Chapter 27
Leadership in the Future Experts' Creativity Development with Scientific Research Activities

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Abstract In today's society, providing education plays a significant role in social structure. As globalization took its course, the role of education has expanded and each country has built its own education system. In this process it is crucial that all the major changes get included in the education system of Kazakhstan Republic as well. Due to globalization, it is known that the country is in collaboration with others, and also has a strong base, independent with its own politics, in addition to having a socio-economic development strategy pointing towards 2050. If countries prefer not to adapt to the requirements of today's world, it is not possible to deal with complexity as a daily routine. The civilized social progress can be reached with scientific research activities that have a set of good intentions while targeting creativity in every stage. In today's global world, chaotic events and/or situations that seem minor in any place can cause very different or major effects in other places as imbedded in the famous 'butterfly effect'. Future experts should have inner, behavioral, intellectual and spiritual power to deal with unexpected and unforeseen crisis and chaotic situations and also they should have enough confidence and courage to reflect on solutions to these situations in research studies because future experts will be community leaders. In this chapter, we will discuss leadership in the future experts' creativity development with scientific research activities.

Keywords Future experts · Creativity development · Scientific research activities · Chaos · Leadership

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27.1 Introduction

In today's society, providing education plays a significant role in social structure. As globalization took its course, the role of education has expanded and each country has built its own education system. We expect education to prepare young people for the world of work and for economic independence; to enable them to live constructively in responsible communities; and to enable them to live in a tolerant, culturally diverse and rapidly changing society (NACCCE 1999). In this process it is crucial that all the major changes get included in the education system of Kazakhstan Republic as well. Therefore, it is undeniable that the concept of expanding the education system, led Kazakhstan Republic to reach out worldwide in order to continue providing education.

The world has grown interconnected and complex (Adams 2005). Due to globalization, it is known that the country is in collaboration with others, and also has a strong base, independent with its own politics in addition to having a socio-economic development strategy pointing towards 2050. If countries prefer not to adapt to the requirements of today's world, it is not possible to deal with complexity as a daily routine. This is because, according to Erçetin et al. (2013a), social constructs like societies, organizations and leadership are chaotic, inter-dependent, non-linear systems that are closely tied to initial conditions. Leadership and chaos can be considered fundamentally interconnected, topics of chaos and leadership have been classified, unitized and graded in a variety of ways (Erçetin et al. 2013a). Leadership is an interaction field between leaders and followers, there are good examples of people dealing with chaos and this is true especially for the managers at schools (Erçetin et al. 2013b).

A new set of demands and obligations has recently been put on the national graduate level education system. Due to this specific reason, the new Kazakhstan in the new world has been struggling with the expansion of the graduate level education system, in which, the indisputable **big obligation** is to develop the education system along with an established quality education and compare the experiences earned, determine a connection with its international leading examples while not losing sight of our national attributes.

In Kazakhstan Republic's national education standards that bind everyone, '*Today's education quality is explained, through the act of future graduate school experts providing education while offering an opportunity to solve one's own problems in different activities*'. In all of these ways the tasks of education are complex and difficult and also schools have a complex task (NACCCE 1999). Finally, the aim of today's graduate level education is to develop individuals who are smart, capable to compete, creative, independent, self-researching, productive, as well as being powerful leaders to deal with chaotic situations. With this action, the knowledge that is obtained through the research activities, the creative expertise and the development capabilities will reflect on the overall education qualities.

27.2 Creativity

The word creativity is used in different ways, in different contexts since it has an elusive definition, the problems of definition lie in its particular associations with the arts and in the complex nature of creative activity itself (NACCCE 1999). According to Philosopher Berdyaev (1994), *creativity* is—life's hidden spell, and people should look at life's each stepping stone with creativity, and that creativity also has moral and religious sides, and all these combined will shape up your life's character.

According to Potashnik (1990), the key indicators of creative personalities display a need to create things from scratch and to move towards developing the items that are being used daily, while avoiding repetitiveness, however paying close attention to creating unity. Creativity arises through the confluence of the following three components (Adams 2005):

- **Knowledge**: All the relevant understanding an individual brings to bear on a creative effort.
- **Creative Thinking**: Relates to how people approach problems and depends on personality
- and thinking/working style.
- **Motivation**: Motivation is generally accepted as key to creative production, and the most important motivators are intrinsic passion and interest in the work itself (Fig. 27.1).

