

## Mentoring Programs

## Mentoring in Times of Crisis and Beyond

Nabil M. Halabi, Jovana V. Milić,\* and Bilal R. Kaafarani\*

Dedicated to Professor Seth R. Marder on the occasion of his 60th birthday

**Abstract:** During the global crisis triggered by the COVID-19 pandemic, university programs, meetings, and conferences have moved to virtual settings, with consequent erosion of mentorship opportunities for students and early-career professionals. This calls for mentorship platforms that are adapted to the new landscape in order to bring about a positive change. Our Viewpoint Article shares the perspective of the *Transformative Education* program and *Mentorship Talks* initiative at the American University of Beirut in Lebanon, with the aim of providing insights that could stimulate other mentorship platforms.

The enduring COVID-19 pandemic has affected different aspects of our society, yet no domain has been more radically transformed than that of education.<sup>[1]</sup> Considering the profound role that social interactions play in the university classroom, it is no coincidence that education and mentorship have been greatly impacted. The efforts to transition into a virtual setting were met with various challenges and degrees of success; however, many attempts have left students without appropriate support. This does not only refer to coursework, but other activities and interactions at schools and universities as well, and networking and mentorship in particular. University campuses used to be community-organizing centers and, in their absence, many students lack access to vital resources for their professional development. As educators and students witnessing these issues firsthand, we recognize the need for more mentorship frameworks.

**Emerging Crisis and Transformation.** The challenges associated with COVID-19 have been exceptionally pertinent at the American University of Beirut (AUB), as Lebanon has faced a national crisis, which has left students and early-career professionals especially vulnerable.<sup>[2]</sup> This

crisis is multifaceted, with economic, political, and societal implications. It has been one of the most dramatic events in recent memory, which is also compounded by the concurrent pandemic and the 2020 Beirut Port blast,<sup>[3]</sup> mobilizing Lebanese people and inspiring a revolutionary spirit that offers hope in times of despair. The gravity of the situation has taken an extreme toll on the citizens and youth in particular. Social deprivation, financial hardships, and political uncertainty had a devastating effect on the mental health of students. The designated suicide and mental health hotline of Lebanon (*Embrace*) has registered a marked increase in calls.<sup>[4]</sup> Although the nature and magnitude of these specific problems are unique to Lebanon, the concerns of deteriorating student mental health are common across the globe. Hence, it is of our utmost concern to mitigate such challenges. In times of crisis, mentoring through the virtual space has proven to be an invaluable tool for a continuation of critical guidance in the absence of physical meetings.

Before the devastating turn of events, the AUB used to nurture a pedagogical approach termed *Transformative Education*, which has been primarily focused on the needs and aspirations of students.<sup>[5]</sup> This initiative aimed to transform students into holistic and well-rounded thinkers through an eclectic program that puts the emphasis on learning outside of the classroom.<sup>[5,6]</sup> One component of special importance to the program has been the lecture series *Mentoring Talks*, with outstanding individuals from a variety of different fields invited to share their stories.<sup>[7]</sup> This series involved globally recognized speakers, from Nobel Prize winners to public figures and others. Contrary to what one might expect, speakers were not invited to highlight their success, but rather speak about their failures and shortcomings. This is, in a sense, the *raison d'être* for the entire *Mentoring Talks* initiative as the talks “promote failures in life”. Rather than promoting a self-congratulatory rhetoric amongst an audience of early-career professionals, the initiative sought to foster a culture of acceptance of failure and adversity instead. In psychology, this approach is associated with the personality of so-called “self-actualizers” who accept shortcomings without guilt or shame.<sup>[8]</sup> Abraham Maslow, one of the founding fathers of the humanistic school of psychotherapy, conducted case studies on individuals he believed to be “self-actualized”.<sup>[8]</sup> In this process, he studied Albert Einstein, Baruch Spinoza, and Eleanor Roosevelt, among others, to identify several commonalities. One of the leading characteristics of these individuals was their sense of self-worth irrespective of failures, enabling them to have the confidence to realize their potential with

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the awareness that their mistakes present the necessary steps on the path to eventual success.

