

# BALANCE BETWEEN LEADING AND FOLLOWING AND INTERNATIONAL PEDAGOGICAL INNOVATIONS

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***Abstract.** The primary goal of this paper is to portray how the balance between leading and following can often guide us to new pedagogical innovations and leadership. First of all, we will examine how students' feedback plays an essential role in devising new teaching styles that enhance the amiable learning atmosphere and directs us to new innovations and leadership. Second of all, we will focus on how feedback from colleagues can open new opportunities for new seminars, for new research projects, for writing new papers and textbooks and welcome us to new international and interdisciplinary teaching and learning atmosphere and new innovations. In addition, our aim is to address and understand the concerns and questions from students' and colleagues' feedback can be used to minimize the risk of failure and to steer us in designing new innovations and leadership. Furthermore, our intent is to portray that balance between leading and following is an essential technique in development of new ideas and innovations. Moreover, we will share examples of successful pedagogical innovations that were suggested by students and colleagues. Throughout this paper we will remit the following vital question: do creativity and innovations come directly from us?*

***Keywords:** hands-on teaching style, international learning, international teaching, feedback, pedagogical innovations, transformational leadership, sustainability leadership.*

## **Introduction**

Innovation is defined as an introduction to something new. Leadership on the other hand is defined as guidance, direction and organization. Throughout this paper we will especially focus on pedagogical innovations together with the transformational leadership and the sustainable leadership (Brooks & Normore, 2010). Successful innovators must be good leaders and successful leaders must be innovative. **Transformational Leadership** is defined as leadership that influences positive change to followers and persuades follows to become leaders. On the contrary, **Sustainability Leadership** is defined by the United Nation's Brundtland Commission as leadership that meets the needs of the present

generation without compromising the ability of future generations and Sustainability Leadership matters, spreads and lasts. Andy Hargreaves (University of Toronto) and Dean Fink (Boston College) classify the following seven principles of sustainable leadership. Sustainable leadership creates and preserves sustainable learning. Sustainable leadership secures success over time. Sustainable leadership sustains the leadership for others. Sustainable leadership addresses issues of social justice. Sustainable leadership develops rather than depletes human and material resources. Sustainable leadership develops environmental diversity and capacity. Throughout this paper we will portray how leadership and feedback are a vital tool in developing successful and effective international and interdisciplinary pedagogical innovations that stimulate an active and amiable learning atmosphere (Kennedy & McGarthy, 2013).

The following is a quote by Thomas Corley: “Successful people are in constant pursuit of feedback. They make a habit of it. Feedback improves any product or service you offer in your business. Feedback obtained prior to a launch of a product or service enables you to improve the product or service prior to the launch. Feedback is also critical during and after the launch. Seeking feedback should be seen as a reconnaissance mission. It gives you the ability to obtain valuable information that will add value to your product or service. Making a habit of seeking feedback will set you apart from your competition and allow you to learn and improve upon anything you do” (Corley, 2010). Throughout this paper we will analyse parallel examples of this philosophy in international teaching and learning (Radosmka, 2014). We will especially portray how students’ and participants’ feedback played an essential role in the development of new pilot ideas that directed to discoveries of pedagogical innovations and guided to leadership (Wiggins, 2012).

New pilot ideas and pedagogical innovations are essential to implement as students’ learning styles change from generation to generation and due to educational reforms, cultural changes and international globalization influences (Orlova & Radin, 2018). It is salient for every teacher and professor to stay abreast of these changes and adapt to these changes and provide students with information literacy, pedagogical literacy, organizational literacy and temporal literacy. In addition, international factors also influence new teaching styles, innovations and leadership guidance (Radin & Riashschenko, 2017).

The first question we will start addressing: why is Transformational Leadership is important to be innovative and keep students engaged? The second question: why is student’s feedback is pertinent for future improvements and innovations and how to assess feedback properly (Hussain & Khan, 2016)? In addition, how to apply feedback to design innovations that follow Sustainable Leadership and will matter and spread? What impacts and differences do new ideas and innovations produce and how do students and participants benefit from

the innovations and leadership? How do we retain our leadership role during implementation of innovations? What are the potential risks and problems that can occur and how to manage and minimize them (Radomska, 2014)?

