

University Presidents' Leadership Styles in China's Application-Oriented Higher Education

Jun Liu

Research Center for Languages and Cultures, Shanghai Publishing and Printing College, Shanghai Research Institute of Publishing and Media, China

junliu_sppc@163.com

Mingming Chen

College of Information and Smart Electromechanical Engineering, Xiamen Huaxia

University, China

cmm@hxxy.edu.cn

Yan Ye

Stamford International University, Thailand

yan.ye@stamford.edu

Abstract

Sharing something in common with cooperative education, application-oriented universities has been a growing trend in China's higher education development. For application-oriented university presidents, the primary concern is to determine what leadership styles to adopt to face the opportunities and challenges inherent in changing situations. Based on the situational leadership theory and the synergistic leadership theory, this research applies a mixed methodology to analyze the leadership styles of application-oriented university's presidents and identify the common characteristics and differences in their leadership styles. Two presidents from University S and University X were chosen as respondents as both of them had experience with application-oriented universities from developed areas on the Southeast coast of China. The investigation reveals that they have adopted a participating leadership style and a selling leadership style, respectively. In light of the synergistic leadership theory, it also points to some similarities and differences in their leadership styles. This research study provides important considerations in terms of the internal and external factors of leadership style adoption.

Keywords: Application-Oriented Higher Education, Situational Leadership Style, System Theory, Synergistic Leadership Theory

1. Introduction

Application-oriented higher education in China shares something in common with cooperative education, which is a type of education system that combines vocational education and higher education (Coll & Zegwaard, 2011) or integrates practical elements with higher education (Krone, 2015). In cooperative education, companies and higher education institutes joint efforts to develop a special learning environment conducive to the transfer of academic knowledge in a practical work-related setting (Reinhard & Pogrzeba, 2016). Following the release of the Outline of China's Medium- and Long-Term Plan for Education Reform and Development (2010-2020) in July 2010, developing application-oriented universities has been a dominant trend in China's higher education (Zhang & Wu, 2018). This is all the more the case as the National Vocational Education Reform Implementation Plan (2019), adopted in February 2019, which further promotes application-oriented higher education.

The plan stipulates that application-oriented higher education does not refer to a specific level but to a type of higher education system that is to cultivate skilled talents engaged in specifically applied work. Both of these government plans clearly indicate that the structure of higher education should be continuously optimized, including the disciplines taught, the type of education, and the integration of a multiple-disciplinary approach. All this is part of the higher education strategy developed to cultivate talents needed for the economic transformation of the country. Unlike vocational colleges, application-oriented universities can confer degrees equivalent to those awarded in academic universities. This gives them a high status in the field of application-oriented higher education and greatly contributes to their strong appeal across China (Cui, 2018), especially in developed industrial areas on the Southeast coast. At the same time, a new integration mode has been introduced, which according to a notice released by the State Council of the People's Republic of China in 2017, further encourages enterprises to participate in the operation of vocational schools and universities via the establishment of sole proprietorships or joint ventures and provide students with more internship opportunities. The result has been the strengthening of the cooperation between the industry and educational institutes.

The steady growth of application-oriented higher education and the changes that accompany it require university presidents to be effective leaders. According to Northouse (2016), the key to effective leadership is to match a particular situation with the appropriate leadership style, which is also crucial to boost organizational innovation performance (Rahim et al., 2015). This brings to the fore the following issue: What leadership style the presidents of application-oriented university have adopted to meet the situations they have been faced with?

This study seeks to address this query. Specifically, focusing on two universities in China and their presidents and in light of the situational leadership theory and the synergistic leadership theory, it aims to:

1. analyze the leadership styles of the presidents of application-oriented universities; and
2. identify the similarities and differences in the leadership styles.

2. Review of Relevant Literature

This section discusses the various leadership styles relevant to this study and their underlying theories.

- *Situational Leadership Style*

Weber (2019) determined that since people's behaviors are deeply influenced by situations, the best leaders are reflective situation architects and interpreters. For this very reason, any investigation into leadership styles should take the situation into consideration. As the name implies, situational leadership centers on leadership in specific situations (Northouse, 2016). The concept was first introduced by Hersey and Blanchard (1969), who proposed to perform more directive behaviors to new employees, and gradually change to supportive behaviors as employees are becoming seniors. The situational leadership theory has since been extended and refined. In 1985, Blanchard, Zigarmi, and Zigarmi introduced a Situational Leadership II model, making leadership styles the core part. In 2008, Hersey and Blanchard expanded the situational leadership theory by identifying two key leadership styles; *task* (directive) behaviors and *relationship* (supportive) behaviors. Leadership styles in their model can be further classified into four subcategories; (i) telling (high task and low relationship behaviors); (ii) selling (high task and high relationship behaviors); (iii) participating (low task and high relationship behaviors); and (iv) delegating (low task and low relationship behaviors).

