

Chapter 4

Leadership and Balance in Research

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Abstract Leadership and balance are challenges relevant for scientific work as well as in business, politics and also in daily activities of individuals. Here we share our reflections based on the experience of building and leading a research group of over 40 people at a national research institute. Our first observation is that leadership of a research group towards success requires clear philosophical alignment, fundamentals shared between all the members. This includes maintaining a common vision and high enthusiasm towards achieving results (no nonsense rule). In order to be sustainable on the longer run, we have to maintain the flow of: (a) knowledge/experience, (b) social network of partners, and (c) constant funding. Organization of the team should be preferably flat (but not too flat) with well-defined roles, but also as fluid as possible (no rigidity rule) facilitating personal and group progress. One of the fundamentals is to develop trust between people and maintain good human relationships within the team (no fighting rule).

4.1 Introduction

Everyone is a leader in something, the question is to what extent we recognize and accept that leadership role and how we live it out in our daily life. Actually, to live already is an experience of leading your life. Implicit leadership is also very evident in the nature of research work, where we lead ourselves in forming research vision and goals, planning the path for fulfilling the goals, setting scientific hypotheses, conducting the needed research, planning presentations for sharing our research results. We apply our leadership skills not only when relating to ourselves but also in collaboration with others, regardless whether we have implicit or explicit role of a leader being responsible for organizing a meeting, coordinating research work or taking care of leading family life.

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Research work often involves also advising others that is a leadership more or less limited in time and scope and has its own specifics. For instance, advising Ph.D. students requires leadership on several levels within a limited time frame and with a well-defined goal of the student growing professionally and personally towards obtaining a formal recognition in the form of a Ph.D. degree. Regardless of the kind and scope of the leadership role one may have, successful leadership requires certain behavior and skills. As suggested in Singh and Mladenic (2016) ***“In order to be able to lead others, a leader must be authentic and experienced in leading himself or herself by combining both intuition and intelligence. In other words, to be an authentic leader, you should be who you are without pretending to be what you are not. Recognize your qualities and abilities, as well as your weaknesses and limitations, then accept and use them all.”***

In research, as well as in life in general, we want to be successful, we want to be happy and prosperous. This means balancing different aspects of life including expressing our talents and qualities. Related to leadership of a research group, balance of the group to cover research of different nature (ranging from interdisciplinary basic research to research applications) brings stability by breadth of the research. On the other hand, it is also important to cover some research topics in depth and several application areas or business scenarios. For instance, our research group currently focuses on big data analytics of text data, social networks and sensor networks applying the research results in media monitoring and modeling complex data.

Through our own experience of leading a larger research group for over a decade hopefully gaining some wisdom on the way, we have identified several dimensions that we consider important for a successful leadership of such a group. If one would summarize our experience of leadership, it is mostly about inducing improvement to bring to realization a vision involving and motivating other people, so we are all gaining as individuals, as a group and, contributing to the society.

Our intelligence, our sophistication, is the key to our living! We must understand that our life is for expansion and that it will expand up to death whether we use it or not. If we use our life it will expand beautifully, benefit us beautifully and make us comfortable. You cannot stop expansion! Old age without wisdom, youth without success and childhood without smiles are worthless (Bhajan 2001).

The rest of this chapter reflects on these dimensions we have identified, expressing subjective views and sharing our insides in dynamics of gradually developing a research group from scratch.

4.2 Group Alignment

Successful leadership of a group requires clear philosophical fundamentals shared between the group members. The alignment inside the group makes the work smooth, reduces the need for too frequent meetings and supports efficiency and

effectiveness of work. That is especially important for a core team that ensures keeping the fundamentals pure and strong enabling flexibility. This includes maintaining a common vision and high enthusiasm towards achieving the results.

4.2.1 Common Vision

The common vision should be elaborated on different levels including long-term vision giving high-level directions, a midterm vision taking care of synchronizing separate projects with the long-term vision and a short term vision enabling fulfilling goals of specific projects. For instance, a long-term vision of our group has been advances in artificial intelligence, text understanding, analysis of global social dynamics, sensor analytics. Our midterm vision is currently working on research involving multi-modal big data analytics and advising students, while our short term vision relates to the specific projects we have at the moment and their specific research hypotheses.

