Supplementary File 1 for Shaping the Future of Research: A perspective from early career researchers in Vancouver, Canada

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# Supplementary File 1 – Exit Survey

## Exit survey supplied to participants

**How well did this session address the stated objective?**

Not at all 2 3 4 Very well

**Were you able to arrive at meaningful solutions?**

Not really 2 3 4 Yes, definitely

**Did your group reach a consensus, or did it include a diversity of views?**

Consensus 2 3 4 Diverse views

**When making recommendations for change, how important is it for us to have each of the following:**

**Consensus** Not important 2 3 4 Very important

**Diversity of views** Not important 2 3 4 Very important

**In your opinion, what was the most significant problem discussed in this session?**

**In your opinion, which solution discussed in this session would have the greatest impact if it were implemented?**

**How could this breakout session have been improved?**

**Would you recommend the Future of Research Symposium to friends/colleagues?**

No, not at all 2 3 4 Yes, definitely

**What do you think FOR Vancouver should do next? (If you have specific suggestions about people or organizations we should contact, please list.)**

**How would you describe your current position (please circle one):**

Postdoc Graduate/PhD student Faculty Other (please specify):

**Optional demographic information:**

Gender:

Age:

## Exit Survey data

### Quantitative Scoring

Scored across all answers received, rounded to the nearest decimal place. The Grand Averages have been calculated on all the primary responses combined, not an average of the averages

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Breakout Session** | **Question** | | | | | |
| *Addressed stated objective?* | *Arrive at meaningful solutions?* | *Reach a consensus?* | *Important for consensus?* | *Important for diversity?* | *Recommend FoR?* |
| 1 | 4.0 | 3.4 | 3.5 | 3.2 | 4.1 | 4.1 |
| 2 | 4.3 | 4.2 | 2.3 | 3.8 | 4.2 | 4.6 |
| 3 | 3.9 | 3.6 | 3.9 | 3.1 | 4.1 | 4.1 |
| 4 | 3.0 | 3.1 | 3.1 | 3.3 | 3.7 | 3.6 |
| Grand Average | 3.9 | 3.5 | 3.3 | 3.3 | 4.1 | 4.2 |

### Summarized Qualitative Answers

The summarised qualitative feedback from each session is reported in the following tables, with the number of appearances in responses recorded in brackets. Responses with less than two appearances were omitted from these Tables but all responses are available below (under “Raw Qualitative Answers”).

#### How could this breakout session have been improved?

|  |  |
| --- | --- |
| **Breakout Session** | **Key responses (# of instances)** |
| 1. “*How can trainees be better prepared for career in science in 2017?*” | * More time (11) * Less strict (2) * More specific examples (2) * Positive response or no change (2) |
| 2. “*How should the supply of postdocs and graduate students be matched to demand to create sustainable, secure career pathways for young researchers?”* | * More time (5) * Participants from a wider range of areas (2) * Positive response or no change (2) |
| 3. “*How can the funding of science research in Canada be structured to promote and balance basic research, translational research, and training for the next generation of scientists?“* | * Change to Session format and output (7) * More time (5) |
| 4. “*How can the current system of incentives be fixed so that scientists and institutions are rewarded for the behaviours that are believed to support good and sustainable science?“* | * Change to Session format (2) |

#### What do you think FoR Vancouver should do next?

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| --- | --- |
| **Breakout Session** | **Key responses (# of instances)** |
| 1. “*How can trainees be better prepared for career in science in 2017?*” | * Engagement of policy makers – institutions, funding bodies and government (6) * Include policy makers in future events (5) * Job fair (3) |
| 2. “*How should the supply of postdocs and graduate students be matched to demand to create sustainable, secure career pathways for young researchers?”* | * Facilitate industry connections (5) * Advocacy and diffusion of information (3) |
| 3. “*How can the funding of science research in Canada be structured to promote and balance basic research, translational research, and training for the next generation of scientists?“* | * Engagement of policy makers – institutions, funding bodies and government (3) * Present findings of the meeting (2) |
| 4. “*How can the current system of incentives be fixed so that scientists and institutions are rewarded for the behaviours that are believed to support good and sustainable science?“* | * Advocacy (2) |

### Raw Qualitative Answers

#### Breakout Session 1 – “How can trainees be better prepared for career in science in 2017?”

“*In your opinion, what was the most significant problem discussed in this session?”*

|  |
| --- |
| Low salary of postdoctoral fellows; mentorship |
| A lot more graduates than the market demands |
| Funding |
| Mentorship |
| Skills, funding, mentorship |
| Improvements for professional development |
| Personal development |
| Lack of investment in professional development at federal, institutional levels |
| Feelings of mentorship insufficiency and where to look for mentorship about career trajectory |
| Personal development |
| Individualized professional training programs |
| Knowledge of careers |
| Lack of career information |
| Mentor deficiencies |
| Poor mentorship |
| Mentorship issues |
| Professional development |
| Professional development/mentor deficiencies |
| Mentorship |
| Narrowed-down training |
| Money |
| The lack of obvious opportunities for trainees |
| Lack of mentorship |
| That trainees do not have opportunities to develop skills relevant to diverse career paths |
| Lack of knowledge of career alternatives |
| Networking |
| Mentorship |
| Mentor deficiencies |
| Mentorship |
| Mentor |