There is an overlap between the self-actualization of Maslow and the *Mentoring Talks* initiative; *Mentoring Talks* can be viewed as a platform for “self-actualizers” to come and speak of their tales of failure on the way to success. The diversity of guest speakers is a strong testament to this parallel between Maslow’s theories and the *Mentoring Talks*. The vast majority of speakers hail from different professional backgrounds, including chemistry, but also entertainment, media, politics, and writing. Despite a myriad of different backgrounds, the overarching message of these talks remains consistently focused on not letting adversity become a roadblock to success but a springboard towards it. This is reminiscent of the author Malcom Gladwell’s notion of “desirable difficulty”.<sup>[9]</sup> In his best-selling book *David and Goliath*, Gladwell posits that many of the cultural heroes we have come to associate with victory originally had the odds stacked against them.<sup>[9]</sup> In fact, it is often because they come from suboptimal conditions that these individuals developed

the fortitude to succeed in their careers. This message remains at the core of the *Transformative Education* program, and the *Mentoring Talks* initiative in particular, where failure and hardship are promoted as the harbinger of success, and personal and professional development, providing a different perspective for students and early-career researchers. We hereby share insights from some of the talks that stimulated other mentoring initiatives.

**Insights from the Mentoring Talks.** *Mentoring Talks* offered a compilation of unique stories over the years with a similar overarching theme for various guest speakers and different personal experiences, emphasizing perseverance through failure. A representative list of speakers highlights the diversity in professional backgrounds, life experiences, and topics that have been shared throughout the initiative, providing invaluable insights (Figure 1).

The series was inaugurated in 2016 with the first talk delivered by materials chemist Prof. Seth Marder, who discussed his journey in academia.<sup>[10]</sup> He challenged the preconceived notions that many students harbor towards professors, suggesting that even the “giants” of the science world have experienced failures in their careers. “*Our job is to enable you to reach your potential. One of the things that professors are often not good at is describing their weaknesses and their challenges. Several years ago, I started giving a talk to undergraduates visiting Georgia Tech about some of the challenges I had (faced). And what I found over time was that students actually could identify with some of these challenges, and they realized that even though I was substantially older and may have more publications than they do, we are not all that different ... it provided them with the realization that they can make tremendous progress in their careers (too).*”<sup>[10]</sup> This talk served as an important inspiration to others in the series.

Another prominent chemist who followed Marder’s example is the 2016 Chemistry Nobel Laureate Sir Fraser Stoddart. His success is an excellent source of inspiration for students. For example, he pointed out that his early life experiences were responsible for giving him “*an appreciation for freedom, imagination to invent, risk-taking, and seeing the benefits of working hard*”, which are indispensable skills for a researcher to succeed.<sup>[11]</sup> This component also resonates with Prof. Omar Farha at Northwestern University, who in 2019 shared that he became enamored with science at a young age. Despite his love for learning and drive to succeed, he was initially rejected from every university he applied to. Many years later, he is now one of the most cited and respected researchers in materials science. Instead of viewing his rejections as failures, he took a different approach: “*I would say that was the first major failure in my mind. But I want to stop using the word failure, because it’s not. It was instead my first opportunity to grow ... that made me into the man I am today.*”<sup>[12]</sup>

Although such success stories have always been inspiring, they are not often communicated. This was part of the inspiration for Prof. Jen Heemstra of Emory University in becoming a scientist–educator on social media and beyond. Her writings and talks inspire students worldwide to embrace their failures. In a very poignant message in 2020



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Figure 1. Impressions from a selection of Mentoring Talks.

she noted, “Everything (productive) that has come out of my past two years is a consequence of the biggest failure of my career ... if I hadn’t gone through that: there would be no me on Twitter, no me in Chemical Engineering News, and no me changing academic culture.”<sup>[13]</sup> A fellow physical chemist Prof. Prashant Kamat of the University of Notre Dame recapitulates this thought in 2020 by stating that, “No two people are exactly alike or see the same exact experience. What you need to do is to make the best of your experience, and how it can lay the foundation for your career and beyond.”<sup>[14]</sup>

Canada’s Chief Science Adviser, Prof. Mona Nemer, a bioorganic chemist specialized in molecular genetics and cardiac regeneration, also went through adversity before her eventual success. Despite setbacks in numerous aspects of her career, she is now a well-cited researcher whose work has impacted thousands of lives. She alluded to her failures in 2021 by saying that, “I am here to talk about my failures and mistakes. As a matter of fact, my chemistry PhD was inspired by a failed experiment. I got a (chemical) product I didn’t expect, but it (eventually) contributed in a great way to the automation of RNA/DNA synthesis ... so that was certainly a failure that I recovered from.”<sup>[15]</sup> Similarly, the 2018 Physics Nobel Laureate, Prof. Donna Strickland, also experienced many setbacks with her research. Her first published paper went on to become Nobel Prize winning.