In addition we should take care that the form supports the content, meaning that the research topics, tools and methods should support solving the research problems we are addressing and not vice versa. Namely, it is easy to get trapped in looking for the data or problems that will fit your tools or your favorite technological solution. In the same line, any investment of resources—time and energy should bring some kind of profit. It does not mean that we suppress inspiration for pursuing unknown areas of high risk research, as the profit can also be seen on a long-term gaining experience and opening new areas. On the contrary, to ensure balance and stability we want to have a healthy proportion of investing in emerging technologies going in depth of the current research activities of the group and opening new research directions.

To ensure healthy research dynamics it is crucial to stick with no corruption in the very base of the group philosophy. Meaning we do not allow corruption on the whole spectrum of research activities, ranging from ownership of ideas, development of approaches, collaboration, honesty in reporting the research results, fairness in distributing the obtained funding. This is crucial to maintain a common vision and enthusiasm. No corruption on the group level assumes also individuals that have character to lead themselves over personal short-term gain to long-term gain on all levels including personal, group and society.

4.2.2 Common Approach to Leadership

Taking a wider understanding of leadership, all members of the group are leaders in some way, starting from leading themselves and planning their time for research activities. We want to support each other not only in performing research in a balanced way but also in developing our leadership skills.

Each research project is a chance to enhance our assets being it in the form of knowledge and experiences, the developed algorithms and tools, written publications, social network of collaborators or something else. With each project we would like to ensure a better starting position for the future. Sometimes collaborations or just research projects themselves turn out not to be what we were expecting. Still we want to recognize their potential benefits for our long-term vision and turn them into success. If we are putting our time and resources into something, we should do it honestly rather than minimizing the efforts needed to fulfill the requirements or just ensuring a few more months or years of funding for the people. We want to reach the goal with people improving in knowledge/experience, consciousness, happiness, richness. After finishing a research project people should have more individually and as a group.

Similarly as in any business collaboration, also in research we should keep going until everybody walks away feeling good—we achieve a win-win situation, everyone wins and there are long-term benefits. This may take efforts, especially as there is often a limited time frame, but that is where the true leadership takes place. In any relationships, it is good to be kind, show gratitude, acknowledge contributions and thank people for their contribution whatever it is. We all like when our contribution is recognized, even if we do not work for that recognition. When we express our gratitude people are inspired to keep collaborating and contribute even more.

To be successful in what we are doing we look at merging our goal and our life while keeping a good balance and no separation of all the ingredients. We know from our own experience as researchers that our research is with us all the time and often some of the best ideas we get outside the office hours. As suggested by Mladenic in an interview (Brodnik et al. 2006) “*being a scientist is more a way of life than occupation*”.

4.3 Maintain the Flow

Sustaining a research group requires a continuous flow, as in life in general where we have an internal flow of life forces, the flow established through communication with others and the flow in relation with the environment that provides resources to support us.

In a research group we want to ensure and maintain a healthy flow of knowledge and experience, social network of partners and continuous funding. Inside a research group we should ensure that the whole group and the individual members are growing in knowledge and experience. Leading should bring people not only to knowledge but also the capability to do things themselves. “. . . *becomes personal, it becomes individual. As it does so, we will move closer to a situation in which we not only produce students who know stuff but also students who can do stuff too*” (Casse 2012). With each project we should gain and enrich our personal and group assets. This is very difficult without the previously mentioned group alignment where

everyone understand that we are on the same ground, fighting for the same cause and that everyone is given a chance to contribute and harvest the results.

As researchers integrated in a research community, we want to build and maintain a social network of partners that we collaborate with. As our interests and ideas change and evolve, our social network should follow and sometimes even lead, as meeting new people may trigger new directions in our research. In any case, we need a flow of exchange with our social network of partners. Exchange of ideas and knowledge, exchange via publications, sharing of program code, sharing via presentations and teaching, sharing via people visiting.

In order to ensure conditions for performing research, we need stable funding possibly spread over different kind of sources. This requires good skills in developing research ideas in a way that is suitable for funding agencies, often approaching it in a collaborative way to apply for joint projects. As the priorities in funding agencies regularly shift, we also need flexibility to recognize opportunities for our research potential under different funding umbrellas.