Although creativity is often viewed as being associated with the notions of "genius" or exceptional ability, it can be productive for educators to view creativity instead as an orientation or disposition toward science activity that can be fostered

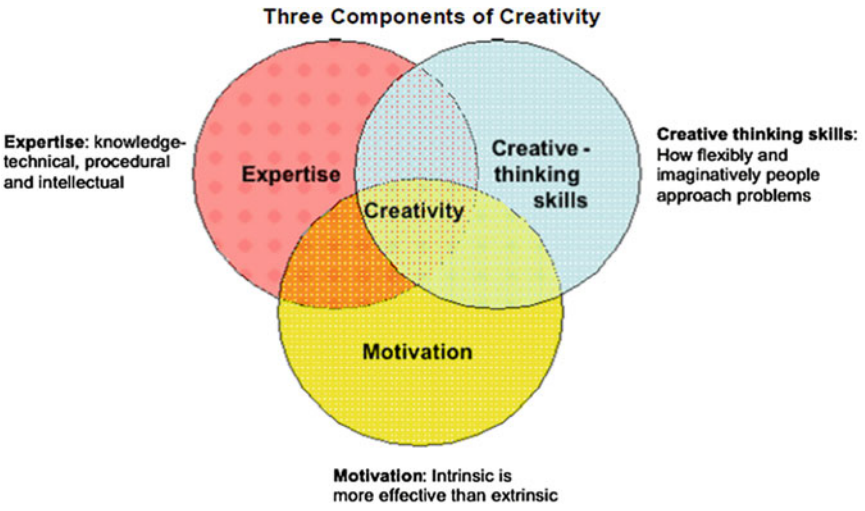

Fig. 27.1 Components of creativity. *Source* Adams (2005)

broadly in the general school population (Mirzaie et al. 2009). In our view, all people are capable of creative achievement in some area of activity; provided the conditions are right and they have acquired the relevant knowledge and skills (NACCCE 1999).

Kochetov (1959) stated: "The creative attribute means; the inclination to receive new information or product with minimal time, effort and cost requirement, but has qualitative and quantitative indicators and that is also superior than before." The ones who examine the creativity issues usually classify it as creative pedagogue—first, are the ones that catch one's attention with their personal vacations, scientific and pedagogic and psychological thinking and high level pedagogic skills, with their fine scientific research methods and developed pedagogical intuitive feelings, using their previous pedagogical experience, re-trained themselves in the professional education field.

According to psychologists, a person's creative interest is connected to their social status, personal feelings, and the activity that surrounds them. In an individual's chaotic work structure, their creativity stays bonded with their emotional freedom and reflects the core of their attachment to reality.

Furthermore, Simonton (1988) proposed that creativity is leadership because successful creative products induce people to think differently in important ways. By creative education we mean forms of education that develop young people's capacities for original ideas and action: by cultural education we mean forms of education that enable them to engage positively with the growing complexity and diversity of social values and ways of life (NACCCE 1999).

27.3 Complexity in Creativity Development

We are living in a complex world. Dealing with complexity is easier when we utilize collective knowledge and creativity. It is tempting to repeat the same strategies we have always used successfully as leaders but those same approaches may not work well when we are solving complex problems. To be successful leaders in a global society, we need to learn how to navigate through complexity.

In his article in Psychology Today, 'The Creative Personality', Mihaly Csikszentmihalyi cited by Linda Fisher Thornton (2012) writes that:

> Creative individuals are remarkable for their ability to adapt to almost any situation and to make do with whatever is at hand to reach their goals. If I had to express in one word what makes their personalities different from others, it is complexity. They show tendencies of thought and action that in most people are segregated. They contain contradictory extremes; instead of being an "individual," each of them is a "multitude."

Meanwhile the IBM (2010) poses some questions that we ought to ponder over when examining complexity of creativity:

- Why are some organizations consistently good at innovating and/or adapting while others seem to be blindsided by change?

- Is it because of their disciplined innovation process or the knowledge and skills of their people?
- Or is it their determination to build a culture where challenging assumptions is not only encouraged, but expected?
- What, specifically, enables leading-edge organizations to capitalize on the inherent complexity in today's environment and catalyze innovation within their business models, products and services?

An IBM Creative Leadership Study found that leaders who embrace the dynamic tension between creative disruption and operational efficiency can create new models of extraordinary value. According to the IBM 2010 Global CEO Study, the ability to embody creative leadership is among the most important attributes for capitalizing on complexity.

