VUCA Approach to Adapting Presidents' Leadership Styles in China's Application-oriented Higher Education Institutions

Jun Liu [1], *, Mingming Chen [2]

[1] Research and Development Center for Languages and Cultures, Shanghai Publishing and Printing College, Shanghai Research Institute of Publishing and Media, China

[2] College of Information and Smart Electromechanical Engineering, Xiamen Huaxia University, China; cmm@hxxy.edu.cn (M.C.)

* Correspondence: Junliu_SPPC@163.com

ABSTRACT

The concept of application-oriented higher education institutions (A-HEI) in China has something in common with that of cooperative education or dual education institutions. The changes in education system have led to more challenges of volatility, uncertainty, complexity, and ambiguity (VUCA) in the present situation. Based on synergistic leadership theory and the VUCA approach, this paper synthesizes a framework of situation analysis and solution strategies. Applying this synthesized framework, together with the situational leadership theory, this paper analyzes the situation of developing China's A-HEI, including the synergistic leadership factors and the VUCA challenges, and provides essential solutions. Presidents may adapt leadership styles by applying corresponding strategies to address VUCA challenges in the present situation of China's A-HEI. This paper also offers references and implications to further research on the educational leadership in China's A-HEI.

1. Introduction

Application-oriented universities in China are to cultivate applied, compound, and skilled talents engaging in specific work, the concept of which has something in common with that of cooperative education [1,2] or dual education [3]. They belong to an education type that combines the characteristics of vocational education and those of higher education in the same education system [1], which leads to a change of education system to transfer the academic knowledge to the practical or vocational contexts [2]. In the last decade, developing application-oriented universities has been on its way to reshaping higher education in China by restructuring the types of universities rather than creating a new hierarchy of higher education [4]. More

recently, enterprises are encouraged to strengthen the cooperation with educational institutions by participating in the operation of vocational schools and universities as sole proprietorships or joint ventures and providing students with more vacancies to get further practical experience, according to the notice released nationwide in China, which is an industries' role shift from the passive participators to the active major parts in the application-oriented higher education system [5]. Hence, the synergetic factors of the application-oriented higher education system may have a change.

All these changes in the education system led to the VUCA, the notion of which described the multilateral world in an environment with more volatility, uncertainty, complexity, and ambiguity after the Cold War, according to the U.S. Army War College [6]. The VUCA in the situation of China's A-HEI calls for an effective presidents' leadership adaption.

The effectiveness of leadership is required to make leadership styles suitable for the situation [7, 8]. In the situation of developing China's A-HEI, to make the presidents' leadership more effective, this paper is to figure out a framework of situation analysis and solution strategies based on synergistic leadership theory and the VUCA approach. This paper also aims to identify the VUCA challenges and provide essential solutions to adapting presidents' leadership styles to address the challenges in developing China's A-HEI.

2. Situational Leadership Styles, Synergistic Leadership Theory, and VUCA Approach

2.1 Situational Leadership Styles

Situational leadership focuses on leadership in diverse situations [8], which has been a widely recognized yet under-researched theory to date [8, 9].

Situational leadership was first introduced to propose more directive behaviors with new employees and gradually change to supportive behaviors with employees' greater seniority [10]. Since then, situational leadership theory has been extended and refined in the development. Then, the Situational Leadership II model [11] takes leadership styles as a core part. Based on the 3D leadership styles [12], the leadership-style continuum [13], and the managerial grid [14], two key leadership styles are identified, i.e., task (directive) behaviors and relationship (supportive) behaviors [15]. Leadership styles in the Situational Leadership II model [11] can be further categorized into directing style with high task and low relationship behaviors, coaching style with high task and high relationship behaviors, supporting style with low task and high relationship behaviors, and delegating style with low task and low relationship behaviors [8].

Situational leadership theory also centers on the followers' development levels. In order to make the followers move forward along the developmental continuum, leaders' leadership styles should be adapted to their followers' development levels. This theory values the understanding of followers' readiness for taking greater responsibility, and the development of followers' skill-set, both of which represent followers' relative competence and commitment [8].