*“In your opinion, which solution discussed in this session would have the greatest impact if it were implemented?”*

|  |
| --- |
| Funding opportunity for postdoctoral fellows |
| Have a mentorship system available for everyone |
| Funding – distracts primary investigators from mentoring, limits funds for travelling to conferences, and would improve ability to break into a saturated environment |
| Professional development funding (like Centre for Drug Research and Development) |
| Improvements for mentorship |
| Courses on different personal development |
| Direct allocation of professional development funding to grad students and postdoctoral fellows by institutions |
| Allocation of professional development funding to trainees to put towards relevant professional development opportunities specific to their career goals |
| Systematic training for future primary investigators |
| More recognition for trainees in grant applications |
| Training |
| Professional development restructuring |
| Funding agencies pushing mentors to have some knowledge of alternative careers |
| Professional development/mentorship programs funded to show that these things matter |
| Increase mentorship, professional development, funding |
| Professional development tailored to programs |
| Money |
| Involving mandatory professional development |
| Getting proper mentors and personalized funds for career development |
| Offering personalized opportunities for professional development |
| Department/field specific speakers/workshops on alternate careers |
| Mentorship programs; funding to improve/learn new skills |
| Teaching people what mentorship is and why it benefits both parties |
| Get government intervention for mentorship |
| Mentor |

*“How could this breakout session have been improved?”*

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| --- |
| Give some successful examples |
| More people in panel with non-traditional jobs |
| Prompt 1 + 2 could have been combined |
| Don’t be too strict |
| More time |
| More time for discussion |
| Longer time, more discussion |
| No immediate changes |
| More time |
| A little more time – isn’t that always true |
| More time |
| More time |
| I really liked it |
| More time; don’t be too strict |
| If we had more time to discuss |
| More specific questions |
| More time, very rushed |
| Time/longer needed to come up with a solution |

*“What do you think FoR Vancouver should do next?*

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| --- |
| Maybe initiating a mentoring system |
| Pressure politicians for funding |
| Always have Santa Ono speak |
| Include more policy makers |
| Invite more Members of Parliament/Members of the Legislative Assembly next time! |
| Local/provincial/federal government for funding reform |
| Funding change introduction |
| Annual meeting especially with people making policies |
| Career fair |
| Work with UBC/SFU/… to implement suggestions |
| Bring in people from the private industry |
| Government advocacy and university changes |
| Have more panels, and more industry chat |
| A job fair |
| Make sure the resulting paper is circulated to UBC grad students! |
| Recruitment fair |
| Bring people in who want to talk about the issues, not how they personally are doing a good job |
| Invest in education and become a university city |

#### Breakout Session 2 – “How should the supply of postdocs and graduate students be matched to demand to create sustainable, secure career pathways for young researchers?”

*“In your opinion, what was the most significant problem discussed in this session?”*

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| --- |
| Funding = academic + private; connection = foster academia/industry partnerships; increase involvement of universities with industry |
| Incentives for PIs, training (communication, internship, acknowledge) |
| Awareness of opportunities outside of academia |
| Lack of training & awareness about careers outside of academia |
| Training for other job opportunities |
| Lack of bridges between industry and academia |
| Lack of awareness of soft-skills that a recent graduate needs when he/she’s done with the PhD program |
| No connection between academia and industry |
| Academia-industry connection/interaction |
| Funding available for postdocs, trainees; collaboration between industry and academia; structure of academic positions |
| The lack of bridging between academia vs. industry |
| Funding opportunities |

*In your opinion, which solution discussed in this session would have the greatest impact if it were implemented?*

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| --- |
| Foster interactions academia/industry; incentivize PIs to promote translation of science; increase investment federal to fund programs |
| Incentives for PIs, acknowledgement of options of careers |
| Increasing PI-industry contact |
| Improving communication between academia & others, provide more training opportunities |
| Better industry opportunities during grad school |
| Forming collaborations between industry and academia – money for more jobs, training opportunities, knowledge about alternative careers |
| Academia should offer more training opportunities for their graduates to gain exposure in industry |
| Industry should be involved in training grad students for the skills in demand |
| Increase number + diversity of programs that foster interaction with industry |
| Collaborations between industry and academia at early point of education |
| Involvement of industry in training, create the need for industry to train students |
| A greater commitment from industry and government from a monetary and support perspective |

