Chinese student's leadership style, self-directed learning, and career value in higher education

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Abstract

This study identified student's leadership style, self-directed learning, and career value in higher education in China. The three variables of the study focused on examining the responses of university students on their leadership style, self-directed learning and career value. This study also aimed to establish significant relationships among the three variables based on the significant differences of responses when the profile variables are grouped. The association and extent of relationships between the variables, students' leadership style, self-directed learning and career value, were also investigated in this study. Thereafter, based on the results of the study, a training plan for students to carry out personal development planning and improve their future occupational health was proposed. The survey was mainly distributed and retrieved through WeChat's applet "Questionnaire Star". The participants were students of Baotou Teachers' College and the survey was conducted using Raosoft software, with the target sample size of 412 students participating in the questionnaire. Results show that the proportion of female students is higher than male students while grade distribution of respondents is relatively uniform, with the largest number of sophomores. Since the source of participants is a teachers' college, the number of participants majoring in normal education is the largest. Respondents strongly recognized the importance of leadership style, self-directed learning and career value for personal capacity enhancement and future development. The differences among the three variables were not significant, and they complemented each other and promoted each other without contradiction. Hence, the study proposed a training and development plan to help students optimize and improve their leadership style, self-directed learning and career value.

Keywords: leadership style, self-directed learning, career value

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1. Introduction

Individuals can naturally change cognitively, behaviorally, and emotionally as they age during their development. In the process of change, they can be influenced by factors such as the environment and by the degree and direction of change due to individual-initiated changes. When an individual is changing naturally, the direction is often uncontrollable, so it is unrealistic to expect an adolescent to grow naturally into an outstanding adult. They need to actively or passively implement interventions in the growth pathway to obtain individual's all-encompassing growth. It does not mean trying to develop the individual into an all-rounder, but rather a comprehensive development in which the individual obtains growth in different dimensions to the state they desire or are suited to. As Marx's (1982) theory of holistic human development suggests, "the duty, the mission, the task of any person is to develop all his or her abilities in a comprehensive way."

The population of interest in this study is college students. The physical development of college students is somewhere between adolescence and adulthood, but their overall maturity in other areas varies widely. Some college students grow up in sound and harmonious families, are influenced by the role models from their parents, and learn many skills such as getting along with the opposite sex, establishing, and maintaining intimate relationships, and having cordial conversations with others, and are able to establish cordial interpersonal relationships relatively quickly both during their studies in campus and after their graduation. Some college students are trained to be competitive and financially aware from an early age and are more willing to take the initiative in the face of various situations and are often a step ahead of their peers in terms of securing job promotions, salary increases and asset management after graduation. In terms of career planning and development specifically, some countries have incorporated elements of career planning into their education systems at an early age, and parents will consciously discuss career development topics as their children grow up and encourage their children to actively participate and explore.

College students who grow up in such an atmosphere tend to determine their choice of major in the direction of career development, and are more focused and proactive in their studies, and have more aspirations and motivation for independent learning. In densely populated areas with high levels of academic and employment pressure, represented by some countries in East Asia, students need to focus more on coping with the pressure of further studies before entering college, and only after entering college do they start to plan their careers through school education or other means, and the support from family and society is often focused on academics, so career planning and development as a whole is in a relatively lagging situation; and for a long time, the passive education of these students has also led to a weak self-directed learning process, with some having difficulty in putting their career plans into action, and others wanting to take action but not knowing where to start. This situation is very typical in China. Therefore, this study hopes to provide some assistance to college students' continuity growth and acquisition of self-development skills from the perspective of teaching them to understand themselves and to participate in their own development planning. With this in mind, this study intends to explore in three perspectives: college students' leadership style, self-directed learning, and career value.

Leadership style is the behavioral patterns and thinking patterns that leaders display in influencing their subordinates and is an important factor that affects organizational performance (Cheng, 2017). There are four main leadership styles involved in this study, namely authoritative leadership, democratic leadership, facilitative leadership and situational leadership. Authoritative leadership refers to leaders who emphasize that personal power is absolute and unchallengeable; they strictly manage their subordinates and demand unconditional obedience from them, while subordinates tend to manifest behavioral responses such as submission, obedience, shame and fear. Authoritative leaders are a branch of paternalistic leadership, and such leaders usually possess

four behavioral characteristics, namely, authoritarianism, demeaning subordinates, maintaining a positive image and teaching behavior (Zhang, 2021). Democratic leaders emphasize empowerment, locate power in groups and cater to employees' demands for decision-making power at work, while paying more attention to employees' psychological feelings after being empowered, putting employees at the center and showing them care (Cheng, 2017).

Democratic leadership emphasizes employees' active participation in communication and exchange within the organization, freely expressing opinions and suggestions, and reaching consensus after unanimous agreement. From the employees' perspective, they can put forward opinions that match their own interests and participate in the formulation of corporate projects and policies; from the leaders' perspective, adequate empowerment can gain the support, trust and respect of employees, fully understand their needs through communication, and help managers formulate policies that can better stimulate employees' passion for work and the best strategies that are in line with corporate growth and development; from the enterprises' perspective, it is conducive to the formation of a harmonious and cordial atmosphere in the company (Liu & Fan, 2022). Facilitative leadership emerges from changes in the psychological contract between leaders and followers. With the increase in social pluralism and individual subjectivity, members of organizations are no longer just passive followers and the motivation provided by the leadership group alone is no longer sufficient to achieve an effective drive for the organization.

Leaders must not only become heroic bearers of roles, but also hero makers, helping followers to realize their own expectations, so that members grow to become equally important driving forces in the organization (Hu, 2012). Situational leadership theory, developed by management guru Paul Hesse, argues that successful leaders choose the right leadership style, and that the choice of leadership style needs to be based on the maturity of the subordinates. Maturity consists of job maturity, which refers to the level of knowledge and ability that an individual has to do the job, and psychological maturity, which refers to an individual's motivation and willingness to do the job (Jiang, 2020).

