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A GROUNDED THEORY STUDY TO CREATE REFLECTIVE PRACTICE

MOTIVATION MODEL FOR PRIMARY SCHOOL PRESERVICE TEACHERS IN

A CHINESE NORMAL UNIVERSITY

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ABSTRACT

Problems of reflective practice in teacher preparation education give rise to this qualitative research to create a model of primary school preservice teacher reflective practice motivation, aiming to explore the nature and characteristics of motivation and apply it in the better understanding of reflective practice in teacher education. Grounded theory is employed to analyze the factors consisting of motivation from 23 participants' experiences through the circular coding procedures. Modeling generating goes through the theory emergent from multiple data collection to all data analyzed in open coding, axial coding and selective coding process with nVIVO 11. Model of motivation is created in the template of Fourier Transform, including group functions of three basic themes of time course, environment influence, and interaction. It represents that motivation of reflective practice is equal to the volume of Accumulative experiences with time *Intensity of environment influence *Summation of different properties of factors involved in the specific environment influence with the reward level. In functions: Motivation: $F(m) = F(t) \cdot I \cdot \int_{-\infty}^{\infty} f(f(t) \cdot g(e) \cdot R)$. Implications and recommendations are discussed as well.

Keywords: Motivation, reflective practice, preservice teacher, Fourier Transform, and grounded theory.

DEDICATION

This dedication is reserved to my parents and God. I am inspired by their love, disposition, discipline, energy and beliefs more than everlasting support in my career. I remembered my mom believed that I would be a doctor when I was a little girl. None could exert herself to make other's day as my mother did. She's exceptional, even though every mother is. So thank you god for assigning her to be my mom. I felt so sorry for the absence in my daughter's childhood. However, what substantial bequest I can make to my daughter in future, is the inherited personality from my family, "live beautifully, dream passionately, love completely". While she is worthy of owning her own life without carrying my expectation. And thanks to my father as well, I couldn't be firm and adamant without your genes. Last but not least, thank my god for your blessings and peace on my family and created my world.

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CHAPTER ONE: INTRODUCTION

Classroom is the complicated environment in the primary school, teacher greatly influence student through the whole presence including explicit and implicit language and behavior in children's early ages (Kaywork, J. L., 2011). However, how to help pre-service teacher grow into a qualified professional teacher is not easy, for a qualified professional teacher is more than a technician with standard of competence and skills of teaching on list (Van Manen, 1995; Spilkova, 2001; Parsons & Stephenson, 2005). Therefore, many researchers elucidated the significance and importance of reflective practice in teacher preparation (Zeichner & Liston, 1987; Sparks-Langer & Colton, 1991; Obrien, et al, 1994; Bengtsson, 1995; Van Manen, 1977; Cochran-Smith & Marilyn, 2003; Jones & Jones, 2013), for instances, Poom-Valickis and Mathews regarded the willingness to learn from reflection as the disposition of effective teacher (Poom-Valickis & Mathews, 2013). However, it is challenged by many problems in practice, research still has the blank in key nature exploration in reflective practice. Therefore, this chapter provides the further discussion of study background. Moreover, problem relevance issues, purpose of study with research questions, important definition, theoretical framework and the study organization are presented.

Background

Reflective practice is introduced into teacher education by Donald Schön (Bengtsson, 1995), and it had become widely used predominant concept for years (Harford & MacRuaric, 2008; Mcgarr & Mccormack, 2015). Nowadays, it is still in the heated discussion. European Trade Union Committee for Education (ETUCE) described the reflective practice as the basic element in concept of teaching in *Policy Paper 2008* (ETUCE, 2008: 26). Ministry of Education of the People's Republic of China (MOE) defined that reflective practice was the essential part of teacher professional development in *Primary School Teacher Standard Document* (MOE, 2012, Feb). Reflective practice was included into national teacher professional standard in a

range of countries, such as Australia, New Zealand, USA, Singapore et al (Glasswell & Ryan, 2017). It conveys that reflective practice is considered as the important determinant in the quality of pre-service teacher education, which has been demonstrated by the international government drivers (Zwozdiak-Myers, 2012).

The earliest description of 'Reflective Practice' was derived from Dewey, aiming at helping teacher raise awareness of teaching practice:

> The active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends, constitutes reflective thought, but once begun, it is a conscious and voluntary effort to establish belief upon a firm basis of reasons. " (Dewey,1910, p.6).

Carol Rogers distilled four principles from Dewey's work, namely, 'reflection is a meaning-making process with moral ends, which moves learners to get deeper understanding by experience connections', 'it is a scientific inquiry based systematic thinking', ' it happens in the interaction with others', and ' it requires attitudes that value personal and intellectual growth ' (Rodgers, 2002, p845). That was deemed as the implicitly ignorance of Schön's theory (Russel, 2013) to some extent, compared with the explicit expression by Harvey Shapiro who asserted that Dewey offered more expansive and more integrated notions of professional growth than Schön did (Shapiro, 2010). Donald Schön in 1980s greatly attracted teachers and educators with his consideration avoiding the dichotomy of knowing and doing (Stephen Newman, 1999). Schön regarded reflective practice in two different types, one referred to being sensitively conscious of the students and making quick critical thinking and action, so called 'reflection –in action', and the other referred to preparation for doing by reflection on the interaction experiences of what you have done, that is called 'reflection-on action' (Schön, 1983). While 'reflection-in action' has the similar significance in teaching as 'pedagogical tact' created by Van Manen, even as 'unexpected and unpredictable moments of surprises stimuli' from Tom Russel, which were all hard to capture, describe and demonstrate (Schön, 1983; Van Manen, 1991, 2017; Russel, 2017). In contrast, 'reflection-on action' has become the trend of research

and has extended to comprehensive dimensions, such as procedures, methods, strategies, pathways, metacognition, critical thinking (Lunenberg, et al, 2007; Russell, 2013; Gelfuso & Dennis, 2014; Lane, et al, 2014; Dyment & O'Connell , 2014). Zwozdiak-Myers synthesized nine dimensions of 'Reflective Practice' in teaching and described it was the disposition and process within the definition,

> Reflective practice is a disposition to enquire incorporating the process through which students, early career and experienced teachers structure and restructure actions, beliefs, knowledge, and theories that inform teaching for the purpose of professional development. (Zwozdiak-Myers, 2012, p.5. Figure1.1)