Our goals of this paper are to blend feedback, leadership, innovations and successful international teaching and learning. Coalescing them together to advance with future pedagogical ideas as hands–on teaching styles, new seminars, new topics for conference presentations and new topics for research papers and books. In addition we will emphasize how vital it is to be flexible and open minded to students' and colleagues' feedback; the feedback often becomes a vital tool to designing and implementing these new pilots that direct us to pedagogical innovations and retains quality leadership (Corley, 2010). We will apply the data and experiences during the last 15 years by using students' feedback and feedback from colleagues while teaching courses, conducting seminars and delivering presentations and workshops at conferences. We will especially emphasize how the students' and colleagues' feedback stimulated and encouraged leadership and innovations by applying the student evaluations from Rochester Institute of Technology, Riga Technical University, Transportation and Sakaru Institute, and the participants' feedback from the Canadian Mathematical Society annual conferences, American Mathematical Society annual conferences and other international and interdisciplinary annual conferences.

### **Students' Feedback as a Source of Pedagogical Innovations**

The first step in becoming a pedagogical leader and innovator is to carefully analyse the students' feedback from the course evaluations (Herman, 2011). In fact, if several students write the same comment or similar comments, do they have good intentions to suggest future improvements in the course and in other courses (Smallbone & Quinton, 2010)? Are there good reasons, especially if the same comment or similar comments appear on the evaluations during different semesters or during consecutive semesters (Hussain & Khan, 2016)? To retain amiable communication with the students and successful leadership, feedback is not only vital from students but is just as vital from colleagues (Lucjan Kierczak, Head of Marketing at Survicate). For instance, in Michael's SAT preparatory course at RIT that he teaches regularly, the course evaluations repeatedly suggested to digitize the course workshops instead of writing out the guided examples on the board that looted time away from practice problems. In addition, students wrote on the evaluations that they are tired of spending time copying problems from board and wanted to spend class time working on the hands–on practice working on problems instead (this was the primary concern that students expressed perpetually for some time). After implementing this idea seven years ago in his SAT preparatory courses, the class participation and the enrolment

increased by 20 % compared to the previous 7 years. Furthermore, 80–90 % of the students recommend other students to take the preparatory course as it helped them perform well on the SAT Exam and helped them get accepted to their top universities of choice. In this instance the implementation of students' comments and concerns rendered Transformational Leadership and Sustainability Leadership as it influenced positive changes and provided long-term learning. Does implementing students' concerns always solves the problems? Is there risk involved (Orlova & Radin, 2018)? We will address this question in later section.

After successfully implementing this innovation, Transformational Leadership and Sustainable Leadership in his SAT preparatory course, Michael decided to transform this idea to design the course notes as pdf files for his Multivariable & Vector Calculus course that he regularly teaches at RIT. Devising pdf files of the course notes was essential to accommodate students who experience difficulties in keeping up with the course pace, students who have difficulties with multi-tasking (paying attention and taking notes at the same time), students who have to miss class for reasons beyond their control (these students can access notes and stay abreast of the course material), and to provide students with additional guided repetitive-type examples that class time does not permit. Many students wrote very positive and supportive comments on the course evaluations appraising this innovation: "The course notes were really helpful", "Course notes were great with many guided similar examples", "Course notes helped me catch up with the material when I had to miss class", "Dr. Radin is the best math professor I ever had at RIT". Following the students' feedback and recommendations certainly benefited Michael as it influenced positive changes, provided long-term learning, enhanced the communication with the students inside the classroom and outside the classroom, provided feedback on the frequent mistakes and barriers in the learning process, strengthened the classroom amiable learning atmosphere and enhanced his teaching evaluations. Students continue to write positive and supportive evaluations and recommend other students to take Michael's courses.

Furthermore, Michael received several comments on the evaluations about conducting the course in the workshop-style to provide students opportunities to work on problems during class. This has been a standard practice in freshman level calculus courses at RIT. Michael decided to try this pilot idea in his Multivariable and Vector Calculus course on very tight resources and received many positive and supportive comments on the course evaluations and increased the class participation significantly: "The hands-on practice helped me grasp the material and I understood the mistakes in the set-up of the problems", "I enjoyed the interactive hands-on style course and increased my interest and curiosity". More students started coming to office hours to ask questions and the test performance improved as well. Many students recommend Michael's courses to

other students. If freshman level courses are taught in this style, can sophomore level and upper level courses be taught in this style? By implementing these suggestions from his students Michael's course evaluations have been perpetually above the course average, the departmental average and the College of Science average. This implementation was essential to influence positive changes, retain healthy communication with the students, enhance the amiable classroom learning atmosphere and to stay ahead of the competition; these follow from the Seven Keys to Effective Feedback (Wiggins, 2012).