Self-directed learning is a learning process in which "without the help of others, individuals take the initiative to diagnose their learning needs, articulate learning goals, determine the human and material resources needed for learning, select and implement appropriate learning strategies, and evaluate learning outcomes" (Knowles,1989). In simple terms, self-directed learning is a way of acquiring knowledge that develops to reflect individual initiative in the acquisition of knowledge as well as skills, which is the process of learning activities in which learners set their own learning goals, plan the learning process, seek learning resources, select learning strategies and evaluate learning outcomes according to their career plans, time schedules and personal needs (Dai & Fang, 2022).

Career value is a series of people's views and attitudes about the attributes of work and its significance in satisfying people's internal needs. It is the internal criteria for career selection and evaluation, and is people's attitude, belief and value towards their careers, reflecting their internal needs in their career (Shan, 2020). Career value is people's internal yardstick for measuring the merits and importance of a certain job, with the attributes of a value system, a stable and enduring evaluation system, and a part of personal value system, which can be used as an overview and motivating belief system for people's career development, career choice and work behavior outcomes according to their own needs. It is mainly reflected in people's value judgements about their self-development potential, job regulations and security, corporate fame, interpersonal relationships and other aspects of their work, and is an individual's beliefs and attitudes towards work. It occurs in the process of individuals' evaluation of work, manifests itself in the form of preferences, influences people's career choice behavior and job satisfaction, and provides sufficient reasons for their efforts to achieve their work goals, similar to interests, job demands and work attitudes (Lin, 2021).

At this stage, research on the three perspectives - student leadership styles, self-directed learning and career value - is relatively abundant and has produced salient and representative results. Ma (2022) sorted out 10 common leadership styles and characteristics, and mapped out leadership style types, pointing out that

charismatic leadership style emphasizes socialization and individualization, ideal leadership style highlights personal values and visionary outlook, and public servant leadership style focuses on follower growth and team competence. Zhang and Wang (2022) found that learning motivation and self-directed learning can directly influence learning beliefs, while self-directed learning can indirectly influence learning motivation. Zhao (2022) examined the influence of teachers' career value and self-efficacy on subjective well-being, and concluded that two paths, starting from teachers' individual professional feelings and feelings of social recognition, can enhance teachers' well-being index. Some researchers have realized that more integrated and practical studies can be conducted from multiple perspectives, for example, comparing and contrasting students' leadership styles and self-directed learning. However, studies that examine students' leadership style, self-directed learning and career value from all three perspectives together have not yet emerged. This study hopes to provide a deeper and more comprehensive understanding of the specific situation of college students from this new, integrated perspective, and thus provide some guidelines for the development of college students' self-development skills.

College students are the direct beneficiaries of this study. This study is fundamental to student-oriented career planning guidance. It is oriented towards students, studies students, and is dedicated to mobilizing students' sense of responsibility as the first person responsible for their personal growth and career development, and to fully participate in the objective analysis of their own basic situation and rational planning of their future development. This is a key step in helping students to "learn to develop". Teachers responsible for career planning guidance for students are also the main beneficiaries of this study. This study is a fundamental study serving the curriculum and guidance of career planning classes. Although the findings of the study are student-oriented, they can help teachers responsible for career planning guidance to understand more precisely who they teach and serve, specifically the differences between different grades and types of majors, so that they can provide more targeted career planning teaching and guidance to college students.

Objectives of the study - This study attempted to help college students in China fully understand their own leadership style, self-directedness in learning and career value, to guide students in personal development planning and improving future career fitness. Specifically, it presented the demographic profile of the students in terms of their gender, grade level and course/program catagory; identified students' leadership style in terms of authoritative, democratic, facilitative and situational leadership; determined students' self-directedness in learning in terms of awareness, learning strategies, learning activities and evaluation; assessed students' career value in terms of social factors, management, specialization, mobility, independence, work-life balance and diversity; tested the significant differences of responses on leadership style, self-directed learning and career value when grouped according to the profile variables; established the significant relationship among the three variables; and, proposed a training and development plan to provide help for students' subsequent career planning, learning status improvement and employment preparation.

2. Methods

Research Design - This study used the descriptive method of research to collect the assessment of leadership style, self-directed learning and career value of college students in China. Descriptive studies and variables in providing facts may form the basis for scientific judgments and it describes the results of the assessment of leadership style, self-directed learning and career value in China. This study used field questionnaires to collect data, and the survey was conducted in Baotou Teachers' Colleges in Inner Mongolia Autonomous Region, China. The college where the survey was conducted has 13685 students in campus. To improve the accuracy of the study, 3% out of the total amount of students were randomly selected to participate, and 412 valid questionnaires have been returned. SPSS was used for data analysis, including description of statistical analysis, comparative mean, correlation analysis, and multiple response analysis.

Participants of the Study - In order to meet the objectives identified in this study, the researcher randomly selected students from five (5) course categories in Baotou Teachers' College as the survey respondents. The selection covered different gender, majors and grades, and the sampling ratio was 3% of the total number of

students in the college. The researcher contacted the student administrators to issue questionnaires to students. Ultimately, 412 valid questionnaires were returned, which ensured the coverage and validity of the study.

Data Gathering Instrument - This researcher reviewed questionnaires from online sources, and prepared the instrument appropriate to this study. This study adopted the Swapna Williamson's (2007) Development of A Self-Rating Scale of Self-directed Learning, and Abessolo et al. (2019) Development and Validation of a Multidimensional Career Values Questionnaire. With some deletions and modifications of the questionnaires, the author elaborately designed from three aspects of leadership style, self-directed learning and career value, with 95 questions in four (4) parts. This questionnaire was used to gather the data for each objective in the assessment of students' leadership style, self-directed learning and career value in BTTC. To validate the content and the presentation of questionnaire, it was submitted to the adviser for comments and suggestions, and these questionnaires when finalized as per approved were distributed to counselors in BTTC, and through them to send to students who are willing to participate, to gather the data and information needed. The questionnaire included four sections: the participants' basic information, students' leadership style, students' self-directed learning, and students' career value. The reliability test of each dimension of the scale and the total scale was done and the credibility test method used was Cronbach'sα coefficient. When preparing questionnaires, the α coefficient is often used as one of the measurement reliability data which reveals that the instrument are acceptable, good and excellent to use.