With the increasing outcomes from reflective practice research in teacher education, more and more specific courses have been incorporated into preservice teacher college-level curriculums to foster reflective competence (Rayford, 2010; Mcgarr & Mccormack, 2015). While, different voices raised, on the outcomes, on courses, on the absence of evidence and on the effectiveness strategies to achieve reflection (Hatton & Smith, 1995; Brookfield, 1999; Teaching Development Unit, 2015; Steeg, 2016). Besides, conflicts on the effectiveness expanded to other aspects, such as Zeichner and Tabachnick argued what pre-service teacher had learned in preparation education was substituted by the conventional teaching paradigm quickly without the sustainable impetus of reflection (Zeichner & Tabachnick, 1981). Kothagen found that reflection skills of teachers cultivated in preparation education, and gradually disappeared in teaching in the first years of their careers (Korthagen, 2001). Bradbury et al, contained that reflective practice overrated individualization in learning that resulted in the absence of socialization awareness" (Bradbury, et al, 2012). Additionally, some researchers attempted to explain the reasons of what inhibited preservice teacher from doing reflective practice as it was expected. Hatton and Smith posited that preservice teacher persistence prohibited them from further reflection beyond instrumental level, such as instrumental conception of teaching, (Hatton & Smith, 1995, p37-38). Zeichner concerned that reflective practice was time-consuming process, because enough time could provide sufficient social cultural knowledge and

experiences to reconstruct teaching (Zeichner & Liston, 1987; Valli, 1992). Others claimed that reflective practice was the metacognitive evaluation process (Huang & Huang, 2015), which included shaping high-level understanding structure with emotion, beliefs, values, experience and other contributors in action (Hartman, 2001; Paterson & Chapman, 2013). Tom Russel even addressed that " *Reflective practice is not a daily or continuous process, nor does it occur on demand, and unexpectedness, unpredictability and uncertainty reframed the implicit assumptions about practice*" (Russell, 2017, p 10), from the nature of perspective reflective practice. Those barriers in reflective practice were based on the perspectives of preservice teacher learning. It is demonstrated that, on the one hand, 'reflection' and 'practice' cannot be separately discussed in reflective practice; on the other hand, 'reflection' frame and reframe the beliefs when it is combined with 'practice' (Warfield et al., 2005). Reflective practice is an open ended process including timing 'before action', 'in-action', 'on-action', and 'after action' (Buchmann, 1990). But, what is the sustainable driving force of reflective practice? Alternatively, it is questioned what is the motivation to conduct reflective practice.

Problem Statement

Reflective practice, described by William James in his theory for the 'Self': 'Spiritual Me', was the innate disposition to internalize the outward experiences into level of inward thinking, (James, 1890). Deci & Ryan stated that intrinsic motive resided in the psychological needs (autonomy, competence, and relatedness), positively explore and connect world with the internalization of the experiences, beliefs, values (Deci, & Ryan, 1985) for their own sakes. Ryan believed that extrinsic motive could be transformed into internal values through the active practice (Ryan, 1995), albeit types of extrinsic motive varied. According to the interplay with intrinsic motives, they are classified into external, introjected, identified, and integrated four-level types (Painter, J., 2011). Motivation internalized in the process of individualization and socialization under the conditions of basic psychological needs that will foster the most volitional

and high quality forms of motivation (Garrin, 2014). Intrinsic motivation and critical reflection could be developed in pre-service teacher education (Priya, et al, 2017), which will contribute to teacher professional development (Stewart, 2010). Preservice teachers should learn how to solve the problems through their reflective practice in teaching (Watts & Lawson, 2009; Griffin, 2003), however, preservice teachers authentic reflective thinking could not been captured in the reflective practice in their initial education, for some reasons of pressure coming from study performance evaluation (Watts & Lawson, 2009). Furthermore, preservice teacher resisted to go beyond exhausting superficial writing for exploring moral values (Hatton & Smith, 1995; Mcgarr & Mccormack, 2015). Motivation of reflective practice studies have become important, nevertheless, few studies can be found in the literatures. What is the motivation of reflective practice? What factors consist of motivation? It takes the same important role as methods, strategies and measurement tools of reflective practice do in nourishing teacher professional growth (Parsons & Stephenson, 2005; Zwozdiak-Myers, 2009; Yanuarti & Treagust, 2016). Therefore, this qualitative study, in the approach of ground theory, is aiming to explore the factors composed reflective practice motivation, and create a model for theory development. This grounded theory based study will be guided by such question areas as follows:

1. What factors should be considered for consisting primary school preservice teacher reflective practice motivation?

2. What model is needed to help interpret and understand the motivation of reflective practice shaping process?

Purpose Statement

The purpose of this study is threefold; one is to explore the factors consist of primary school preservice teacher reflective practice motivation, and their characteristics and properties. Second is to explore the process of motivation shaping. The last is to create reflective practice motivation model of preservice teacher and generate the theory of motivation. The overarching goal of this study is to enrich the

empirical research on theories of reflective practice motivation; contribute to pre-service teacher professional development in practice, and provide reference for scholars and educators' future research. Specially, this study will provide substantive theory in the area of reflective practice in preservice teacher education; broaden the horizon of research about the nature of reflective practice in a new multiple holistic perspective in motivation, and present the characteristics of varied factors influence motivation through visualization. In other words, this study will help preservice teachers and educators have critical thinking about their behaviors and decision-making, and will help scholars and educators construct and reconstruct promising course of reflective practice to improve preservice teacher teaching, and know how to provide supportive environment to foster their motives.

