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Adaptive Leadership, Organisational Resilience and the Mediating Effect of Change Management Amid Egyptian Academia Crises

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Abstract

This study aims to investigate the impact of adaptive leadership practices on organisational resilience within Egyptian academia amid the change management crisis, using the ADKAR change model. A self-administered online questionnaire (Google Form Survey) was distributed to collect data from 135 faculty members working at several private and public universities located in Greater Cairo/Egypt. The response rate was approximately 90% (out of 150 faculty members). A structural equation modelling technique was applied to test this study's hypotheses.

The primary purpose of this study is to provide empirical evidence that leadership adaptability and organisational resilience are among the most sustainable sources of organisational survival and competitiveness. However, this interrelation and interdependence occur in organisations after disasters and during crises. Furthermore, it strongly supports the mediating role of the ADKAR change model, which creates an indirect positive impact between the independent variable (adaptive leadership) and the dependent variable (organisational resilience).

It also develops a survey tool that organisations can utilise to identify their strengths and, evaluate the effectiveness of their resilience strategies, and improve their ability to recover quickly from crises and calamities.

To the author's knowledge, this study is one of the few examining the relationships between these variables within the Egyptian academic context.

Keywords: adaptive leadership, change management, ADKAR change model, organisational resilience, Egyptian academia, Egypt

1. Introduction

The purpose of this study is to examine the impact of adaptive leadership practices on shaping organisational resilience policies and procedures in Egyptian academia during change management crises using the ADKAR change model.

The challenges that educational organisations face today - in general – and in Egyptian academia - in particular have far-reaching implications for the continued sustainability of these institutions and their affiliated academic staff members (El-Megharbel, 2015). Challenges in Egyptian academia include many emergent issues such as: seeking innovation in teaching and learning processes, academic staff brain drains, students' anxiety and insecurity, insufficient budget, lessening dependency on public funding, and moving towards more diversified post-secondary education funding with new systems and updated technological approaches that opt to benefit all stakeholders (El Hadidi & Kirby, 2017; Squires, 2015). Building on Egypt's Strategic Vision 2030, education reform held top priority in Egypt's national planning strategy (Mouneer, 2021). Given this complex environment of Egyptian educational institutions, a more robust model of adaptive leadership became in high demand as a useful agile tool to assist both leaders and followers of these organisations to navigate this dynamic educational landscape. Although most research focuses on the application of adaptive leadership in commercial and healthcare organisations, there is a gap in understanding the implications of adaptive leadership practices in complex and changeable higher education systems (Hempe, 2013; Solomona Nebiyu & Kassahun, 2021).

Drawing on the literature review, few empirical studies tackled the relationship between this leadership and the sustainable resilience of organisations undergoing and have undergone a sustainable change (Dinh et al., 2014). This indicates a lack of knowledge in this relatively unexplored research area.

The assumptions and ideas under which this model was built need further evaluation. Evidence generated by this research is beneficial not only for validating theories but also for facilitating further adoption of the model in large-scale organisations (Nelson & Squires, 2017).

This study examines the feasibility of applying a new type of leadership: the adaptive leadership model. Explore its potential ability to meet the undergoing overt and covert change challenges within the Egyptian educational systems. Finally, investigate its potential to foster integrated organisational resilience policies and processes that enable current and future improvements.

Heifetz and his colleagues originally developed the adaptive leadership model in the context of business, but later realised that their model could be applied to the educational system because the problem is complex and multifaceted (Heifetz & Linsky, 2014). They proposed a prescriptive approach to solving the challenges of change. This approach has been embraced and implemented by both leaders and their followers in diverse communities. In this context, Heifetz et al. (2009) argued that adaptive leadership in education means mobilising schools, colleges, families, and communities to address the deep-seated and systemic problems that limit the success of transformational efforts in different organisations in diversified contexts. These mobilisation processes are often accelerated amid crises and emergencies when change management becomes an ongoing process rather than an event (Goyal & Patwardhan, 2018); that may lead to the formulation of both community and organisation resilience, since both of them are interdependent and interconnected. They both aim to address how leaders and people manage uncertainty and crises (Robert & Hanond, 2012). Therefore, to be resilient, organisations must rely on strong and adaptive leadership to capitalize on their strengths and orchestrate the rapidly needed change in their respective communities (Lee et al., 2013).

This study was conducted on the Egyptian academic staff members working in three public universities and four private universities, located in Greater Cairo Region.

2. Literature Review and Key Concepts and Theories

2.1 Adaptive Leadership

Based on the work of (Heifetz et al., 2009; Heifetz & Laurie, 1997), adaptive leadership has been described as the activity of mobilising people to face difficult challenges, adopt new strategies, and thrive in times of change and crisis. It is a follower-centred approach to leadership. Both leaders and followers face their respective problems and coordinate decision-making options through a win-win process. Leaders and followers can therefore learn, experiment, and adapt new ways of operating together to achieve favourable results (Heifetz & Heifetz, 1994; Heifetz & Laurie, 1997; Heifetz & Linsky, 2014; Miller, 2015). Leaders should not always be the primary decision-makers, but they should give work back to employees and be the facilitators of the problem-solving process. When it comes to problem solving, people are known to rise and accept challenges when they own a problem and share its solution (Obolensky, 2017). Ownership of an issue/challenge helps drive and sustain change.(Clesen, 2017).