2.2 Synergistic Leadership Theory

Synergistic leadership theory [16] is developed on the basis of system theory [17, 18, 19]. The analysis of the foundations, development, and applications of the general system theory has been regarded as a shift from considering a whole as unchangeable substances to a system in constant interactions with the outer environment [17]. This open system is defined as an interrelated set of elements functioning as an operating unit [18, 20]. In contemporary system theories, the open system theory maintains the role of providing deep and valuable insights for socio-ecological theories [21].

Synergistic leadership theory [16] applies four factors with multiple perspectives to form a tetrahedron, which not only demonstrates the aspects of leadership but its effects on the organization systems. These four factors interact with one another in six pairs, among which exist experiences connecting each other by some means. These experiences are further defined as the events or interactions inside and all the rest of those outside the tetrahedron. The factors and examples of elements on the tetrahedron include [16]:

- factor of beliefs, attitudes, and values (e.g., believing in the importance of all individuals' professional growth, being open to change and/or diversity, valuing the importance of character, ethics, and integrity in schooling, …);
- factor of leadership behaviour (e.g., cooperation, receptivity, merging, acceptance, independence, self-assertion, competition, …);
- factor of external forces (e.g., government regulations, external resources, perceptions and/or expectations of the community, the culture of community, socio-economic status, political groups, …);
- factor of organizational structure (e.g., using the expertise of members, having consensus on derived goals, valuing members, rewarding professional learning, relying on informal communication, dispersing power, promoting nurturing and caring, empowering promoters, having many rules, having separate tasks and roles, initiating changes, …).

2.3 VUCA Approach

VUCA is shortened for "Volatility", "Uncertainty", "Complexity" and "Ambiguity", all of which manifest market volatility, economic drivers, and global problems frequently emerging in the business world. Customer service leadership was once introduced in a rapidly changing business world by adopting a VUCA approach [22], which may also be the "tool-kit" for application-oriented higher education. According to customer service leadership, each of the VUCA challenges may be addressed by solution strategies of vision, understanding, clarity, and agility [22].

"Volatility" refers to an unpredictable pattern of change no matter in its nature, speed, volume, or magnitude. It is the essence and motive force of change and is also driven and catalyzed by change [23]. It may be of unknown duration with unexpected or unstable, but the knowledge about it is available and not very difficult to understand [24]. Volatility can be redressed with a vision for the sake of the vital role of vision in

turbulent times. This requires leaders to have the ability to communicate and guide employees toward a shared vision [6].

"Uncertainty" means the problems or events that are not predictable [6]. Uncertainty does not allow leaders to find guidance on making predictions from past experiences [25], thus leading to a lack of understanding, awareness, expectations, and foresight of the current situations. The uncertainty of the environment requires understanding the problem by asking questions to all members of the organizations [22]. Leaders need to understand the motivations, expectations, and needs of their team and have an open mind [26].

"Complexity" has the meaning that organizations are beset by forces, by factors, by things. There are often various and intricate causes or factors (including both internal and external forces) involved in a problem [23]. Complexity can be countered with clarity to cut through the complexity and cancel out the unnecessary [22]. Leaders need to deal with the core issues in a complex environment [26].

"Ambiguity" refers to the haziness of reality, the mixed meanings of conditions, and cause-and-effect confusion [22]. The ambiguity of reality is the root cause of misunderstanding, confounding various conditions, and causality [27]. Ambiguity may be responded with agility, which includes the abilities to communicate across the organizations and to move quickly to employ solution strategies [6]. Leaders are required to adapt quickly to changing situations and make swift decisions. They also need to empower employees, cut unnecessary bureaucratic processes, and build good collaborative communication mechanisms [26].

In terms of synergistic leadership theory and the VUCA approach, we synthesize the framework of situation analysis and solution strategies to adapt leadership styles, as Figure 1. Among synergistic leadership factors, the leadership behaviors (styles) interact directly with the factor of beliefs, attitudes, and values, the factor of organizational structure, and indirectly with the factor of external forces. Leaders may identify the four aspects of VUCA challenges in terms of each synergistic leadership factor in the organization systems to shape a whole picture of the situation. Thus, leaders may adapt leadership styles to the situation by applying the corresponding solution strategies to address VUCA challenges.

