Polarity Based Model for Guiding Medical School Strategy During Crisis - A Cross Sectional Qualitative Study

Samar A. Ahmed  
Ain Shams University

Archana Prabu Kumar (archanak@agu.edu.bh)  
Arabian Gulf University

Nourhan F. Wasfy  
Suez Canal University

Nagwa N. Hegazy  
Menoufia University

Enjy Abouzeid  
Suez Canal University

Mohammed A Hassanien  
King Abdulaziz University

Mohamed H. Shehata  
Arabian Gulf University

W. Cliff Kayser  
Institute for Polarities of Democracy

Randa M Mostafa  
Benha University college of Medicine

Yawar Hayat Khan  
Riphah International University

Hossam Hamdy  
Gulf Medical University

Research Article

Keywords: polarity, strategy, planning, crisis, medical, education

DOI: https://doi.org/10.21203/rs.3.rs-530520/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License
Abstract

Background: Crises like the COVID pandemic in academia can best be dealt with as a polarity that needs to be leveraged rather than a problem that needs to be solved. This work aimed at utilizing the Polarity Approach for Continuity and Transformation (PACT)™ to establish a guide for medical schools during times of crisis to minimize the effect of crisis-driven decisions on strategic growth. Methods: A qualitative study followed the 5-Steps of the PACT process was conducted. A virtual mapping session was held with 108 medical educators from 22 countries to determine the upsides and downsides of strategic orientation and crisis management subsequently. Results: Four polarity maps were generated identifying four tension areas; University reputation, mission, teams, and individuals followed by a 72-item assessment and another mapping session to map the warning signs and action steps. A comparison between private school scores and the whole cohort of respondents showed that private schools had higher scores in all tension areas but still showed the least score for the “teams” tension. Conclusion: This study highlighted the importance of taking measures to communicate the mission and supporting team functions inside universities either by enhancing resources or utilizing time and effort-saving strategies.

Background

The COVID-19 pandemic shook the world of academia to extremes [1]. Medical schools were worst affected, due to the innate requirements of medical training that commands close communication and physical interaction among doctors, patients, family members, healthcare teams, support staff, and so on [2, 3].

Nevertheless, medical schools across the world navigated through this unprecedented situation through crisis management by introducing drastic changes in methods of teaching and assessment [4, 5]. The magnitude of this change was huge and automatically most health care institutions shifted to online mode to ensure continuous transfer of knowledge and skills to their students [6-9]. The crisis response was very efficient in most situations and students were successfully examined to be promoted to the next year [10-12]. However, many of these solutions seemed to be temporary and experts recommended focusing on the strategic plan as well, to achieve long-term sustainability [13].

In addition, the reality of pandemics extending over the span of a new academic year drew attention to the fact that the solutions to educational problems needed to be more concrete and permanent [14]. Another realization was that the schools functioning in reactive mode to the crisis were more focused on technical needs rather than student engagement, which might disrupt many strategically designed activities directed towards the overall growth and accreditation of the organization [15].

The hypothesis is that while extended crises like the COVID pandemic are bound to end at one point, the situation can best be dealt with as a polarity that needs to be strategically managed rather than a problem that needs to be solved [16].
In health care, crisis and strategic management approaches should be considered as interdependent processes and managed as "both/and" practices instead of "either/or" judgments [17]. If schools can successfully manage the shift from crisis mode to a strategy-oriented mindset, they can ensure that their development is minimally affected by the crisis interruption.

Polarity Approach for Continuity and Transformation (PACT)™ is an instrument which that enables an individual, team, or organization to analyze and manage opposing dilemmas in a rapidly changing ecosystem. Many authors have applied (PACT)™ in health care to navigate the conflicts while leveraging the strengths [15, 17-19].

This work aims at utilizing the (PACT)™ model to establish a guide for medical schools that is usable during times of crisis to minimize the effect of crisis-driven decisions on the strategic growth and development of the schools.

**Methodology**

This study is based on a qualitative approach using content evaluation for deductive analysis. The study followed all the five steps of the (PACT)™ model as shown in Figure 1. The five steps are Seeing, Mapping, Assessing, Learning, and Leveraging [20]. All the experiment protocol for involving humans was in accordance to guidelines of Declaration of Helsinki.

**Participants**

The participants in this study are medical educators from all over the world belonging to different levels of management. Medical faculty who are involved in education development at the level of the school or the country were included in the focus group discussion (FGD). Additionally, the assessment tool was sent to all faculty of various medical colleges.

**The five steps of the (PACT)™ model**

**Step 1, Seeing.**

The research team recognized the tension in the shift from the pole of growth strategy implementation and the embrace of the pole of crisis management. This was identified through a focus on outcomes of previous post-COVID studies and publications [13].

**Step 2, Mapping.**

Polarity was assessed in detail by mapping the key elements of the tension as expressed by key stakeholders. 108 medical educators from 22 countries, with diverse expertise in education and
leadership, participated in this study. 30% of them were active decision-makers. The polarity was mapped using (PACT)™ through series of virtual meetings based on the following protocol:

A brief introduction was given to all participants about the study concept and a narrative of one school shifting from the conventional strategic imperatives to adopt the crisis response mode post-COVID-19 strike. Then, they were oriented to the concept of polarities, mapping of vital dimensions of tension areas, and their interdependency utilizing a Polarity Map. They were then divided into four groups, each with one investigator, employing the ‘breakout room’ function of ZOOM. Each group was provided with a unique question from the Polarity Map, to contemplate and respond to.