The model of adaptive leadership is composed of six distinct leadership behaviours originally coined by Heifetz's studies as follows: 'Get on the balcony', 'Identify the adaptive challenge', 'Regulate distress', 'Maintain disciplined action', 'Give the work back to the people', and 'Protect leadership voices from below' (Heifetz & Laurie, 1997; Miller, 2015). However, for functionality purposes and according to as Recognition, Diagnosis, Regulation, Focus, Facilitation, and Protection. All these adaptive leadership behaviours focus on the leader's flexible ability to analyse a situation, diagnose the problem, manage stress and uncertainty, overcome resistance to change, empower followers, and guard them against marginalisation at times of crisis (Clesen, 2017; Miller, 2015). These adaptive leadership behaviours are explained below:

1- **Get on the balcony (Recognition)**, the "balcony" metaphor refers to the role of a leader who sees patterns from a distance and assesses the current situation (Miller, 2015). It refers to observing the situation from the top level through a detached 'helicopter view' to see the 'big picture' objectively from above and recognise patterns that are invisible or unclear at the bottom ground (Heifetz & Heifetz, 1994; Squires, 2016).

2- **Identify the adaptive challenge (Diagnosis)**, from this broader perspective, leaders develop the ability to distinguish between short term technical and strategic adaptive challenges. They diagnose the undefined problem(s) and seek an unknown solution(s) (Clesen, 2017). In the same vein, Marion and Uhl-Bien (2011)

theorised that adaptive leaders need to be contextually aware and adjust their activities to changing environments by providing opportunities for innovation, creativity, and new business models.

3- Regulate distress (Regulation), inspire and guide change while driving adaptive work without interruption. Optimise a leader's emotional intelligence (EI) skills. These include the four components of perception, management, social, and relationship, as well as the emotional state of the followers, which are the most important keys to regulating stress and overcoming challenges (Yukl, 2008). According to Northouse (2021), the adaptive leadership model recommends three strategies leaders can use to manage stress. First, create a safe environment. Second, provide direction, protection, and productive norms. Third, develop emotional resilience to withstand the uncertainty and suffering that comes with change (Heifetz & Laurie, 1997).

4- Maintain disciplined action (Focus), the purpose of this fourth behaviour in the adaptive leadership model is to keep followers focused on the issue they are facing, which will help facilitate the problem-solving process (Squires, 2015). Leaders use the "balcony view" to specify and highlight various forms of work avoidance, such as ignoring or discrediting problems, shifting blame onto leaders and colleagues, attacking change agents, or tackling unrelated tasks (Heifetz & Laurie, 1997; Miller, 2015). Also, to reaffirm the mutual commitment, and ensure upward, downward, and lateral communication flows throughout the change processes (Hayashi & Soo, 2012).

5- Give the work back to the people (Facilitate). This is the fifth behaviour in the adaptive leadership model. Leaders facilitate change processes, support people rather than control them, encourage risk-taking, avoid micromanagement, rely on people's creativity and empower them to think outside the box (Heifetz & Heifetz, 1994; Jefferies, 2017).

6- Protect leadership voices from below (Protection). This final action in the adaptive leadership model is related to protecting the voices of marginalised individuals within the organisation (Miller, 2015). This protective behaviour fosters transparent participation with followers, reveals contradictions, and creates an open environment to manage change resistance within the context and scope of change (Cote, 2022; Heifetz & Linsky, 2014).

These ongoing complexities and changes facing academia created urgency for developing and practising a new type of leadership, different from the commonly used traditional leadership paradigms and their hierarchical applications. The adaptive leadership model is equipped to handle complex educational problems and construct multiple practices, such as recognition, diagnosis, regulation, focus, facilitation, and protection to seek unconventional suggestions. Moreover, since the outcomes of these issues are unpredictable; this mandated that stakeholders themselves implement the solution (Heifetz & Linsky, 2002). This means that adaptive leadership is needed to encourage synergies between leaders and followers to face said challenges and make decisions through interdependent efforts. Both are required to engage in resilient learning, experimenting, and developing innovative ways of collaborating to achieve their ultimate goals, and survive uncertainty and change in the Egyptian academic context.

2.2 Change Management using ADKAR Change Model

The process of change in an organisation can be studied via various models of change management. ADKAR model of change was developed by Jeff Hiatt in 2006 (Hiatt, 2006). This model has been used for many reasons, including enabling management to recognise individual change processes, identify where and when change fails, define and rectify the missing link or weak element. The ADKAR change model consists of five key elements, which are Awareness, Desire, Knowledge, Ability, and Reinforcement, explained, as follows:

1-Awareness of the need for change; by sharing the nature and urgency of change, adaptive leaders communicate its importance throughout the organisation and instil a clear vision and goals (Al-Alawi et al., 2019).

2- Desire to support and participate in change. This is the second step after raising awareness to enable people to reach their full potential in achieving desired change and achieving organisational resilience (Andrews et al., 2008).

