed in a way that you can go back to the course (readings and presentations) over and over again and you will find again something new to think about... And of course meeting new people from all over the world that have the same/similar interests like you is always a great pleasure."	[2] "Probably the assignments, usually fun to work on, great for reinforcing the stuff learned"
	[3] "Communication with professors and participants"
[3] "The study materials since they are relevant to my work"	[4] "Live discussions during the meetings, exchanging of experiences and challenges faced by classmates at work. Also, the sharing of new things, trends that are up to date by the professors"
[4] "I have learned a lot in many topics or at least I have a clearer sense of its content, biography so I am able to check for what I need"	[5] "The thing that the courses are well-structured and I learn about stuff what I am interested in."

[5] "The challenge to cope with the content and workload. To get to know new methods."

[6] "The content was 100% relevant and well organized/structured. All courses directly benefited my work."

[7] "Learning new things, interactive mode of undertaking courses, variety of topics covered"

[8] "learning a lot of new things"

[9] "The quality of the courses and the professors, the possibility to study at a distance and a convenient time, the international dimension of the program, Connect@IPSDS events."

[10] "All the fantastic teachers with such vast knowledge and inspiring teaching. They have enabled me to see old knowledge in another light and the new knowledge they have taught me has been very useful, up to date and inspiring."

[11] "Lectures"

[12] "The professors are great and I enjoy that the knowledge that they have is always applied to real life cases."

[13] "Everything that had to do with calculations and using R or other analytical software"

[14] "Learning new things"

[6] "contact to others/professionals with similar interests"

[7] "Learning practical skills that I can use in my daily work."

[8] "Interesting material, great highly qualified professors, friendly class atmosphere, flexibility.."

[9] "In principle everything! The program has found the right formula to be inspiring, useful and interesting! Keep it up!"

[10] "data vis & ml courses"

[11] "Yes, thank you very much."

[12] "Professional community, live sessions, video lectures, new friendship."

[13] "International contacts"

[14] "I could learn new techniques to use in my work and the comparison with other students"

[15] "The flexibility we have to perform the activities."

[16] "I really enjoy the subjects that are offered because they really match with actual work and I think the courses are very interesting. I also enjoy that we are connected to people around the world (professors and students), so we have a really fulfilling experience."

	[17] "The chance to get in contact with knowledge again. I am in my mid 30s, working for more than 10 years now and the program offers me the possibility to refine my knowledge, based on my work experience. The program provides me with topics to enter and learn in order to "reshape" my experience and to refocus or redirect my career"
	[18] "I like the program a lot! I don't really want to highlight a single course."
	[19] "The fact that I can organise my time the way I want and the fact that we have to read."

Table 1. Responses to open question: "What have you been enjoying the most during the program?"

Table 2. lists responses to the open question "What would you like to say about IPSDS to somebody who is considering joining it in the future?" for both years.

Responses in 2017, n=12, number of missing values=2	Responses in 2018, n=19, number of missing values=2
[1] "I would encourage him/her to apply"	[1] "I would recommend that they look at the curriculum closely, as a broad range of topics is covered. Especially for people who are already in their professional life, taking only a part of the classes, rather than covering a whole curriculum might be a good option."
[2] "If you are interested in surveys and data science IPSDS is the right place to be."	
[3] "I would highly recommend to anyone"	[2] "If survey methodology or data science is your area of interest, than IPSDS is the right place for you!"
[4] "I would say that it is really great: you learn a lot from excellent professors, the online experience is really even better than on-site courses. It is harder though to establish a network with other fellow students"	[3] "It is really useful and applied to real work problems"
	[4] "The program offers a variety of courses that are adjustable to one's

[5] "I found doing the \"normal\" course load, i.e. two courses per term too challenging next to a full-time-job. However, it is one of IPSDS benefits that you are flexible in putting together your schedule and arranging most of your work flexibly. The courses are well-structured and instructors have been very approachable and engaged."

[6] "Especially useful for persons working in the field of surveys, and for those who want to become familiar with upcoming issues in the field of statistics (e.g., big data)"

[7] "It is a high quality program that may significantly broaden or even transform your profile and, most importantly, it may be combined with your current work!"