Maisyaroh et al. (2019) argued that applying the situational approach can raise leaders' success level by improving subordinates' performance and help leaders in deciding the styles during the leadership process.

- Followers and the Situational Leadership Style

Followers are another major part of situational leadership and as such have been the focus of research on leadership styles as well. A number of studies have determined that leadership effectiveness is related to the overall task performance of followers, whose motivation to perform better is encouraged by situational leadership styles (Leister et al, 2017; Maisyaroh et al, 2019). The situational leadership theory also focuses on the followers' development levels (Northouse, 2016). Leadership styles may be adapted to the development levels of followers so as to make them move forward along the developmental continuum. Situational leadership values the understanding of followers' readiness for taking greater responsibility and the development of the skill-sets of followers. A number of previous studies used leader rating to assess followers' development level (Vecchio, 1987; Fernandez & Vecchio, 1997; Thompson & Vecchio, 2009). Some used the degree of agreement between leader rating and followers' self-rating to determine followers' competence and commitment and consequently determine an optimal leadership style (e.g. Thompson & Glasø, 2018). As to measuring leadership styles, Hersey's (1985) suggested that followers' reports on leader behaviors should be preferred. According to Yeo (2020), observations on leadership styles depend on leaders' behavioral attributes and effectiveness, such as communication skills, drive for performance, relationship building ability, as well as responses to change. Nevertheless, employees' perception is also decisive.

- The System Theory

The system theory provides an avenue to analyze various situations. The theory is rooted in Von Bertalanffy's general system theory (1976), which marks a shift from thinking in terms of a whole as unchangeable substances to a system in dynamic interactions with the environment. Senge (1990, 2006) defined this open system as an interrelated set of elements functioning as an operating unit. According to Vanderstraeten (2019), the general system theory foreshadows the evolutionary theory characterized by social systems, in which processes, structures, and elements produce their later counterparts. For contemporary socio-ecological system theories, the open system theory nevertheless still provides a deep and valuable understanding of complex situations (Van Assche et al, 2019).

- The Synergistic Leadership Theory

Based on the system theory, Irby et al (2002) developed the synergistic leadership theory, which provides another avenue to analyze various situations. The theory uses four factors with multiple perspectives to form a tetrahedron and consider not only various aspects of leadership but also its effects on organization systems. The four factors can be described as follows:

- *Factor 1* consists of beliefs, attitudes, and values, such as for example, believing in the importance of professional growth for all individuals, being open to change and/or diversity, valuing the importance of character, and ethics and integrity in schooling.
- *Factor 2* relates to leadership behavior, such as for example, cooperation, receptivity, merging, acceptance, self-assertion, separation, independence, control, and competition.
- *Factor 3* refers to external forces, such as for example, perceptions and/or expectations of supervisor or colleagues, perceptions and/or expectations of community, regulations, resources, location, culture of community, socio-economic status, language or ethnic groups, and political or special interest groups.
- *Factor 4* pertains to the organizational structure, such as for example, using 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, and initiating changes. Although situational leadership style has been a widely recognized, it is still an under-researched theory (Northouse, 2016; Thompson & Glasø, 2018). This is not the case, however, with regard to the synergistic leadership theory, which is premised on the belief that leadership behaviors interact directly with beliefs, attitudes, and values, organizational structure, and indirectly with external forces (Irby et al, 2002). Leaders may thus identify each of the synergistic leadership factors in the organization systems to shape a whole picture of the situation. In other words, leaders may adapt leadership styles to the situation by applying the corresponding solution strategies (Liu & Chen, 2021). All that said, few studies have been conducted in the context of education, especially in respect of the reforms of the system.

3. Methodology

To investigate the university presidents' leadership styles in China's application-oriented higher education, this research applied a mixed-methodology consisting of both quantitative and qualitative components.

The quantitative approach was based on a questionnaire distributed to followers. The data obtained from their assessments was used to provide a general description of presidents' leadership styles, including common characteristics and differences.

The qualitative approach was based on interviews with two university presidents and some followers. Since it would have been quite complex to determine the synergistic leadership factors in the development of China's application-oriented higher education simply on the basis of standardized statements, this study relied on open-ended data collection (Creswell & Creswell, 2018). It not only provided more detailed and specific information about presidents' leadership styles, it also ensured methodological integrity, accuracy, and validity.