3. The Situation of Developing China's Application-oriented Higher Education

3.1 Synergistic Leadership Factors

It is indicated that, while a leader is adapting leadership styles to a given situation, the first task is to determine the nature of the situation [8]. Meanwhile, in situational leadership styles, leadership behaviors are the focus. According to synergistic leadership theory [16], leadership behaviors perform interactions with other three factors in substantial ways. So, it is essential and helpful to analyze other three synergistic factors, i.e., the factor of beliefs, attitudes, and values, the factor of organizational structure, and the factor of external forces, to shape the nature of the situation of developing China's application-oriented higher education.
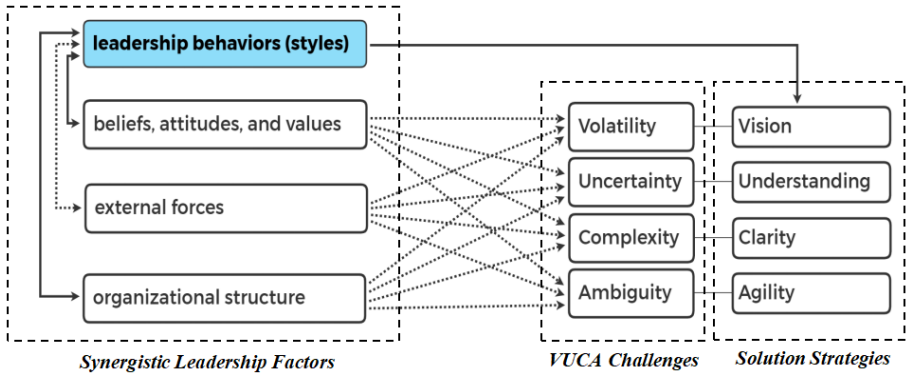
Figure 1. Framework of situation analysis and solution strategies to adapt leadership styles.

Among the three, the factor of beliefs, attitudes, and values can directly be affected by and have impact on leadership behaviors [16], which implies its important role in leadership styles adaption. Since it directly interacts with the factor of outer forces [16], leaders should involve the change embodied in educational system reform or even larger scale of the society in this factor analysis and description. In China's A-HEI, all individuals, including leaders' selves, may counter a change from all those in academic research-oriented universities to those in A-HEI, including the change of beliefs, attitudes, and values. Leaders may pay more attention to such elements as:

- values on moral purposes of education more inclined to improving the society through cultivating applied talents to improve the educational systems oriented by academic research only and thus facilitate the learning of all citizens;
- beliefs in the importance of professional growth in applied knowledge and skills, especially of staff and faculty members originally developed in the academic research system; and
- positive attitudes to this change, both of leaders and followers.

The other factor directly interacting with the leadership behaviors is organizational structure [16], which includes seven key elements for administrators' reference, namely "job specialization, departmentalization, chain of command, authority and responsibility, centralization or decentralization, line and staff authority, and span of control" [7]. Leaders in China's A-HEI may take the following into consideration:

- job specialization for application-oriented instruction, which means to value applied expertise of members, e.g., inviting the experts from the engineering

industry to co-manage the school of engineering, or encouraging faculty members to take in-service training of applied knowledge or skills;

- departmentalization accordingly with applied professionalism;
- consensus on derived goals of application-oriented education in the chain of command;
- authority and responsibility shared by all members in the institution, including those on practical training positions;
- centralization while setting the general goal or management rules according to government regulations on application-oriented education;
- empowering the educational promoters of application-oriented reforms and innovations; and
- encouraging teachers' professional community to cultivate teacher leaders.

