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# "Non-Academic" Skills for Incoming Doctoral Students

**Abstract**

Hard and soft ("non-academic") skills are important in academia, including for doctoral students. The proposed research focuses on soft skills and presents findings from qualitative research conducted with doctoral students enrolled in doctoral degree programs at one of the Canadian U15 universities. Current doctoral students were interviewed to learn more about soft skills for incoming doctoral students as they start their academic program. The participants suggested a number of soft skills such as communication, teamwork, motivation, listening, and management of failure and rejection. The study aims to contribute to the growing body of literature on soft skills generally in the context of doctoral students, and particularly, incoming doctoral students and better prepare them as they plan for their new academic journey.

## 1. Introduction

Hard skills are discipline-relevant technical skills (Rao, 2018; Weston, 2020) and soft skills are "interpersonal and intrapersonal" (Weston, 2020 p. 527) i.e., "human, people or behavioral skills" (Weber et al., 2009 p.354). Both hard and soft skills are important (Rao, 2018) and complementary (Dogara et al., 2020) set of skills. Soft skills are also referred to as "non-academic skills" (Finch et al., 2013 p. 684), "pervasive skills" (Keevy, 2016 p. 458) and "social skills" (Weston, 2020 p. 527), and examples of such skills include communication, problem solving, teamwork, leadership and critical thinking (Rao, 2018; Weston, 2020). Soft skills "are not firmly related to a specific job but are essential" in different work contexts (Dogara et al., 2020 p. 211642; Finch et al., 2013) including in academia for both students and faculty (e.g., El-Fakahany, 2022). Students need soft skills in a variety of "technical work" and are relevant "for the promotion of deep knowledge and to foster academic success" (Sousa & Mouraz, 2014, p. 1539). According to Martins et al. (2021), "success in doctoral programs…is highly dependent on competencies that are both intrapersonal (e.g. time management…) and interpersonal (e.g. teamworking…)" (p. 1). The research team conducted semi-structured interviews with current doctoral students to seek their input on soft skills for incoming doctoral students as they start their academic program. This research aims to contribute to such a growing body of literature on soft skills for academic work.

## 2. Literature Review

Soft skills are important for doctoral students and researchers have examined them from different perspectives and contexts including faculty and doctoral students (Curtin et al., 2016; Chopin et al, 2012). For example: Martins et al. (2021) examined published literature for an "overview of the transversal competencies of PhD candidates in engineering" (p. 1). Camarinha-Matos et al.

(2020) reported on soft skills gained by doctoral students over 10 offerings of a required course that focused on organizing an international conference. Rathi et al. (2023) examined ways (current) faculty members developed their soft skills when they were doctoral students. Stroude et al. (2015) reflected on "mentoring schemes dedicated to women at the very beginning of their doctoral studies" (p. 38). Mantai & Marrone (2022) conducted research to identify "type of skills [that] are requested for PhD admission" (p. 2273). Cunningham-Williams et al. (2019) presented "the PhD Student Navigation System" model, which has soft skills-related components (p. 278). O'Meara et al. (2013) aimed to examine "the different kinds of emotional competencies displayed" by both faculty members and doctoral students, particularly in the context of "advising and mentoring" (p. 340). In addition, researchers have examined particular soft skills in doctoral students in specific contexts such as faculty mentoring and leadership skills (Orsini & Coers, 2022), and funding and soft skills like communication, teamwork, mentoring, etc. along with research skills (i.e., hard skills) (Grote et al., 2021).

## 3. Methodology

This qualitative research was conducted with doctoral students from a Canadian U15 University (Group of Canadian Research Universities, 2024). The participants were asked if they have any advice for incoming (new) doctoral students in terms of soft skills. Semi-structured interviews (Maloshonok & Terentev, 2019) were conducted using Zoom (a video conferencing application) with 11 doctoral students studying in departments and/or faculties such as education (e.g., psychology), computing science, dentistry, and kinesiology, sport, and recreation. The participant students were at different stages in their doctoral degree programs (i.e., first year of their program of study to recently defending their dissertation). The plan for this study was reviewed and approved by the institutional Research Ethics Board. The collected interview data was (auto) transcribed by the video conferencing application feature. The transcribed data was analyzed by a single coder to detect trends and themes (Miles & Huberman, 1998; Bogdan & Biklen, 1992) and relevant quotes were extracted to describe emerging themes. The study has limitations such as participant numbers, diversity in participants' doctoral program lived experiences, and possibly limited recollection of events by some participants from their initial doctoral degree days.