Data Gathering Procedure - The questionnaire was published on the Internet with Questionnaire Star as the carrier. The researcher distributed the questionnaires through the counselors working in the target college, persuading them to mobilize their students to participate in the survey. The researcher explained the purpose and benefits of the research to the teachers and students in detail, and put forward a clear hope that the students would submit the questionnaire as soon as possible after completing them. The mobilization and investigation are expected to be completed within two months.

Data Analysis - All data were tallied, encoded, and interpreted using different statistical tools. These include frequency count, percent, mean, t-test, and Analysis of Variance (ANOVA) through SPSS. Descriptive statistics such as frequency distribution and ranking were used to determine the demographics of respondents. Weighted mean was utilized to identify opinions as perceived by students in the college. Lastly, analysis of Variance (ANOVA) was used to determine the significant difference on the responses in the major variables and when grouped according to profile. Grade and weighted mean are represented by four Likert scales. Likert scale is a measure that tests people's feelings or attitudes towards something by choosing the corresponding choice.

Ethical Consideration - The study only aimed at college students and graduate students over the age of 18. In the process of mobilizing students to participate in the survey, the researcher and student administrators as research assistants introduced the purpose and content of the study to students in detail to ensure the participants' right to know, and ask them to fill in the questionnaire with their oral consent. The student information collected and their feedback on relevant issues was strictly confidential and would only be used to carry out this study.

3. Results and Discussion

Table 1

Percentage Distribution of the Respondents Socio-demographic Profile

Sex	Frequency	Percentage (%)
Male	132	32.0
Female	280	68.0
Grade Level		
Freshmen	98	23.8
Sophomore	123	29.9
Junior	96	23.3
Senior	83	20.1
Graduate Student	12	2.9
Course		

Social Science	81	19.7
Natural Science	43	10.4
Normal Education	228	55.3
Law and Economics	24	5.8
Arts	36	8.7

Table 1 presents those 412 students from Baotou Teachers' College had participated in the survey, which accounts for 3% of the total amount of students in this college. Among the participants, there are 280 female students, accounting for about two-thirds (68%) of the total number, and 132 male students, accounting for about one-third (32%). That is because the proportion of male and female students in teachers' colleges and normal universities is seriously unbalanced in China (Liu, 2022), and the proportion in the target college is 3:7 in 2022, according to the statistics from the college's Student Affairs Department. Therefore, the proportion of female participants is significantly higher than male participants.

The proportion of students from different grade levels are 29.9% for sophomores, 23.8% for freshmen, 23.3% for juniors, 20.1% for seniors and 2.9% for graduate students. Since the study was conducted in a local undergraduate college, the number of graduate students in the total number of participants is relatively low, while the number of other grades is relatively uniform. From the perspective of course category, students majoring in normal education accounted for 55.3%, social sciences 19.7%, natural sciences 10.4%, arts 8.7%, and law and economics 5.8%. As a teachers' college, the target college has the highest proportion of students majoring in normal education, so there are more students majoring in normal education among the participants.

Table 2

Assessment on Leadership Style

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Authoritative	3.01	Agree	4
2. Democratic	3.32	Agree	1
3. Facilitative	3.21	Agree	2
4. Situational	3.11	Agree	3
Composite Mean	3.16	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 =Strongly Disagree

To summarize, the respondents basically agreed with the four leadership styles, with composite mean of 3.16, yet their preferences for the four leadership styles are significantly different. Democratic Leadership style got the highest mean score of 3.32, followed by Facilitative Leadership and Situational Leadership. Authoritative Leadership style got the lowest mean score (3.01), which reflects low interest of participants, compared with the rest three. Overall, although the participants have agreed with the four leadership styles, there are obvious differences in the degree of agreement. In the horizontal comparison of the four leadership styles, participants are most identified with democratic leadership, followed by facilitative and situational leadership, and the least identified is authoritative leadership.

This reflects the new expectations of college students on the relationship between team leaders and team members. They are strongly willing to implement democratic leadership and show strong agreement in terms of ideas and behaviors. For facilitative leadership, college students agree with it in concept, but lack of specific means to implement facilitative leadership. They do not reject situational leadership, or to say, they also agree that it is a valid leadership style; yet, they have a clear understanding of their ability and specific behavior to implement situational leadership. It's not that they don't want to be situational leaders, but they realized that they are willing to be more than they can be. Where the college students really show an attitude of exclusion is on authoritative leadership. They split the core content of authoritative leadership into two parts, agreeing with the high requirements for themselves, but disagreeing with the powerful control and management to the team as an authority.

As research focused on college students, the findings have many similarities and significant differences with the findings in Strong's (2013) study on undergraduates who participate in agricultural leadership courses in the US. It was found that college students are interpersonal relationship-oriented leaders, and items like "treats

others fairly", "acts friendly with members of the group" and "shows concern for the well-being for others" have gained high approval. That is highly similar to the participants' high recognition on democratic leadership and facilitative leadership in this study. However, in Strong's (2013) study, "encourages group members to do high quality work" has gained high score, which reflects the initiative of the participants to become team leaders. That is in sharp contrast with the lack of enthusiasm and self-confidence of most participants in this study to become leaders.