As to external forces, though maintaining an indirect relationship with leadership behaviors, it directly interacts with the factor of organizational structure and inherently includes a set of beliefs, attitudes, and values [16], the former of which is controlled or affected by outer influencers like national administrators, regional educational authorities, and community forces, and the latter of which is naturally embodied. It makes the factor of external forces plays an inclusive and supportive role in the situation. So, leaders in China's A-HEI probably need to give more considerations to:

- globalization, which makes it necessary for leaders to develop the global mindset;
- rapid technological change, creating more opportunities for leaders with an innovative and collaborative mindset to implement the new technologies into application-oriented educational reform and also to cultivate applied talents to meet the need of technological progress;
- national policies and educational ideologies on developing application-oriented education, which may decide the human, financial, physical, and information inputs [7] into the institutions and also interact with the factor of beliefs, attitudes, and values;
- local industrial resources to be fully developed and integrated into the open educational system; and
- culture of community, including the communicative culture between peer institutions, the educational service function of A-HEI in the neighbouring community, etc.

3.2 VUCA Challenges in Terms of Synergistic Leadership Factors

VUCA in the education sector is described as a new educational normal [25], referring to the turbulent, chaotic, complex, and rapidly changing education situations nowadays. To have a whole picture of the situation, it is necessary and beneficial to identify the volatility, uncertainty, complexity, and ambiguity challenges in terms of the above analysis on the synergistic factors in application-oriented higher education.

As to the volatility of the application-oriented higher education, the factor of beliefs, attitudes, and values is given the first concern. Since the challenge is unexpected or unstable and usually of unknown duration [24], changing traditional educational values becomes one of the challenges [26] in the reform of application-oriented higher education. Then, the organizational structure factor, such as consensus on derived goals and management rules, and external forces, like the digital economy and globalization, contribute to the turbulence [25] in application-oriented higher education. Specifically, the following examples of volatility challenges may be taken into consideration:

- unpredictable change of traditional educational values and education model to meet the social needs for applied talents;
- unpredictable impacts of changeable situations in globalization, rapid technological change, increased competition and innovation, etc.;
- unknown pattern of community cultural development to jointly promote the application-oriented higher education with peer institutions;
- unknown conditions of workforce opportunities and government's financial support.

As to the uncertainty, change is possible but not always a given [24]. The uncertainty makes it impossible for leaders and followers to guide and predict future events based on the past [28]. First of all, whether the leaders and followers hold positive attitudes to the educational reform or not is uncertain, thus to be a challenge for the application-oriented higher education. Then, organizational structure factors, such as job specialization and departmentalization, empowering the educational promoters, new social expectations, etc., pose new challenges for educators. For the external forces, a prime example is that the global pandemic has brought unprecedented chaos to our higher education. The following examples of uncertain situations may be important for presidents' consideration:

- uncertain attitudes of leaders and followers towards reform of application-oriented higher education due to lack of understanding;
- unpredictable organizational resistance to educational facilitators in terms of application-oriented reforms and innovations;
- uncertainty about how to redress the imbalance between students' classroom study and their future careers;
- uncertainty of many external factors such as global pandemic disrupting the original order of A-HEI.

As to the complexity, since there are often various and intricate causes or factors (including both internal and external forces) for education [23], higher education in the 21st century have to manage a great deal of complexity [29], including that of students' prospective work situations [29]. For the purposes of meeting the social needs for applied talents, presidents in application-oriented higher education also have to deal

with the complexity properly, such as how to adjust the organizational structure according to the needs of professional construction, how to facilitate teachers' development, especially that of the ability to cultivate applied talents, and how to use external resources to promote application-oriented reform, etc. The following may provide some details:

- overwhelming process of formulating overall goals and management rules according to the government regulations on application-oriented education;
- various and intricate factors in adapting departmental reconstruction and teachers' development to the reform of application-oriented higher education;
- systematic decisions made to integrate or utilize external resources to cultivate application-oriented talents.

