

Construction of mental health education system based on dissipative structure theory

Yaoyang Wei *, Yan Wang, Hanyi Hu, Yaoyao Zhao

Department of Education, Huanggang Normal University, Huanggang 43800, China

* Corresponding author: Yaoyang Wei (Email: weixiao0714@163.com)

Abstract: Dissipative structure theory, as a new scientific theory, emphasizes that a stable and orderly structure can be formed in the region far from the equilibrium state by exchanging matter and energy with the outside world. The mental health system is an open system, which meets the basic conditions of the application of the dissipative structure. Therefore, applying the dissipative structure theory to the system construction of the mental health education can provide a new theoretical perspective and research method for the construction of the mental health education system. To study the construction of mental health education system from the theory of dissipative structure has an important guiding significance for the mental health education of college students.

Keywords: Disgution theory; Mental health; System construction.

1. Introduction

The mental health education system of college students is a complex system composed of many elements, among which all the elements have certain functions and have a relatively stable structure between them. The organic combination of elements constitutes a relatively open and hierarchical overall system. Belgian physicist's dissipative structure theory of the system is divided into isolated system, closed system and open system, he points out: an open system from the balance through constant exchange of material and energy, in the outside conditions change reached a critical point, may from the original chaotic disorder, into this new type of dissipative structure. This theory inspires us: in today's college students' mental health is a far from the balance of contradiction, dissipation theory more help us to create a new university mental health education environment, help us to construct a perfect college students' mental health education system, and the establishment of this new system will be more conducive to the healthy development of college students' psychology, make the quality of college students towards a more comprehensive direction.

2. Overview of the dissipative structure theory

The word "dissipation" originated in Latin and originally meant dissipation, and here emphasizes the exchange of energy and material with the outside world.

The dissipative structure theory is the result of Professor Prigogin, the leader of the Brussels School in Belgium, who was engaged in his research on non-equilibrium thermodynamics and non-equilibrium statistical physics. On the basis of the study of the linear region of the nonequilibrium thermodynamic system, Professor Prigogin began to explore the evolution characteristics of the nonequilibrium thermodynamic system in the nonlinear region. When studying the deviation from the equilibrium thermodynamic system, it is found that when the parameters of the system leaving the equilibrium state reach a certain threshold, the system will have a "behavioral critical point".

After crossing this critical point, the system will leave the original thermodynamic disorder branch and enter a new stable ordered state. If the system is pushed further away from the equilibrium state, the system may evolve more new, stable and ordered structures. Professor Priigjin calls this stable ordered structure "dissipative structure". Thus, a dissipative theory of structure for non-equilibrium thermodynamic systems far from equilibrium.

The concept of dissipative structure is relative to the concept of equilibrium structure, it puts forward an open system, away from the outside conditions change to a certain threshold, quantitative change may cause qualitative change, system through constant exchange with the outside energy and material, may change from the original disorder state into a state of time, space or function. For a long time, people only studied the orderly and stable structure of the equilibrium system, and believed that if the system was in a disordered and non-equilibrium state, it could not present a stable and orderly structure in the non-equilibrium state. High Tianjin and others: an open system, away from the outside conditions change to a certain threshold, quantitative change may cause qualitative change, the system through constant exchange with the energy and material, may be from the original disorder state into a time, space or function, the equilibrium, stable, orderly structure called "dissipative structure". This doctrine answers the question of how an open system moves from disorder to order.

The dissipative structure theory points out that there are several necessary conditions for the transition from disorder to this dissipative structure. First, the system must be open, that is, the system must exchange matter and energy with the outside world, the isolated system and the closed system; second, the system must be far from equilibrium in the nonlinear area or near equilibrium from an order to another higher order; third, there are nonlinear interaction between different elements in the system, and constantly input energy to maintain; fourth, the system realizes the transformation from disorder to order through random fluctuation.

3. The necessity of constructing mental health education system construction from the perspective of dissipative structure theory

College stage is a key period for the development of young people in their life. As a young group with a higher cultural level in China, college students are more rational, sensitive, passionate, more creative and challenging. However, in the face of rapidly changing society, increasingly fierce competition and problems from study, major, employment, economy and emotion, they are often at a loss, easy to produce a variety of uncertain psychological reactions.