Table 3

Assessment on Self-directed Learning

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Awareness	3.17	Agree	2
2. Learning Strategies	3.17	Agree	2
3. Learning Activities	3.08	Agree	4
4. Evaluation	3.17	Agree	2
Composite Mean	3.15	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 = Strongly Disagree

To summarize, the respondents basically agreed with the four aspects of self-directed learning, with composite mean of 3.15, and their preferences for each aspect didn't show many differences. Awareness, Learning Strategies and Evaluation share the same mean score of 3.17, while Learning Activities got the lowest mean score of 3.08.

In general, the participants' recognition on the four main factors of self-directed learning has little difference, which is in sharp contrast with the significant differences of the four leadership styles. The identity of learning awareness, learning strategies and evaluation is similar, and they are at the middle level, which highlights the low identity of learning activities. These findings show that the participants are in the middle level in terms of learning awareness, learning strategies and evaluation. On the one hand, they can clearly recognize their dominant position in learning, drive learning behavior by internal motivation, and modestly absorb the views and feedback of others; on the other hand, it is relatively weak in the identification of learning needs, the formulation of learning objectives, the flexible use of learning strategies, the development of learning activities, and the implementation of self-learning assessment, which means that the overall ability to implement self-directed learning needs to be strengthened.

Self-directed learning is a major concern in the field of theoretical research and practice of adult education in China. It focuses on individuals' continuous lifelong learning, weakens the role of external knowledge in individual learning, and attaches importance to the value of knowledge internalization to promote individual learning. Therefore, self-directed learning is regarded as the most effective way of adult learning at present, which has positive guiding and constructive significance for adult education and self-learning. Chen and Zhang (2022) believe that self-directed learning is based on romantic humanism, which treats everyone as a unique individual, and requires a personalized learning method to match this uniqueness. Romantic humanism regards self-direction as a process of learning and a product of learning. It believes that the motivation of learning is internal and is the internal needs of learners. It focuses on cultivating individuals with self-realization potential, self-direction and internal motivation. The individual is regarded as the best judge of whether his or her learning meets his or her needs, and the teacher is only a facilitator or partner in the learning process.

The self-directed learning mode is the key to transform the theory of self-directed learning into practice. Li (2022) summarized the main self-directed learning models, such as process-oriented model, individual-oriented model, responsibility-oriented model, hierarchical self-directed learning model, and generation-mechanical process model, and believed that a more practical self-directed learning model can be established based on Knowles' process-oriented model, containing steps including creating a cooperative atmosphere, forming a learning group, diagnosing learning needs and forming learning objectives, formulating and implementing learning plans, and evaluating learning results.

Compared with the previous studies, this research pays more attention to a comprehensive understanding of participants' self-directed learning on the perspective of learners. Although the logic of design is different, some similar research results are obtained. Although the current research findings reflect that the self-directed learning ability of college students as learners is at a moderate and weak level, with the joint guidance, support and assistance of stakeholders represented by educators, and with the assistance of more convenient learning models, college students' self-directed learning ability has the potential to continue to grow and improve.

Table 4

Assessment on Career Value

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Social Factors	3.37	Agree	1
2. Management	3.17	Agree	5
3. Specialization	3.24	Agree	4
4. Mobility	2.96	Agree	7
5. Independence	3.36	Agree	2
6. Work-Life Balance	3.33	Agree	3
7. Variety	3.08	Agree	6
Composite Mean	3.22	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 =Strongly Disagree

To summarize, the respondents basically agreed with the seven Indicators for career value, with composite mean of 3.22. However, respondents' preferences for the seven Indicators are significantly different. Social Factors, Independence and Work-Life Balance got the highest mean scores of 3.37, 3.36 and 3.33, which indicates strong approval, followed by Specialization. Management got a mean score lower than the composite mean, followed by Variety. Mobility got the lowest mean score of 2.96, which reflects low interest from participants.

On the whole, although the participants have a positive attitude towards the seven main factors of career value, there are significant differences in the degree of recognition. Through horizontal comparison of the seven main factors, the participants most agreed with social factors, independence and work-life balance. This tendency of college students has also been verified in other relevant studies. In the research of Strong et al. (2013) on the leadership style of college students, it is found that college students are interpersonal relationship-oriented leaders, which is consistent with the high degree of attention of college students to work relationships. Han (2021), starting from the importance of college students' independent personality, elaborated the strategies of cultivating college students' independent personality from four aspects: society, school, family and student himself. He found that the independent personality of college students presents a trend of continuous development, and educators regard cultivating college students' independent personality as one of the important tasks of college education. This has resulted in a high degree of recognition of respondents on independence. Chen and Wang (2021) pointed out that, under the current social background of rapid economic development and continuous cultural integration in China, work-life balance has become a new goal pursued by people. College students, as the most sensitive barometer reflecting the trend of social development, also present the expectations of people for work-life balance in the survey.

It is obvious that participants have low recognition on variety and mobility factors, especially, the mean score of mobility is the lowest among all sub-domains in this study. This is closely related to the employment tendency of Chinese college students. Zhou (2021) found in his survey of Chinese Forestry University Students' Employment Tendency that the employment of undergraduates is mainly in pursuit of stability. Wang (2019) found that the material orientation of college students' employment choices is obvious, and they pay attention to long-term career development, taking "career development prospects", "career stability" and "welfare" as the core concerns. Under the background of fierce competition in the current employment market, college students' career value tends to be rational. Compared with occupational stability, job mobility is a minor and unstable factor. College students as participants can flow, if necessary, but the most do not tend to flow.

Combined with relevant research findings, the negative tendencies of college students' career value reflected

in this study are mainly manifested in three aspects. Firstly, college students' low recognition of mobility and diversity, in addition to the instability or unimportance, is largely related to their lack of self-confidence, which is fundamentally due to their lack of competence. The reason why they don't like the changing work environment and content, and why they feel uneasy about work assigned to other places, is the lack of adaptability, apart from the personality factor. After all, it is the lack of innovation and work ability. Of course, the high demand for work comfort may also be one of the reasons for the low recognition on mobility and diversity. Secondly, college students' high recognition on independence stems from the strengthening of independent personality, which is originally a good thing for individuals. However, human beings cannot exist independently from society. The excessive pursuit of independence will lead to excessive attention to self-consciousness, which will weaken social consciousness.