Theoretical Framework

The purpose of this grounded theory study is to explore and understand the factors influenced motivation shaping, rather than predicting or verification. Therefore, the theoretical framework of study is not fixed. Modified or revised theoretical framework is aligned with ongoing generated theory based on data collection from participants. This grounded theory study will incorporate such interdisciplinary views on motivation as to have a better understanding of the phenomenon. Even though it is flexible, theoretical guide begins with influence elements will be concluded to help form new insights of theory for creating the model. See Figure 1.1.
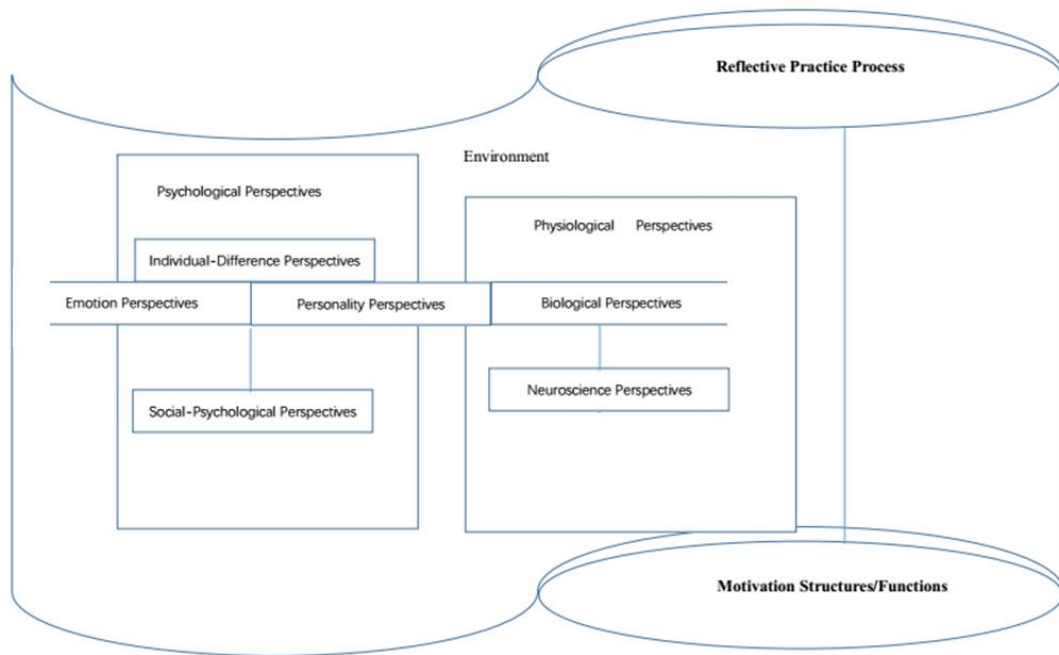
Figure 1.1 Theoretical Framework

Definitions

1. Dopamine System-Group of neurons project in the brain with dopamine synthetization and release (Berridge, 2004, 2008; Castro & Berridge, 2017)

2. Fourier Transform- Fourier Transform is the frequency domain representation of the original signal, which is a complex-valued function in the time domain.

3. Grounded theory-Grounded theory is a systematically qualitative methodology, which make inquirer generate the theory of a process, action or interaction through all data collection and systematic analysis (Creswell, 2007, p63; Strauss & Corbin, 2008).

4. Model-Concept system with rules in three dimensions.

5. Motivation-Motivation means the energy to make 'move' by nature (Han & Yin, 2016), and derived from 'motive', which refers need, desire, drive. In other words, motivation/motive is the explanation of the action, for it energizes the behavior (Brown, 2007).

6. Preservice Teacher-Teacher candidates studying in the university.

7. Psychophisiology-*Psychophysiology is the study of relations between psychological*

manipulations and resulting physiological responses, measured in the living organism, to promote understanding of the relation between mental and bodily processes. (Andreassi John, 2000, chapter 1.)

8. Reflective Practice-Schön defined reflective practice as the spiral process of appreciation, action, and reappreciation (Schön, 1983, p132), and this process reconciled the cognitive dissonance resulting in teacher reflection on teaching (Slavin, 1988s).

Study Structure

Chapter 1 describes the background and relevance issues of the problem, and sets the rationale of the study and debriefs the research design. Chapter 2 reviews motivation theories applied into reflective practice in literatures and other motivation related issues. Chapter 3 introduces the grounded theory employed as the methodology in this study, addresses important methods, and frames the overall main procedures including data collection, analysis protocols and trustworthiness. Chapter 4 presents the process of data analysis, explanation of the findings and results, and modeling. Chapter 5 includes the implications, conclusion, limitations of this research and recommendations for future study.

CHAPTER TWO: LITERATURE SENSITIVITY

Motivation has the long lasting effect on research in learning, psychology, social behaviors, and even the bio-physiology. However, motivation of reflective practice is quite new in literatures. Therefore, this chapter focuses on the foundation in education with exploration in motivation theories, motivation of individual differences, motivation to teach, and preservice teacher reflective practice, four pillars. Each of these sections presents the sufficient support of this study, for the gap in literatures.

Motivation Theories

Motivation means the energy to make 'move' by nature (Han & Yin, 2016), and derived from 'motive', which refers need, desire, drive. In other words, motivation/motive is the explanation of the action, which energizes the behavior (Brown, 2007). However, over the decades motivation has been repeated defined by progressive study on varied perspectives. What is the preservice teacher motivation towards reflective practice in teaching? It is better to look back to catch the whole picture of motivation in research. Motivation is the entirely holistic complex of bio-physiological, psychological and environmental components, it can be seen from 'Push-Pull' metaphor borrowed from Lambert's (2018). Deckers used Push-Pull to represent the distinct categories of the holistic motivation that drives someone to some end, 'Push' pointed to the internal disposition such as biological, psychological aspects, whilst 'Pull' referred to the external environmental objects (Deckers, 2018). Furthermore, if we could, we will extend internal dimension to more indispensable themes, such as biophysilology or neuroscience, individuals' diversities in personality traits, emotion, and experience within the specific social-culture environment. Murphy and Alexander's (2000) terminology review of motivation described that it is the "physiological process involved in the direction, vigor, and persistence of behavior" (Bergin, et al, 1993, p. 437; Murphy & Alexander, 2000). Alternatively, deprivation of food and water spontaneously triggered individual motivation for hunger and thirst (Deckers, 2018, p103), which explained human survival behavior through the intuitive energy or

biological basic needs. This phenomenon was called 'Homeostasis' by Walter Cannon, addressed the balanced inner environment supply for life (Decker, 2018). Abraham Maslow's hierarchy of needs (1954), is widely used and helpful described that constantly growing inner drive motivated human behavior, and this arranged order of need includes basic level of physiology need, safety need, such as breathing, food, water, sex, sleep, homeostasis, excretion (Maslow, 1954). Apart from the behaviorists, Maslow proposed that motivation is another determinant, the same as other environment force (Stirling, 2013). While, Mortimer H. Appley went beyond the physiology body homeostasis, such as food, water, temperature, glucose, bloods vessels, etc, to the broad spectrum energy exchange of equilibration of homeostasis including cognitive response to the environment, like self-concept and self-regulation (Dienstbier, 1991). However, instinct theory and drive-reduction theory delivered the biological base of motivation to the longstanding heated topics. William McDougall shed the light on the innate instinct of human behavior, as curiosity, hunger, aggressiveness, sex, embarrassment per se, etc, albeit he had never denied the possibility of the influence of learned experience (Mcdougall, 2012). His expression of biological nature was not limited to determinants of purposeful behavior, it covered the human mind as well (Mcdougall, 2012). McDougall opened another exploration journey of motivation study on unconsciousness components, in particular, emotion, which all concreated his underpinning of 'Hormic Psychology'. Latter Freud developed the new instincts categories of life and death, he termed them 'Ero' and 'Thanatos' (Freud used death drive, 'Thanatos' was introduced by Paul Federn (Jones, Trilling, & Marcus, 1993, p273). Freud hypothesized that life drive was the instinct mental energy form, and death drive was the instinct energy including aggressiveness, and he stressed the importance of ways of releasing instinct energy (Freud, 2015). William James, father of American psychology was deep influenced by Darwin's evolution theory, listed a variety of instincts for human survival. James defined instincts as "the faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance" (Buss, 2017, p24), and he proposed that it could be conflicts by overridden others (Buss, 2017). Drive-reduction theory was the dominant