3-Knowledge of how to change; it is primarily about training and education. It explains what needs to be done during the change process and how to excel in the future state (Rosenberg & Mosca, 2011). This third element in ADKAR model becomes effective post the fulfilment of both awareness and desire (Al-Alawi et al., 2019; Hiatt, 2006).

4-Ability to implement required skills and behaviours, by identifying and addressing change barriers amid daily implementation (Hiatt, 2006). This is when changes are demonstrated, expected performance tested and results

are put into real action (Boca, 2013; Shah, 2014).

5- Reinforcement Include actions or events that enhance and amplify individual or organisational change (Al-Alawi et al., 2019). Enhancing does not necessarily require a big event. It can be a ‘personal thank you’ or any kind of appreciation from an executive. It also includes institutionalising incremental milestones of change, sharing success stories, and encouraging best practices. (Ali et al., 2021; Hiatt, 2006).

ADKAR change management model is concerned with three-time spans: before, during, and after the change. Awareness and Desire are intended to move the target organisation from its current state where change is needed but has not yet begun. Knowledge and skills emerge during the transition, enhancement focuses on future change sustainability. (Ali et al., 2021)

The ADKAR change model has provided useful insights for resilient people management by understanding and mastering these five key aspects that form the foundation of this model.

2.3 Organisational Resilience

Organisational resilience is a multi-dimensional, socio-technical phenomenon that has a three-dimensional structure: Robustness, Agility, and Integrity (Kantur & Say, 2015).

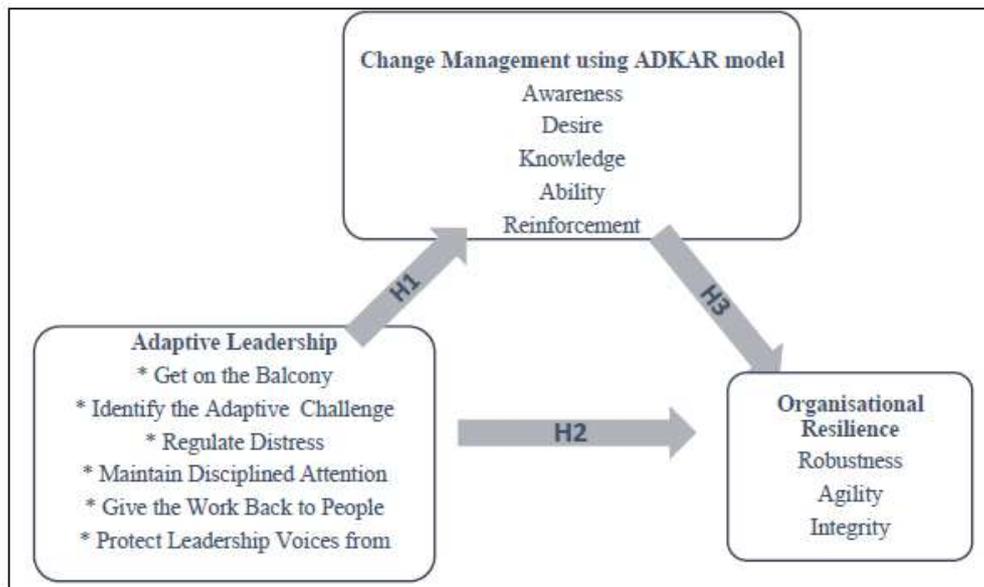
The term "resilience" is originally derived from the Latin word "resile", meaning "to recover" or "bounce back" after a disaster (Dictionary, 2002). It has been widely adopted in the field of organisational theory, especially in the crisis management and disaster literature, and more recently in the strategic change management literature (Kantur & Say, 2015). Simply put, organisational resilience is the ability of an organisation to anticipate, prepare for, respond to, and adapt to gradual changes and sudden disruptions to continue moving forward, surviving, and thriving after a disaster (Ho et al., 2022). As a concept, resilience is deeply rooted in traditional Chinese medicine and is defined as the ability of a biological system to regenerate after severe injury. In physics, it describes a material's inherent ability to return to its original shape after an impact. In psychology, it refers to an individual's ability to withstand and bounce back from trauma despite life's setbacks and adversity (Sawalha, 2015). In business management, the concept of resilience was first used in the study of change and crisis. It included many relevant organisational structures such as change management, collective dynamics, performance, learning, leadership, and strategic agility to anticipate, adapt and respond to environmental uncertainty (Mokline & Abdallah, 2021). Ma et al. (2018) argued that organisational resilience is not only the ability to manage and survive crises; but also the ability to recover, adapt and develop new technologies and capabilities to deal with new environmental requirements.

Organisational resilience was assessed through a 9-item scale adapted from (Kantur & Say, 2015). It has a three-dimensional structure: Robustness, Agility, and Integrity. The first dimension is ‘Robustness’, which measures the organisational coping and resistance capacity for recovery amid unfavourable conditions. The second dimension, ‘Agility’, assesses the organisational ability to adapt to changing circumstances and take rapid actions. The third dimension, Integrity measures cohesion among employees in an organisation facing adverse circumstances (Kantur & Say, 2015; YahiaMarzouk & Jin, 2022).