4.4 Flexible Internal Organization

Organization of the team should be flexible to support dynamic nature of research work and enable handling unexpected situations. It should be changing to accommodate current projects, responsibilities/workload. Despite the flexibility, the roles of individuals should be well-defined at any moment with clear responsibilities and their time span.

Some roles are predefined and needed to make it all function smoothly, such as project manager or secretary. Based on theory and practice we can identify demand for people of different profiles/talents to fit that predefined roles, e.g., a project manager with good research and programming skills. We also need to ensure condition to support people in their work, e.g., appropriate space and equipment. With the progress and expansion of the group, new roles may be articulated (e.g., separate financial issues from secretarial). We can get demand for new roles due to the change in nature of work (e.g., project logistics to be handled separately from project management) or approach (e.g., need for programming sensor platforms).

The internal organization should be preferably almost flat facilitating personal and group progress. Any hierarchy should emerge naturally based on contributions that individuals have to the group and different aspects related to supporting the group, such as coordinating work of students, managing research projects, ensuring funding.

There are different ways for a successful research group to grow. We have experience of organically growing a group out of enthusiasm for programming, research and sharing with others. We were lucky to get support from several established researchers when we were still students, several years before we got into shaping our own group.

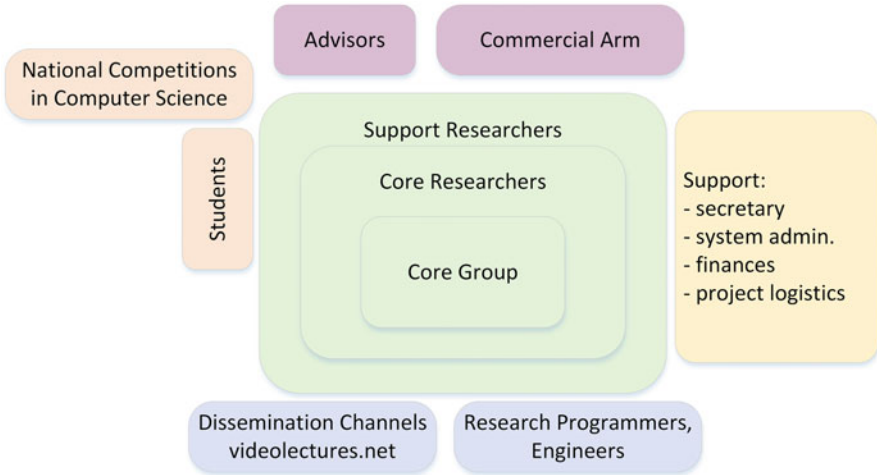


Fig. 4.1 Internal organization grown organically over a decade

The group was organically growing attracting enthusiastic students, greatly supported by our involvement in Computer Science National Competition. The core group holding the vision expanded with researchers and Ph.D. students, the number of international projects was growing. We shaped our dissemination channels (videolectures.net public portal) initially as a part of dissemination activity on collaborative research projects supported by European Commission. With the growing group size and the growing number of project, the support team initially covering secretarial work and system administration extended by financial manager and project logistics. International interest and long-term collaboration naturally resulted with an informal advisory board and a formal commercial arm, supported by research programmers and engineers, as shown in Fig. 4.1.

Despite the fact that there is a well-defined organizational structure of a group, one should keep it open and as fluid as possible. Namely, it is in the nature of research that at the same point in time a person can have different roles depending on the context. For instance, one may lead a project, while also working on another project and providing occasional support to students.

4.5 Profile of Group Members

Leadership in research naturally involves managing human resources, where trust is one of the fundamentals of a successful communication. We all know importance of trust in life and how the lack of trust can inhibit our capabilities to express and successfully relate.

4.5.1 Trust

First, we trust ourselves and our own values so we can express our ideas, our talents and share with others. This also means that we know ourselves, we understand our inner dynamics and trust that we can consciously go through challenging situations not being a victim of our own little goals that would jeopardize our overall long-term goal. When we trust ourselves, we are in a position to trust others. For a smooth running of a research group, high trust between people in the group is fundamental. This means transparency in communication and absolutely no space for gossiping. To maintain the trust and a creative flow, we need early conflict detection and prompt conflict resolution. Moreover, to make an honest progress in research we have to be honest in what we are doing, in what we know and what we do not know. Thus there can be no tolerance on scientific “bluffing”. There is no need to pretend to be what you are not, it is clearly visible when someone is pretending and that if fact shows disrespect to intelligence of others. Instead of pretending, rather work on strengthening your talents and elevating your weaknesses.