trend in psychology around 1940s, created by Clark Hull (Hull, 1952) on the behaviorism theories of Pavlov, Watson, and Thorndike. Hull suggested that motivation was the response of human biological needs in terms of his concept of homeostasis, and he used drive to describe how to reduce the tension of needs. He believed that goal-oriented behavior was the result of drives, the drives were the result of biological needs, and biological needs were the result of the deprivation/ unbalanced homeostasis of organism. Apart from other behaviorists conditioning and reinforcement theories, he proposed that drive was the reinforcement for the future behavior out of the same needs. Hull's deduction formula, see below, was the equilibration of constituents as habits, learning process, etc.

$$sE_R = V \times D \times K \times J \times {}_sH_R - I_R - {}_sI_R - {}_sO_R - {}_sL_R$$

sEr: Excitatory potential, or the likelihood that an organism will produce a response (r) to a stimulus (s)

V: Stimulus intensity dynamism, meaning some stimuli will have greater influences than others

D: Drive strength, determined by the amount of biological deprivation

K: Incentive motivation, or the size or magnitude of the goal

J: The delay before the organism is allowed to seek reinforcement

sHr: Habit strength, established by the amount of previous conditioning

slr: Conditioned inhibition, caused by previous lack of reinforcement

lr: Reactive inhibition, or fatigue

sOr: Random error

sLr: Reaction threshold, or the smallest amount of reinforcement that will produce learning

(Scriven, 1961, pp. 321–329)

On the other hand, besides physiological explanation of motivation from body homeostasis, exploration of brain turned to the alternative approach of seeking motivation. Neuroscience not only provided the brain activity evidence based on biological needs, such as hunger or thirst, fear or pain, sex or aggressiveness, etc., but mapped specific neural connectivity when brain processing multiple information in

selection, evaluation, and value as well. Johnmarshall Reeve and Woogul Lee presented picture of the anatomic location of 15 key motivation relevant structures in their article *Neuroscience and Human Motivation* (Reeve Johnmarshall & Lee Woogul, 2012), see Figure 2.1. They concluded 10 heated topics of motivation including intrinsic motivation, extrinsic motivation, expectancy, goals and so on, and they found five of them were related with neocortex, six of them were associated with the basal ganglia and four of them were located in the limbic system: amygdala, hypothalamus, hippocampus, and insular cortex (Reeve Johnmarshall & Lee Woogul, 2012, p367). For details, reward motivation, neurotransmitter dopamine release was indispensable (Berridge, & Kringelbach, 2008), orbitofrontal cortex, anterior cingulate, and basolateral amygdala were correlated with reward prediction, and striatum could played important role of encoding under conditioning (Bissonette & Roesch, 1970). Recently, Woogul Lee has found that insular cortex activity, irrespective of striatum activity, was related to intrinsic motivation (Lee, 2017). Simple incentive signal primarily made information processing in the limbic-relevant system, whereas, the complex did in the orbitofrontal cortex, in fact, motivation was the activity of entire organism including neurons, neurotransmitters and neural circuity. Like eating, it was more than the activity of dopamine, peptides, glucose, fatty acids, etc., it was also influenced by non-homeostasis signals (Woods, & Begg ,2016).Furthermore, motivation to eat could facilitate the intention to eat, which resulted in the mirror-neuron system modulation (Cheng, Meltzoff, & Decety, 2006).
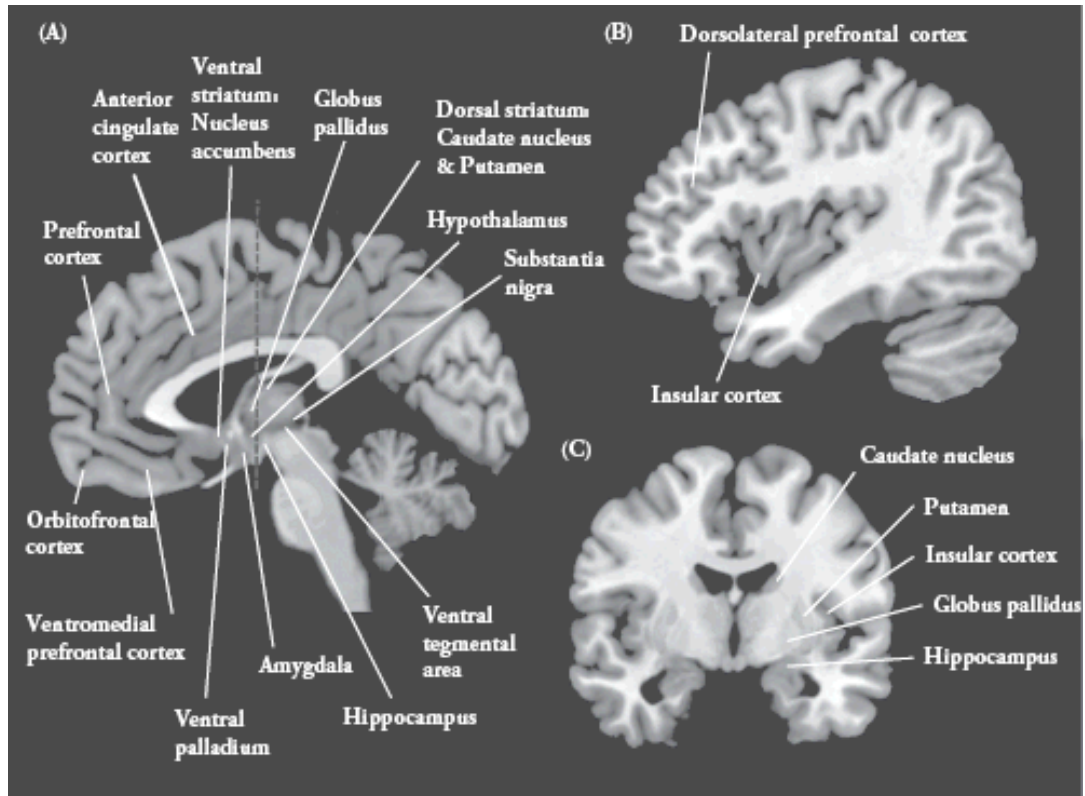
Figure 2.1 Motivation Relevant Location