This study aims to answer a pivotal research question: How can organisations utilise adaptive leadership practices to achieve sustainable resilience despite uncertainty? The empirical measurement tool of this study attempts to answer this question and provide evidence-based findings to be explored further with other researchers.

3. Proposed Research Model and Hypotheses Development

3.1 Adaptive Leadership and Change Management using ADKAR Change Model



Adaptive leadership, according to change theorist Ronald A. Heifetz, requires new and flexible learning methods for problem definition and solution implementation; as today's leaders have to face insurmountable challenges within the rapidly changing business environment (Heifetz et al., 2009). Adaptivity to change remains a mandatory stepping stone at times of adversity and turbulence. Adaptive leaders according to (Castillo & Trinh, 2018) and (Yukl & Mahsud, 2010) are advocates of change and play critical roles in embracing change management as a source of strength to enhance their organisations' capabilities amid times of unrest and unpredictability (Kotter, 1990).

Organisational leaders and business managers must be aware of emerging trends, forthcoming crises, and concurrent evolutions in the working environments in which they function. They need resilience and adaptability when it comes to creating, anticipating, encouraging, and proactively responding to change (Dumas & Beinecke, 2018). According to Burke, adaptive leadership is a precondition for the realisation of needed organisational change and a post-condition for ensuring change sustainability (Burke, 2011).

In the same vein, adaptive leaders need to manage the five key goals that form the basis of ADKAR change model: to be aware of the need to change, to desire participation, to support change, to acknowledge how to change, to implement change on daily operations, and to reinforce and sustain change (Goyal & Patwardhan, 2018; Karambelkar & Bhattacharya, 2017).

Therefore, the first proposed hypothesis is:

H1: Adaptive leadership has a positive impact on change management using the ADKAR Model of Change.

3.2 Adaptive Leadership and Organisational Resilience

Current literature on adaptive leadership demonstrates significant linkages with organisational resilience capabilities (Teo et al., 2017). As discussed by Buzzanell (2018), resilience is the most important and crucial concept of adaptive leadership practices; as it enables them to change and utilise their organisations' resources and opportunities to serve their advantage and fulfil their vision (Levey & Levey, 2019). The same applies when an organisation has an effective resilience system. It is a fundamental prerequisite to include adaptive leaders that have a clear strategic direction, and understand the involved risks embedded in the change processes (Gibson & Tarrant, 2010). Adaptive leaders are responsible for creating a resilience-focused culture and using capabilities to foster employee engagement and training. In addition to establishing technical measures to anticipate and manage adversity, (Alberti et al., 2018). According to further research, the main characteristics of resilient leaders are: agility, anticipation, robustness, autonomy, innovation, timely decision-making, risk-takers, gaining accurate and useful insights from failures and modifying future behaviours, processes, or systems accordingly (Branicki et al., 2017; Hadi, 2020).

Therefore, the second proposed hypothesis is:

H2: Adaptive leadership has a positive impact on organisational resilience.

3.3 Change Management Using ADKAR Change model and Organisational Resilience

Based on the previously discussed relationships in hypotheses one and two, this study suggests that change management using the ADKAR change model mediates the relationship between adaptive leadership and organisational resilience.

ADKAR change model provides the foundation blocks that allow successful implementation of the organisational change; as it creates awareness, desire, knowledge, ability, and reinforcement. It also acts as a major catalyst that triggers the eruption and formulation of new adaptive leadership approaches. Adaptive leaders are elicited to handle unorthodox problems and cope with uncertainties; thus, leading and enhancing the institutionalisation of organisational resilience amid change and crisis.

Therefore, the last proposed hypothesis is:

H3: Change Management using the ADKAR change model mediates the relationship between adaptive leadership and organisational resilience.

4. Research Methodology

4.1 Sample Design and Size

The target population is the academic staff in Egyptian universities. A random sample was selected from different public and private Egyptian universities. The Public universities include Cairo University, Helwan University, and Alexandria University. The Private universities include The British University in Egypt, Future University, Arab Academy for Science Technology and Maritime Transport, and Sherouk Academy. Firstly, the universities were selected randomly from the list of universities, then the survey was designed on a Google form and sent to staff using their business email address

Secondly, the sample size was determined using the following formula. The sample size assuming an infinite population was determined according to the following formula:

$$n_0 = \frac{z_{\alpha}^2 * p * (1-p)}{e^2}$$

Z_{α} is the critical value of the normal distribution at α (for a confidence level of 95%, α is 0.05, and the critical value is 1.96). p is the percentage of specific phenomena and is set to be 0.5 as it gives the highest value for sample size, is the margin error, and is set to be 0.085. The sample size is at least 133 to avoid the non-response rate and problems of missing data; 150 respondents were interviewed and surveyed. The valid responses were from 135 respondents.