However, upon further reflection on the matter she remarked that, “I considered quitting my PhD twice ... but I realized that my dream is to be a scientist. It is not like your life ever becomes smoother or easier ... no journey is straightforward.”<sup>[16]</sup>

These stories reach beyond the realm of chemistry and science, as reflected in several other mentoring talks. For instance, Najat Vallaud-Belkacem, stands out as a powerful role model. Despite humble origins, she became a (former) French Minister of Education. Whilst reflecting on her career and life in general, she remarked to students in 2019 that, “life has more imagination than you think, so don’t dwell too much on the failures ... rather, ask yourself each time what doors opened up for you (in failure) that a victory would have kept closed.”<sup>[17]</sup> Fadumo Dayib stands out as another exceptional mentor; she is a radical and empowering figure in her native Somalia, being the first woman to ever run for the role of presidency. Her campaign included numerous humanitarian objectives, such as ending female genital mutilation and the rampant corruption present in her country. Despite the insurmountable odds of winning, her campaign still shines as a bright reminder of women’s empowerment in the Mena region. In 2021 she commented, “I chose to start from this point (of ending political corruption) so that you can perhaps understand why I felt that it was important for me to go back to Somalia, and to

right the leadership wrongs in that country. Going back from the foreign diaspora way I lived for 25 years is tied to what the Lebanese diaspora must be feeling (as well). I believe that I am here to serve humanity.” This illustrates someone who consistently took societal misfortunes and transformed them into the germ of change.<sup>[18]</sup> Yet not all change must be brought about through activism and social work, as is well illustrated by the acclaimed comedian, Maz Jobrani, who uses the tools of humor and rhetoric to inspire instead. He has managed to adapt this source of adversity into his source of strength. He valued the opportunity to provide alternative career examples, with a memorable remark in 2021: “I appreciate you asking for me to be a part of this ... for the audience to see people from all walks of life. Our people (of the Middle East) tend to only want the specific lawyer-doctor-engineer stereotype, and I really appreciate that you bring some comedians into the mix.”<sup>[19]</sup> He stands as a testament to the *Mentoring Talks* principle that success manifests in many forms.

Middle Eastern speakers constituted an appreciable number of guests in the *Mentoring Talks* series, which is particularly important considering that many AUB students aspire to graduate and pursue a career abroad. Hence, the speaker lineup provided relatable role models who have gone through similar life events. Another example is Rola Dagher, the standing Canada Global Channel Chief of Dell Technologies. Speaking to the students in 2021 she noted, “Although we were forced to emigrate from Lebanon, I say from the bottom of heart, that Lebanon can never be driven from inside us ... as a Lebanese woman and leader, to be able to share my story with all of you, it could help and inspire every single person in this conference.”<sup>[20]</sup> Such inspiration was further amplified by another speaker, Raya Abirached who is a celebrity journalist and Hollywood reporter. She inspired the audience to go through their hardships to achieve success in the stars (*per aspera ad astra*). She recounts this sentiment in 2019 by saying, “when invited, his (the PI’s) first question was what are your failures ... but he’s completely right. How many of you feel like it’s the end of the world when you fail an exam or a class? We feel like everything is a failure because we live too much in the moment (while ignoring the future). But this talk today is going to show you how the failures in my life have become the step-stones of my career.”<sup>[21]</sup>

This highlights the guiding principle of the *Mentoring Talks* that anyone can self-actualize their human potential (to use the “Maslowian” terminology).<sup>[8]</sup> Uniqueness in worldview and adversity may be seen as a detriment, but these examples illustrate the importance of authenticity and the inevitability of failure on the way to success through life experiences, providing an invaluable resource for students and early-career professionals to find role models they can relate to. This experience can be transformative in personal as well as professional development. To maximize the positive impact of the *Mentoring Talks* initiative, a more standardized process of identifying speakers is considered based on student proposals, as well as formally evaluating the talks with the aim of improving the overall quality. Moreover, apart from focusing on established senior pro-

fessionals, it is of interest to include early-career professionals who can serve as mentors and role models. Finally, to reach a broader audience and make the talks more accessible, the mentoring initiatives have also moved to a virtual setting.

**Real Mentoring in a Virtual Setting.** While *Mentoring Talks* were originally organized in-person, this has changed with the advent of COVID-19. What was once a lively campus event could no longer be carried out due to the requirements for social distancing and quarantine. This, however, stimulated the initiative to transfer the talks into a virtual setting, so that the audience could access them from the comfort of their own homes. Considering the mental toll that social isolation has exerted on people and students in particular, this accessibility to mentorship turned out to be truly transformative,<sup>[6]</sup> offering a sanctuary in times of crisis. This was further amplified with the situation of Lebanon, where the importance of virtual mentoring could not be overstated. The mass exodus of the professional workforce<sup>[22]</sup> combined with the impact of the COVID-19 pandemic has dramatically decreased mentorship opportunities for early-career professionals. The psychological impact of isolation and a difficult economic situation affected the developing world most severely. The ability to connect mentors and mentees virtually free of cost has thus been of particular significance in times of crisis.<sup>[23]</sup> Mentoring is crucial in training the next generation of scientific minds, and although a single initiative such as *Mentoring Talks* is not enough to solve a systemic societal issue, it stands as a community-driven effort to ameliorate the problem. While its positive impact has been apparent from the student feedback and attendance, as well as informal assessment through interviews,<sup>[24–27]</sup> a formative evaluation could enable improvement of the platform in the future. Moreover, other initiatives could draw inspiration from this lectureship series to implement similar models, which could lead to a broader impact on students and early-career professionals.