The Guiding question

(Group 1) What are the benefits which emerged from the use of short-term responsiveness (crisis management) in the COVID-19 pandemic (reflect on the impact on individuals (students, faculty), teams (working groups), organization mission, University reputation to those from the outside)?

(Group 2) What are the benefits of the university using a strategic orientation (long term / future needs) that are realized during the COVID-19 social distancing (reflect on the impact on individuals (students, faculty), teams (working groups), organization mission, University reputation to those from the outside)?

(Group 3) When short term responsiveness (crisis management) in the COVID-19 pandemic is used to the neglect of strategic orientation (long term / future needs), what are the limitations (reflect on the impact on individuals to the neglect of (students, faculty), teams (working groups), organization mission, University reputation to those from the outside)?

(Group 4) When strategic orientation (long term / future needs) is used to the neglect of short-term responsiveness (crisis management) in COVID-19 pandemic, what are the limitations (reflect on the impact on individuals (students, faculty), teams (working groups), organization mission, University reputation to those from the outside)?

Data analysis

The ZOOM recording was transcribed by the researchers and coded accordingly. Results were analysed and grouped thematically. Then the key themes were assigned to each of the map’s quadrants, based on the predetermined categories namely University reputation, mission, teams, and individuals. Two independent investigators verified the accuracy and minor differences were addressed through discussion. Items were identified and mapped in four different polarity maps.
Step 3, Assessing.

Seventy-two assessment statements were derived using the (PACT)™ language, developed by Polarity Partnerships (https://assessmypolarities.com/).

An independent group of researchers (NW, EA, AK, NN) revised the assessment items to match with the chosen outcomes. The assessment was piloted among 10 respondents and language refinements were performed accordingly. The final assessment tool was then administered online to faculty and staff of various universities.

Step 4, Learning.

The results were analysed and represented in the (PACT)™ web tool, in which each quadrant was coded based on the frequency of its appearance. For each quadrant, the highest-scoring item was identified as a priority strength or vulnerability.

Results were then color-coded based on the frequency into three groups namely, mild, moderate, and severe (http://assessmypolarities.com/). Items belonging to moderate and severe groups were placed as priorities for leveraging.

Step 5, Leveraging.

This is the final step in which the Action Steps (to optimize benefits) and Early Warning Signs (to minimize failure) are identified. The participants were split into four groups, during FGD conducted via ZOOM and each was allocated with one question specific for each polarity.

(Group 1) What are the actions/measures you and/or your organization can or could take to gain or retain the benefits which emerged from the FGD on short-term responsiveness (crisis management) in the COVID-19 pandemic (who is going to do what by when?)

(Group 2) What are the actions/measures you and/or your organization can or could (imagine what could be in addition to what is) be doing take to gain or retain the benefits which emerged from the FGD on strategy (long term orientation) in COVID-19 pandemic (who is going to do what by when?)
(Group 3) What are the things you can quantify (measurable indicators) that will guide you to know that you are moving towards the downside of using short-term (tactical) responsiveness? (reflect on individuals (students, faculty), teams (working groups), organization mission, University reputation to those from the outside)? Focus on Why things are happening... comments/ complaints

(Group 4) What are the things you can quantify (measurable indicators) that will guide you to know that you are moving towards the downside of using strategic orientation (long term) (imagine what could be in addition to what is)? (reflect on individuals (students, faculty), teams (working groups), organization mission, University reputation to those from the outside)? Focus on Why things are happening... comments/ complaints

**Ethical Considerations**

Prior to starting the study, Ethics approval was obtained from Ain Shams University Research Ethics committee. The consent number is (R 01/2021). An informed oral/ written consent was obtained from all the participants.

**Results**

Findings from the assessment were mapped into the online polarity assessment system and the results were extracted. 214 participants responded to the assessment. Respondents were from at least 22 countries all over the world with participation from at least four continents. Findings from the assessment were documented on four polarity maps highlighting scores of individual items and the prioritized strengths and vulnerability of each map (Fig.2-Fig.5). The results of the assessment reveal that the four tension areas appeared to be well leveraged (Fig. 6).

**Action steps and warning signs:**

Findings from the second FGD were identified and mapped on the relevant sections of the maps taking into account the prioritized strengths and vulnerabilities. These action steps and warning signs are to become the recommendations of this study (Table 2-3)
Regarding important areas that were identified in the study, a comparison was done between public (governmental schools) and private sector schools. Making the baseline of the study the governmental schools. It was evident that there was a change in the categorization of important aspects upside and downside of the poles in a number of tension areas (Table 1).

Discussion

Assessment methods and frameworks are gradually increased in numbers every day with diverse objectives, dimensions, and indicators in a trial to address the research and quality demands [21]. The presence of various tools reflects the conventional gap analysis in the assessment that often fails to show the whole picture dimensions. One reason could be related to the focus on one aspect, pole, or dimension of the problem ignoring the paradox. Sir Paul Callaghan stated that “The nature of paradox, turning things on their head, flipping ideas upside-down— and knowing how to reconcile and ride the tension of opposites—is at the heart of leadership and indeed life.” -quoted [22].