### **Colleagues' Feedback as a Source of Pedagogical Innovations**

The second step in advancing with pedagogical innovations and leadership is the colleagues' and supervisors' feedback (Spendlove, 2007; Hussain & Khan 2016). Several innovations may be suggested by colleagues at new international and interdisciplinary conferences. For instance, when Michael met Jelena Malahova (Riga Technical University Department of Engineering Economics) at the **International Scientific Symposium "Economics, Business & Finance"** in Jurmala, Latvia, she offered Michael to conduct a Risk Management Seminar at Riga Technical University. Michael never conducted such a seminar and this was Michael's first invitation to such a new pedagogical innovation and leadership. Michael ardently agreed and very shortly assembled a rough draft of the slides. Jelena very meticulously provided him feedback on what vital material was missing that was essential for the students and what material was irrelevant and suggested to omit from the slides. She navigated Michael in the right direction to make the seminar as productive as possible. In fact, this was dispensed feedback before conducting the seminar. This was one of the first interdisciplinary hands-on seminars that Michael coordinated; several students participated from various engineering departments, economics department and some participants from the Riga Fire Department. The students and participants had the opportunity to design risk matrices by addressing the right questions, determining the necessary parameters and categories and making accurate conclusions on the risk classifications and percentages of risk. Practical examples of discussion included automobile insurance, traffic violations, traffic accidents, risk of fires, risk of injuries, and financial investments. This was certainly a beneficial new learning experience for Michael and his students and participants as they were exposed to a positive hands-on leading and learning atmosphere.

Students actively participated in this seminar and gave Michael positive and supportive feedback but suggested to provide more diverse examples and give little longer breaks next time. Furthermore, not only Jelena suggested Michael to conduct this seminar annually at Riga Technical University but also to conduct a similar Risk Management Seminar at the Latvia Fire Academy. After the

discussion, Michael met with the chief officers at the Latvia Fire Academy and suggested to conduct a seminar on “Applications of Risk Management, Geographical Information Systems and Buildings’ Material in Effective Firefighting Techniques”. The chief officers accepted this new pilot idea and will let Michael conduct it in May 2019. In this instance, one pilot transitioned to another pilot. It is worth noting that none of these innovations were Michael’s ideas and were Jelena’s suggested potential pilots. Listening to Jelena’s suggestions opened a new door of opportunities for Michael and expanded his learning horizons as an innovator and leader while conducting this seminar. This principle also follows from seven reasons why customer feedback is important (Lucjan Kierczak, Head of Marketing at Survicate).

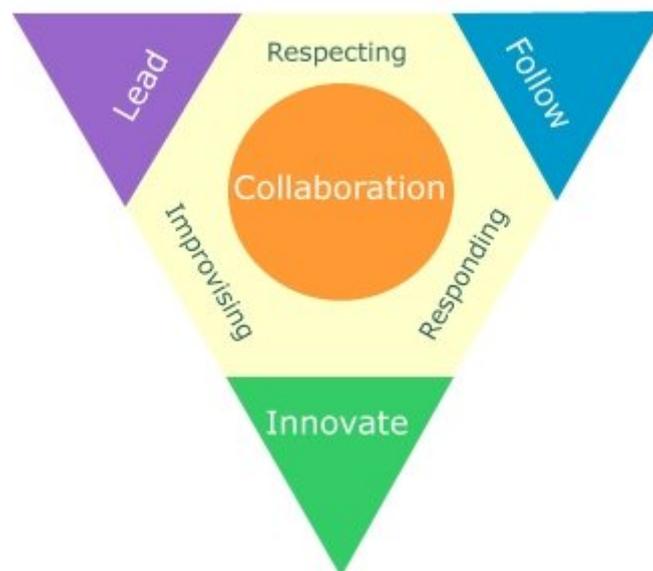
In addition to meeting Jelena Malahova at the International Scientific Symposium "Economics, Business & Finance", Michael had the opportunity to meet Wlodzimierz Sroka (University of Economics in Katowice). Very shortly after the conference Wlodzimierz invited Michael to be an editor of the *Oeconomia Journal*. This task required leadership tasks in refereeing diversity of topics on economics, education and psychology. This was Michael’s first experiences refereeing papers on these topics compared to only refereeing mathematics papers. Wlodzimierz also invited Michael to present as one of the plenary speakers at the 5<sup>th</sup> International Scientific Conference on **New Trends in Management and Production Engineering–Regional, Cross–Border and Global Perspectives**. This was Michael’s second international conference related to these new topics compared to mathematics conferences. Being flexible and open–minded presented several new opportunities and connections for Michael and expanded his international and interdisciplinary experiences as an innovator and leader. This also follows from the principles of seven keys to effective feedback (Wiggins, 2012) and seven reasons why customer feedback is important (Lucjan Kierczak, Head of Marketing at Survicate).