Picture source from Neuroscience and Human Motivation, 2012, p367

Last but not least, based on the evolution theory from Darwin, individuals struggled for reproduction genetic information to maintain living by the aid of metabolism, therefore, biological needs such as hunger, as well as environmental incentives like power pursuing, that all served to exchange energy, satisfying the intention of reproduction homeostasis (Petri, 1991). Nevertheless, it was not to say that human behavior was genetic determination, evolutionary theory told us two radical dominants of behavior: evolved adaptation and environmental factors facilitating adaption (Buss, 2017). Adaption offers more explanations of information selection, filtering, and preference with evolutionary diversity of individuals, which is primarily discussed on interpersonal adaption in sociopsychology. Similarly within the neuron circuit of brain, Derryberry and Tucker found that functional units of the cortex shared a specific laminar architecture and dense horizontal interconnections-growth rings cause density of horizontal interconnections decrease (Derryberry & Tucker, 1991). MIT found that presynaptic neurons played the same role as postsynaptic neurons in

enhancing neuron connection strength, neuron connection was important for learning new things and encoding new information (Trafton, 2015). In sum, none change is possible without adaptation, in turn, adaption alters original equilibration, such as preference likelihood, preference of neuron connection, neurotransmitter release, food, temperature, color, friends, people, culture, and so forth.

From the psychological aspect, by the opposite side of William James' list of many instincts, behaviorists demonstrated that the single stimulus resulted in the specific response from Watson conditioning experiments, which was the well-known learning paradigm of "classical conditioning" (Strickland, 2001). Behaviorists believed that all human behaviors were learned, for instances, in classical conditioning theory of motivation, behavior was triggered by psychological stimulus or environmental stimulus; while in operant conditioning, behavior was dominated by the consequence of reinforcement or punishment (Gollwitzer, & Bargh, 1996). Incentive theory came out after the development of relationship between reinforcement and behavior, Skinner introduced the significance of 'compensation' and 'reward' in his modified operant conditioning experiment of Thorndike. Besides, motivation of reward was extended to pursue and anticipate compensation. Expectancy-Value theory of motivation, developed by Eccles et al shown a complex interplay of self-schema perceived assessment of utility and cost of task (Stirling, 2013). Eccles et al. presented that expectancies of success and subjective task values directly influence achievement choices by self-schema, goals, values, and memories of experience (Wigfield, & Eccles, 2000). Achievement goal theory of motivation regulated individual behavior, belief, persistence, value, etc., on the way of goal achieving, competence or ability improving to some extent (Skjesol, & Halvari, 2005). Achievement goal theory has been the main perspective of motivation since 1980s (Senko, Hulleman, & Harackiewicz, 2011), dichotomy goal orientation model paved the different way to learning. Task-Ego orientations (Nicholls, 1984) or Mastery-Performance orientations (Elliot & Church, 1997), similar terms used in the different types of goal orientation (Ames, & Archer, 1988; Skjesol, & Halvari, 2005), were distinguished in the goal of competence development. Task or Mastery orientation relied on the aim of competence development,

in contrast, Ego or Performance orientation relied on the competence development by outperforming others (Ames & Archer, 1988). Different orientation were resulted from individual differences including prior experiences, personality traits, family and social-culture influences, in turn, it directed individuals' behaviors, beliefs, attitude, and values, for example, Mastery-goals emphasized the success through the effort, and valued the process of learning; Performance-goals focused more on the outstanding outcomes (Skjesol, & Halvari, 2005). While, Self-Determination Theory (SDT) articulated that the motivation was derived from innate growth needs (Ryan & Deci, 2002; Spittle & Spittle, 2014). SDT defined varied sources and roles of extrinsic motivation, and described the relation of intrinsic and types of extrinsic motivation with personality differences. It differentiated innate psychological needs of competence, autonomy and psychological relatedness developed from Maslow's hierarchical needs, in a new perspective of satisfying well-being and psychological health (Deci & Ryan, 1991, 1995; Ryan & Deci, 2002). Deci and Ryan described that these three psychological basic needs were the most volitional motivation to initiate behavior, enhance performance, persistence and creativity (Deci & Ryan, 1985, 2000; Ryan & Deci, 2002). Meanwhile, they emphasized that social environment was important to nurture the innate potential, because human inherently had the proactive potential and tendency toward growth, optimal development did not happen automatically (Deci & Vansteenkiste, 2004). 'Internalization' was introduced to describe the process and degree of extrinsic motivation integrated into intrinsic motivation (Ryan & Deci, 2000). Therefore, Deci and Ryan described the five categories in the process of internalization depended on the degree of increasing autonomy, they were, but not sequentially, amotivation, external regulation, introjection, identification and internalization (Ryan and Deci, 2000). They borrowed the concept of need "innate organismic necessities" from Hull (1943), developed a dialectical theory which viewed the quality and amount of intrinsic motivation could be impeded or facilitated by external influence such as social context (Deci,et al,1994; Deci & Ryan, 2000; Painter, 2011). While there was the possibility of transforming external regulation into intrinsic integrative sense of self, when the process optimally functioned to the extend (Deci, et al,1994). Introjection and

integration were two type-levels in the process of internalization, the former one referred to suboptimal internalization lead to internally controlling regulation which was accompanied by external pressure, whilst latter referred to the optimal internalization lead to self-determined behavior (Deci, et al, 1994, p121). SDT posited that integration was the self-determination presence in the process of internalization, whereas introjection was the absence of self-determination support, hence how to facilitate integrated internalization of extrinsic motivation factors in social context to foster intrinsic motivation was important in teaching. Effective integrated internalization had three key-points, namely, meaningful rationale, behavior perspective and autonomy (Deci, et al, 1994),

Individual Differences

Emotions, "Emotions are multidimensional constructs comprising affective, psychological, cognitive, expressive, and motivational components" (Hall, & Götz, 2013, p5). Bodily process, especially physiological function, was running when individuals' emotions was exposed to environment. For instance, experiencing fear, happy, astonishing, pride, et al; emotion was presented by face or body, such as pupil's dilation, muscles contraction, body thrilling, etc. Partly, emotions could trigger motivations (Evans, 2014, 2016; Hall, & Götz, 2013; Reeve, 2018). However, physiological orientation theories emphasized the universal emotions, and cognitive orientation theories struggled with diversities among same emotions (Macintyre, & Vincze, 2017), and differentiation of positive and negative emotions broaden the field of relations between positive emotion and motivation. Positive emotion was one pillar component of three essential issues of positive psychology according to Martin Seligman (Seligman, & Csikszentmihalyi, 2000; Compton, 2009). Allied with positive psychology, theory of positive emotions was proposed by Barbara Fredrickson, asserting that positive emotions could broaden the consciousness and awareness, and motivate exploratory behaviors (Fredrickson, 2003; Cohn, & Fredrickson, 2006). Furthermore, efforts of studies shown that the positive emotions like amusement was

highly correlated with variables of motivation (Fredrickson, 2003).