Polarity thinking employs ‘AND’ to link the two poles while problem-solving habitually applies ‘OR’. It is about Leveraging Polarities to maximize the upsides and minimize the downsides. The Polarity Assessment™ tool offers an accurate measurement of the dynamics of complex and interdependent systems as it focuses on "both/and" Polarity Thinking facilitating the leverage creation for the complex and critical challenges that all leaders, teams, and organizational systems face [23].

Thematic representation of data

The authors recognize that the responses of the participants in the polarity mapping should be considered under four themes namely ‘individuals’, ‘teams’, ‘mission’, and ‘reputation’. The success of an organization cannot be viewed as a separate entity away from the individuals who constitute it. Researchers in the recent past have recognized the importance of individuals in the performance of any organization [24, 25]. During an emergency like a pandemic, it is imperative that every individual in the group should contribute effectively regardless of whether it is a crisis or strategic management [13].

Concurrently, individuals should also work in teams for prudent allocation of the healthcare workforce and judicious utilization of resources during unprecedented challenges [26]. It is well known that all members can individually and collectively participate in developing innovative solutions for complex problems [27]. Usually, individuals working in teams choose to adopt ingenious behaviors that may result in enhanced performance, by displaying extra-role behavior, citizenship behavior, social exchange, and reciprocation [26].

The mission of a medical school or health care organization serves as the fundamental philosophy that guides all its activities including patient care, research, education, and health promotion [28]. The core elements of the mission become a crucial component of an organization, and eventually manifest as an effective branding tool. The success of educational institutions is assured when their daily existence and
culture are in alignment with their organizational values and mission [29]. It also reflects their culture, good practices, and precise decision-making while handling an extraordinary situation [30].

Reputation is defined as collective beliefs, views, opinions, anticipation, and cognition about an organization [31]. Organized and timely responses in change management add value to the judgments about an institutions’ trustworthiness and reliability built over a period of time [32]. Therefore, how an institute responds to a challenge or catastrophe will have significant consequences on its reputation, regionally and globally. In summary the dynamics between the individuals, teams, institutional mission and reputation, influence the actions and outcomes of an institution.

**Value of team support in Crisis**

The current study results confirm the value of the team on either pole. It is considered one of the important tension areas to consider either in the tactical or strategic modes. King G (2002) suggests that corporations should have well-organized crisis management teams that are capable of responding collectively during a crisis [33]. As suggested by medical educators who participated in the FGD, King emphasized that an institution should have proper guidelines and procedures for communication to effectively manage crises. In agreement with the findings of this research, effective communication between teams allows facilitation and exchanging ideas among diverse departments.

Sommer et al. (2016) highlighted another critical area that markedly affects the outcomes of teams during a crisis which is the leadership style in an organization [34]. Transformational leadership seems to be associated with better performance while inverse effects were found to be associated with passive leadership.

In healthcare, Rice (2014) proves that successful teams can solve challenges in sophisticated organizations such as healthcare as the success of teams and teamwork can lead to better outcomes for patients and staff [35].

**Clarity of Mission**

The mission statement is recognized as an effective tool for regulating and guiding the organization. The importance of mission clarity roots in goal-setting theory [36] which explains that when employees understand the institutional goals, they are more motivated to perform better. Moreover, they need to understand how their work may contribute to the overall institutional mission [37].

It brings in a sense of belonging, motivation, and inspiration among employees [38]. Additionally, the clarity of the mission will reflect transparency that may invest in the public view of the institution [39]. It also serves as an instrument of communication for stakeholders [40].
Kim et al. (2020) provided evidence regarding the effect of the strategic alignment in the form of clarity of goals and process and their significantly positive relationship with employee’s engagement and in turn the organization’s performance and sustainability [41]. Another study proposes that organizations should possess insightful vision and mission statements for achieving strategic goals [30].

**Project Indicators**

In the current study and based on the data analysis, one of the most prominent warning signs that the polarity is not leveraged and that teams are not functioning their best is the delay in project indicator achievements.

Project success has two integral components, which are management success and product success [42]. The success of project management is closely directed to the process of project management, in relation to time, cost, and quality. In other words, these three dimensions reflect what is called ‘efficiency of project execution’ [43]. Product success is closely directed to the accomplishment of projects outputs or end products as proposed in the project plan [43].

Product success which reflects the success of the achievement of project deliverables and outputs could be considered the success of the project plan or strategy. The indicators for strategy success should include measures that reflect and relate to project outputs. These indicators or measures are related to the project outputs’ deliverable itself for example its alignment to goals, beliefs, and satisfaction [44].

**Comparing public universities and private universities**

In this study, the comparison between private school scores and the whole cohort of respondents showed that private schools had higher scores in all tension areas but still showed the least score for the “teams” tension.

Comparing private school scores also showed that elements of risk in the whole cohort like the clarity of the mission, the capacity of teams to perform due to lack of resources, and team fatigue and exhaustion were not risky within the private school scores. This is in agreement with many studies comparing capacities to adapt within higher education systems. The augmentation of the digital infrastructure would benefit more blended learning which in turn facilitates online mobility for students and faculty [45].

When public schools were considered the baseline and compared to the rest of the cohort, it was clear that there was no increase in the overall scores of each tension area but there were elements that showed a degree of risk compared to the main cohort. These elements include:

- **International partnerships that are built on confidence in the school to adapt**
This is mostly due to the long chain of command in public universities. Public universities usually adopt the “Traditional Hierarchy” or “Hierarchical Structure”. This model supports bureaucracy from top to bottom. The people at the top control the better brains at the bottom resulting in dissatisfaction of lower employees [46].