Table 1. Descriptive Demographic Statistics (A)

No	Item	Frequency	Percent
1- Gender	Male	77	43%
	Female	58	57%
	Total	135	100%
2-Education Level	Bachelor's degree	23	17%
	Master's degree	22	16.3%
	Professional degree	22	16.3%
	PhD	66	48.9%
	Associate Professor	2	1.5%
	Total	135	100%
3-Current Position at Work	Senior management	33	24.4%
	Middle management	35	25.9%
	Lower management	10	7.4%
	Non-managerial position	57	42.2%
	Total	135	100%
4-Type of Affiliation	Public sector	54	40%
	Private sector	77	57%
	Moonlighting between Public & Private	4	3%
	Total	135	100%

Table 1. Descriptive Demographic Statistics (B)

Type of Affiliation	Mean of Adaptive Leadership	Sig of F-test
Public sector	3.2938	0.000
Private sector	3.7723	
Moonlighting between Public & Private	3.3000	
Total	3.5669	

The analysis of the demographic characteristics of respondents indicates values of respondents' gender composition, age, educational levels, current positions, total working experiences, and affiliation to public and private universities.

- Results in the previous table indicate female dominance (57%) in this educational career.
- The average age of the respondents is about 42 years old with a 10.268 standard deviation, where the youngest respondent aged 21 years old, and the oldest respondent aged 61 years old.
- Considering the educational levels, the majority (48.9%) are Ph.D. holders, which implies that respondents have the appropriate educational background to quickly detect and observe the association between adaptive leadership practices and their educational institution's resilience capability.
- Taking into account the current non-managerial positions (42.2%) and (7.4%) in lower management positions, that demonstrates the respondents growing aspiration to seek promotions and look forward to new adaptive leadership that might facilitate their entry into privileged circles of in-groups within their educational institutions.
- The respondents' total work experience is about 19 years with a 9.576 standard deviation where the minimum of the total work experience is 4 years and the maximum of it is 40 years.
- The previous table shows the frequency of the respondents according to the type of their affiliation, about 57% of them are working in private universities, where change is a prevalent norm, and tenured contracts are rather scarce. To ensure the continuity in their posts; they need to have a resilient mindset adaptable to change. Whilst, about 40% of the respondents work in public universities, with secured job contracts, but longing to engage in the educational reform of their universities. Only about 3% of the respondents are adjunct lecturers, moonlighting between private and public universities.
- The average of an adaptive leader is significantly greater in private affiliations than in both public and moonlighting between public and private.

4.2 Creating Indicators

Three main indicators are: adaptive leadership the independent variable, the second one, organisational resilience represents the dependent variable, and the last one, change management using the ADKAR Model as the mediator variable. Six sub-indicators for the independent variable, five sub indicators of the mediator variable, and three sub-indicators of the dependent variable are created.

The survey's variables are reliable as Cronbach's Alpha values for all of the main indicators are greater than 0.7. The survey's sub-indicators are reliable as Cronbach's Alpha values for almost all of the sub-indicators are greater than 0.7.

In addition, convergent validity was established as the AVE values for all the constructs were equal to or greater than 0.50. Accordingly, all research measures demonstrate convergent validity.

This confirmatory factor analysis is used to measure the validity of the research variables. The previous table represents the different loading values using confirmatory factor analysis. Loading values for each statement that are greater than 0.5 indicates a high correlation between these statements and strong validity (O'Leary-Kelly & Vokurka, 1998)

Table 2. Created Variables

Variable	Number of Statements	AVE	Cronbach Alpha	Loading range
Adaptive Leadership	30	77.76%	0.899	0.602-0.784
Balcony	5	97.32%	0.814	
Challenge	5	83.23%	0.943	
Distress	5	75.46%	0.783	
Attention	5	89.56%	0.765	
Work back	5	76.56%	0.824	
Leadership	5	78.92%	0.914	
Organizational Resilience	9	70.387%	0.922	0.527-0.678
Robustness	4	60.83%	0.771	
Agility	3	77.95%	0.855	
Integrity	2	93.75%	0.930	
Change Management using the ADKAR Model	45	70.67%	0.887	0.509-0.709
Awareness	8	67.19%	0.554	
Desire	13	72.36%	0.861	
Knowledge	8	59.56%	0.671	
Ability	8	80.65%	0.655	
Reinforcement	8	65.4%	0.858	

4.3 Descriptive Statistics of Research Variables

The description of the indicators is done by computing some descriptive measures such as mean, minimum, maximum, standard deviation, and coefficient of variation.

Table 3. Descriptive Statistics of the Main Variables

	N	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
Adaptive Leadership	135	2.17	4.43	3.5669	0.49293	13.82%
Organisational Resilience	135	2.44	5	3.7942	0.6623	17.46%
Change Management using the ADKAR Model	135	2.71	4.87	3.6201	0.42321	11.69%

Table Summary:

- Respondents tend to agree with the statements related to all of the variables as the mean of each variable is between 3.5 and 4.5.
- The organisational resilience variable has the highest agreement while the adaptive leadership variable has the lowest agreement.
- The change management using the ADKAR model variable is the homogeneous one with a coefficient of variation equal 11.69% while the variable with the highest variation is the organisational resilience with a coefficient of variation equal 17.46%.