According to the IBM (2010), creative leadership in action enables a wide range of product, process and business model innovations. Organizations will need to act upon three imperatives to accelerate the development of creative capital:

- *Uncover the key capabilities of the creative organization*: Empower the organization's ability to understand how the world behaves. Expose those individuals who see opportunities where others do not and map out what is found. Connect ideas and people in novel ways. Try many and various ideas. Inspire belief that action is possible. Maintain the discipline to get things done.
- *Unlock and catalyze the creative capabilities of leaders*: Create high-impact, experiential learning tied to real business challenges. Develop inspirational role models who demonstrate accomplishment and empowered leadership. Unleash small, diverse teams to pursue bold ideas in response to challenges. Create work structures and incentives aligned with intrinsic motivation. Promote a culture of inspiring vision built on authenticity and powered by trust.
- *Unleash and scale organizational creativity*: Share information for collective vision. Tap into global expertise networks. Expand management and communication style repertoires. Build ad hoc constituencies of those sharing common goals. Influence collective behavior through real-time analytics.

Nevertheless, complexity and alignment have been constants in organizational theory in the past, though often casually dismissed as the duty of managers and not the province of visionary leaders. Recent calls to focus on complexity are welcomed, but they also miss the point by stressing only the inner psychology. In an objective view, both are ultimately shortsighted. Both are damaging to leaders striving to build great organizations (Guthrie and Venkatesh 2012).

Due to globalization and the revolution in information technology, institutions have become far more complex. The distance between New York and Bangalore has been reduced to mere bits and bytes, allowing organizations to grow beyond the constraints of time and place. These changes naturally introduce more competition, processes and sophistication. Moreover, individuals at every level of the organization contribute to complexity as employees look for new ways to achieve strategic goals or add value. Guthrie and Venkatesh (2012) thus contend that it is this

element of human dynamics in the workplace that injects another level of complexity, one that cannot always be addressed with a process or system change, or the right mental state. Instead, it demands a more robust and profound understanding of creative leadership inside organizations.

The creative leader sees opportunity in this organizational and human complexity. By analyzing the organization and by focusing on the power of alignment, leaders create harmony among all the various components of the organization. The result in this case is a culture of innovation and change.

However bringing about creativity within an organization is not a bed of roses. Indeed creativity development poses a bigger challenge than always discussed in literature. This study thus seeks to explore 'Leadership in the Future Experts' Creativity Development with Scientific Research Activities' as a way of offering a way out of the complex jig-saw.

27.4 Leadership in the Future Experts' Creativity Development with Scientific Research Activities

The civilized social progress can be reached with scientific research activities that have a set of good intentions while targeting creativity in every stage. Hence, due to today's socio-economic changes our society has an increased need for social individuals that can make decisions on their own and develop from them. For that reason, the event of globalization, and the society's size, its mechanism in order *to form the graduate schools' creativity through scientific research activity system, in the name of transformation and purposeful redirection of education and outside of education phase* have created one of the biggest concerns. The reason why we take this as the foundation is because, each country's moral, socio-economic development level is directly correlated with the population's level of knowledge that is obtained through scientific research in their lifetime and the fact that this knowledge has been used along with creativity. Because the fantastic knowledge that we gather through scientific research activities, along with the evaluated creativity, and the proper use with good intentions would lead us to find the newest thing.

Suhomlinski (1984) said: "In order for graduate studies not to remain a phase in one's intellectual life, it is crucial for them to be fun. Only then we will reach the level where the spiritual life will return to its own place, back to its owner and protector".

The future experts' information processing speed, their thought process and thinking capabilities, the core of their emotional development are directly related to the development of their scientific research and its creativity. Students need to be repeatedly reminded and shown how to be creative, to integrate material across subject areas, to question their own assumptions, and to imagine other viewpoints and possibilities (DeHaan 2009).

Yermentayeva et al. (2013) reflect on the following as key to self-development of research creativity of future teachers'

- the psychological condition is their reflective activities, personal and cognitive constructs.
- the pedagogical conditions are facilitative, interactive and innovative educational technologies in higher educational institutions,
- features are characterized by their integral features of consciousness, connecting the sense of responsibility, commitment to the activity, experiencing "Me", the motivation for self-development and cognitive activity,
- structure is defined as a complex integrative student presentation of himself in the context of the real and the ideal, the present and the future.

The future experts in graduate schools, in addition to the formation of the scientific research and creativity, depend on organizing research activities with their own knowledge and experience and is created by 'researching' the activities around them, for example; developing different outcomes regarding the topic, generating examples, interpreting the experiences and developing a meaning from it, searching for answers to issues that are being discussed, etc.