Specifically, the large number of job conflicts and frequent job-hopping encountered by contemporary college students after entering the workplace are closely related to this. If one pays too much attention to himself, he can hardly take into account the ideas and attitudes of others. When dealing with the conflict between the work arrangement from the superior or the team division led by others and one's own work ideas and intentions, he often have a strong sense of discomfort, even frustration. Thirdly, it is not enough to simply establish a healthy working relationship in a human society like China. Even in many western countries with obvious cultural differences, it is also necessary to establish interpersonal networks. Not good at dealing with interpersonal relationships will lead to a lot of work difficult to carry out and will also reduce the enthusiasm and pleasure of work. Although the results of this study do not directly point to college students' neglect of becoming friends and establishing close relationships with colleagues, it is necessary to remind college students to pay attention to this factor consciously from the situation reflected in relevant studies.

Table 5

Different Responses on Leadership Style When Grouped According to Profile

Sex	λ^2_c / U	p-value	Interpretation
Authoritative	14335	0.000	Highly Significant
Democratic	17410	0.334	Not Significant
Facilitative	16248.5	0.045	Significant
Situational	15949.5	0.023	Significant
Grade Level			
Authoritative	1.937	0.747	Not Significant
Democratic	10.145	0.038	Significant
Facilitative	8.082	0.089	Not Significant
Situational	0.853	0.931	Not Significant
Course Category			
Authoritative	6.382	0.172	Not Significant
Democratic	2.346	0.672	Not Significant
Facilitative	0.525	0.971	Not Significant
Situational	3.353	0.501	Not Significant

Legend: Significant at p-value < 0.05

Table 5 disclosed the comparison of responses on leadership style when grouped according to profile. It was observed that there was significant difference when grouped according to sex except on democratic leadership (p=0.334), since the computed p-values were less than the alpha level. This means that the responses are statistically different. The difference between male and female students' choices on democratic leadership was not significant, while significant differences were found for the other three types of leadership, especially in the case of male students whose assessment on authoritative leadership is much higher than those of girls.

In addition, there was also significant difference on democratic leadership (p=0.038) when grouped according to grade level, because the p-value was less than the alpha level. Result shows that the responses differ statistically and based on the post hoc test conducted, it was found out that those who are seniors have better assessment than others, including junior, senior and graduate students. When grouped according to course categories, no significant difference have been observed.

In summary, sex has a significant impact on participants' assessment on leadership styles. Male students have a higher degree of identification with authoritative leadership, while female students have a relatively low degree. The same situation also occurs in the assessment of facilitative leadership and situational leadership, but the difference is not as obvious as that on authoritative leadership. According to the post hoc test results, it can be further found that male students' assessment on the four leadership styles as a whole is higher than that of female students. Grade level has little influence on participants' assessment on leadership style, especially the difference between grades is not significant on the whole; only in the evaluation of democratic leadership, the recognition of senior grade is slightly higher than that of junior grade. However, there is no significant difference in the assessment of leadership style among students of different course categories. In other words, the differences of disciplines will not affect college students' assessment of different leadership styles, and the influence of grade levels is also very limited. What really affects the assessment results of college students is gender difference. The mentality and personality tendency of male and female students directly lead to significant differences in their choices.

The tendency of male students in leadership style is quite different from that of female students. Male students agree with authoritative leadership that emphasizes authority and control much more than female students, and do not reject mighty management; They are also more confident than female students in implementing facilitative and situational leadership. In contrast, female students tend to reject leadership style that reflects mandatory and control, yet pay more attention to self-improvement and are more willing to help others and create a harmonious team atmosphere. Considering that the number of female participants in this study is twice that of male participants, in the assessment of leadership styles, the research data will shift to the choice of female respondents to some extent.

Table 6

Different Responses on Self-Directed Learning When Grouped According to Profile

Sex	λ^2_c / U	p-value	Interpretation
Awareness	15898	0.022	Significant
Learning Strategies	17536	0.401	Not Significant
Learning Activities	15972.5	0.026	Significant
Evaluation	17426.5	0.348	Not Significant
Grade Level			
Awareness	5.201	0.267	Not Significant
Learning Strategies	4.6	0.331	Not Significant
Learning Activities	2.802	0.592	Not Significant
Evaluation	4.33	0.363	Not Significant
Course Category			
Awareness	3.58	0.466	Not Significant
Learning Strategies	1.884	0.757	Not Significant
Learning Activities	0.978	0.913	Not Significant
Evaluation	3.212	0.523	Not Significant

Legend: Significant at p-value < 0.05

Table 6 presents the comparison of responses on self-directed learning when grouped according to profile. It was observed that there was significant difference on awareness (p=0.022) and learning activities (p=0.026) when grouped according to sex since the computed p-values were less than the alpha level. This means that the responses vary statistically and implies that the assessment of male was greater than female. When grouped according to grade levels and course categories, no significant difference have been observed.

That is, grade level and subject differences do not basically affect college students' measures of self-directed learning, i.e., college students' self-directed learning is not significantly related to the length of time they have been in school and what they are studying. What really affects the results of college students' measurement is the gender difference, i.e., there are some significant differences in self-directed learning between male and female students. Combined with the results of the post-hoc tests, it can be found that male students have higher results than female students in several assessments of learning awareness, mainly in the areas of identifying learning needs, choosing learning methods, understanding learning resources, self-motivation, and learning without

teacher guidance. In terms of learning activities, boys had higher results than girls, especially in the areas of organizing knowledge through logical thinking, using information technology, focusing on reading, exploring superlatives, relate knowledge with practice, asking questions, and reflecting critically.