Table 4. Descriptive Statistics of the Sub- Indicators

	N	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
Organizational Resilience						
Robustness	135	2.75	5	3.9519	0.6432	16.28%
Agility	135	2	5	3.6247	0.83995	23.17%
Integrity	135	1	5	3.7333	0.96738	25.91%
Change Management using ADKAR Model						
Awareness	135	2.5	4.5	3.638	0.44451	12.22%
Desire	135	2.38	4.92	3.6752	0.56211	15.29%
Knowledge	135	2.38	4.88	3.4926	0.48262	13.82%
Ability	135	2.38	5	3.5602	0.48095	13.51%
Reinforcement	135	2.13	5	3.7	0.60744	16.42%
Adaptive leadership						
Balcony	135	2.00	4.60	3.3733	.59591	17.7%
Challenge	135	1.80	3.40	2.6267	.35222	13.4%
Distress	135	1.20	5.00	3.6948	.87241	23.6%
Attention	135	2.00	3.80	3.1496	.44969	14.3%
Work back	135	1.80	3.60	3.0015	.43400	14.5%
Leadership voices	135	2.00	4.60	3.3363	.49454	14.8%

Table Summary:

- Respondents tend to agree with the statements related to all of the sub-indicators of the organisational resilience variable except the Knowledge sub-indicator where the respondents tend to neutrally agree with its statement.
- Respondents tend to agree with the statements related to all of the sub-indicators of the change management using the ADKAR model variable except the Knowledge sub-indicator where the respondents tend to neutrally agree with its statement.
- Respondents tend to agree with the statements related to all of the sub-indicators of the adaptive leadership variable except the Knowledge sub-indicator where the respondents tend to neutrally agree with its statement.
- The Robustness sub-indicator has the highest agreement among all of the sub-indicators of the organisational resilience variable while the Agility sub-indicator has the lowest agreement.
- The Reinforcement sub-indicator has the highest agreement among all of the sub-indicators of change management using the ADKAR model variable while the Knowledge sub-indicator has the lowest agreement.
- The challenge sub-indicator is the homogeneous one among all of the sub-indicators of the organisational resilience variable with a coefficient of variation equal 16.28%.
- The Awareness sub-indicator is the homogeneous one among all of the sub-indicators of the change management using the ADKAR model variable with a coefficient of variation equal 12.22%.

4.4 Correlation Analysis

Table 5. Correlation Coefficients for the Main Variables

		Adaptive Leadership	Change Management	Organizational Resilience
Adaptive Leadership	Pearson Correlation	1	.581**	.528**
	Sig. (2-tailed)		.000	.000
Change Management	Pearson Correlation	.581**	1	.762**
	Sig. (2-tailed)	.000		.000
Organizational Resilience	Pearson Correlation	.528**	.762**	1
	Sig. (2-tailed)	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).				

It is clear that:

- There is a moderate positive correlation between adaptive leadership and change management using the ADKAR Model, as the p-value associated with them is less than 0.05. Correlation = 58.1% so it is moderate.
- There is a moderate positive correlation between adaptive leadership and organisational resilience, as the p-value associated with them is less than 0.05. Correlation = 52.8%, so it is moderate
- There is a strong positive correlation between organisational resilience and change management using ADKAR Model, as the p-value associated with them is less than 0.05. The correlation = 76.2% so it is strong.

Table 6. Correlation Coefficients for the Sub Indicators

Organizational Resilience						
	Robustness		Agility		Integrity	
Robustness	1		0.538**		0.594**	
Agility	0.538**		1		0.608**	
Integrity	0.594**		0.608**		1	
Change Management using ADKAR Model						
	Awareness	Desire	Knowledge	Ability	Reinforcement	
Awareness	1	0.648**	0.520**	0.480**	0.455**	
Desire	0.648**	1	0.528**	0.555**	0.718**	
Knowledge	0.520**	0.528**	1	0.599**	0.450**	
Ability	0.480**	0.555**	0.599**	1	0.528**	
Reinforcement	0.455**	0.718**	0.450**	0.528**	1	
Adaptive leadership						
	Balcony	Challenge	Distress	Attention	Work back	Leadership voices
Balcony	1	-.382**	.620**	.336**	.400**	.140
Challenge	-.382**	1	-.676**	-.440**	.105	-.415**
Distress	.620**	-.676**	1	.618**	.267**	.538**
Attention	.336**	-.440**	.618**	1	.358**	.207*
Work back	.400**	.105	.267**	.358**	1	-.169*
Leadership voices	.140	-.415**	.538**	.207*	-.169*	1

(**) means that the correlation is significant at the 0.01 level

It is clear that:

- There is a moderate positive correlation between Robustness and each of Agility and Integrity, as the p-value associated with them is less than 0.05.
- There is a moderate positive correlation between Agility and Integrity, as the p-value associated with them is less than 0.05.
- There is a moderate positive correlation between Awareness and all the other sub indicators of change management using the ADKAR Model, as the p-value associated with them is less than 0.05.
- There is a moderate positive correlation between the Desire and each of Knowledge and Ability, but there is a strong positive correlation between the Desire and the Reinforcement, as the p-value associated with them is less than 0.05.
- There is a moderate positive correlation between Knowledge and all the other sub indicators of change management using the ADKAR Model, as the p-value associated with them is less than 0.05.
- There is a moderate positive correlation between the Ability and Reinforcement, as the p-value associated with them is less than 0.05.
- There is a significant positive correlation between Balcony and each of Distress, Attention and Work back, while significant negative correlation with challenge, and no significant correlation with Leadership Voices.
- There is a significant negative correlation between challenge and each of Distress, Attention, and Leadership Voices, while significant negative correlation with Challenge, and no significant correlation with Work back.
- There is a significant positive correlation between Distress and each of Attention, Work back, and Leadership Voices.
- There is a significant positive correlation between Attention and each of Work back, and Leadership Voices.