Personality was considered as the offspring of the interaction between emotionality and social experience, which links to the motivation consistently across time and relevant situation (Deckers, 2018), in other words, personality biological relates genetically transmits within the process of socialization. Personality validates existence and importance through the approaches of biological base, neuropsychological presentation and behavior psychology operational measurement (Clark, & Watson, 2008; Krueger, & Johnson, 2008). Genetic evidence of personality relevant issues were demonstrated by the kinds of twin study (Riemann, Angleitner, & Strelau, 1997) and famous theory of Marvin Zuckerman's sensation seeking (Zuckerman, 1994). Sensation seeking referred to personality traits of taking the risks of physical, social, financial, even legal cost to seek the experience of varied, novel, complex and intense feelings (Zuckerman, 2009). Sensation seeking consisted of thrill and adventure, experience seeking, disinhibition and boredom susceptibility that relied on the brain enzyme monoamine oxidase, which could break down the neurotransmitters such as dopamine (Zuckerman, 1994). Consensus of Big Five personality traits, describing the comprehensive personality traits by five independent characteristics, was consist of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (Digman, J.M., 1990). Different personality traits orientated different motivation tendencies by the personality-environment interaction preference (Plomin, 2013), such as *Extraversion*, *Conscientiousness* and *Agreeableness* were significantly related to Status striving, Accomplishment striving and Communion striving respectively (Batey, Booth, Furnham, & Lipman, 2011, p115); furthermore, personality traits shown significant correlations with motivation relevant achievement goals, mindset, beliefs beyond intrinsic and extrinsic limitation (Jones, & Mcmichael, 2015).

Experiences, Bandura, in contrast with Piaget's cognitive theory of motivation analyzing the individual symbolic cognitive process through the experience, emphasized the social relevant experiences affecting the individual mental operation (Bandura, 1997; 2010). Bandura social cognitive theory was widely used in education

such as self-efficacy (Bandura, 1977). Self-efficacy was the individual evaluation of competence, "how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982). In other words, self-efficacy referred to the individual beliefs in capacities to organize and execute the actions (Bandura, 2010, p2). Studies shown that self-efficacy contributed to individual motivation and decision-making from various paths (Stajkovic, & Luthans, 1998; Stajkovic, & Sommer, 2000; Bandura, 2010). While, self-efficacy was created by mastery experiences " involving acquiring the cognitive, behavioral, and self-regulatory tools for creating and executing appropriate courses of action to manage ever-changing life circumstances" (Bandura, 2010, p3), various experiences of social models, and social persuasion ((Bandura, 2010). Individual experience, particularly social experience, cultivated the beliefs in choices making and action taking, and motived people to make persevere effort for achieving goals.

Motivation to Teach

For pre-service teacher, motivation of career choice has significant influence on their behavior, belief, persistence, creativity in teaching (Spittle, Petering, Kremer, & Spittle, 2011).A large body of studies demonstrated that intrinsic motivation, altruism and extrinsic motivation were the main three classification for entering teaching (Brookhart & Freeman,1992 ; Kyriacou & Coulthard, 2000; Muller, et al, 2009; Karavas, 2010). Altruistic and Intrinsic motivation referred to internal desire to work with students and the tendency to contribute to the society, whereas extrinsic motivation referred to the external incentive to influence the individual (Claeys, 2011). Brookhart and Freeman argued that they did not accurately capture the meaning of teaching to pre-service teacher for the limitation of the methodology, nonetheless, these three categories classification have been confirmed by many following studies. Intrinsic motivation and altruism including innate passion, desire and love for teaching had the effect on profession commitment and teaching beliefs, which strengthened the perception of teacher identity (Tschannen-Moran & Hoy, 2001; Sinclair,et al.,2006; Müller, et al,

2009; Watt et al., 2012). Extrinsic motivation such as job security, job flexibility, more leisure time and work-life balance were important motivation factors for teaching (Ololube, 2007; Watt et al., 2012; Liu & Onwuegbuzie, 2014).

However, different pre-service teacher from different social-cultural context in different times, motivation to teach varied (Gordon, 1993; Yong, 1995; Whately 1998; Morgan, et al., 2007; Chuan, 2013). Andrews and Hatch in England found that pre-service teacher in mathematics were motivated to teach by the influence of student learning experience and desire to communicate with others (Andrews & Hatch, 2010). Kyrıacou and his colleagues found fondness of their subjects, enjoyable leisure time and vocations attracted them to be a teacher in a comparative study between England and Norway (Kyrıacou, et al, 1999). Müller did the survey of motivation for entering teaching in Geneva, Swiss, humanistic values including wish to work with others, helped others succeed, desired to transmit knowledge and gave all student equal chance to develop, was the first intention (Müller, et al ,2009). Research found in Turkey, that external motivation had less impact on commencing teaching career (Yenilmez & Acat, 2003; Hasan, et al, 2015). Chong traced the attitude and belief changes for teaching during the period from preservice teacher preparation to novice teacher growth, and discovered that altruism and intrinsic motivation factors were main sources for choosing to be a teacher. According to the survey conducted in China, intrinsic eagerness of teaching combined with extrinsic motivation such as prior teaching experience, salary and job security were highly listed choices for pre-service teachers (Wang, 2004; Liu & Onwuegbuzie, 2014). However, in the other countries, such as Brunei and Jamaica, studies found that extrinsic motivations played the important role in career decision (Watt & Richardson, 2008). Psychological aspects of this profession predominately influence female teacher choice (Müller, et al, 2009).