Furthermore, during last 10 years, Michael has been successfully organizing sessions on Difference Equations and Applications at the American Mathematical Society Meetings. While organizing these sessions, several publishers asked to meet with Michael and offered him to write a textbook. Michael knew that he had to persuade the publishers with a new topic and ideas that are different compared to current written textbooks. Michael decided to write introductory textbooks with several repetitive style examples that lead to deeper understanding of the material and also stimulate new research questions. Michael’s first idea of an interdisciplinary STEM (Science, Technology, Engineering and Mathematics) textbook was on “Periodic Character and Patterns of Recursive Sequences” that addresses specific patterns of periodic cycles and eventually periodic cycles. Michael second idea for an interdisciplinary STEM textbook was on “Difference Equations for Scientists and Engineers”. Both are introductory textbooks that lead

to a journey of inductively determining patterns, explicit solutions, discovery of theorems, enhance the methods of proof by induction and proof by contradiction and guide to open-ended research questions. In addition, Michael's successful strategy is to render several repetitive type examples that inductively steer to the discovery and development of theorems. Rochelle Kronzek from the World Scientific Publishing Company told Michael "Since repetitive style teaching has been implemented successfully in your classroom why not mention about it in the textbook's introduction?" Not only did Rochelle successfully swayed Michael to write a book but also allotted Michael very useful feedback that pointed Michael in the right direction as a novice textbook writer as well. Furthermore, Olga Orlova (Munich Technical University) provided Michael advantageous feedback to improve the textbook by assimilating more repetitive-type examples that lead to discovery and development of theorems. Moreover, Olga suggested to include more proofs of theorems and enhance the proof by induction technique. Providing repetitive-type examples gives students opportunities to grasp the material better, enhances the learning atmosphere and retains the material for longer period of time (Orlova & Radin, 2018).

### **Leading vs. Following and Feedback**

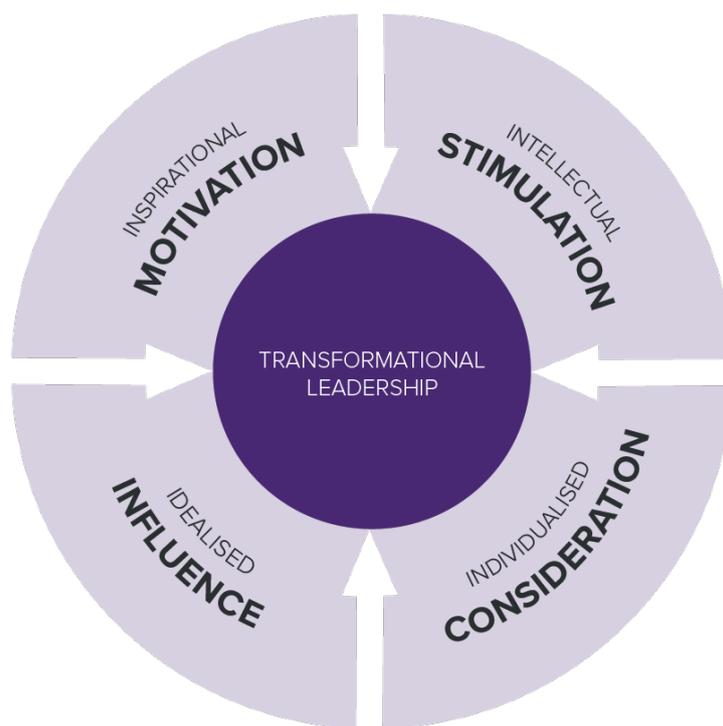
First of all, a successful innovator must be a good leader and a good leader must be innovative (Huberman, 1983). A good innovator and leader must be flexible to feedback (Corley, 2010; Kennedy & McGarthy, 2013). In the previous sections we explored the necessity of feedback that intrigue innovations and guide to leadership. In this section we will continue examining how vital the balance between leading and following and feedback play in the development of pedagogical innovations and how it will help minimize the risk of failure during implementation (Orlova & Radin, 2018). First of all, in order to be innovative it is pertinent to successfully implement Transformational Leadership and Sustainable Leadership. Second of all, without feedback leadership will eventually weaken and collapse (Corley, 2010; Wiggins, 2012). Therefore, to minimize the risk of failure and to successfully sustain innovations and leadership, it is essential to periodically change roles (between leading and following), listen to advices and feedback and let others take the lead for some time before performing certain ideas and innovations. We will commence with the following diagram:



*Figure 1 Leading vs. following triangular diagram*

The first crucial emerging innovation step (especially as a novice innovator) is to listen carefully to colleagues who have more experience, gather their ideas and understand why they are suggesting specific recommendations. Colleagues with less experience may certainly see aspects that you do not see. What you may think is a bad idea may in fact turn out very beneficial and may lead to an innovation. Assembling various feedback from colleagues will also reduce the risk of failure as well, especially frequently repeated feedback that suggest particular changes or new ideas (Radomska, 2014). For instance, repeated comments in the students' evaluations, repeated comments from conference participants and repeated comments from textbook reviewers advocate specific guidance. As we mentioned previously, if repeated comments and suggestions appear several times, then there are good reasons why.

The second vital step to developing successful innovations and leadership is to determine the precise balance between leading and following. It is not necessary to agree with everything your colleagues suggest but at least understand why they are recommending specific suggestions. In fact, it is a perfect opportunity to transform their guided feedback to your own ideas and innovations and direct effective leadership. Feedback is an effective and strong guidance that steers you in the right direction as an invitation to innovate and lead new ideas. As apprentice innovators is it essential to gather feedback on a regular basis to minimize the risk before and after implementations (Orlova & Radin, 2018). These questions address Transformational Leadership as we can see in the diagram below:



*Figure 2 Vital ingredients of Transformational Leadership*

From Figure 2 we can conclude that students', colleagues' and reviewers' feedback and suggestions can stimulate, inspire and steer us to creativity, innovations, and leadership that will influence positive changes, inspire leadership, and long-term learning. These include teaching new courses, conducting new seminars and workshops, writing new textbooks, and working on new research projects.

### **Conclusions and Future Innovations**

In the previous sections, we shared about several successful innovations. These were only the first phase of explorations of international pedagogical innovations and pose many new questions to ponder about. First of all, how do we assess someone's feedback and constructive critiques? Second of all, how do we transform and extend their ideas to our own innovative ideas and take over Transformational Leadership that will become Sustainable Leadership? In addition, what additional thoughts will be required to implement colleagues' feedback and suggestions and guide leadership? For instance, if a colleague suggests to write a book or a textbook, how do we choose a new topic? When Michael was invited to write a textbook by Springer, he chose "Periodic Character and Patterns of Recursive Sequences" as a new topic compared to other textbooks.

In addition, when Michael was invited to write a textbook by World Scientific Publishing Company, he selected “Difference Equations for Scientists and Engineers” as a new topic relative to the existing textbooks. Understanding and implementing reviewers’ and publishers’ feedback was pertinent as a notice writer and yet it was just as vital to stay innovative with new ideas while writing both textbooks in inductive style by providing several repetitive type examples that lead to the development of theorems and new research questions. This has been Michael’s successful teaching practice during the last 10 years and Rochelle Kronzek (World Scientific Publishing Company) suggested Michael to include that in the textbook’s introduction. In addition, Michael is currently writing a book on “Poetic Landscape Photography” that was also suggested by a colleague. Moreover, Michael will be conducting a special workshop on “Balance Between Leading and Following and Successful International Pedagogical Innovations” at the **Society, Integration, Education International Scientific Conference** in May 2019.

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