This is in agreement with the findings of the international UNESCO study conducted post-COVID which demonstrated that half of the partnerships were affected or weakened by COVID19 [45].

**Faculty and student satisfaction with the response of the university to their emergent needs and training**

The presence of unmet training needs for faculty and students is especially a finding that haunts public universities with a higher student load and lower capacity to adapt timely to the needs. This is in accordance with the same UNESCO study [45].

**The capacity to attract international students**

This was highlighted as a risky area for public universities. This finding acknowledges the fact that there existed little or in-school adapted contingency plans for student mobility issues [45].

**The capacity to save time and effort and arrested productivity and loss of direction due to the coexistence of parallel teams without clear job descriptions**

The presence of parallel teams with the same job description is an element of failure in planning and execution. This usually happens in large institutions that have extensive structures. This duplication tends to happen in times of crisis [47]. It usually results in a waste of time and effort that results in fatigue and loss of drive in the workplace. The same hierarchy allows for a large amount of bureaucracy. This is the obstacle that faces public universities when trying to adopt practices that save time and effort [46].

**Recommendations**

The results of this study identify a need to involve teams in extensive preparation for crisis management in anticipation of future crises. Several action steps need to be taken by institutions to maintain the upside of both poles when they are preparing for or anticipating the educational crisis (Table 2). There are also identified indicators that raise flags for institutions when preparing for anticipated crises (Table 3). It is recommended that institutions maintain close observation of these indicators and incorporate them in their strategy's tested indicators.
Conclusions

Using the (PACT)™ model for polarity mapping allows for a novel view of decision-making during a crisis. Managing educational crises needs to be approached as polarity rather than either/or decision-making process. In order to be able to accomplish this, it is recommended to engage in a mapping process and anticipate warning signs attributed to the over-focus on one of the poles. This work offers a guide for universities based on informed inputs of faculty and decision-makers to help with strategic decision-making during times of crisis. The focus of this work sheds light on the importance of taking all measures to communicate the mission and clarify it to internal and external stakeholders. It also draws attention to the importance of supports of team functions inside universities either by enhancing resources or utilizing time and effort-saving strategies. These are the priority strategies that need to be deployed during times of crisis.

Declarations

Ethics approval and consent to participate.

Ethics approval was obtained from Ain Shams University Research Ethics committee. The consent number is (R 01/2021). An informed oral/ written consent was obtained from all the participants.

Consent for publication

All authors have read and given consent for publication of this manuscript.

Availability of data and materials.

The materials are video recordings and survey "Model for Guiding Medical School Strategy during Crisis Using (PACT)™ a Cross Sectional Qualitative Study", Data set are available at Harvard Dataverse.

The data and materials can be accessed at doi: https://doi.org/10.7910/DVN/QWLRGP

Competing interests

The authors report no conflict of interest in this work.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.
Authors' contributions
Conceptualization, S.A. & H.H.; methodology, S.A. & C.K; validation, S.A., C.K. and H.H; formal analysis, N.N., M.H. & A.K.; investigation, S.A, A.K, N.W., N.N., E.A., M.H., M.SH., C.K.; data curation, S.A, N.N., N.W & E.A; writing—original draft preparation, S.A, A.K, N.W., N.N., E.A., M.H. & M.SH; writing—review and editing, S.A, N.W., H.H; visualization, S.A, A.K., N.W & M.SH.; supervision, S.A, R.M., C.K., Y.KH. & H.H. All authors have read and agreed to the published version of the manuscript.

Acknowledgements
The authors would like to thank the medical educators who participated in the study. Additionally, acknowledging their special contribution to the mapping process.

Authors' information (optional)

Samar A. Ahmed: Medical Doctorate, MHPE, FAIMER Fellow, UNESCO TOT, Full professor in Forensic Medicine Ain Shams University, Director of ASU-MENA-FRI..

ORCID ID: http://orcid.org/0000-0001-8119-9258

Email: SAMAR@med.asu.edu.eg

Dr. Archana Prabu Kumar: Assistant Professor, Medical Education Unit, College of Medicine and Medical Sciences, Arabian Gulf University, Manama, Bahrain

Associate Professor, Department of Physiology, Sri Ramachandra Medical College and Research Institute, SRIHER, Chennai, Tamil Nadu, India

Email: archanak@agu.edu.bh

ORCID: https://orcid.org/0000-0003-1536-8433

Nourhan F. Wasfy: MSc, Medical doctorate. Member of Quality Assurance unit, Faculty of Medicine, Suez Canal University (FOM-SCU). Coordinator of the Diploma of Health Professions Education program (DHPE) –FOM-SCU.

Email: nourhan_f_wasfy@med.suez.edu.eg

ORCID ID: https://orcid.org/0000-0002-2896-9142

Nagwa N. Hegazy: MSc, MD, DHPE, FAIMER Fellow. Assistant professor of Family Medicine, Director of the Medical Education and Human Resources Development Center, Faculty of Medicine, Menoufia University (MU). Head of the digital transformation committee, member in the AKT and Board member in the Egyptian fellowship of Family Medicine.