- Participants

Participants in this mixed methodology research include leaders (two presidents) and followers. President S and President X from University S and University X, respectively, were chosen as the respondents since both of them were experienced presidents of typical and different application-oriented universities from developed areas on the Southeast coast of China. Both of them speak English fluently. University S is known for foreign languages disciplines and is located in City S, which is one of the largest cities in China with versatile cultures from national immigrants. The city is also heavily influenced by international cultures and is one of the international centers for economics, finance, trade, logistics, and Sci-tec innovation. University X, which specializes in engineering disciplines, is located in City X, a medium-sized city in China with local traditional culture compatible with the culture of immigrants. It is one of the most important regional ports, financial service centers and trade centers. Followers/participants came from these two universities and consisted of a sample of 100 respondents, 50 from each university. For each university, the sample comprised 10 heads of schools/departments, 20 administration staff members, and 20 faculty members. Followers/interviewees included five staff members from each university (one head of school/department, two administration staff members, and two faculty members). They all spoke English.

- Instruments

The questionnaire comprised two sections, both in English and Chinese, directly translated by Microsoft Word 2019 and double checked by being translated back into English. The first section was about demographics and included personal information, educational background, years of employment at the university, and the position in that university. The second section focused on the respondents' assessments of their presidents. The first eight items were taken

from Northouse's (2016) style questionnaire. Items 1-4 were scored for relationship-directed behaviors and items 5-8 for task-directed behaviors. For example, one sample item read as follows: "Our president acts friendly with us" (1=Never, 2=Seldom, 3=Occasionally, 4=Often, 5=Always). The next seven items were adapted from LMX 7 Questionnaire (Graen & Uhl-Bien, 1995). The following is one example of the sample items: "I know how I finish my work to satisfy our president" (1= Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree). The last five items consisted of a five-item assessment of autonomy drawn from Ohio State Leadership items (Stogdill, 1963).

One example of the sample items reads as follows: "My president gives me the freedom to decide how to do my job" (1= Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree). As can be seen in Table 1 shown in the next section, all 20 items in Section Two were worded positively. Questions for the interviews were designed on the basis of the situational leadership theory, the system theory, and the synergetic leadership theory so as to address the research objectives. They covered the interviewees' philosophy of education, general and specific descriptions of the presidents' leadership behaviors and leadership styles in dealing with external forces and managing teams. The interviews were conducted in English via Chats on WeChat by means of self-report or assessment, and were reported based on qualitative analysis.

- Data analysis

All the questionnaires were coded for the analysis, which was conducted with the help of SPSS Statistics, applying means analysis. Inferential statistics applied p-value to ensure the significance level and t-test to determine whether the means of two presidents' leadership styles were statistically different from each other and to find out the similarities and differences in leadership styles of the two presidents. The interviews were coded as the qualitative analysis was applied with key words abstracted from the discourses based on their recordings. Firstly, the two presidents' leadership styles were explored and compared according to their own reports. Secondly, the responses from the other interviewees were compared and also matched with their presidents. The focus then switched to the descriptions of and the rationale for the leadership styles adopted.

4. Findings

- Leadership Styles of the Presidents of Application-Oriented Universities

Generally, President S used leadership more like a participating style and President X adopted more of a selling style. As shown in Table 1, followers in University S thought President S applied more of a relationship-directed leadership style (M=19.1, SD=2.092) than a task-directed one (M=17.62, SD=2.118). Followers in University X, on the other hand, determined that President X employed a good balance leadership between relationship-directed (M=18.1, SD=1.515) and task-directed styles (M=18.18, SD=1.578). Followers in both universities similarly reported strong leader-member exchanges (M=30.94, SD=3.728; M=31.46, SD=2.998) and high levels of autonomy (M=23.26, SD=2.456; M=22.68, SD=1.974). This perfectly matched what was revealed in the interviews as discussed next.