All these would lead us to an inductive method of making a transition from individual to general level, and called "instrumental pedagogy". The necessary condition to make education useful: Education materials need to be related to one another, the future expert needs to be active, and has to be curious, the need to provide education in their life, in their work, and in their thinking style need to follow one another. It means; future experts will ontogenesis towards repeated knowledge.

1. Gathering knowledge, also accrue as a coincidence that is based on freedom and willpower as well as organized actions.
2. When subject to learning new materials, the future experts will not only listen, see or feel but also get the urge to receive education as well as if they are subjective to provide education
3. Each and every class, seminar and innovative educational method during the graduate studies should be designed to improve the self-research quality, and the creative capabilities along with conscious thinking activities of our future experts.

The way to obtain creativity from our future experts who organize the scientific research methods in a productive way during their education, is directly connected to the professors' pedagogic knowledge and how they implement it to their teaching methods, along with desire to learn today's latest innovations.

The scientific research and formation of creativity in the future universities is the core for the enhancement of quality of the individual's creative capabilities. The effects of the scientific research during the future experts' education years, has a major impact in the enhancement of overall beliefs due to their continuous interest

for knowledge that leads to creativity. The following methods are the important factors in formation of scientific research and creativity in future universities:

- In the beginning, giving homework that requires creativity but with easy to find answers.
- To support the future expert's findings, and to help them develop these findings in the future.
- Encourage them to find their own mistakes, and provide them with group activities where they can exchange ideas, discuss different options, and brainstorm with others.
- Support the joy and the satisfaction they receive upon completing a given scientific research activity.
- Rewarding them for their creative desire and for their curiosity in the scientific research activities.
- To teach them the importance of their creative activity, its impact on individual and social level and how to finalize their thoughts.
- To have them reflect on their findings, what it would mean for their future activities, such as their jobs, and help them make connection with their own lives.

The formation of scientific research and creativity through systematic organization of homework, and conducting a research in relation to one's future job, is also related to the professors' professional authority.

It also depends on the professor's perception of their own self-worth, to encourage the future experts creatively, lead them to develop their creative side, to become experts in their fields and to broaden their knowledge by adding new and creative concepts, to deeply comprehend its nature, and to put their own signature on the future experts' growth and development as an instructional leadership, because professors as leaders shape future experts' structure as new leaders'.

The interest towards creating scientific research and creativity in future universities revolves around individual's worth in the activity, the development of social and personal characteristics. The reason behind being social is due to the social characteristics of the research's findings and the society's demand during the education phase. In addition, the reason why it is personal is simply because of the individual's life, knowledge and moral experience and the leading desire to satisfy the need that is also known as the core which differs from person to person.

Today's biggest challenge is to create scientific research and creativity in our future universities. However, in order to create scientific research and creativity, the professors also need to be creative themselves. Therefore, one needs to look for the beneficial aspects of education and use that as the scientific base; also one must pursue personal development and must have a talented professor. Because in today's education paradigm, based on the societal demands, each professor needs be creative, innovative, fast-thinking, and calculating the futuristic outcome of their teachings, and act accordingly in addition to being competent in their fields.

In connection with the formation of scientific research and creativity in the future universities, fast-thinking professional experts also get included in the creative

group. The creative broadcasting is also considered as a part of this group. Because their purpose is to enhance the creativity, and make our future experts become self-researchers, prepare them for the professional life while increasing the quality of their graduate school during their education stage. The creative group researches today's issues, evaluates them and use them so that the future experts may benefit from them.

In today's global world, chaotic events and/or situations that seem minor in any place can cause very different or major effects in other places, this is drawn from the famous 'butterfly effect'. Future experts should have inner, behavioral, intellectual and spiritual power to deal with unexpected and unforeseen crisis and chaotic situations and also they should have enough confidence and courage to reflect on key solutions to these situations in research studies. Because future experts will be community leaders.

27.5 Conclusion

Engaging learners in the excitement of science, helping them discover the value of evidence-based reasoning and higher-order cognitive skills, and teaching them to become creative problem solvers have long been goals of science education reformers, but the means to achieve these goals, especially methods to promote creative thinking in scientific problem solving, have not become widely known or used (DeHaan 2009).

In conclusion, a real person receiving an education, while paying attention to his/her moral needs and their own capabilities: "people not for knowledge, but the knowledge for people" is the way to refine the education process and to renew the basic good will principals. Only then, the authority of education will rise, and will be able to clearly identify the effects of education on the government and the status of the society overall.

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