## 4. Key Findings and Discussion

The participants identified a number of soft skills that incoming doctoral students should have as they start their academic journey. Some of the suggested soft skills by participants for incoming doctoral students are often discussed in literature in different contexts including academia, and examples of such soft skills include:

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| • Communication skills | • Stress management |
| • Teamwork | • Presentation skills |
| • Motivation | • Patience |
| • Perseverance | • Time management |

In addition, there are a number of other soft skills identified by the current doctoral students that are important for incoming doctoral students as they start their program of study. Examples of

such skills (not in any particular order) along with selected quotes from participants are included below:

***Listening skills*:** The study revealed that incoming students should have the ability to listen to other people. They should be active listeners as they have to communicate with and present their viewpoints to diverse groups of people. (*"You have to ask people, you have to listen to people, you have to reframe."*)

***Collaborate and know your supervisor*:** The emerging findings suggest that incoming doctoral students should learn more about their dissertation supervisor including working styles. They should explore opportunities, if possible, to collaborate and work with their potential supervisor before starting their program. (*"I would say, be sure you know your supervisor, and maybe have spent some time working with that supervisor, or working on a collaborative project with that supervisor before."*)

***Cultural sensitivities and appreciation*:** Incoming doctoral students, particularly, international students new to the country, meet culturally diverse people including students and faculty members. They should develop appreciation for cultural diversity. (*"Acceptance and tolerance for people who are different from you."*)

***Managing challenges*:** Incoming doctoral students, including international students, should learn to manage challenges that they experience in the initial phase of their learning journey and reach out to other people to learn from their experiences and to explore solutions for emerging challenges and issues. (*"Being in a new country, you might meet people who have similar challenges…there are other people…who have similar challenges…you could find solutions through speaking and interacting with those people."*)

***Failure management*:** The current doctoral students feel that learners may experience failure during their learning journey. Students should develop the ability to accept and manage, and communicate about failure to relevant people. (*"Admitting that there are failures…accept it because it's part of a journey…being able to use that failure to communicate to your network."*)

***Ability to handle rejection and/or criticism*:** Doctoral students may experience criticism and/or rejection at different stages of their program, including in the initial period such as the rejection of their scholarship application, and they should be able to handle disappointments. (*"I think about how you handle criticism and rejection… you apply for grants, you don't get. You apply for scholarships you don't get…kind of the ability to pick yourself…not take it personally … try again."*)

***Ability to seek help/support*:** New doctoral students should not feel challenged or shy or be reluctant. Instead, they should take the initiative of reaching out to relevant people and/or offices (e.g., supervisor/professor, working group, department/faculty, etc.) for help/support in different circumstances. (*"They [doctoral students] feel other people do not sort of understand the field, and therefore often feel helpless in getting help… could be like something technical [i.e., hard skills]…but they don't feel comfortable getting help from other people."*)

A number of soft skills emerging from the study are reflected in literature, particularly in the academic context. Ohnishi & Ford (2015) suggested that "academic presentation skills are crucial to research and are a generic skill that PhD students in science must acquire" (p. 57). Leung et al. (2017) argued that PhD students "need to learn how to present their research in an international scholarly context, which places high demands on communication skills and the

capacity for critical discussion", and they also stated that "the ability to critically discuss and argue requires cultural awareness" (p. 525). Combe (2005) reflected on an online Doctor of Business Administration (DBA) program and noted that "many elements of the DBA involve project work where teamwork is required for successful outcomes" (p. 121). Khozaei et al. (2015) highlighted the importance of time management in the context of doctoral students and noted that "research is far more complex" and "it requires good time management" (p. 454). Elliot et al. (2020) acknowledged that perseverance and motivation play an important role in doctoral degree journey**.**

## 5. Conclusion

This study presents findings from qualitative research conducted with the current doctoral students to learn about soft skills that are important for incoming doctoral students as they start their program of study. The analysis of interview data  uncovered a number of soft skills such as communication, teamwork, perseverance, stress management, listening, collaboration, cultural sensitivities, failure and challenge management, and ability to handle criticism. Soft skills are important in academia, including for doctoral students, and developing and practicing these skills will contribute to a successful academic journey. The findings of the study will further enrich literature on soft skills, particularly in the context of incoming doctoral students, and better prepare prospective doctoral students as they plan for their new academic journey. The study has a number of limitations such as number of participants, being from one university. In the future, researchers aim to expand and add diversity, for example, by interviewing more current doctoral students from other U15 universities (Group of Canadian Research Universities, 2024) and beyond.

## References

Bogdan, R. C., & Biklen, S. K. (1992). *Qualitative research for education: An introduction to theory and methods* (2nd ed.). Allyn and Bacon.

Camarinha-Matos, L. M., Goes, J., Gomes, L., & Pereira, P. (2020). Soft and transferable skills acquisition through organizing a doctoral conference. *Education Sciences*, *10*(9), 235, 1-15.

Chopin, S. M., Danish, S. J., Seers, A., & Hook, J. N. (2012). Effects of mentoring on the development of leadership self-efficacy and political skill. *Journal of Leadership Studies, 6*(3), 17-32.