Table 1: Followers' Assessments of Presidents' Leadership Styles

Items	University S M (SD)	University X M (SD)	t	p
1. Our president acts friendly with us	4.84(0.468)	4.58(0.499)	2.689	0.008*
2. Our president helps us feel comfortable at work.	4.78(0.545)	4.6(0.495)	1.728	0.087
3. Our president communicates actively with us.	4.7(0.614)	4.46(0.579)	2.01	0.047*
4. Our president helps us get along with each other.	4.78(0.616)	4.46(0.579)	2.677	0.009**
Items 1--4 Relationship-directed leadership styles	19.1(2.092)	18.1(1.515)	2.737	0.007**
5. Our president defines role responsibilities for each of us.	4.36(0.722)	4.38(0.567)	-0.154	0.878
6. Our president develops a plan of action.	4.26(0.751)	4.62(0.530)	-2.769	0.007**
7. Our president makes suggestions about how to solve problems.	4.26(0.694)	4.48(0.646)	-1.64	0.104
8. Our president encourages us to do high-quality work.	4.74(0.527)	4.7(0.463)	0.403	0.688
Items 5--8 Task-directed leadership styles	17.62(2.118)	18.18(1.587)	-1.496	0.138
9. I know how I finish my work to satisfy our president.	4.42(0.731)	4.58(0.538)	-1.247	0.216
10. Our president understands our job problems and needs.	4.42(0.642)	4.48(0.646)	-0.466	0.642
11. Our president recognizes our potential.	4.14(0.808)	4.3(0.768)	-1.073	0.286
12. Our president would use his/her power to help us solve problems with work.	4.32(0.683)	4.48(0.646)	-1.203	0.232
13. Our president would help us out of a difficult situation.	4.26(0.633)	4.48(0.646)	-1.72	0.089
14. We have enough confidence in our president.	4.74(0.664)	4.76(0.476)	-0.173	0.863
15. Our working relationship with our president is effective.	4.64(0.663)	4.38(0.635)	2.003	0.048*
Items 9--15 LMX leadership styles	30.94(3.728)	31.46(2.998)	0.769	0.444
16. Our president gives us the freedom to decide how to do our job.	4.68(0.612)	4.5(0.580)	1.498	0.137
17. Our president trusts us to use our own judgments.	4.76(0.517)	4.58(0.538)	1.705	0.091
18. Our president values our advice.	4.58(0.642)	4.52(0.544)	0.504	0.615
19. Our president puts our suggestions into operation.	4.42(0.642)	4.42(0.575)	0	1
20. Our president treats us as equals.	4.82(0.482)	4.66(0.479)	1.666	0.099
Items 16--20 Autonomy afforded by leaders	23.26(2.456)	22.68(1.974)	1.302	0.196

* $p < 0.05$ ** $p < 0.01$

Based on Table 2, which highlights the key aspects of the interviews with the two Presidents, it may be inferred that both presidents valued task and relationship behaviors in leadership. President S believed that it was important for a leader to “explain the requirements and direction of tasks” (II, Sa) and “provide socio-emotional support” (II, Sf) in leadership. President X believed that as a leader in an applied-oriented university, her task was “to complete the university’s plan and achieve the goals it set” (II, Xa). However, task and relationship behaviors played different roles in their leadership. Regarding task behaviors, President S thought leaders should “focus more on making decisions and evaluating achievement” (II, Sc). Meanwhile, he emphasized the “more important role of relationship behaviors” (II, Sd) and thought leaders should direct two-way communication toward “achieving goals and meeting followers’ socio-emotional needs” (II, Se). President X

highlighted the importance of both task behaviors and relationship behaviors as well. She thought leaders should “provide guidance and support” (II, Xc) and “maintain a good relationship with teachers and students” (II, Xd).

Table 2: Responses from Interviews with Presidents

	President S (S)	President X (X)
I. Philosophy of Education	<ul style="list-style-type: none"> a. all-round and lifelong development b. integrating moral, intellectual, physical, aesthetic and labor education c. study strategy, practical skills, and independent living skills d. international vision, noble traits, and intercultural communication competence e. integration of humanities and economics studies 	<ul style="list-style-type: none"> a. not exam-oriented b. knowledge c. application-oriented abilities d. to meet the needs of social development e. international vision f. international schooling g. green sustainable development strategy
II. Leadership Behaviors	<ul style="list-style-type: none"> a. to explain the requirements and direction of tasks b. to stress the achievement in task behaviors c. to focus more on making decisions and evaluating the achievement in task behaviors d. more important role of relationship behaviors e. two-way communication of achieving goals and meeting followers' socio-emotional needs f. to provide socio-emotional support g. pioneer, innovator, motivator 	<ul style="list-style-type: none"> a. to complete the university's plan and achieve the goal b. to highly emphasize both teaching and scientific research c. to provide guidance and support d. to accomplish the tasks, maintaining a good relationship with teachers and students e. to analyze the needs of teachers and student communicator, transformer, risk-taker
III. Dealing with External Forces	<ul style="list-style-type: none"> a. being open b. introducing advanced educational concepts and management modes c. establishing partnerships with international prestigious universities d. being a member of the university cooperative alliance e. providing minor and selective courses from renowned universities f. establishing a relationship with prestigious organizations for practical learning 	<ul style="list-style-type: none"> a. stressing the impact on practical teaching b. paying attention to the environmental influence on school management c. making good use of external resources of government, enterprise and local industries d. gaining enough funds e. building practical teaching base through school-enterprise cooperation f. considering employment demand in local industries
IV. Organizing the Management Team	<ul style="list-style-type: none"> a. having the consensus on application-oriented education goals b. using the expertise of team members c. hiring several experts with practical working experience 	<ul style="list-style-type: none"> a. setting up a school-enterprise mixed management team b. caring for all members in the team