In recent years, many scholars take a variety of methods to investigate the college students' mental health, the results show that the contemporary college students' mental health is not satisfactory, and there are a considerable number of students have different degree of mental health problems, some has appeared very serious psychological disorder. At the same time, there are still many deficiencies in the mental health education with college students, which makes the mental health education of college students cannot play its practical role and reduce the efficiency of mental health education.

There are the following problems in mental health education: (1) mental health education is serious. College leaders and teachers have many misunderstandings about the mental health of college students: first, it is the responsibility of the students. According to the survey, some university leaders of college students' mental health education understanding still stay at a lower level, that it is a soft task, as long as to prevent students do not have an accident, do not go to the extreme. (2) Lack of professional team strength. Including the serious shortage of the number of psychological teachers and the low professional level of psychological teachers. According to UNESCO, every 6,000 to 7,500 primary and secondary school students should have a school psychological expert, and every 2,000-3,000 college students should have a full-time school psychological expert. And this requirement in China's universities, psychological teachers are mostly part-time and representative. At the same time, the psychological teachers in colleges and universities for "halfway", education workers without system of psychology, psychological counseling, mental health education training, these people have rich time experience, but often with experience, enthusiasm and imagination, lack of system of psychological education theory and effective methods. (3) There are wrong understandings in the educational concept. Including the lack of hierarchy of educational objectives and the educational object is too narrow. In recent years, different scholars have put forward different goals of mental health education from different angles, but they only involve a certain aspect or level of mental health education, and do not take into account the status and role of mental health in the overall quality education. At the same time, for a long time, people's pursuit of mental health is mainly limited to the medical category, that is to say, it mainly lies in the treatment of mental diseases. This makes many school leaders and teachers think that mental health education knowledge is aimed at a few problem students, rather than at all students, which makes the road of mental health education narrower and narrower. (4) The mental health education system is not perfect. Including work department coordination between departments and lack of effective supervision and evaluation.

Mental health education is closely related to the development of students in all aspects. Mental health education has both relative independences, is irreplaceable school all aspects of work, and the school work has a wide range of cross and penetration, simply rely on 1-2 mental health education full-time staff obviously strength is not enough, rely on specialized mental health education institutions, is unable to achieve the desired goal. At present, there is no unified evaluation standard for the way, means and content of mental health education evaluation, and the single evaluation standard makes the evaluation results lack of scientific and guiding. (5) To ignore the cooperation between family and society in the form of education. Besides school education, the development of students' mental health education is also restricted by other social factors. Family members, as important personnel in the growth and development of students, parents' understanding and concept of mental health education will directly affect the development of students' mental health education and school mental health education.

These problems in mental health education all reflect the seriousness of the imperfect mental health education system today, which also reflects the importance of building a new mental health education system. The realization of the application of dissipative structure in the construction of mental health education system will help us to form a new perfect and comprehensive mental health education system, so that the mental health of college students can be higher guaranteed.

4. The feasibility of the mental health education system construction from the perspective of dissipative structure theory

Mental health education is one of the educations of college students, and the education system is a complex system held by the human society. As a subsystem of the education system, mental health education has the characteristics of complexity. College students' mental health education is composed of society, school, teachers, students and other elements, and each element is a subsystem. The elements in this system have different functions, which are interrelated, mutually restricted, mutually promoted and mutually dependent on each other. In the big environment, with the continuous improvement of students' cognitive degree and change, in the open nonlinear area, through with the external environment for material and energy exchange, when external conditions reach a certain threshold, under the sequence parameter service, through the students' psychology from the original chaos of chaotic state, the organization for a new orderly structure. Traditional mental health education system is too basic and one-sided, for students' mental health education did not have a profound impact, still stay in the primary treatment stage, cannot early prevention of mental illness, school students psychological did not enter a stable state, so requires us from a new perspective of new construction of mental health education system, using the dissipative structure theory to construct mental health education system.

4.1. The mental health education system for college students is an open system

Dissipative structure is the first condition of the system must be open, only open system with the outside world for material, energy and information exchange, only in this way

can input negative entropy, offset the entropy of the system itself, the total entropy of the system, "new", to make the system from disorder to order, form the dissipative structure. Closed systems are unable to form dissipative structures.