Good human relationships are fundamental for good collaborations. Especially inside a group, everyone has to understand the game. You want to ensure transparent leadership and open sharing of knowledge/experience. Tight inner collaboration, where people share working as well as some private time, contributes a lot to well-functioning of the group.

4.5.2 Excellence

All the group members should recognize that we are on the same boat, so we support each other. We share a common vision with priority on the group interests. At the same time, carrying for each other and making individual interests priority on a long run, working towards enabling individual growth in addition to the group growth.

When talking about excellence, it is important for a leader to understand what the preferred profile of a group member is. For instance, it can be a researcher having vertical skills with experience in programming and mathematics, great enthusiasm for research and capable of gradually developing some management skills.

Science to be excellent relies on excellent people. As stated in Singh Avenali (2012) there are several steps to excellence, several characteristics that we can develop to support us in achieving excellence in something. First we want to decide what is that ‘something’ that we want to be excellent at. That we recognize intuitively by having a vision and shaping it in a goal that is bigger than us, a goal that is worth our time and efforts. Soon we will find out that for pursuing such a goal we need courage and enthusiasm for following the vision crossing the limits of

known as needed. Following the vision means also to stick with the goal and be ready to work hard—what Sadhana Singh in (2012) is referring to as have grit. While we are progressing we need an open mind and humility to listen to criticism and suggestions. Furthermore, we need knowledge. Every research is based on some knowledge of the subject and the related work. As difficulties approach, we need to trust the initial vision and the process, while we also need some healthy openness for taking risks. One can say that we need faculties of prayer and grace in handling difficulties. We do not want to lose time and energy fighting, rather we take the challenges with grace and with great determination make the best out of them. Starting from the vision and going through all the process we make a decision to go for winning and not for losing. This means that you put all of you in it, you merge your vision/aim and your life. For more on merging your aim and life see (Singh and Mladenic 2016).

4.6 External Collaboration

External collaboration makes research more fun and brings new opportunities. Maintaining high standards of the group is crucial for a successful long-term collaboration. This means that you should have good performance also on a short-term when for instance, working on a single task or a project deliverable. Additionally you want to contribute to the overall success of the project you are working on. On a long-term you want to develop technology and alliances beyond a single project which includes working on complex solutions and maintaining the already developed prototypes and products.

Leadership and balance in research include keeping operational links with others alive, having joint projects and/or providing technology. There are at least three stake-holders you want to target. One is academia, where it is advisable to have operational links to academic hubs. For instance, letting you collaboration result in working together on a shared codebase, or on sharing services resulting from joint research efforts or maybe sharing dissemination channels. Academia is your target for research collaboration on projects and developing your research network.

Businesses on the other hand can offer opportunities for collaboration on challenging projects, where there is no off-the-shelf product. The idea is that operational links with businesses result in innovative and challenging researcher. Additionally, collaboration with research labs can lead to joint research projects, student internships and joint organization of research events.

Government funding agencies on national and European level are very important stake-holders where you want to be at least informed about the forthcoming funding opportunities. Depending on your research profile, you may be even able to establish collaboration where your research is providing some practical value for them, as for instance developing tools for analytics of funded projects or monitoring public opinion regarding research policies.

4.7 Conclusions

Leadership in science should support excellence of individuals, excellence of the group and excellence of science itself. We would like to support the involved people growing professionally and personally, gaining experience and growing in consciousness. There are certain characteristics that a leader should have to ensure a successful leadership.

4.7.1 Characteristics of a Leader

Research is often about dealing with negative results, the results that were not expected or simply show that your hypothesis was not right. In such a situation, it is important not to be attached to research results fulfilling our expectations. We want to see beyond the immediate situation, to have a long term vision. Negative result may lead to new discoveries. We also want to be flexible and adjust to new situations (new research findings, new funding schemas, new problems, new technology), see opportunity in every situation and learn from experience. To be successful in leadership and also in life in general, you should know your strengths and your weaknesses and use them all, be authentic. You should do the same with others, understand their strengths and weaknesses and support their talents. As said by Yogi Bhaajan (2001) “...you will only be appreciated if you appreciate the good side of your students. If you want to tell someone they are rotten, just appreciate their good side instead. They will fully realize how rotten their other side is.”