As seen in Table 3, which highlights the key aspects of the interviews with followers in both universities, followers in University S focused more on relationship-directed behaviors. They used terms, such as “friendly” (II, FS1, FS4), “nice” (II, FS3), “understanding subordinates”(II, FS1), “talking to teachers often” (II, FS2), “a good communicator” (II, FS4), “supportive” (II, FS5), and “concerned about teachers’ development” (II, FS1), as opposed to terms related to task-directed behaviors, such as “competent” (II, FS3, FS4), “leading the way” (II, FS3), “taking on any kind of tasks” (II, FS4), and “planning and managing in a wise and farsighted way” (II, FS5). Followers in University X gave a similar assessment of the relationship-directed behaviors to task-directed ones, using terms, such as “amiable” (II, FX1), “nice” (II, FX2), “approachable” (II, FX1), “spell able” (II, FX4), “caring for teachers and students” (II, FX1), “communicating with teachers” (II, FX2), and “good communicating skills” (II, FX5) for relationship behaviors, and “arranging tasks appropriately” (II, FX2), “decisive” (II, FX3, FX5), “strong execution ability” (II, FX3), “pragmatic” (II, FX3), “high efficiency” (II, FX4, FX5) and “offering guidance” (II, FX4) for task behaviors.

Table 3: Responses from Interviews with Followers

	Followers from University S (FS)	Followers from University X (FX)
I. Philosophy of Education (Self)	<p>FS1: student-centered teaching; lifelong learning</p> <p>FS2: knowledge and practical skills, together with social collaboration</p> <p>FS3: pursuing the truth and satisfying the social needs</p> <p>FS4: internationalization and localization</p> <p>FS5: international vision and intercultural communication competence</p>	<p>FX1: cultivating students’ application ability; not exam-oriented; centering on students</p> <p>FX2: training students’ practical ability</p> <p>FX3: meeting the needs of society</p> <p>FX4: application-oriented abilities; being goal-directed</p> <p>FX5: having international vision; having educational dream and beliefs</p>
II. Leadership Behaviors	<p>FS1: being friendly; understanding subordinates; concerning about teachers’ development</p> <p>FS2: being farsighted; getting well along with subordinates; talking to teachers often</p> <p>FS3: leading the way in the educational reforms; being competent and nice</p> <p>FS4: being friendly and competent; a good communicator; taking on any kind of tasks</p> <p>FS5: planning and managing in a wise and farsighted way; being supportive</p>	<p>FX1: being amiable; caring for teachers and students; being approachable</p> <p>FX2: being nice; communicating with teachers; arranging tasks appropriately</p> <p>FX3: being decisive; strong execution ability; being pragmatic</p> <p>FX4: spell able; high efficiency; offering guidance</p> <p>FX5: being highly effective; good communicating skills; being visionary and competent</p>
III. Dealing with External Forces	<p>FS1: cooperating with international universities and organizations</p> <p>FS2: providing many communication opportunities with peer teaching teams in other universities</p> <p>FS3: achieving many resources with personal charisma</p> <p>FS4: being visionary in cooperation with renowned universities and enterprises</p> <p>FS5: applying abundant external resources; being good at communication with external forces</p>	<p>FX1: cooperating with enterprises to train students; establishing enterprise practice base</p> <p>FX2: Attaching importance to school-enterprise cooperation</p> <p>FX3: setting up specialties according to local industry characteristics</p> <p>FX4: paying highly attention to local talent needs</p> <p>FX5: building practical teaching base through school-enterprise cooperation; getting government financial support for school reform</p>
IV. Organizing the Management Team	<p>FS1: diversity of educational and cultural background</p> <p>FS2: introducing some renowned professors to be the head of schools</p>	<p>FX1: cooperating with corporate engineers to deliver classes</p> <p>FX2: enterprise teachers developing curriculum for developing students' practical ability</p>

FS3: involving managing talents in the management team
FS4: being strategic in organizing teams; developing leaders from administrative staff and faculty members
FS5: delegating powers; being helpful in the management system; collective decision making

FX3: setting up a school-enterprise mixed management team
FX4: cooperating with enterprise management for administration
FX5: paying more attention to the construction of application-oriented universities in terms of school management

- Common Characteristics and Differences in Leadership Styles

The analysis of the four factors at the core of the synergistic leadership theory as expounded by Irby et al. (2002) and discussed above reveals some similarities as well as differences in leadership styles between two presidents.