The mental health education system for college students itself is an open system. College students are in the middle of youth (18~25 years old). During this period, individuals should absorb and integrate all aspects of knowledge and experience to form their own outlook on life and values. It can be said that this period plays a positioning role in the development of an individual's life, and almost determines the lifelong development direction of an individual. In the middle of youth, the intellectual development of individuals entered its heyday, the mode of thinking changed from formal logical thinking to dialectical logical thinking, and the thinking is more relative, flexible, flexible, integrated and practical. So in this period, college students for the outside society has more intense curiosity, also will make them learn all they are interested in things and things, their thirst for knowledge and exploration spirit makes their psychological in a state of the extremely open, causing its for new things has a strong absorption ability and desire, namely for all new knowledge has an urgent need, it also has prompted students have a strong shape self, desire to lay a solid foundation for the future. This has become the basic reason why college students need mental health education, and also become the fundamental reason why the dissipation structure theory to reshape the mental health education system.

4.2. The mental health education system of college students is in a non-linear area far away from the balance

There are three states in an open system: the thermodynamic equilibrium state, in which the entry of matter and energy greatly increases the total entropy of the system and accelerates the movement of the system to the near equilibrium state. In the system, even if there is an orderly structure at the beginning, it cannot resist the destruction of the entropy in the system, in this state, no new structure and organization; it is away from the equilibrium state, where the entropy flow is greatly less than zero, in the system, and the system continuously obtains material and energy from the environment, and finally forms a new structure. A system in equilibrium means the principle of minimum potential energy and is a low-function system without vitality. According to the dissipative structure theory, "non-equilibrium is the source of order", and the system can only stay away from the equilibrium state in the constant exchange of matter, energy and information, and can also evolve orderly in time, space and function, and constantly produce new dissipative structure.

Mid-youth, youth will attention to the inner world, but the concern of the inner world does not mean less the attention of the outside world, on the contrary, compared with early childhood, youth, into the mid-youth youth view of the outside world more profound and extensive, and the attention to the outside world and concern is based on the self as the core content. Erickson believes that the development subject of youth is the establishment of self-identity. Therefore, in the process of pursuing self-identity, the psychology of college students will inevitably produce a series of strong contradictions and conflicts, such as: the contradiction between the ideal self and the real self, the conflict between independent intention and attachment psychology, the

conflict between communication needs and self-closure, and the conflict between reason and emotion. And at the same time, the outside world of all kinds of complex factors and rapidly changing social and development environment prompted college students have to spend more time to think about the future development direction of life, also explore the heart at the same time formed more pressure, make it unable to better complete the self-identity structure, resulting in the college students 'mental health is extremely unstable, prompting college students more likely to produce psychological problems, makes today's college students form moral confusion, cognitive disorders and mental imbalance. However, this state away from the equilibrium state provides a better opportunity for the construction of college students' mental health education system, and has also become the inevitable reason for the application of dissipation theory.

4.3. There is a sharp fluctuation in the students' mental health education system of college students

"Rise" refers to the deviation of a variable or behavior in the system, which is the seed and kinetic factor of the formation of dissipative structure. The role of "rise and fall" has a duality. The fluctuations occurring in equilibrium or near equilibrium states are a disturbing factor for the overall stability of the system, but far from equilibrium, small fluctuations can be amplified into "giant fluctuations", prompting the system to produce new ordered structures. "rise and fall lead to order" tells people that any element of the system is likely to change at any time, and that small changes in any element can cause other elements in the system to change and eventually form a new relatively stable state.

In the mental health education, any information from the outside world will have a certain impact on the psychology of college students and thus produce a random fluctuation phenomenon. College students are a group full of vitality, and the environment of the university enables them to better release their nature and choose to do what they like. However, in the small society of the university, students' thoughts are still not stable, and there is a long stage for them to adapt to the university. During this period, there will be large emotional fluctuations, and the uncertainty of self-worth will also produce inferiority and retreat, which all promote the psychological ups and downs of college students and strengthen the instability. And at the same time, the emergence of new things, new ideas, new trend to the original traditional, stable value system caused a strong impact, the social corruption, money worship, pleasure and extreme individualism, makes the values of college students, world outlook by the strong impact, because people have anxiety and anxiety, more aroused the college students' psychological turmoil. Small external ups and downs have caused the psychological internal "big fluctuation", urgently require us to find a new solution for the mental health of college students, to create a safety system specific college students' mental health education system.