4.5 Answering Hypotheses

To answer the previously mentioned hypotheses, the Path Analysis technique will be used where the independent variable is adaptive leadership, the dependent variable is organisational resilience, and the mediator the change management using the ADKAR Model. It is said that change management using the ADKAR Model is significantly mediating the relationship between adaptive leadership and organisational resilience if there is a significant effect of adaptive leadership on change management using the ADKAR Model, and a significant effect of change management using the ADKAR Model on organisational resilience, then SEM is used to illustrate these relationships.

In the estimated model, the organisational resilience as well as the change management using the ADKAR Model will be treated as latent variables.

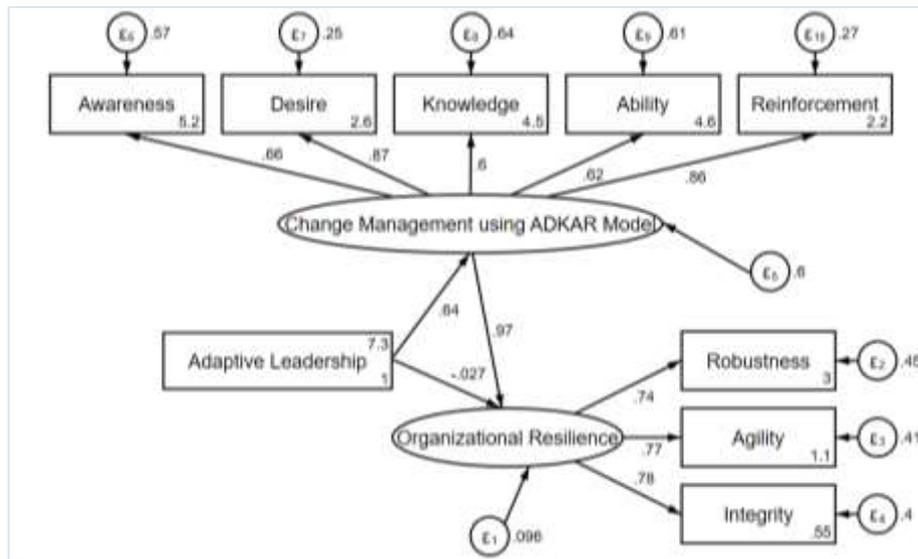


Figure 7. Path Diagram with Estimates

	Coefficient	Std. Error	Z	p> Z
Adaptive Leadership → Change Management using the ADKAR Model	0.6357	0.0522	12.17	0.000
Adaptive Leadership → Organisational Resilience	-0.0274	0.0841	-0.33	0.744
Change Management using the ADKAR Model → Organisational Resilience	0.9681	0.0699	13.84	0.000

- Sig if p>|Z| <0.05

Summary:

- The adaptive leadership variable has a positive impact on the change management using the ADKAR model variable which equals about 0.6357 with a 95% confidence interval.
- The change management using the ADKAR Model variable has a positive impact on the organisational resilience variable which equals about 0.9681 with a 95% confidence interval which means that the change management using the ADKAR Model variable mediates the relationship between the organisational resilience variable and the adaptive leadership variable.
- The adaptive leadership variable has an insignificant direct impact on the organisational resilience variable with a 95% confidence interval.
- The adaptive leadership variable has a significant indirect impact on the organisational resilience variable through the change management using the ADKAR model variable, this effect equals about 0.6154 (=0.6357*0.9681).
- The organisational resilience variable can be interpreted using the sub-indicators with high loadings on it (greater than 0.6) which are all of the sub-indicators of this variable.
- The change management using the ADKAR Model variable can be interpreted using the sub-indicators with high loadings on it (greater than 0.6) which are all of the sub-indicators of this variable.

Table 8. Goodness of Fit Measures

Measure	Value
Chi-Square	6.031
Degrees of Freedom	4
Level of Significance	0.197
Chi-Square/df	1.5077
RMSEA	0.042
SRMR	0.025
CFI	0.993