In terms of beliefs, attitudes, and values (Factor 1), it appears that the presidents and followers espoused a variety of educational philosophies (Table 2, I; Table 3, I). Both presidents were open-minded about change and both value diversity (Table 2, I & III). Both also attached importance to cultivating application-oriented talents with an international vision (Table 2, I, Sc, Sd, Xc, Xf).

In respect to leadership behavior (Factor 2), firstly, there was no difference in their creating a comfortable working climate (Table 1, 2), defining role responsibilities (Table 1, 5), making suggestions (Table 1, 7), and encouraging followers (Table 1, 8). Secondly, both of them believed that it was important for an excellent president in application-oriented universities to be a good communicator (Table 2, II, Se, Xf) and a good relationship broker (Table 2, II, Sd, Xd). This is in line with the followers' assessment as seen in responses to leadership behaviors in Table 3. Thirdly, as shown in Table 3, followers insisted on noting that their presidents were farsighted (II, FS2, FS5, FX5), competent (II, FS3, IFS4, FX3, FX5), and offered guidance or supports in task behaviors (II, SF5, FX4). However, there also were highly significant differences. President S is more inclined to adopt supportive or relationship leadership, whereas President X favors mixed leadership (Table 1, Items 1-4). More specifically, President S was perceived to do more to help followers get along with each other (Table 1, 4), whereas President

X was more involved in developing a plan of action (Table 1, 6).

As to external forces (Factor 3), they both recognized the importance of external factors influencing each other, strive for more external resources, and make good use of them (Table 2, III). The external forces they both utilized are prestigious organizations for practical learning (Table 2, III, Sf, Xc). There still exist some differences in that President S has established a close relationship with prestigious or international organizations, most notably universities (Table 2, III, Sc, Se; Table 3, III, FS2, FS4) while President X promotes school-enterprise cooperation to build a practical teaching base (Table 2, III, Xe; Table 3, III, FX1, FX2, FX5) and is concerned more about gaining financial support (Table 2, III, Xd; Table 3, III, FX5). However, regardless of the differences with respect to this third factor, both of them have established good relationships and coordinate well with external forces.

Finally, regarding organizational structure (Factor 4), both presidents valued members and nurturing them and caring for them (Table 2, IV, Sb, Sc, Xb; Table 3, IV, FS3, FS4). Both of them have set up school-enterprise mixed management team (Table 2, IV, Sc, Xa). However, President S prefers to have consensually-derived goals (Table 2, IV, Sa) and to use the expertise of members with international background and renowned professors (Table 3, IV, FS1, FS2), whereas President X makes more use of engineers and enterprise teachers (Table 3, IV, FX1, FX2).

5. Discussion and Conclusion

Internal factors causing adaptation to a particular leadership style are discussed first and external factors considered next.

- Internal Factors in Adapting Leadership Styles

It was found that President S's leadership is relatively-low-task and high-relationship style, which is most effective when subordinates have adequate abilities and need motivation to perform their tasks. President X's leadership can also be described as a high-relationship style but, unlike President S, it qualifies as high-task leadership style. This combination is most effective when subordinates have adequate motivation and but need to be encouraged to improve their abilities. So, the following may be considered in developing application-oriented higher education situation:

(1) *Transformation of Followers' Beliefs, Attitudes, and Values* – Leadership behaviors can directly have an impact on and be affected by beliefs, attitudes, and values factors (Irby et al., 2002). Followers' beliefs, attitudes, and values that interact with their motivations play a critical role in the effectiveness of leadership styles. As shown in the interviews, both presidents and their followers shared a similar philosophy of education, which in the words of President S pertains to “practical skills,” “lifelong learning,” and “intercultural communication competence” and in the words of President X to “application-oriented abilities,” “not being exam-oriented,” and “meeting the needs for social development.” Over the last decades, as explained in the introduction to this study, the notion of application-oriented high education and the corresponding educational beliefs, attitudes, and values have been gradually accepted by educators involved in cooperative education. This means that the consensus on the philosophy makes it possible for leaders to adopt less directive and more supportive behaviors and apply selling and participating styles in the situation of application-oriented higher education.

(2) *Synergetic Management in Organizational Structure* – The organizational structure factor also directly interacts with leadership behaviors (Irby et al., 2002). As the data from Items 9-15 in Table 1 show, LMX leadership in both universities got very high scores, especially for the item about followers' confidence in their presidents. This positive exchange relationship had important task consequences, especially in terms of mutual trust that turns followers into in-group members. Meanwhile, as Items 16-20 in Table 1 indicate, both presidents shared authority and responsibility with followers, leading the latter to feel respected and valued. In addition, as reported in the interviews, both presidents employ experts directly from enterprises and teachers with practical working experience, which made members versatile in knowledge and skills. In the situation of application-oriented institutes, both presidents need to adapt their styles to synergetic leadership, i.e., they must involve as many followers in in-groups as possible. They must also motivate all staff and faculty members, including professional experts, discipline-leading teachers, practical trainers, etc., to use their expertise, make full use of their high autonomy, and facilitate the growth of their professional abilities or skills as part of the institute's management and development.