For the ambiguity of the application-oriented higher education, from the factor of beliefs, educators face the challenges to shift from traditional educational concepts to a customized learning plan that can help develop the skills learners need for employment [26]. Many staff, especially those who only have an education background in the traditional academic research system, lack clear understanding, and sometimes misunderstanding, of the importance of professional development of applied knowledge and skills. It is ambiguous for leaders to establish a belief in the importance of applied knowledge and skills among staff. From the factor of organizational structure, how to give employees clear rights and responsibilities and let them actively participate in the reform of application higher education is what should be considered. From the factor of external forces, rapid technological changes are constant, which results in the reign of ambiguity [30]. The new technology, such as ICT, applied to promote the reform of application-oriented higher education, and the change of students' future employment environment caused by technology development, also pose new challenges to application-oriented higher education. We may consider the following details:

- lack of clarity about the importance of applied knowledge and skills among staff;
- unclear rights and responsibilities for all members in the institution during the application-oriented reform;
- ambiguity in technological decisions to rethink education and curricula in the world of hybrid work, considering which parts of the employment environment are being replaced by machines, which are hybrid jobs, and which are jobs that can only be done by humans.

4. Adapting Presidents' Leadership Styles to the Situation

Based on analyzing synergistic leadership factors and identifying VUCA challenges, essential solutions to adapting presidents' leadership styles may be found by the VUCA approach in application-oriented higher education.

4.1 From Volatility to Vision

Developing a common vision, global vision and long-term vision is critical in the education reform, during which presidents may adopt directive, coaching, or supporting style.

As seen in Table 1, firstly, presidents must communicate effectively with the followers, e.g., communicating the sense of purpose to lead followers towards vision [22]. For example, while there exists the challenge of unpredictable value change and application-oriented education model reform, presidents may apply the directive style in this situation, telling the sense of education reform and communicating with the followers, especially those favoring traditional education system, thus to make sure the followers' efforts are aligned and concentrated on the common goal. Then, presidents must provide the direction in some situations, such as the second example in volatility situation, which indicates presidents may use a coaching style to develop followers' global vision. Meanwhile, while facing the challenges from external forces like community culture or government's support, presidents may offer more support for followers' participating in peer communication or governments' financial projects.

4.2 From Uncertainty to Understanding

Mutual understanding among stakeholders of A-HEI may come from updated information and knowledge, empowering, and an open mind. From this aspect, directive, or coaching style, both with high task behaviors, may be appropriate for this situation.

Taking the examples from Table 1, we can find while the organizational members' attitudes towards education reform are uncertain, presidents may apply a directive leadership style to update knowledge or information constantly [28], thus clarifying the problems in the reform. They use the same leadership style to redress the imbalance between students' classroom study and future careers. Meanwhile, they need to develop an open mind [22] to any questions from management leaders, their team, and students and offer directions to cultivate applied talents to meet social needs. However, while educational facilitators in the institution may meet with organizational resistance, besides directions, presidents may authorize them more and seek feedback frequently to support these facilitators.

4.3 From Complexity to Clarity

While facing complex challenges, presidents need to keep tasks simple, provide more support to deal with core issues, and train leaders to form a powerful management team. In this sense, adopting higher relationship styles seems reasonable. It illustrates three examples of how to deal with the complex challenges in Table 1. In the situation of application-oriented higher education reform, it is a primary task for presidents to make a change in overall goals and management rules and a critical task to make decisions to integrate or utilize external resources. They need to focus on the core issue [22] and support all the members, including the management team, to accomplish these tasks. As to the organizational structure factor, it is more significant for presidents to restructure the institutions accordingly with applied professionalism and develop more teacher leaders with applied expertise. Hence, less task input or social support is required.

Table 1. Examples of VUCA approach to leadership styles adaption.