Self-directed learning has three main characteristics: independence, flexibility and universality, and lifelong learning for all (Cui, 2019). In particular, learners' independence is reflected in the fact that in self-directed learning they can choose what they want to learn, set goals, make learning plans, choose learning strategies, regulate learning progress, and evaluate learning outcomes according to their own wishes, learning styles, and other factors (Tang, 2018). From the measurement results, boys' autonomy and independence are higher than girls' in several perspectives. This means that they have better performance in terms of subjective motivation and independent exploration ability. At the same time, self-directed learning is not limited by time and space, the learning content is extensive and rich, and learners need to consciously choose the learning content according to their goals, integrate the existing knowledge system, construct the knowledge system, and also focus their attention during the learning process (Liu, 2017). Male students show more obvious advantages in exploring learning content, using learning tools, integrating knowledge systems, and focusing their attention. This is strongly related to the cultural environment in which male and female students grow up. lian (2014) pointed out that gender stereotypes are the main psychosocial factors that contribute to the employment difficulties of female university students. Chinese culture traditionally believes that men are suitable for competitive and pioneering jobs outside the home, while women are suitable for domestic and service jobs. Similar gender stereotypes not only influence employers' decision to select talents, but also influence college students' values about their careers.

Table 7

Different Responses on Career Value When Grouped According to Profile

Sex	λ^2_c / U	p-value	Interpretation
Social Factors	17877	0.587	Not Significant
Management	16234.5	0.044	Significant
Specialization	17594.5	0.427	Not Significant
Mobility	16220.5	0.043	Significant
Independence	17458	0.354	Not Significant
Work-Life Balance	17591.5	0.420	Not Significant
Variety	17131	0.227	Not Significant
Grade Level			
Social Factors	4.549	0.337	Not Significant
Management	1.442	0.837	Not Significant
Specialization	1.804	0.772	Not Significant
Mobility	1.514	0.824	Not Significant
Independence	1.166	0.884	Not Significant
Work-Life Balance	5.319	0.256	Not Significant
Variety	1.961	0.743	Not Significant
Course Category			
Social Factors	8.529	0.074	Not Significant
Management	1.813	0.770	Not Significant
Specialization	2.18	0.703	Not Significant
Mobility	5.884	0.208	Not Significant
Independence	7.736	0.102	Not Significant
Work-Life Balance	9.291	0.054	Not Significant
Variety	2.92	0.571	Not Significant

Legend: Significant at p-value < 0.05

Table 7 presents the comparison of responses on career value when grouped according to profile. It was observed that there were significant differences on management (p = 0.044) and mobility (p =0.043) when grouped according to sex since the computed p-values were less than the alpha level. This means that the responses vary statistically and implies that the assessment of male was greater than female. When grouped according to grade levels and course categories, no significant difference have been observed.

That is, grade level and disciplinary differences have minimal, though subtle, effects on college students'

career values, and are far less significant than generally believed. What really affects college students' career values is gender differences, but gender differences only have an effect on individual aspects of career values and do not have a significant effect on most indicators. Combining the results of the post hoc tests reveals that male students were more enthusiastic about planning, supervising the work of others and holding managerial positions than female students in most of the tests on management factors.

This is highly consistent with Li and Zhang's (2020) finding that male students are more interested in managerial jobs in their survey of college students' employment perceptions. In terms of mobility factors, male students were significantly higher than female students in all tests, and were not as averse as female students to frequent travel abroad, working in an international environment, and going out on assignments. The effect of gender differences on these two indicators is related to the group traits of male and female students. On the one hand, male students' tendency to perform managerial behaviors and undertake managerial tasks echoes their tendency in leadership style; on the other hand, based on various influences such as social environment, cultural traditions, and personality traits, male students as a whole are more accepting of job mobility, while female students have more concerns about working in different locations and traveling frequently. This corroborates with Sun's (2022) findings on college students' employment choices, where female students tend to view mobility as a minus factor in career choice, while male students have much less concern in this regard and have higher flexibility in choosing their workplace, work form, and work content.

Table 8

Relationship Between Leadership Styles and Self-Directed Learning

Authoritative	Rho	p-value	Interpretation
Awareness	.612**	0.000	Highly Significant
Learning Strategies	.600**	0.000	Highly Significant
Learning Activities	.650**	0.000	Highly Significant
Evaluation	.606**	0.000	Highly Significant
Democratic			
Awareness	.571**	0.000	Highly Significant
Learning Strategies	.655**	0.000	Highly Significant
Learning Activities	.544**	0.000	Highly Significant
Evaluation	.578**	0.000	Highly Significant
Facilitative			
Awareness	.684**	0.000	Highly Significant
Learning Strategies	.652**	0.000	Highly Significant
Learning Activities	.621**	0.000	Highly Significant
Evaluation	.652**	0.000	Highly Significant
Situational			
Awareness	.710**	0.000	Highly Significant
Learning Strategies	.652**	0.000	Highly Significant
Learning Activities	.689**	0.000	Highly Significant
Evaluation	.694**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

Table 8 displays the association between leadership style and self-directed learning. The computed rho-values indicate a strong direct correlation, and the resulted p-values were all less than the alpha level. This means that there was a significant relationship between the two variables and indicates that the better the assessment on leadership style, the better is that on self-directed learning. There are many studies on the relationship between leadership styles and self-directed learning. Bass (1985) believes that leadership researchers and practitioners should gain a better understanding of variables that may affect students' leadership styles in order to best educate students and prepare them for professional experiences. Along this way, Strong (2013) studied the relationship between students' leadership style and self-directed learning level, finding that task-oriented leadership style students may have been more self-directed while relationship-oriented students may have been less self-directed in their learning.