ORCID ID: https://orcid.org/0000-0001-9470-5105
Email: nagwa.nashaat1@med.menoa.edu.eg

**Enjy Abouzeid M.** MSc, Medical Doctorate, University of Leeds & FOMSCU. She is a Lecturer in the Medical Education Department. Vice President of the assessment and evaluation unit in the Faculty of Medicine, Suez Canal University, FOMSCU.

Email: Enjy_Abouzeid@med.suez.edu.eg

ORCID ID: https://orcid.org/0000-0002-9431-6019

**Mohammed A Hassanien:** Msc, MD, MHPE, FAIMER Fellow. Professor of Medical Education and Clinical Biochemistry, Consultant of the vice president for academic affairs and director of assessment unit, college of pharmacy at King Abdulaziz university, Jeddah, Saudi Arabia, Faculty member at ASU-MENA-FRI and college of medicine, Tanta university, Egypt.

ORCID ID: https://orcid.org/0000-0001-6559-9710

Email: mohammedhassanien700@yahoo.com

**Mohamed H. Shehata,** MD, Msc, Medical Doctorate, MHPE. Professor of Family Medicine in the Family and Community Medicine Department, College of Medicine and Medical Sciences, Arabian Gulf University, Kingdom of Bahrain. Professor of Family Medicine, Helwan University, Egypt. Faculty member of the Ain Shams Eastern Mediterranean regional FAIMER institute.

ORCID ID: https://orcid.org/0000-0002-9156-931X

Email: mohamedhks@agu.edu.bh

**W. Cliff Kayser III.:**

Chief Science Officer, SixSEED Partners, Washington, D.C, USA | VP of Mastery and Coaching Programs, Polarity Partnerships, LLC, Washington, D.C. / Founder and CEO Institute for Polarities of Democracy.

Email: cliff@sixseedpartners.com

**Randa M Mostafa:**

One of the founders of College of Medicine, Sharjah University UAE. Currently working at Benha University college of Medicine, Egypt as Vice Dean of Community and External relations.

Email: Randa.mostafa@fmed.bu.edu.eg

Randa.mostafa@gmail.com

ORCID ID: https://orcid.org/0000-0002-7331-5244
Yawar Khan:

Prof Yawar Hayat Khan is a Dentist by training and has the privilege of working with four institutions globally

Vice Dean (Dental School) & Assistant Dean (Medical Education) Riphah International University, Pakistan

Director (Medical Education) RAK College of Dental Sciences, UAE

Director Academy of Leadership Sciences Switzerland (ALSS)

Ambassador for International Association for Medical Science Educators (IAMSE) USA

Email: yawar.hayat@riphah.edu.pk

ORCID ID: https://orcid.org/0000-0002-6240-2828

Hossam Hamdy:

MBCHB, FRCSEd, PhD, is Professor of Pediatric Surgery & Medical Education and Chancellor, Gulf Medical University, Ajman, United Arab Emirates.

ORCID ID: https://orcid.org/0000-0001-6096-6139

Email Profhossamhamdy@gmail.com

References

1. Mustafa N. Impact of the 2019–20 coronavirus pandemic on education. International Journal of Health Preferences Research. 2020:1-12.

2. Goh P-S, Sandars J. A vision of the use of technology in medical education after the COVID-19 pandemic. MedEdPublish. 2020;9.

3. Liang ZC, Ooi SBS, Wang W. Pandemics and their impact on medical training: lessons from Singapore. Acad Med. 2020.

4. Hall AK, Nousiainen MT, Campisi P, Dagnone JD, Frank JR, Kroeker KL, et al. Training disrupted: practical tips for supporting competency-based medical education during the COVID-19 pandemic. Med Teach. 2020;42(7):756-61.

5. Rose S. Medical student education in the time of COVID-19. JAMA. 2020;323(21):2131-2.

6. Bezerra IMP. State of the art of nursing education and the challenges to use remote technologies in the time of coronavirus pandemic. Journal of Human Growth and Development. 2020;30(1):141-7.

7. Dewart G, Corcoran L, Thirsk L, Petrovic K. Nursing education in a pandemic: Academic challenges in response to COVID-19. Nurse Educ Today. 2020.
8. Alexander L, Ashcroft J, Byrne MHV, Wan J. All hands on deck: early graduation of senior medical students in the COVID-19 pandemic. MedEdPublish. 2020;9.

9. Ting ASJ, Ho CLT. Outbreak Measures Taken by Medical Schools During the Coronavirus Pandemic in London, United Kingdom: A Qualitative Study. 2020.

10. Amin HA, Shehata MHK, Ahmed SA. Step-by-step guide to create competency-based assignments as an alternative for traditional summative assessment. MedEdPublish. 2020;9.

11. Shehata MHK, Abouzeid E, Wasfy NF, Abdelaziz A, Wells RL, Ahmed SA. Medical education adaptations post COVID-19: an Egyptian reflection. Journal of Medical Education and Curricular Development. 2020;7:2382120520951819.

12. Kumar AP, Al Ansari AM, Shehata MHK, Tayem YIY, Arekat MRK, Kamal AAM, et al. Evaluation of curricular adaptations using digital transformation in a medical school in arabian gulf during the COVID-19 pandemic. Journal of Microscopy and Ultrastructure. 2020;8(4):186.