- External Factors in Adapting Leadership Styles

Both presidents have adopted Von Bertalanffy's general system theory (1976) and focused on their role as communicators in the open system. Although the degree of interaction with external factors might be different, the nature of application-oriented universities as open systems provides for the following observations to be taken into considerations:

(1) *Globalization of Educational Development* – The educational globalization factor makes it necessary for leaders to develop a global mindset. In this research, both universities are from coastal cities heavily involved in international exchanges. For both presidents, these locations

provide more opportunities to get access to international resources and more possibilities to develop an international vision. Taking University S as an example, it was found that not only President S self-reported the importance of an international vision and practice (e.g. “establishing partnerships with international prestigious universities”) but followers saw “cooperating with international universities and organizations” as a very important characteristic of the leadership in dealing with external forces. In this situation, both presidents should cultivate the ability to view the education sector from a broad perspective and behave beyond the geographic boundaries when it comes to leadership styles adaptation.

(2) *Integration of Industrial Resources* – Industrial resources, such as enterprises, industrial talents, technological transfers, etc., play a big part in application-oriented education reforms. In this research, University S is from an international city with many large companies and enterprises, and more universities as well, which may result in more fierce competition in the integration between industry and education. University X is more likely to have an easier time cooperating with small and medium enterprises. For one, in her own words, President X had been “attaching great importance to school-enterprise cooperation,” “cooperating with corporate engineers to deliver classes,” “[involving] enterprise teachers in curriculum development,” even “building the practical teaching base through school-enterprise cooperation,” and being responsive to “employment demand in local industries.” Based on the experience of both universities and the suggestions from the government (State Council of the People’s Republic of China, 2017), presidents may, as part of developing application-oriented higher education, want to further adapt their behaviors to work even closer with enterprises, including startups, set majors in line with the industrial evolution, cooperate with industrial talents to design curriculum and develop teaching materials, deliver classes.

(3) *Utilization of Talent Resources* – Followers’ abilities and motivations are two influential factors in deciding on an effective leadership style (Northouse, 2016). On the one hand, City S is a famous international city with rich human resources in the form of immigrant talents. Under such conditions, it is therefore reasonable for university S to make more efforts to attract these talents to collaborate in the development of the university by means of communicating with “peer teaching teams in other universities”, cooperating with “renowned universities and enterprises”, etc. On the other hand, City X is a medium-sized city, where there are not as many talents as in City S. It is thus critical for President X to utilize talents from local companies and facilitate cooperation with various industrial sectors. Both university situations imply that, in the field of application-oriented higher education, presidents may adopt appropriate leadership styles to build a professional learning community with external talents’ participation, communicate with experts from renowned universities, and cooperate with the industrial talents, in short to make full use of talent resources available under their specific sets of circumstances.

- *Conclusion*

Developing application-oriented higher education has been a critical step in China’s reform of the education system. While turning to successful experiences from developing application-oriented and hands-on talents in other countries for references can be helpful, university presidents need to keep focusing on their specific situations in China and adapt their leadership styles accordingly to boost reform performance. This investigation into presidents’ leadership styles at two typical application-oriented universities in developed cities in China provided evidence that both participating and selling styles might be adopted and that leadership behaviors should be in line with both the internal and external factors. This includes, among others, the transformation of followers’ beliefs, attitudes, and values, synergetic management, educational internalization, the integration of industrial resources, and the utilization of talent resources. By and large, the efforts made by the two presidents are recent experiments likely to be emulated. It will therefore be helpful to have more research in the open system of

application-oriented higher education in China, and perhaps elsewhere in the world, based on situation changes.