Kinds of motivations were concluded by Richardson and Watt, who conducted a significant study of teacher candidates in Austria, the United States, Norway, Germany and Turkey (Kaupp, 2014), through the comprehensive model of *Factors Influence Teaching Choice* (FIT-Choice), see Figure 2.2, based on Wigfield–Eccles Value-Expectancy Theory (Wigfield & Eccles, 2000). The value-expectancy theory

stated that the career choice was motivated by value and belief, which made connection among task engagement, academic preference and socialization (Watt & Richardson, 2007; Watt & Richardson, 2008; Watt et al., 2012; Topkaya & Uztosun, 2012). Study reported that highest rated motivations included "perceived teaching abilities, the intrinsic value of teaching, desire to make a social contribution, shaping the future, and working with children/adolescents" (Watt & Richardson, 2008, p 410).
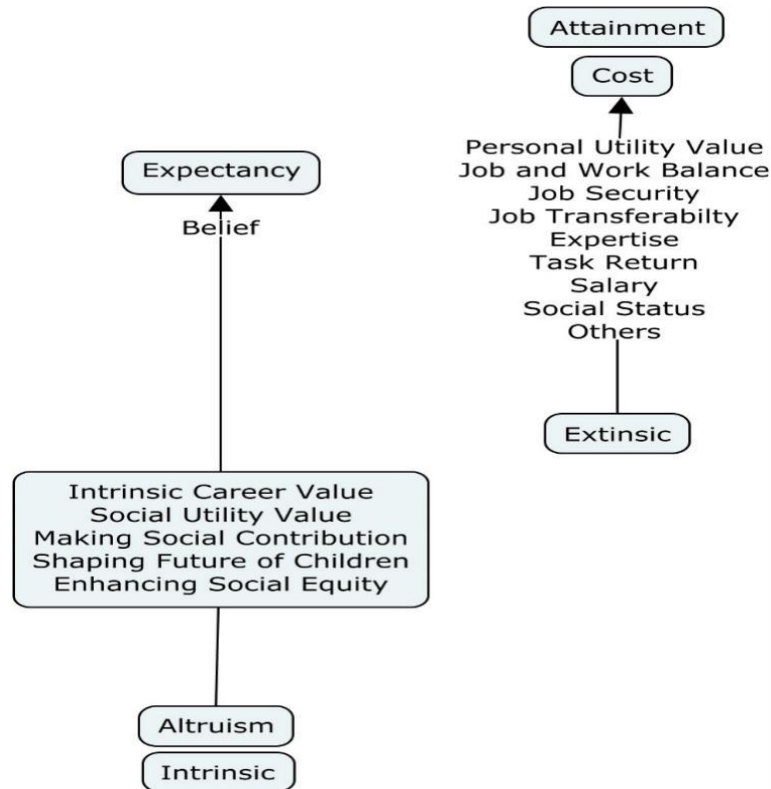
Figure 2.2 Wigfield-Eccles Value-Expectancy Theory and FIT-Choice

Zheng's (2008) research on motivation for teaching of 300 primary school pre-service teachers, he found the factors correlated with self-social status, such as social respect, reputation, fame, motivated them to make the decision (Zheng,2008). Meng (2016) investigated motivation for teacher choice of 233 pre-service teachers of English teaching and his result showed the first four reasons were family related factors, service for the society, environment of working, and innate value (Meng,2016), and those were positively related to the teaching belief and teacher profession identity. Liu (2017) found demographic background and influence from others contributed to pre-service teacher motivation for teaching as preschool pre-service teacher, needs of self-development, helpful experience for kid raising, positive life attitude were their

important consideration (Liu, & Niu, 2017). Feng employed FIT-Choice Scale to investigate 565 preservice teachers motivation based on the Self-Determination Theory, and his results shown that extrinsic motivation tended to be prioritized for pre-service teachers who wanted to work with the students with special needs (Feng, 2008, 2012).

Reflective Practice

Reflective practice is broadly considered as the purposeful action aiming to improve teaching profession (Sellars, 2017). Different theories of models of reflective practice in teaching with distinct elements, for instances, contents of reflective practice, conditions and climate of engagement of reflective practice, timing of occurrence and so forth. Dewey described that the reflection was the process through "a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, to an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity" (Dewey, 1910, p. 9). He also distinguished reflective practice from routine thinking of every day. While Mezirow incorporated 'habit' into his reflection theory, leading to transformational learning, besides, he viewed his model of hierarchical reflection as a whole of juxtaposition of awareness of consciousness of action, perception, action, habits, and etc, al. (Lundgren & Poell, 2016). Mezirow illustrated that thinking couldn't been separated from action, even in the different levels of reflection model. That idea could be seen in Schön's reflection in-action as well. Schön defined reflective practice as the spiral process of appreciation, action, and reappreciation (Schön, 1983, p132), and this process reconciled the cognitive dissonance resulting in teacher reflection on teaching (Slavin, 1988; Sibbald, 2008, p28). Gore and Zeichner proposed four major aspects of reflection in teaching profession for practitioners to help gain holistic understanding, including academic reflection, social efficacy reflection, developmental reflection, and social-reconstructionist reflection. Valli extended Van Manen's three levels dimension of reflection to the fourth level of personalistic reflection, and fifth level of critical reflection that was also proposed by Schön (Valli, 1997). Valli's personalistic reflection

that explicitly acknowledged the importance of emotion and attitude for the personal cognitive development, contributed to the epistemological perspective (Sellars, 2017). Zwozdiak-Myers summarized nine dimensions of reflective practice, which is shown in the Table 2.1. Obviously, nature of reflective practice in teaching, focused on problem solving or pedagogical and critical thinking (Manen,1991; Korthagen and Wubbels,1995), specifically, a. it is a complicated 'process', both timing of occurrence and functions , b. it is a conclusive timing process satisfying the cognition integration and reconciliation, c. this process could be captured by the explicit behavior. Table 2.2 shown the mainstream nature of reflective practice in teaching.

Nine Dimensions
Study their own teaching for personal improvement
Systematically evaluate their own teaching through classroom research procedures
Link theory with their own practice
Question their personal theories and beliefs
Consider alternative perspectives and possibilities
Try out new strategies and ideas
Maximize the learning potential of all their students
Enhance the quality of their own teaching
Continue to improve their own teaching

Table 2.1 Nine Dimensions of Reflective Practice (Zwozdiak-Myers Paula, 2012.p5)