13. Ehrlich H, McKenney M, Elkbuli A. Strategic planning and recommendations for healthcare workers during the COVID-19 pandemic. The American journal of emergency medicine. 2020;38(7):1446-7.

14. Macdougall C, Dangerfield P, Katz D, Strain WD. The impact of COVID-19 on Medical education and Medical Students. How and when can they return to placements? MedEdPublish. 2020;9.

15. Ahmed SA, Hegazy NN, Malak HWA, Kayser WC, Elrafie NM, Hassanien M, et al. Model for utilizing distance learning post COVID-19 using (PACT)™ a cross sectional qualitative study. BMC Med Educ. 2020;20(1):1-13.

16. Preble JF. Integrating the crisis management perspective into the strategic management process. Journal of Management Studies. 1997;34(5):769-91.

17. Monrad SU, Mangrulkar RS, Woolliscroft J0, Daniel MM, Hartley SE, Gay TL, et al. Competency Committees in Undergraduate Medical Education: Approaching Tensions Using a Polarity Management Framework. Acad Med. 2019;94(12):1865-72.

18. Holcombe RF. Improving health care quality: A polarity management perspective. Acad Med. 2015;90(2):259.

19. Keenan MJ, Hurst JB, Olnhausen K. Polarity management for quality care: self-direction and manager direction. Nurs Adm Q. 1993;18(1):23-9.

20. Johnson B. And: Making a Difference by Leveraging Polarity, Paradox, or Dilemma. Volume One: Foundations. HRD Press; 2020.

21. Yarime M, Tanaka Y. The issues and methodologies in sustainability assessment tools for higher education institutions: a review of recent trends and future challenges. Journal of Education for Sustainable development. 2012;6(1):63-77.

22. Baker MN. Organization Use of Self: A New Symbol of Leadership. Leader to Leader. 2016;2016(81):47-52.

23. Johnson B. Reflections: A perspective on paradox and its application to modern management. The Journal of Applied Behavioral Science. 2014;50(2):206-12.
24. Mustafa M, Gavin F, Hughes M. Contextual determinants of employee entrepreneurial behavior in support of corporate entrepreneurship: a systematic review and research agenda. Journal of Enterprising Culture. 2018;26(03):285-326.

25. Kraus S, Breier M, Jones P, Hughes M. Individual entrepreneurial orientation and intrapreneurship in the public sector. International Entrepreneurship and Management Journal. 2019;15(4):1247-68.

26. Covin JG, Rigtering JPC, Hughes M, Kraus S, Cheng C-F, Bouncken RB. Individual and team entrepreneurial orientation: Scale development and configurations for success. Journal of Business Research. 2020;112:1-12.

27. Hughes M, Rigtering JPC, Covin JG, Bouncken RB, Kraus S. Innovative behaviour, trust and perceived workplace performance. British Journal of Management. 2018;29(4):750-68.

28. Lahey T, Nelson W. A dashboard to improve the alignment of healthcare organization decision making to core values and mission statement. Camb Q Healthc Ethics. 2020;29(1):156-62.

29. Darr KJ. Management education in public health: further considerations: comment on" management matters: a leverage point for health systems strengthening in Global Health". International journal of health policy and management. 2015;4(12):861.

30. Taiwo AA, Lawal FA, Agwu PE. Vision and Mission in Organization: Myth or Heuristic Device? The International Journal of Business & Management. 2016;4(3).

31. Walker K. A systematic review of the corporate reputation literature: Definition, measurement, and theory. Corporate reputation review. 2010;12(4):357-87.

32. Clardy A. Organizational reputation: Issues in conceptualization and measurement. Corporate Reputation Review. 2012;15(4):285-303.

33. King G. Crisis management & team effectiveness: A closer examination. Journal of Business Ethics. 2002;41(3):235-49.

34. Sommer SA, Howell JM, Hadley CN. Keeping positive and building strength: The role of affect and team leadership in developing resilience during an organizational crisis. Group & Organization Management. 2016;41(2):172-202.

35. Rice MM. Strategies for clinical team building: the importance of teams in medicine. Emergency Department Leadership and Management: Best Principles and Practice. 2014:47.

36. Locke EA. Guest editor's introduction: Goal-setting theory and its applications to the world of business. Academy of Management Perspectives. 2004;18(4):124-5.

37. Desmidt S, Prinzie A. Establishing a mission-based culture: analyzing the relation between intra-organizational socialization agents, mission valence, public service motivation, goal clarity and work impact. International Public Management Journal. 2019;22(4):664-90.

38. Alawneh AA. The impact of mission statement on performance: An exploratory study in the Jordanian Banking Industry. Journal of Management Policy and Practice. 2015;16(4):73.

39. Norman SM, Avolio BJ, Luthans F. The impact of positivity and transparency on trust in leaders and their perceived effectiveness. The Leadership Quarterly. 2010;21(3):350-64.
40. Darbi WPK. Of mission and vision statements and their potential impact on employee behaviour and attitudes: The case of a public but profit-oriented tertiary institution. International Journal of Business and Social Science. 2012;3(14).

41. Kim J, Kim H, Kwon H. The Impact of Employees’ Perceptions of Strategic Alignment on Sustainability: An Empirical Investigation of Korean Firms. Sustainability. 2020;12(10):4180.

42. Baccarini D. The logical framework method for defining project success. Project management journal. 1999;30(4):25-32.