In this study, a cross-sectional comparison of the four leadership styles of authoritative, democratic, facilitative and situational with the four sub-domains of learning awareness, learning strategies, learning

activities and evaluation of self-directed learning was involved. From the comparison results, there is a very strong correlation between students' leadership styles and self-directed learning situations. This implies that the effect of improving students' leadership is not simply reflected in the aspects directly related to leadership behaviors such as serving as student leaders and undertaking team tasks, but also directly affects students' level of self-directed learning. Correspondingly, improving students' self-directed learning has a significant contribution to improving students' leadership.

As the first person responsible for personal development, students themselves need to clearly understand this strong relationship between leadership style and self-directed learning. Leadership style is the behavioral patterns and thinking patterns that leaders display in influencing their subordinates (Cheng, 2017). And self-directed learning is learning that incorporates the learner's personality and learning process (Xiong, 2020). The implementers of leadership style and self-directed learning are the leaders and the learners themselves, specifically in this study, the students themselves. The behavioral and thinking patterns exhibited by students in their leadership behaviors and their perceptions, attitudes, and practices in self-directed learning are generated and extended with the students' own personality traits, behavioral characteristics, etc. as the starting point.

Therefore, improvement and enhancement in these two variables is essentially an improvement in the student's own overall quality. On the one hand, they need to clarify their leadership style tendencies and the suitability of these styles for their current and future work, and to target their strengths and shortcomings. They also need to combine the specific dimensions and indicators of self-directed learning to clarify the direction of their personal improvement and the measures to make up for their shortcomings. Further, in combination with the specific dimensions and indicators of self-directed learning, the direction of personal improvement and specific measures to compensate for shortcomings, so that more effective self-directed learning can directly contribute to personal growth and directly or indirectly assist in the optimization of leadership style and the improvement of leadership ability.

Table 9 illustrates the association between leadership style and career value. The resulted rho-values indicate a strong direct correlation and the computed p-values were all less than the alpha level. This means that there was a significant relationship exists and indicates that the better the assessment on leadership style, the better is the respondents career value. Leadership style is an important way for leaders to achieve their leadership effectiveness, and determining the appropriate leadership style in the face of changing internal and external environments is a key path to improving organizational performance, maintaining high organizational effectiveness of organizational members, and achieving organizational goals (Li & Jiang, 2022). Professional values are people's attitudes, beliefs, and values towards their careers, which reflect their intrinsic needs in their careers (Shan, 2020). Although leadership style and career values are two completely different concepts, there are many intersections in attitudes toward work and attitudes toward organizational members. Participants' leadership styles reflect their career values to a large extent, and career values heavily influence participants' leadership styles.

Table 9

Relationship Between Leadership Styles and Career Value

Authoritative	rho	p-value	Interpretation
Social Factors	.506**	0.000	Highly Significant
Management	.619**	0.000	Highly Significant
Specialization	.535**	0.000	Highly Significant
Mobility	.489**	0.000	Highly Significant
Independence	.470**	0.000	Highly Significant
Work-Life Balance	.447**	0.000	Highly Significant
Variety	.527**	0.000	Highly Significant
Democratic			
Social Factors	.557**	0.000	Highly Significant
Management	.519**	0.000	Highly Significant
Specialization	.458**	0.000	Highly Significant
Mobility	.395**	0.000	Highly Significant

Independence	.495**	0.000	Highly Significant
Work-Life Balance	.547**	0.000	Highly Significant
Variety	.439**	0.000	Highly Significant
Facilitative			
Social Factors	.577**	0.000	Highly Significant
Management	.560**	0.000	Highly Significant
Specialization	.488**	0.000	Highly Significant
Mobility	.468**	0.000	Highly Significant
Independence	.498**	0.000	Highly Significant
Work-Life Balance	.535**	0.000	Highly Significant
Variety	.507**	0.000	Highly Significant
Situational			
Social Factors	.529**	0.000	Highly Significant
Management	.629**	0.000	Highly Significant
Specialization	.585**	0.000	Highly Significant
Mobility	.544**	0.000	Highly Significant
Independence	.539**	0.000	Highly Significant
Work-Life Balance	.473**	0.000	Highly Significant
Variety	.561**	0.000	Highly Significant

Legend: Significant at p-value < 0.05

When college students enter the workplace, the roles they play are often both as leaders and as ordinary members of the organization. They may or may not hold some leadership positions, but only assume some leadership tasks in specific tasks such as organizing team members to work together on projects. In this study, the four leadership styles of authoritative, democratic, facilitative, and situational are involved with social factors, management, specialization, mobility, independence, work-life balance and variety. Both leadership styles and professional values reflect the value orientation and behavioral traits of college students. The cross-comparison results show that there is a very strong correlation between students' leadership styles and career values.

The better the measure of leadership style, the better the measure of career values. This implies that the effect of optimizing students' leadership style and improving their leadership will not only be reflected in leadership effectiveness but will also have a significant contribution to students' career values. Accordingly, optimizing students' career values will also have a direct impact on their leadership style. Therefore, leadership style and professional values of college students should not be studied separately as two unrelated factors, but rather, the two variables should be considered together to promote students' personal growth, and then the two directions should be worked on simultaneously to form a synergy.

From the perspective of comprehensive quality improvement of college students, along with the improvement of individual cognitive ability and the enrichment of life experience, career values develop from one-sided to diversified and from idealized to mature gradually. This process of change is not only reflected in professional values, but also has a distinct influence on other areas of values and is also reflected in the development of individual's world view and life view. Professional values, along with a variety of other factors, influence the formation and development of an individual's leadership style. Whether one starts with values as a whole or optimizes specific indicators of professional values, it can have a profound impact on the development of professional values.