[8] "That it is a great program for data science and especially surveys. If I ever get to a high enough position I will be \"sending\" co-workers to the program."

[9] "It's a good program but you have to invest a lot of time"

[10] "That is great opportunity to learn interesting things from great professors."

[11] "It's all about survey science and not about data science."

[12] "You have to be very organized and interested in the topics to keep pace."

needs and preferences. Professors are working on up-to-date areas in the field and can share experiences and provide support for our development at work. Unlike online platforms offering courses (such as coursera) the program involves active participation, engagement (we all know each other)."

[5] "I would support it"

[6] "I would highly recommend it to anyone at anytime."

[7] "Do not hesitate, this is a great opportunity to deepen your knowledge or change/expand your profile!"

[8] "The program is a must for anyone who would get the chance!"

[9] "They should have very good time management skills. Participating in the open house (Connect@IPSDS) activities are very useful."

[10] "The program is well structured, offers a great opportunity for working professionals. I learned A LOT!"

[15] "The course is challenging and requires a good amount of time but it is definitely worth it for the knowledge that you are guaranteed, for the opportunity to improve your work and for the comparison you have with teachers and other students"

[16] "It's a powerful program with an incredible team of Data Science professionals who help you with everything we need, and it's amazing. The program is a good opportunity to open your mind to a new (and big) profession and the possibility and

	flexibility that program gives to us is a very advantageous to person that works all day long (as me)."
	[17] "I will definitively recommend the IPSDS program, I would say that it is unique and allows the students to improve the knowledge in specific areas of survey methodology and data science, while at the same time it have a friendly mode for the persons that are currently working. Is really interesting, professional and it can be adapted to specific needs."
	[18] "Go for it! It's worth the work, it's like painting your flat in bright new colors ;) Having your experience can nobody take away, but to enrich your skills and knowledge offers new possibilities and new ways. A lot of new topics and skills are part of the program, which makes it very up to date"
	[19] "Studying online really works!"
	[20] "Competent staff (for most courses) and supportive. You learn a lot."

Table 2. lists responses to the open question "What would you like to say about IPSDS to somebody who is considering joining it in the future?" for both years.

G. Summary (focusing on current challenges and approaches to address them)

- The program managed to achieve good results in key outcomes such as self-reported improvement of work performance, receiving a pay raise as well as changing one's position (especially given that during the period 2016-018 the IPSDS curriculum, accreditation, administration and structure have been under development).

- Students reported high levels of satisfaction with IPSDS support, accept for curriculum information and career development. Lower

levels of satisfaction with these two areas can be explained by the fact that during the first test-phase (2016-2018) the IPSDS curriculum was under development and demand for support with career development was not originally planned for (i.e., discovered during the test-phase).

- Most students find the IPSDS curriculum matching their needs to the sufficient extent. The second funding phase of the project (2018-2020) is meant to extend the IPSDS curriculum further to cover more topics in data science including some of the courses suggested by the students (e.g., visualization II, big data in official statistics, text mining).

- The program acknowledges the problem of time management among the working professionals (especially those with family responsibilities). The second phase of the project (2018-2020) will focus on supporting students with this challenge and providing better conditions to balance one's work and family life with studying. It is important to note, challenges with life-work balance and finding time to study are not gender-specific. Students did not report any gender-specific challenges.

- Some students indicated the importance of peer networking and community. Initially, it was planned to engage students in recording videos and preparing other materials to share their knowledge and experience. This initiative proved to be unsuccessful due to students' limited time. Currently, the program employs the following approaches: annual on-site events (Connect@IPSDS since 2016 and WiDS since 2018) as well as regular webinars (since November 2017). The webinars aim to promote exchange among IPSDS students and external experts in an informal atmosphere within a digital space (i.e. not dependent on one's possibilities to come to an on-site event). During the IPSDS webinars, students have an opportunity to discuss their work in progress or share their problems with their colleagues and external guests without having to record any materials in advance. During the second phase of the project (2018-2020), this challenge will be evaluated further.