*“How could this breakout session have been improved?”*

|  |
| --- |
| More time/more people with industry experience that do great science |
| A little |
| It was great |
| More time to discuss concrete solutions |
| It was great |
| More time for brainstorming, writing on post-its |
| More participants from both academia and industry |
| More time, I suppose |
| More time to discuss |
| More guided discussing with the group |

*“What do you think FoR Vancouver should do next?”*

|  |
| --- |
| Advocate, advocate, advocate; private sector, university, politics – huge pull from a large cohort of people |
| Please help the students or postdoc who spend all day in lab work while their PI lack connection with industry. Opportunities for getting to know industry are quite few. |
| I think the description ahead of time could have described FOR more clearly – I didn’t really know what I had signed up for |
| Initiate more contacts with industry & other employers to improve training opportunities for trainees; also collect data on number of postdocs in BC |
| Write a report but show results to reps in government and at universities to implement change |
| Create a forum for bridging industry with academia |
| More diffusion |
| Set up graduate students/postdocs – industry employee networking session. Put them in a room together! |
| Bring more people from different backgrounds (government? and different academic positions) |
| Training of skillsets (transferable); help building bridge to industry 🡪 companies other than STEMCELL |

#### Breakout Session 3 – “How can the funding of science research in Canada be structured to promote and balance basic research, translational research, and training for the next generation of scientists?“

*“In your opinion, what was the most significant problem discussed in this session?”*

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| --- |
| Funding not distributed fairly |
| The funding structure different tiers |
| That there is discussion of this issue |
| Early career funding |
| Regional disparity; opportunities for early career scientists |
| Problem with the current system of funding |
| Difficulties for early-career scientists to get funding |
| Funding angst |
| Problems with peer review and need to make smaller pots of money for more categories of funding need |
| Grant reviewing process |
| The changes the funding system must embrace! |
| Quality of peer review |
| Evaluation metric is out-of-date or put too much stress on high impact publication |
| Old process of fund evaluation |
| Funding for basic, applied, and transitional research |
| Lack of access funds for early career PI’s |

*“In your opinion, which solution discussed in this session would have the greatest impact if it were implemented?”*

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| --- |
| The grant review process and forming new funding pools |
| More funding & separate pool for early career evolution |
| Industry collaboration; team consisting of mentor + young scientist applying for a grant |
| Giving a “chance” to young investigators to join more established/big lab. That will increase chance of getting 1st substantial grant. |
| Funding of early-career scientists |
| Diversify funding structure |
| Policy lobbying |
| Changing of evaluation metrics for funding applications |
| New funding category (e.g. young start-up, basic discovery research, translational research, collaborative research) |
| Applied research |
| Changes proposed for review process that would allow more diverse of projects (and people) to get funded |
| Allowing early career PIs to have own $ pool |

*“How could this breakout session have been improved?”*

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| --- |
| Get more concrete solutions posted |
| Perhaps for next session, choose 1 or 2 topics discussed today and have more in-depth discussion |
| Have later career PI’s attend for their feedback |
| More time! |
| More clarity as to how to contribute ideas |
| More time, smaller group discussion |
| More time |
| More time |
| Better define the question; divide into small groups and share summaries as a whole |
| Categorize problems & solutions in an appropriate way |
| Better explain the structure in the beginning |
| Longer but not the fault of the organizers |

*“What do you think FoR Vancouver should do next?”*

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| --- |
| Feedback of how the solutions/suggestions raised in the discussion sessions will be implemented |
| Student Biotechnology Network |
| Industry partnering within Canada & outside of Canada |
| Facilitate networking |
| Write about it |
| Workshop for job possibilities outside of research |
| Engage Vanc.(?) presidents & MLA’s and influential leaders. FoR needs better advertisement – a well kept secret. |
| Lobby funders & government, university leadership |
| Unconscious bias in peer review, translational research |

#### Breakout Session 4 – “How can the current system of incentives be fixed so that scientists and institutions are rewarded for the behaviours that are believed to support good and sustainable science?“

*“In your opinion, what was the most significant problem discussed in this session?”*

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| --- |
| How else to measure achievements – vs. metrics |
| What we reward |
| Hard to incentivize good science |
| Tenure + promotion based on publication record |
| Research trends to reality value (?) |

*“In your opinion, which solution discussed in this session would have the greatest impact if it were implemented?”*

|  |
| --- |
| Double blind reviews |
| Rewarding collaboration |
| Alternative metrics |
| Collaborative research metrics vs. competitive models |
| Donald Trump cut Obama’s environmental research since 5 years |

*“How could this breakout session have been improved?”*

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| --- |
| More structure – ask each person to contribute |
| Coordinated facilitation; leaving post-its up while we fill out evals so I can answer the above questions |
| More clear re: what we’re discussing |
| Honestly, cancelled due to low numbers |
| More time |

*“What do you think FoR Vancouver should do next?”*

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| --- |
| White paper 🡪 policy change |
| Advocacy / coordinating advocacy |