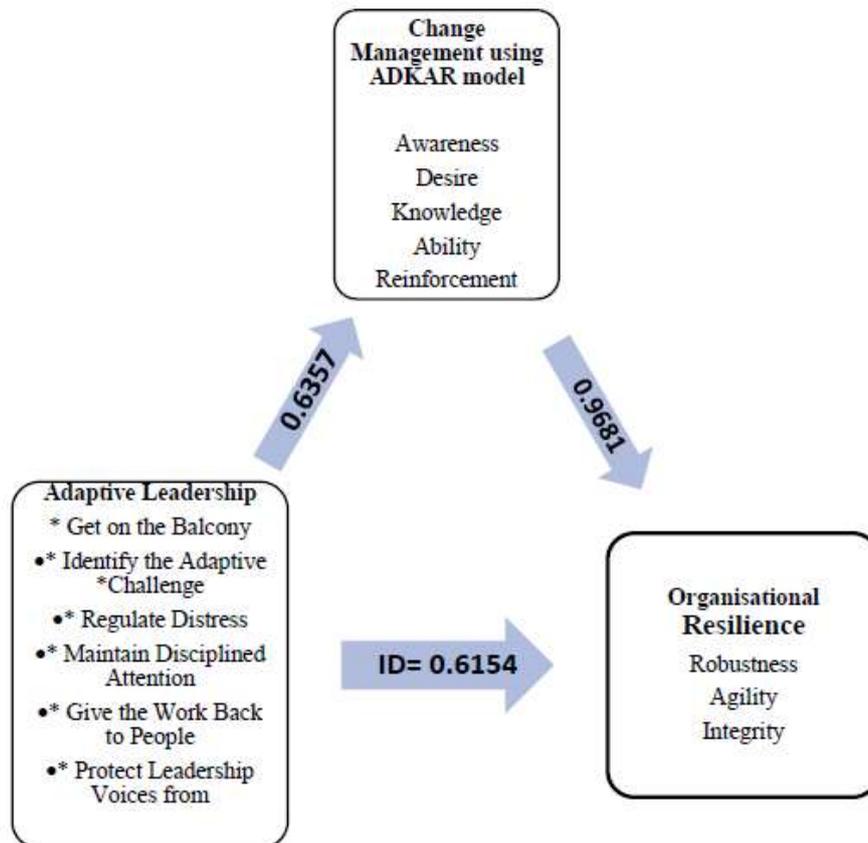
TLI	0.983
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The previous table shows the measures of goodness of fit for the estimated model where the values of CFI and TLI equal approximately one which indicates that the fitted model is very good. Also, RMSEA and SRMR have small values which assure the goodness of fit for the model. Furthermore, the level of significance of the Chi-Square test is greater than 0.05 which indicates that the model is well-fitted.

5. Findings and Analysis of Results

This section illustrates the main findings of the study and a summary of the hypotheses.

Table 9. Final Research Model and Tested Hypotheses



- ID means indirect effect

Table 10. Summary of Hypotheses

Hypotheses	Acceptance
Adaptive leadership has a positive impact on change management using the ADKAR model of change.	Accepted
Adaptive leadership has a positive impact on organisational resilience.	Not direct, indirect only through mediator
Change management using the ADKAR change model mediates the relationship between adaptive leadership and organisational resilience.	Accepted

This answers the pivotal question asked earlier: how can organisations utilise adaptive leadership practices to achieve sustainable resilience despite uncertainty? The adaptive leadership framework provides a viable approach to conceptualise and sustainably address the unique challenges facing educational institutions today. Moreover, in times of change and crisis, it is considered an alternative approach that actively works with the closest stakeholders to enhance resilience and adaptability in these institutions.

6. Theoretical and Practical Implications

6.1 Theoretical Implications

This research highlights the importance of adaptive leadership in building organisational resilience by managing change. Using the ADKAR change model to communicate the relationship between adaptive leaders and

organisational resilience builds on the past, experiments with resources, and includes three key elements: context, content, and process. Context refers to the importance of the change and the "why" it is needed. "Content" answers "What is the required action or suggested strategy?" The process refers to the question of "how" should these measures be implemented to achieve the desired goal.

6.2 Practical Implications

The adaptive leadership model used in this study can be used by any organisation, whether academic or non-academic. It provides a leadership approach for addressing current organisational realities (Nelson & Squires, 2017). Its practices include helpful business strategies and toolkits needed to overcome challenges. For example, when adaptive leaders resort to 'Get in the Balcony' technique they aim to evade unnecessary details and capture the broader view of the organisation. In addition, by 'giving work back to people', leaders and followers attempt to achieve joint solutions in a safe environment.

Because every individual responds to change differently. Therefore, to make the planned change happen in the organisation, we need to create awareness, desire, knowledge, ability, and reinforcement among every individual employee (Al-Alawi et al., 2019). Thus, a change model like ADKAR provides a roadmap for driving change toward organisational resilience.

Resilience is not only activated by change or trigger events. It is both cultural and transformative (Buzzanell, 2018). Outgroups who have not benefited from or adapted to the previous system look forward to embracing resilience to gain ingroup status and benefits. They are inclined to embrace resilience as a core function in their daily operations, by investing in human capital and other organisational resources. Furthermore, resilience can be politicised in ways that benefit the specific interests of leaders, managers, and stakeholders to prepare for unforeseen disasters and catastrophes.

7. Limitations and Future Research

The main limitation of this study is the relatively small sample size. Furthermore, empirical results cannot be unconditionally generalised, as they may differ in other service sectors and other countries.

Also, this research was a cross-sectional study and failed to understand the long-term impact of adaptive leadership practices and organisational resilience amid change management in times of crisis and uncertainty. A longitudinal survey should be conducted to analyse the dynamics between variables, based on the availability of time and resources. In addition, further business studies in various industrial sectors, such as healthcare and banking in Egypt, and comparative studies with other countries are recommended.

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