Inspired by this model, mentorship-centered events were organized as part of other online conferences, such as the annual nanoGe Spring Meeting in 2021. This provided a virtual platform for students and early-career researchers to interact with prospective mentors by introducing a dedicated conference session with renowned experts.<sup>[28]</sup> Specifically, this session addressed the critical importance of mentorship in science, with a particular focus on gender equity, while providing a platform for discussion with the community. The session involved several speakers and panelists who are some of the international leaders across various disciplines, including chemistry, physics, and materials science. Some of the questions that were addressed involved (i) what makes for a good mentor to early-career researchers, (ii) what aspects of mentorship are gendered, and (iii) what we can do to celebrate and reward mentorship, especially for underrepresented groups. After insightful remarks from the panelists, followed by a moderated discussion and answering questions from the audience, the session was complemented by a discussion organized and led by PhD students, including additional contributors. This initiative provided an opportunity for the scientific community, and early-career re-

searchers in particular, to share experiences and offer support through open exchange. Other relevant initiatives can be seen through the activities of the European Young Chemists' Network (EYCN) and the International Younger Chemists Network (IYCN), who organized a series of webinars,<sup>[29]</sup> as well as panel discussions since 2019, such as *ChemVoices*, bringing together early-career scientists and prospective mentors.<sup>[30]</sup>

Such mentorship platforms for exchange during international meetings and conferences reveal an untapped potential for professional development of young students and researchers, with an even broader reach through virtual platforms. Apart from an important change in perspective and defining success, students and early-career professionals are provided with advice and recommendations that shape their decisions and professional development, while offering access to prospective mentors and role models in the process. We thereby believe that these examples should serve as an inspiration for more initiatives in the future that could become an integrated part of meetings and conferences to support our community and the new generation of early-career professionals. Some of the steps towards this goal should involve recognizing the importance of mentorship as part of conference programs in various formats, from panel discussions through to lectures and networking events. Moreover, engaging students and early-career professionals in the organizing committees of conferences and meetings could empower them to actively contribute to the program. Finally, having dedicated mentorship contributions as part of international funding schemes would provide more resources for organizing such initiatives and stimulate their realization, which can be transformative for our scientific community in the future.

Having witnessed the positive impact of mentoring talks and virtual mentoring platforms, which have made mentorship more accessible globally, we believe that the model should become a regular component of (inter)national meetings and conferences. This particularly refers to creating the space for prospective mentors to openly share their experiences and exchange with students and early-career researchers about their careers and development. The scope of such activities is not limited to universities, and we can envision its implementation by journals, governmental organizations, research laboratories, and other institutions. Such initiatives could contribute to a more inclusive and welcoming environment where a network of senior colleagues could openly share their experiences—successes as well as failures—to provide invaluable advice and guidance.

We share an anthology of different stories we have come across through the *Mentoring Talks* in the hopes that they will stimulate other initiatives. We thereby implore prospective mentors to engage with students and early-career professionals within their institutions and conference programs, and especially during times of crisis and uncertainty. There is so much to gain by sharing our experiences and lifting up others, and such mentorship could have a lasting impact on the new generation.

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## Conflict of Interest

The authors declare no conflict of interest.

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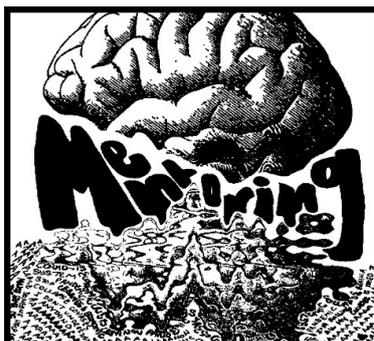
## Viewpoint Article

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Mentoring in Times of Crisis and Beyond



As teaching, meetings, and conferences move to virtual settings during the global COVID-19 pandemic, students, and early-career professionals are deprived of mentorship opportunities. This suggests that the mentorship platforms need to be adapted to bring a positive change and this Viewpoint Article shares insights from the perspective of *Transformative Education* and *Mentoring Talks* programs.