	Challenges	Solution Strategies	Leadership Styles
V	• unpredictable change of traditional education values and education model to meet the social needs for applied talents	• communicating the sense of application-oriented higher education reform	• directive style
	• unpredictable impacts of changeable situations in globalization, rapid technological change, increased competition, and innovation, etc.	• developing the global vision	• coaching style
	• unknown pattern of community cultural development to jointly promote the application-oriented higher education with peer institutions	• encouraging followers to communicate with peers to establish a common vision	• supporting style
	• unknown conditions of workforce opportunities and government's financial support	• encouraging followers to participate in the government or authorities' projects with a long-term vision	• supporting style
U	• uncertain attitudes of leaders and followers towards reform of application-oriented higher education due to lack of understanding	• updating knowledge constantly to have positive attitudes to change	• directive style
	• unpredictable organizational resistance to educational facilitators in terms of application-oriented reforms and innovations	• empowering and always seeking feedback or review and reflect on actions	• coaching style
	• uncertainty about how to redress the imbalance between students' classroom study and their future career	• having an open mind to questions, both from followers and students	• directive style
	• uncertainty of many external forces such as global pandemic disrupting the original order of A-HEI	• well-understanding the impact of external forces, like those from the global pandemic, and be prepared for addressing such impact	• directive style
C	• overwhelming process of formulating overall goals and management rules according to the government regulations on application-oriented education	• keeping things simple and dealing with core issues	• supporting style
	• various and intricate factor in adapting departmental reconstruction and teachers' development to the reform of application-oriented higher education	• restructuring the organization and training teacher leaders	• delegating style
	• systematic decisions made to integrate or utilize external resources to cultivate application-oriented talents	• discussing with the management team and cutting through the complexity	• supporting style

Table 1 (continued).

A	• lack of clarity about the importance of applied knowledge and skills among staff	• adapting quickly to the change and making decisions with confidence	• directive style
	• unclear rights and responsibilities for all members in the institution during the application-oriented reform	• empowering and reducing unnecessary bureaucratic procedures	• supporting style
	• ambiguity in technological decisions to rethink education and curricula in the world of hybrid work, considering which parts of the employment environment are being replaced by machines, which are hybrid jobs, and which are jobs that can only be done by humans	• developing clear communication channels and using collaboration	• delegating style

4.4 From Ambiguity to Agility

As challenges are ambiguous, presidents need to adapt quickly to the changing situation. Therefore, more flexible leadership styles emerge by empowering, developing communication channels, using collaboration, etc.

As observed in Table 1, diverse leadership styles, no matter directive, supporting, or delegating style, may be used according to the challenges. For example, while there is ambiguity in followers' awareness of the importance of applied knowledge and skills, presidents use a directive approach to keep decisive. With the ambiguity in rights and responsibilities during the education reform, presidents provide more support to the management team by reducing unnecessary bureaucratic procedures. Also, presidents in A-HEI need to have a good understanding of the impact of external forces, like those from the global pandemic and be prepared for addressing such impact, such as harnessing ICT for the development of the school, especially for online learning. Meanwhile, presidents in the A-HEI need to communicate more with external industries and collaborate to make technological decisions. Facilitating all members' confidence and motivation seems of more importance.

5. Conclusions

Based on analyzing synergistic leadership factors and identifying VUCA challenges, essential solutions to adapting presidents' leadership styles may be found by the VUCA approach in application-oriented higher education.

Effective presidents' leadership is critical in China's application-oriented higher education reform, which results in more VUCA challenges. Based on synergistic leadership theory and the VUCA approach, this paper synthesizes a framework of situation analysis and solution strategies (Figure 1). The presidents in China's A-HEI may analyze the elements of each synergistic leadership factor in the organization systems, such as a change of traditional beliefs, attitudes, and values of all individuals, including presidents' as well; some key elements of the organizational structure factor in China's A-HEI; and the external forces like national administrators, rapid technological change, regional educational authorities, local industrial resources, the culture of community, etc.

In terms of the factor analysis, the four aspects of VUCA challenges may be identified to shape a whole picture of the situation of developing China's A-HEI. Thus, presidents may adapt leadership styles to the situation by applying corresponding strategies to address VUCA challenges, such as adopting directive, coaching, or supporting style to develop a common vision, global vision, and long-term vision in the education reform; applying directive or coaching styles to facilitate understanding among stakeholders of A-HEI with updated information and knowledge, empowering, and an open mind; using higher relationship styles to support followers and train leaders in the organization; and adapting quickly to the changing situation using flexible leadership styles, such as empowering, developing communication channel, using collaboration, etc. Besides, this paper gives some typical examples of VUCA challenges in China's A-HEI and provides specific solution strategies to adapt leadership styles.

All the analysis and examples may offer references and implications to presidents of China's A-HEI while adapting leadership styles to the situation and to further empirical research on the education leadership in China's A-HEI.

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Conflict of Interest Statement

The authors declare no conflict of interest.

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