4.4. The mental health education system of college students has a non-linear action mechanism

In order to achieve a high degree of order and produce tissue effect, the system must have a nonlinear mechanism of action. The interaction of various elements within the system

is generally divided into linear and nonlinear actions. The effect of linear action is $1 + 1 = 2$, while the effect of nonlinear action is $1 + 1 = 2$. Linear interaction are characterized by superposition, that is, the total interaction is the sum of each small interaction, they are exactly the same in nature and behavior, so no matter how much the linear interaction accumulates, it will not produce new properties, and of course, new structures will not be produced. Nonlinear energy to form dissipative structure, because their components in nature, behavior, mutual restriction, mutual coupling and coherence, and the interaction between the parts is not simple from the number of superposition, which may form a whole is completely different from the parts of the new overall effect.

In the past, we often take students as a simple linear system, thinking that everything in students is relative, some gains are losses, add is subtract, all the things done will inevitably get the desired results, but in fact, not exactly. As a higher animal in biology, man has all the complex advanced abilities of thinking, emotion and so on, and these abilities cannot be measured by specific values. The sum and synthesis between them often get unexpected results. That is to say, in the system of output variable or state is not a simple linear relationship with the input variable and stimulus intensity, but a non-linear system mechanism of action.

Based on the above inferences, the mental health system of college students, as a system based on students, is also a nonlinear mechanism of action, with the conditions to forming a dissipative structure. When the subject, object and environment in mental health education coordinate and adapt to each other, it can produce synergistic effect and coherent effect, and enhance the effect of mental health education, so as to make the construction of college students' mental health education system more orderly and form a dissipative structure.

5. Construction of mental health education system under the perspective of dissipation structure theory

According to the theory of dissipative structure, college students' mental health education system of dissipation can be defined as college students' mental health education system and environment for material, ability and information exchange, under the interaction between the system development of increasing favorable factors, make the increase of the organization is greater than the increase of their disorder, form a new orderly structure and produce new vitality. The dissipation structure of college students' mental health education system is the self-organization and adaptive organization system formed in the dissipation process of college students' mental health education system.

5.1. In terms of value orientation, we should grasp the non-balance of mental health education and build the practice system of mental health education

Today's mental health education system is in a very stable balance, universities for the construction of mental health education system is the basic stage, the best in the school construction of psychological counseling center, equipped with several psychological counseling teachers, organize several psychological lectures, but not mental health

education associated with the overall agenda of the school, mental health education in most schools is still in dispensable awkward position. The understanding of mental health education in schools is still limited to the cognition of mental illness, which is the attention to a small number of people with obvious mental illness, which is actually contrary to the purpose of mental health education. The fundamental purpose of mental health education is to prevent the emergence of mental illness, rather than to solve the psychological problems after the generation. However, most colleges and universities have put the understanding of mental health education before the horse.

Therefore, in the construction of the new mental health education system, the school should make clear the real goal of mental health education, determine the correct psychological values, and truly realize the importance of mental health education for the health education of college students. Not only to fix mental health education in one direction, but also to expand the scope of mental health education, to break the current balance of mental health education, and to build an unbalanced state. Positive understanding of college students' psychological state, rich psychological activities, increase the spread of psychological knowledge, strengthen the prevention of mental illness, encourage students to strengthen the understanding of their mental health, make mental health education can really integrated into the campus, thus improve the overall quality of school students, university get more comprehensive development.

5.2. In the focus of work, we should grasp the openness of mental health education and improve the system of psychological education for college students

In the face of today's fierce competitive social environment, college students with an open mind will be easier in the future life, which will reduce the generation of anxiety and pressure, and ensure the mental health of college students.