References

- Blanchard, K. H., Zigarmi, P., & Zigarmi, D. (1985). *Leadership and the one-minute manager: Increasing effectiveness through situational leadership*. New York, NY: William Morrow.
- Coll, R., & Zegwaard, K. E. (2011). *International handbook for cooperative and work-integrated education: International perspectives of theory, research, and practice (2nd ed.)*. Lowell, MA: World Association for Cooperative Education (WACE).
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed-method approaches (5th ed.)*. Los Angeles: Sage Publications.
- Cui, L. Y. (2018). On the development and characteristics of application-oriented universities. *Journal of Henan Institute of Science and Technology*, 38(2), 13-16.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level, multi-domain perspective. *Leadership Quarterly*, 6(2), 219-247.
- Hersey, P., & Blanchard, K. H. (2008). *Management of organizational behavior: International Edition*. Upper Saddle River, NJ: Prentice Hall.
- Hersey, P., & Blanchard, K. H. (1969). Life cycle theory of leadership, *Training and Development Journal*, 23(5), 26-34.
- Hersey, P. (1985). A letter to the author of "Don't be misled by LEAD". *Journal of Applied Behavioral Science*, 21(2), 152-153.
- Irby, B. J., Brown, G., Duffy, J. A., & Trautman, D. (2002). The synergistic leadership theory. *Journal of Educational Administration*, 40(4), 304-322.
- Krone, S. (2015). *Dual studieren im blick: Entstehungsbedingungen, interessenslagen und umsetzungserfahrungen in dualen studiengängen*. Wiesbaden: Springer.
- Leister, A., Borden, D., & Fiedler, F. E. (2017). Validation of contingency model leadership training: Leader match. *Journal Academy of Management*, 20(3), 464-470.
- Liu, J., & Chen, M. M. (2021). VUCA approach to adapting presidents' leadership style in China's application-oriented higher education institution. *IMCC Journal of Science*, 1(1), 32-45.
- Maisyaroh, M., Imron, A., Burhanuddin, J., Satria, R., & Puspitaningtyas, I. (2019). Implementation of Situational Leadership in Educational Organizations. *Proceedings of the 4th International Conference on Education and Management (COEMA 2019)*, 73-77.
- Ministry of Education of the People's Republic of China (2010). Outline of China's Medium- and Long-Term Plan for Education Reform and Development (2010-2020). *The Central People's Government of the People's Republic of China*. Retrieved April 11, 2021, from: http://www.gov.cn/jrzg/2010-07/29/content_1667143.htm
- Northouse, P. G. (2016). *Leadership: Theory and practice (7th ed.)*. Los Angeles, CA: Sage Publications.
- Rahim, R., Salleh, N., Ahmad, S., & Mustapha, R. (2015). Exploring the relationship between leadership style, knowledge management practices, and innovative behavior. In Hashim, R., & Abdul Majeed, A. (eds) *Proceedings of the Colloquium on Administrative Science and Technology*. Singapore: Springer.
- Reinhard, K., & Pogrzeba, A. (2016). Comparative cooperative education: Evaluating Thai models on work-integrated learning, using the German Duale Hochschule Baden-

- Wuerttemberg model as a benchmark. *Asia-Pacific Journal of Cooperative Education*, 17(3), 227-247.
- Senge, P. (2006). *The fifth discipline: The art & practice of the learning organization*. New York: Currency/Doubleday.
- Senge, P. (1990). *The fifth discipline*, New York: Doubleday/Currency.
- State Council of the People's Republic of China. (2017). The Notice of Promoting Integration Between Industry and Education. *The Central People's Government of the People's Republic of China*. Retrieved April 12, 2021, from: http://www.gov.cn/zhengce/content/2017-12/19/content_5248564.htm
- State Council of the People's Republic of China. (2019). National Vocational Education Reform Implementation Plan. *The Central People's Government of the People's Republic of China*. Retrieved April 11, 2021, from: http://www.gov.cn/zhengce/content/2019-02/13/content_5365341.htm
- Stogdill, R. M. (1963). *Manual for the leader behavior description questionnaire--Form XII*. Columbus, OH: Ohio State University.
- Thompson, G., & Glasø, L. (2018). Situational leadership theory: A test from a leader-follower congruence approach. *Leadership and Organization Development Journal*, 39(5), 574-591.
- Van Assche K., Verschraegen G., Valentinov V., & Gruezmacher M. (2019). The social, the ecological, and the adaptive. Von Bertalanffy's general systems theory and the adaptive governance of social-ecological systems. *Systems Research and Behavioral Science*, 36(3), 308-321.
- Vanderstraeten, R. (2019). Systems everywhere? *Systems Research and Behavioral Science*, 36(3), 1-8.
- Von Bertalanffy, L. (1976), *General system theory: Foundations, development applications*, New York, NY: George Brazille.
- Weber, J. M. (2019). Individuals matter, but the situation's the thing: The case for a habitual situational lens in leadership and organizational decision-making. *Organizational Dynamics*, 49(1), 1-10.
- Yeo, R. K. (2020). Get ready to shift: Situational positioning of leadership identity and influence. *Organizational Dynamics*, 49(2), 1-10.
- Zhang, C., & Wu, Y. (2018). Reviews of research on talent cultivation in China's application-oriented university-based statistical analysis of CNKI from 2007 to 2016. *Journal of Hubei University of Education*, 35(5), 84-89.