Combe, C. (2005). Developing and implementing an online doctoral programme. *International Journal of Educational Management*, 19(2), 118-127

Cunningham-Williams, R. M., Wideman, E., & Fields, L. (2019). Ph. D. student development: a conceptual model for research-intensive social work PhD programs. *Journal of Evidence-Based Social Work*, *16*(3), 278-293.

Curtin, N., Malley, J., & Stewart, A. J. (2016). Mentoring the next generation of faculty: Supporting academic career aspirations among doctoral students. *Research in Higher Education*, *57*(6), 714-738.

Dogara, G., Saud, M. S. B., & Kamin, Y. B. (2020). Work-based learning conceptual framework for effective incorporation of soft skills among students of vocational and technical institutions. *IEEE Access*, *8*, 211642-211652.

El-Fakahany, E. (2022). *Moving up in academia: Essential skills for tenure and promotion*. McFarland & Company.

Elliot, D.L., Bengtsen, S.S.E., Guccione, K., Kobayashi, S. (2020). Exposing the Hidden Curriculum in the Context of Doctoral Education. In: *The Hidden Curriculum in Doctoral Education*, 17-28 Palgrave Pivot, Cham.

Finch, D. J., Hamilton, L. K., Baldwin, R., & Zehner, M. (2013). An exploratory study of factors affecting undergraduate employability. *Education+ Traini*ng, *55*(7), 681-704.

Grote, D., Patrick, A., Lyles, C., Knight, D., Borrego, M., & Alsharif, A. (2021). STEM doctoral students' skill development: Does funding mechanism matter? *International Journal of STEM Education*, *8*(1), 1-19.

Group of Canadian Research Universities. (2024). *U15*. https://u15.ca/

Keevy, M. (2016). Using case studies to transfer soft skills (also known as pervasive skills): Empirical evidence, *Meditari Accountancy Research*, *24*(3), 458-474. https://doi.org/10.1108/MEDAR-04-2015-0021

Khozaei, F., Naidu, S., Khozaei, Z., & Salleh, N. A. (2015). An exploratory study of factors that affect the research progress of international PhD students from the Middle East. *Education+ Training*, *57*(4), 448-460.

Leung, D., Carlson, E., Kwong, E. E., Idvall, E., & Kumlien, C. (2017). Exploring research cultures through internationalization at home for doctoral students in Hong Kong and Sweden. *Nursing & health sciences*, *19*(4), 525-531.

Maloshonok, N., & Terentev, E. (2019). National barriers to the completion of doctoral programs at Russian universities. *Higher Education*, *77*, 195-211.

Mantai, L., & Marrone, M. (2022). Identifying skills, qualifications, and attributes expected to do a PhD. *Studies in Higher Education*, *47*(11), 2273-2286.

Martins, H., Freitas, A., Direito, I., & Salgado, A. (2021). Engineering the future: transversal skills in Engineering Doctoral Education. In *2021 4ᵗʰ International Conference of the Portuguese Society for Engineering Education (CISPEE)*, IEEE, 1– 6.

Miles, M. B., & Huberman, A. M. (1998). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Sage.

Ohnishi, S., & Ford, J. H. (2015). Student seminar program for improving academic presentation skills for PhD students in science: The effect of language background on outcome. *International Journal for Researcher Development*, *6*(1), 57-76.

O'Meara, K., Knudsen, K., & Jones, J. (2013). The role of emotional competencies in faculty-doctoral student relationships. *The Review of Higher Education*, *36*(3), 315-347.

Orsini, J., & Coers, N. (2022). Leaders and scholars: How faculty mentoring behavior influences the development of leadership self-efficacy. *Journal of Leadership Education, 12*(1), 114-134.

Rao, M. S. (2018). Soft skills: toward a sanctimonious discipline, *On the Horizon*, *26*(3), 215– 224.

Rathi, D., Branch-Mueller, J., & Stang, C. (2023). Doctoral degree programs and soft skills: Reflections by faculty members. *51st Annual Conference of the Canadian Association for Information Science*. https://cais2023.ca/

Sousa, A., & Mouraz, A. (2014). Promoting 'soft skills' from the start of the engineering degree and the case study of the special 'Projeto FEUP' course, *International Journal of Engineering Education*, *30*(6(B)), 1539–1548.

Stroude, A., Bellier-Teichmann, T., Cantero, O., Dasoki, N., Kaeser, L., Ronca, M., & Morin, D. (2015). Mentoring for women starting a PhD: A "free zone" into academic identity. *International Journal of Mentoring and Coaching in Education*, *4*(1), 37-52.

Weber, M. R., Finley, D. A., Crawford, A., & Rivera Jr, D. (2009). An exploratory study identifying soft skill competencies in entry-level managers. *Tourism and Hospitality Research*, *9*(4), 353-361.

Weston, D. (2020). The value of 'Soft Skills' in popular music education in nurturing musical livelihoods. *Music Education Research*, *22*(5), 527-540.