From the perspective of the mental health education system of college students, it is necessary to maintain an unbalanced state and fully understand the open role between the system and the external environment to promote the mental health education to develop in a higher direction. A closed and rigid psychological system is like the closed policy of the Qing Dynasty, which will eventually perish and lose its development. Only by keeping it open, can a stable and orderly new structure be formed. Therefore, in the construction of a new mental health education system for college students, the school should have an open awareness of college students' mental health education, so as to build an open communication platform, not only inside the school, but also outside the school to actively communicate and exchange information. Schools should be able to correctly view the favorable and unfavorable factors in the environment, determine the educational goals and actively update the educational information, promote the problem solution between the social environment and college students' psychology, alleviate the contradictions and make the development of college students' mental health. Specific operation can: (1) the school in fully accept news at the same time to strengthen the students' innovative spirit and ability to adapt to the rapid development of society, only the students have innovation ability to walk in the social front, and adapt to social ability, can make students after college graduation

facing a series of pressure and role change has strong psychological ability, to reduce the occurrence of psychological problems.(2) Schools should strengthen the cultivation of students 'professional quality and comprehensive quality, and strengthen students' trust in schools and teachers on the basis of improving their teaching ability, which is helpful to weaken the students' psychological burden, improve the students' quality, and reduce the generation of psychological problems.(3) Set up compulsory courses for psychological education to enhance students' ability of self-education. The improvement of psychological quality cannot be separated from the mastery of corresponding knowledge. It is an important measure to promote the optimization of psychological quality in the systematic learning of psychological development and change, understanding the law and characteristics of psychological development, learning the methods of psychological health care and consciously adjusting and controlling emotions.(4) Actively apply modern and advanced educational media, enhance the effectiveness of education, strengthen the transformation of the school environment, create a novel and positive environment for college students 'psychology, strengthen college students' interest in learning, so as to maintain the pleasure and health of university psychology.

5.3. In terms of operation mechanism, we should grasp the non-linear structure of mental health education and consolidate the support system of college students' mental health

The 21st century is a cultural agitation, values, news media, social rapidly changing century, in the face of such a complicated world, to strengthen the adaptability of young college students, tolerance, control, willpower, thinking, creativity and self-confidence psychological quality education and training, in order to eliminate the tension and pressure brought by social life. In today's survival of the fittest environment, people only learn to adapt to the environment, constantly change themselves in the environment, rather than delusion that the environment changes with you, in order to truly survive in the society. In the mental health education system of college students, college students must put their own position, understand their own environment, give full play to their subjective action, in order to correctly understand themselves. Understanding the truest self is helpful for college students to truly position themselves, avoid the gap between their own high positioning and not adapting to the social reality, and help to reduce the generation of mental health problems.

There are complex nonlinear effects in the mental health education system, which may have positive effects or negative effects. Therefore, in the mental health education, in addition to fully understand the impact of various factors on mental health, but also to realize the mutual influence between various factors. At the same time, when making full use of various factors, we should also pay attention to the mutual offset between various factors to promote the generation of functional synergy between various systems. Therefore, when carrying out mental health education, we should first have the same teaching goal in education and teaching. The establishment of this goal is helpful for teachers to better help students to establish a good healthy psychology

in the teaching process. Second, better integration of the relationship between the subsystems, the school student union, youth league, school organizations and psychological counseling center and psychological teaching courses closely, to pay close attention to students 'mental health, extensive publicity and education activities, introduce the method of psychological self-regulation, more psychological knowledge mission to students, make students in the psychological problems is the first time, in order to encourage students to self-help or actively turn to counseling center, also prevent and reduce the production of mental illness, makes the students' mental health is guaranteed. Finally, should actively strengthen the communication between various disciplines application, use of positive cultural discipline that students can shift to more interest, in order to eliminate the school learning pressure and the social environment, such as ideological and political can encourage students to produce correct value outlook on life, art to enhance students' aesthetic temperament and interest, can help students better understand life, and social practice will promote interpersonal communication between students, strengthen the group consciousness, correct the deficiency of individual and problems.