43. Pinkerton W. Project Management: Achieving Project Bottom-Line Success: Achieving Project Bottom – Line Success. McGraw Hill Professional; 2003.

44. Bannerman PL. Defining project success: a multilevel framework. Proceedings of the Project Management Institute Research Conference 2008:1-14.

45. Marinoni G, Van’t Land H, Jensen T. The impact of Covid-19 on higher education around the world. IAU Global Survey Report. 2020.

46. Asita MP, Alasomuka VA. CHAIN OF COMMAND IN HIGHER EDUCATION. International Journal of Institutional Leadership, Policy and Management. 2019;1(1):92-105.

47. Ahmed SA, Shehata MHK, Wells RL, Amin HAA, Atwa HSM. Step-by-step guide to managing the educational crisis: Lessons learned from COVID-19 pandemic. Journal of Microscopy and Ultrastructure. 2020;8(4):193.

Tables

Table (1): Comparison between assessment scores of Private universities and Public Universities
| Map/ Area | Assessment item                                                                                                                                                                                                 | Public university score with degree of risk (Risky) | Private University score with degree of risk (Good) | Collective cohort score and degree of risk |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|---------------------------------------|
| Individuals | Students are trained better on emergent (new) skills and Teaching becomes more targeted and less redundant                                                                                                                                 | 60                                                  | 70                                                  | 66                                    (Good) |
| Reputation | Our faculty are satisfied with the education process that incorporates their emergent needs                                                                                                                                                                        | 50                                                  | 79                                                  | 65                                    (Good) |
| Individuals | Faculty are trained better on emergent (new) skills and Teaching becomes more targeted and less redundant                                                                                                                                                     | 58                                                  | 76                                                  | 64                                    (Good) |
| Reputation | We no longer attract sufficient numbers of international students due to failure to find solutions to problems like travel etc.                                                                                                                                  | 60                                                  | 75                                                  | 63                                    (Good) |
| Teams      | Our teams demonstrate arrested productivity and loss of direction due to coexistence of parallel teams without clear job descriptions                                                                                                                         | 59                                                  | 75                                                  | 63                                    (Good) |
| Individuals | We experience lack of progress in areas like conventional faculty development                                                                                                                                                                                   | 59                                                  | 77                                                  | 63                                    (Good) |
| Teams      | We increase productivity by saving team resources like time                                                                                                                                                                                                       | 55                                                  | 65                                                  | 62                                    (Good) |
| Individuals | Our faculty appreciate how our strategic orientation contributes to the relaxed learning environment                                                                                                                                                               | 56                                                  | 73                                                  | 61                                    (Good) |
| Individuals | Our students appreciate how our strategic orientation contributes to the relaxed learning environment                                                                                                                                                              | 54                                                  | 74                                                  | 61                                    (Good) |
| Reputation | Our international partnerships and relations thrive built upon new avenues of joint problem solving and increase confidence of the community in the capacity of the university to adapt                                                                                     | 55                                                  | 70                                                  | 60                                    (Good) |
| Mission    | Lack of clarity makes results in chaotic ad Hoc decisions and adopting untested educational choices                                                                                                                                                                | 55                                                  | 70                                                  | 57                                    (Risky) |
| Teams      | Our teams demonstrate fatigue and exhaustion due to depletion of time and effort in non-achieving initiatives                                                                                                                                                   | 52                                                  | 66                                                  | 56                                    (Risky) |
| Teams      | Our teams struggle to complete assigned tasks due to depletion of team resources                                                                                                                                                                                   | 50                                                  | 67                                                  | 55                                    (Risky) |
Table (2): Action steps required to maintain upside of each pole in the tested polarity (Tactical and Strategic response)
| Theme | Action steps needed to maintain the upside of tactical (crisis) response | Action steps needed to maintain the upside of strategic response |
|-------|-------------------------------------------------|-------------------------------------------------|
| **Reputation** | 1. Assign a budget for the deployment of a crisis management plan | 1. Modify the recruitment policy of faculty and administration. |
| | 2. Develop and manage a communication plan with stakeholders to engage and orient them of how the tactical decisions feed into the strategy. | 2. Develop and manage a communication plan with stakeholders. |
| | 3. Design long term plans to face similar crises in future | 3. Conduct international events |
| | 4. Pursue government support for innovative solutions | 4. Offer adaptable new services to help in crisis management and improve the long-term plan |
| | 5. Design and develop Human resource training with CPD / CME points | 5. Document the activities and achievements |
| | 6. Monitor guidelines/standards during crisis | 6. Design an alumni communication plan |
| | | 7. Prepare graduates for the licensing exam training |
| | | 8. Postgraduate training plans to bridge the gap to community and market needs |
| | | 9. Get feedback (annual survey) from the stakeholders (employers) |
| **Teams** | 1. Audit on team functions | 1. Communicate a clear and detailed plan for all the people involved. |
| | 2. Capacity building of teams (e.g. etiquette, soft skills.) | 2. Audit on team functions |
| | 3. Communicate experience and unique solutions to the internal stakeholders regularly | 3. Offer appreciation and incentives |
| | 4. Revise team structure (homogenous and complementary) | 4. Facilitate the communication through development of a suitable platform. |
| | 5. Address grievance through a plan for faculty and student support | 5. Use of interactive and integrative activities (e.g. team building activities etc.). |
| | 6. Publish unique experiences | |
| | 7. Encourage innovative solutions and projects* | |
| **Mission** | 1. Develop multidisciplinary teams | 1. Incorporate the change to the system. |
| | 2. Develop and implement a communication strategy | 2. Self-audit (evaluation of process and outcomes) |
| | 3. Testing and adapting infrastructure and tools (e.g., internet, proctoring system, LMS etc.) | |
4. Reform of bylaws to accommodate innovative teaching and assessment methods
5. HR development of IT department
6. Development of new jobs based on requirements/responsibilities