A part of the adjustment of professional values will be directly presented in the optimization and development of leadership style. The change of leadership style is, in the end, a change of cognition and perception, i.e. a change of values, on the one hand, and a change of behavior, on the other. Specifically, the change of cognition and perception in a career is influenced to the greatest extent by professional values. Values determine behavior, and behaviors that precede changes in values often originate from conscious or unconscious imitation, and changes in behavior drive values to match them through adjustments (Zhu et al., 2022). For college students, a deeper understanding of their professional values is a critical step in understanding themselves and achieving growth. On this basis, college students can start from the specific indicators of career values and fine-tune and optimize them in a directional way, taking into account the specific requirements in career development and their own plans for the future.

Table 10 shows the association between self-directed learning and career value. The resulted rho-values indicate a strong direct correlation, and the computed p-values were all less than the alpha level. This means that there was a significant relationship exists and implies that the better the assessment on self-directed learning, the better is the respondents career value. Career values are people's attitudes, beliefs and values towards their careers, which reflect their intrinsic needs in their careers (Shan, 2020). Career values are often considered to be the intrinsic motivation for career competency development and enhancement (Liang, 2017). Therefore, a clear understanding of one's own career values, and adjusting and optimizing them according to the real needs and development needs, can enable college students to enhance their career competencies in a more focused manner. While self-directed learning is a process in which learners set their own learning While self-directed learning is a process in which learners set their own learning goals, plan the learning process, seek learning resources, select learning strategies and evaluate learning outcomes according to their career plans, While self-directed learning is a process in which learners set their own learning goals, plan the learning process, seek learning resources, select learning strategies and evaluate learning outcomes according to their career plans, time schedules and personal needs (Dai & Fang, 2022).

On the one hand, university students can rely on school education to acquire a certain degree of professional knowledge and skills through systematic courses; on the other hand, they need to rely more on self-directed learning to determine learning goals, collect learning resources, implement learning strategies and evaluate learning outcomes according to their specific needs for growth and development. Therefore, career values are the guide and self-directed learning is the measure, and the two together can effectively improve individual career ability. For college students, both career values and self-directed learning ability are important factors that can influence their own continuity development, while career ability plays a decisive role in the career development of college students.

Based on the close correlation between career values and self-directed learning, college students can consciously take measures to optimize these two aspects. Firstly, they can form a clear understanding of their own self-directed learning and career values by means of measurement. Secondly, they should formulate a personal development plan, consider various factors in a holistic manner, and clarify the direction of development based on their current level of awareness. Third, using the personal development plan as a guide, analyze the content and specific indicators of professional values, and determine the goals and entry points for optimization and fine-tuning. Finally, it is to make conscious changes and use self-directed learning as a carrier to continuously move closer to achieving the goals through the improvement of professional abilities. In this process, college students can start from the specific indicators of self-directed learning to improve the level of self-directed learning so that it can better serve their own growth. Along this path, college students can better plan their own career development and improve their professional ability through self-directed learning, so that they can prepare for their preferred jobs after graduation. In this process, college students, as the main participants and implementers of their own growth planning, can fully perceive their sense of responsibility and mission to develop their own career development prospects and improve their career suitability.

Table 10

Relationship Between Self-Directed Learning and Career Value

Awareness	rho	p-value	Interpretation
Social Factors	.644**	0.000	Highly Significant
Management	.636**	0.000	Highly Significant
Specialization	.648**	0.000	Highly Significant
Mobility	.555**	0.000	Highly Significant
Independence	.642**	0.000	Highly Significant
Work-Life Balance	.595**	0.000	Highly Significant
Variety	.552**	0.000	Highly Significant
Learning Strategies			
Social Factors	.699**	0.000	Highly Significant
Management	.669**	0.000	Highly Significant
Specialization	.622**	0.000	Highly Significant
Mobility	.559**	0.000	Highly Significant

Jiang, X.

Independence	.621**	0.000	Highly Significant	
Work-Life Balance	.607**	0.000	Highly Significant	
Variety	.576**	0.000	Highly Significant	
Learning Activities				
Social Factors	.630**	0.000	Highly Significant	
Management	.687**	0.000	Highly Significant	
Specialization	.700**	0.000	Highly Significant	
Mobility	.666**	0.000	Highly Significant	
Independence	.636**	0.000	Highly Significant	
Work-Life Balance	.604**	0.000	Highly Significant	
Variety	.605**	0.000	Highly Significant	
Evaluation				
Social Factors	.705**	0.000	Highly Significant	
Management	.686**	0.000	Highly Significant	
Specialization	.683**	0.000	Highly Significant	
Mobility	.606**	0.000	Highly Significant	
Independence	.683**	0.000	Highly Significant	
Work-Life Balance	.641**	0.000	Highly Significant	
Variety	.622**	0.000	Highly Significant	

Legend: Significant at p-value < 0.05

4. Conclusions and Recommendations

All respondents are college students. Among them, the proportion of female students is higher than that of male students, and that of normal education is higher than that of other course categories. The number of students in each grade is relatively evenly distributed, with the largest number of sophomores and very few graduate students. The respondents recognized the importance of leadership style, self-directed learning and career values for personal empowerment and future development. The results show that respondents' recognition of leadership style, self-directed learning and career values are influenced by gender differences, especially male students' overall evaluation on leadership style is higher than that of female students; however, it is not significantly influenced by grade and course categories. The differences among the three variables were not significant and showed a mutually reinforcing effect, which did not contradict each other.

The following were recommended: Teachers in charge of career planning courses may place particular emphasis on these issues (specify the issues) when optimizing students' leadership styles and not to use exactly the same training program. The enhancement of self-directed learning for male students may focus on specific methods and strategies as they have advantages in terms of independence and autonomy, and for female students lies in helping them overcome some psychosocial factors to further stimulate their learning abilities. Optimizing career values may focus on and address the tendency of students to reject something just because they are unfamiliar with it or not good at it. For students who are interested in self-improvement but lack sufficient motivation, they can first get a boost and find confidence from implementing some general methods, such as encouraging students to participate in social practice, field research, etc., and then promote personal development with systematic and targeted training through the joint efforts of relevant teachers and themselves.

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