5.4. In terms of educational content, we should grasp the principle of reasonable goal of mental health education and take the mental health curriculum system as the main body

The goal of mental health education is to ensure the healthy psychological growth of college students and promote them to form a good psychological state in the process of growth. Today's mental health education is mainly in the form of lectures among universities. When the college students first enter the school, the school will give psychological lectures to guide the students to adapt to the college life as soon as possible, and help the college students to determine their future development direction. In building a new mental health education system, for college students 'mental health education can not only confine to a mental health lecture, but should be mental health education throughout the college students learning life, the university of mental health education into a system, and inserted into the college students' education courses. Let college students understand the basic psychological knowledge, can make college students correctly understand the psychological problems, and help college students to fully understand themselves, understand their own needs, which can initially reduce the generation of psychological problems, actively prevent mental illness, but also help the stable development of university psychological education.

In the construction of college students' mental health education system, the arrangement of mental health education course is an important link, each semester mental health education course can be targeted to guide students, teach students to learn knowledge at the same time channel students in the life of psychological pressure will be more conducive to the healthy growth of students. If the school can increase the arrangement of psychological courses, it will really realize the importance of mental health education, and then it will be of real help to the construction of the new mental health education system.

5.5. In terms of characteristic construction, we should grasp the "rise and fall" principle of mental health education, and strive to build a new media platform for mental health education

The essence of college students' mental health development is the occurrence of internal fluctuation and amplification process, so in the construction of college students' mental health education system, must be carefully research in the open system plays a key role, prompting college students psychological development in the direction of health, as long as find the key point and amplification, diffusion, can promote the whole college students' mental health toward good direction, also accelerate the dissipative structure of college students' mental health education system, improve the level of mental health education of college students.

First of all, a psychological website can be established on the official website of the school, to publicize the basic psychological knowledge on the website, and add psychological measurement, so that students can conduct psychological measurement on the website, to help students really understand themselves. And in the establishment of the website at the same time also to increase the publicity in the school, efforts to publicize the psychological website, publicity of psychological knowledge, so that psychological education spread to the hearts of each student. Secondly, the school psychological education and school radio station combined, carry out a psychological radio station, can also publicize psychological knowledge, please psychological teachers online psychological consultation for students, these are helpful to publicize psychological education, improve the level of psychological education. Finally, more psychological education activities should be carried out in schools, students should be organized to actively participate in psychological education, group counseling, and more performances related to psychology, which are conducive to the improvement of mental health education at a higher level, and make mental health education truly integrated into the school education life.

Acknowledgments

Major Project of Philosophy and Social Sciences Research in Colleges and Universities of Hubei Province in 2019 (Pre-fund Project of the Provincial Social Science Fund). Research on the Realistic Dilemma and Governance Strategies of College Students Psychological Crisis Control (Project Number: 19ZD067). Major Project of Philosophy and Social Sciences Research in Hubei Province in 2021, Research on Intervention Mechanism of College Students' Mental Health Problems (Project Number: 21ZD136)

References

- [1] Che Jiyan, Lin Dehong. The New Knowledge Dictionary [M]. Nanjing: Nanjing University Press, 1987:958.
- [2] Xie Chunling. Current situation, problems and Countermeasures of mental health education in contemporary college students [D]. Northeast Normal University.2006.
- [3] Shen Qiang. Research on the education of Ideal and Beliefs among College Students under the perspective of self-organization [J]. Ideological education Research, 2013 (12): 4.
- [4] Li Feng. The psychological quality education of college students from the theory of dissipation structure [J]. Educational Exploration, 2006 (11): 2.
- [5] Guo Shengli, Zhang Lian. Theory of child psychological development and dissipation structure [J]. Journal of Hebei Normal University: Education Science Edition, 1999 (2): 5.
- [6] Gong Tao, Xu Jianjun. Ideological and political education of college students between new media and subjects [J]. Social scientist, 2010 (11): 4.
- [7] Wu Yuejun. Research on the moral growth of college students based on the perspective of dissipative structure theory [J]. Journal of Wuxi Institute of Education, 2009 (3): 4.
- [8] Liu Shuhua, Yan Xiaoli. On disorder and order in higher education system- based on dissipative structure theory [J]. Heilongjiang Higher Education Research, 2006 (01): 5-7.
- [9] Wei Yaoyang, Zheng Weifeng. On the establishment of the psychological counselor system of college students [J]. Fujian Forum (Social Science Education edition), 2008 (12): 72-75.