3. Revisit mission regularly for modifications
4. Creating a risk management unit
5. Empower the quality assurance unit
6. Communicate with alumni for the aim of institutional evaluation
7. establish specialized units according to current needs
8. Investing in infrastructure to adapt to emerging needs

**Individuals**

1. Renovation and update of existing platforms
2. Revise and update infrastructure to suit the requirements of the crisis
3. Establish updated human resource development plans
4. Continuous monitoring of educational practices (teaching and assessment)
5. Establish inter-departmental agreements and partnerships for improved communication and execution of innovative education activities

1. Student and faculty orientation about changes, decisions
2. Student training to adapt to changes
3. Faculty development to adapt to changes
4. Involve students and faculty in strategy implementation
5. Revisit the curriculum regularly considering the lessons learned (new teaching and assessment methods)
6. To ensure graduate competency, institutionalize new alternatives for student competency training
7. Offer psychological support for the students and faculty.
8. Monitor student attendance, engagement, and motivation

Table (3): Warning signs indicating institutions are getting the downside of each pole in the tested polarity (Tactical and Strategic response)
| Theme         | Warning signs indicating institutions are getting the downside of tactical (crisis) response | Warning signs indicating institutions are getting the downside of strategic response |
|--------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Reputation   | 1. Arrest in collaboration projects that started before the crisis                             | 1. Number of international students applying for the program reduces by 10%         |
|              | 2. Decreased numbers of citations of publications                                           | 2. Increase the dissatisfaction of enrolled students when asked about the innovative approach of the university |
|              | 3. Decrease in the numbers of publications within the research plan                           | 3. Decrease the number of faculty attending strategic management meetings           |
|              |                                                                                              | 4. Verbal complaints from people in the local community identifying the school as outdated or detached |
| Teams        | 1. Decrease the number of faculty attending meetings*                                         | 1. Increase burnout score by 20%*                                                 |
|              | 2. Increase the number of complaints from team members*                                       | 2. Increase in the number of sick leave*                                           |
|              | 3. Delayed submission of assigned teaching tasks*                                             | 3. Delay in accomplishment of team deliverables*                                   |
|              |                                                                                              | 4. Decrease in numbers of team meetings by 30%*                                    |
|              |                                                                                              | 5. Stress in department meetings and quarrels arising over minor issues*            |
|              |                                                                                              | 6. Increase conflict numbers and frequency. *                                      |
| Mission      | 1. Increase the resource consumption by 30%*                                                   | 1. Increase the resource consumption by 20%*                                       |
|              | 2. Inferior quality Reports / conflicting reports*                                              | 2. Hearing negative feedback comments from stakeholders: reference to the detachment of the institution from reality |
|              | 3. Delay in achieving strategic deliverables*                                                   | 3. Decrease in the number of stakeholders attending conventional meetings*         |
|              | 4. Decrease satisfaction of community members in community service offered by the university* | 4. Less students know about the vision*                                            |
|              | 5. Different conflicting decisions, opinions, or instructions*                                | 5. Low academic achievement in module exams                                        |
|              |                                                                                              | 6. Decrease satisfaction among stakeholders with our mission                       |
| Individuals  | 1. Decrease in student engagement by 20%                                                       | 1. Decrease of student academic performance in comparison to the last year by 20% |
|              | 2. Failure to achieve more than 10% of learning outcomes as compared to the previous academic year | 2. Decrease of student and faculty satisfaction (school, environment....) in comparison to the last year by 30% |
3. Decrease of student academic performance in comparison to the last year by 30%

4. Decrease student attendance by 25% in comparison to before the crisis

5. Decrease percentage of participation of students in extracurricular activities by 30%

6. Increase in numbers of student and faculty medical consultations by 20%

7. More international students miss examinations

8. Decrease student engagement and motivation by 30%

9. - Negative verbal Student's feedback

10. Increase in numbers of student and faculty medical consultations by 20%

11. Decrease staff participation in crisis management activities by 20 %

12. Negative faculty feedback

13. Decrease in faculty satisfaction

14. Decrease the number of publications

---

*Priority warning signs as per the assessment results

**Figures**
**Figure 1**

Flow chart showing study design and steps of implementation
Figure 2

Mapping of the tension; University reputation

STRENGTHS: The highest scoring items in this Polarity

VULNERABILITY: The lowest scoring items in this Polarity

Tactical (Reputation) AND Strategic (Reputation)
Figure 3

Mapping of the tension; Teams

**STRENGTHS:** The highest scoring items in this Polarity

**VULNERABILITY:** The lowest scoring items in this Polarity
Figure 4

Mapping of the tension; University mission

STRENGTHS: The highest scoring items in this Polarity

VULNERABILITY: The lowest scoring items in this Polarity
Figure 5

Mapping of the tension; Individuals
Figure 6

Overall mapping of the four tension areas