Successful leadership revolves around having and maintaining a common vision over time, which is challenging. The initial vision came intuitively, but then it requires conscious effort to maintain it and develop a strategy for achieving it. One of a great tools for keeping the alignment of the whole group with the common vision is to organize regular research retreats taking a few days to reflect on the past research and plan for the new research directions.

Leadership requires combining intuition and intelligence. Already the vision of our overall goal, the vision of goals of future projects should be obtained by intuitively. Then we elaborate on it intellectually developing a strategy to manifest it. “There is no question that the use of gut feelings and intuition can help leaders make quick and (sometimes) accurate diagnosis...ability to read between the lines and to see what many people do not see. Then it is the gift to seeing the big picture and to connect the pieces together so that the meaning of the entire situation is now different. And finally, is to have a vision in terms of how the situation is (or can) evolve or become” (Casse 2012).

As we know, good work speaks for itself. As a leader you should work on maintaining high quality standards, before, during and after performing the work. High standards should be a part of your group code of conduct. With success and expansion it is easy to lose your anchor, your original vision. You should ensure to

regularly get some quiet time for yourself and for getting together with the core group.

One of big challenges of leaders is being overloaded with work. Keeping too many roles on yourself leads to wasting your time for things that others can do and thus only partially utilizing your own talent. It is crucial to learn how to delegate work. A very simple rule is to check if something can be done by someone else in the group and if so, delegate. When delegating clearly specify what needs to be done and provide support and supervision as needed. Delegating is not just about getting some workload off you, maybe even more importantly it is about trusting others and giving them a chance to take more responsibility.

You lead by example. Handle difficult situations gracefully. Find a way to be calm, open minded and kind no matter what. In challenging situations you can help yourself with conscious breathing, changing the view angle and looking for opportunities in challenges.

4.7.2 Successful Leadership

Successful leading of a research group means that the whole group is successful, including people being happy and prosperous. Namely, if it comes to the situation that goals of a project are fulfilled but at the end the involved people are, for instance, exhausted, it is only a partial success. To lead the whole group towards success, you have to develop a strategy how to realize your vision on micro and macro level. You should also know in advance the possible consequences of success (e.g., group expansion requires more office space, as a leader you become a multi-threaded person—multiple tasks, multiple worries, multiple responsibilities). You have to understand the needed energy/resource in advance (e.g., getting good quality people, your own time investment), consider possible problems and develop a plan “B” (e.g., reduced funding opportunities, shift in research topics).

Successful leaders are experienced in leading themselves. They are clear enough to understand what is happening around and they are in control of their mind, meaning they do not react on situations but rather consciously act. As a leader you should have self-respect, so that others can respect you. This means that you recognize who you are, your qualities and weaknesses and use them. You use discipline to hold your intention alive, to notice opportunities and use challenges to gain experience. The leader is flexible on all levels: mental, physical and spiritual. She has capacity to hold the situation and encourage others, she has a personal code of conduct (e.g., no blame, no complain, no compare, no gossip).

Your own success as a leader is measured by the success of the people you are leading. Leaders recognize talents of others and support them, as the only way to maintain your own success is to make others successful.

References

- Bhajan Y (2001) Expansion – the breath of life. In: Singh Khalsa A, Kaur Khalsa G (eds) *Meditations for the New Millennium*. Kundalini Research Institute, New Mexico, pp 79–80
- Brodnik D, Mladenec D, Sega D (2006) Exhibition on women with PhDs in ICT in Slovenia. In: Mladenec D (ed) *Equality of women and men in Slovenian science and research*. Partner graf, Grosuplje, pp 161–163
- Casse P (2012) *Challenging leadership – the Skolkovo approach*. Xlibris, New York
- Singh Avenali S (2012) *Everyday excellence – the art of success*. Kundalini Research Institute, New Mexico
- Singh S, Mladenec D (2016) *Progressing in leadership and success*. Waldzell Leadership Institute, Zug

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