Foci on Nature of Reflective Practice in Preservice Teacher Teaching		A	B	C	D	E	F	G	H	I	J	K	L
Dewey	1933,1993	√		√					√	√	√		
Van Manen	1977			√	√	√	√			√			
Schön	1983	√		√		√	√		√				
Zeichner	1984	√		√	√		√			√	√		
Kolb	1984	√		√						√	√		√
Noffke&Brennan	1988	√		√									
Farrah	1988	√		√			√			√			
Kremer-Hayon	1988		√										
Gilson	1989	√				√				√			
Culter et al	1989	√							√	√		√	
Calderhead	1989								√	√			
Munby&Russel	1989			√		√							
Smyth	1989									√		√	
Buchmann	1990	√						√					
McNamara	1990		√										
Sparks-Langer&Colton	1991												
Smith	1991	√			√								
Adler	1991			√		√			√	√			
Valli	1992	√				√	√			√			
Brookfield	1995										√		√
Cowan	1998	√					√				√		√
Xiong	1999	√					√		√	√			
McCormack	2001	√								√	√		
Rodgers	2002				√					√			√
Tsangaridou	2005										√	√	√
Pollard	2005									√		√	√
Moon	2005		√		√								
Gubacs-Collins	2007	√								√	√		
Zwozdiak-Myers	2009	√								√			√

A. Process of Thinking & Doing B. Process of Thinking C. Emphasizing Inextricable Action D. Critical Reflection (contrast technical) E. In-Action F. On-Action G. After-Action (quite a period of time) H. Problem-Solving I. Historical Factors, Beliefs, Moral Values Consideration J. Modifying Beliefs K. Justice & Attitude L. Context of Society, School, and Literature

Table 2.2 Different Foci on Reflective Practice Nature

Earliest reflective practice model was from an American teacher Terry Borton, who developed the process curriculum model of 'Sensing', 'Transforming' and 'Action' based on experience (Borton, 1970). Borton's model intended to help students learn how to learn in the scaffolding questions including 'What', 'So What' and 'What Next' (Rolfe, 2011). Mezirow distinguished consciousness from critical consciousness, reflective action and non-reflective action through in-depth explanation in his theory of critical reflection theory framework (Lundgren & Poell, 2016). He clarified his 'perspective transforming' through the deliberately analysis of reflection which consisted of seven level hierarchical components, reflectivity, affective reflectivity, discriminant reflectivity, judgmental reflectivity, conceptual reflectivity, psychic reflectivity and theoretical reflectivity. Boyd and Fales described that their six-stages of reflective learning process was to discover the process of personal growth, which would facilitate learning from experience (Boyd & Fales, 1983). The six stages were as follows: (1) Inner Discomfort, (2) Clarification of the Concerns, (3) Openness to New Information, (4) Resolution, (5) Establishing Continuity of Self with Past, Present, and Future Self, (6) Action Decision (Boyd & Fales, 1983, p106-112).Their model was developed based on Dewey's theory of thinking and demonstrated the criteria of problem-solving. In the same situation, Kolb conceived the circular model with regard to experience and knowledge. Kolb's model entailed practitioner learning from the reflection on the experience, tested the concepts perceived from the reflection in the new situation and concreted the experience and modifying the perception (Kolb, 2015). Kolb's model was applied widely in teaching and learning (Healey & Jenkins, 2000; Kolb & Kolb, 2005; Clark, et al, 2010; Kablan, & Kaya, 2014; Burns, & Danyluk, 2017). Gibbs inspired by Kolb's model, went further through the full structure of stage debriefing (Gibbs, & Andrew, 2001). Gibbs' model of reflection included starting from initial experience, description, feeling, evaluation, analysis, conclusion, and action plan. In light of series of structural questions, practitioner easily located their status and knew what to do next according to the guide. Accompanied with the two types of reflective practice, Schön developed single-loop and double-loop learning with Arguris (Argyris, & Schön, 1993). Their model emphasized the cognition and shifting in understanding in mental models, which inferred questioning goal

setting was important to reflective practice (Argyris, 2005). Preservice teacher responded to the same teaching event varies in reflective practice; however, some inherent stages were similar during the process of reflection. Sparks-Langer conceived the framework of reflective thinking in teaching through the study in the new application of preservice teacher preparation curriculum (Sparks- Langer, et al, 1990, p. 27), and development levels of thinking as picture presented below, Figure 2.3. Carol Rodgers described the four-phase reflective practice in teaching around experience presence, description, analysis, and action taking (Rogers, 2002), which helped teacher to know student learning well.
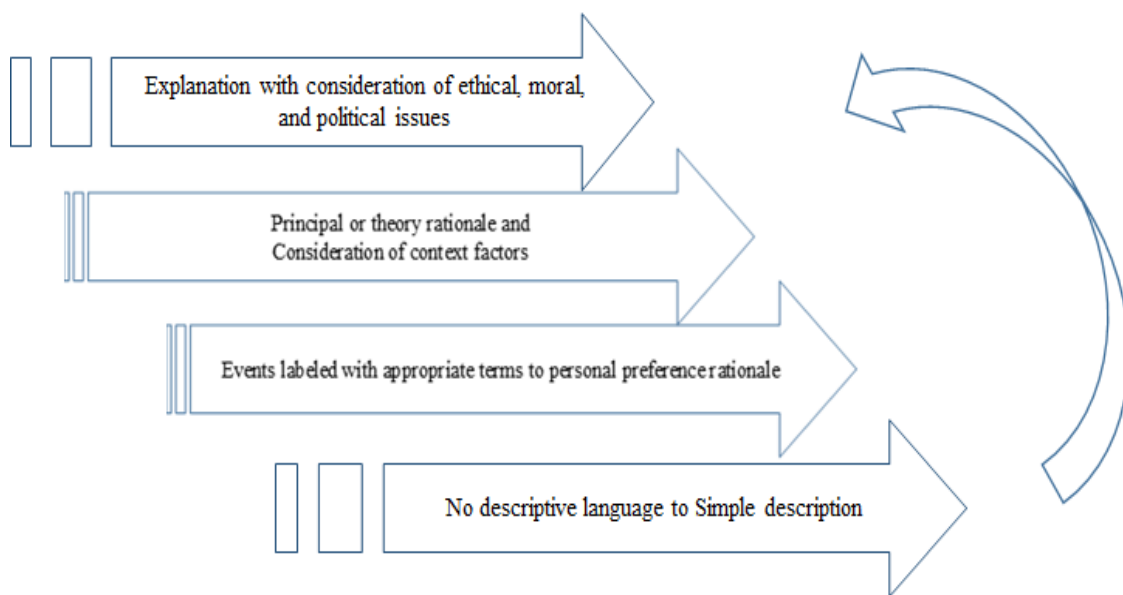
Figure 2.3 Levels of Thinking

Hatton and Smith categorized reflective teaching in two levels, technical level and critical level (Saylor, 2014). They elaborated that descriptive reflection, dialogic reflection and critical reflection were three types of critical level reflection according to reflection writing materials (Hatton & Smith, 1995). Van Manen's model of reflectivity was widely used in teacher reflective practice (Brooker & Odonoghue,1993; Hatton & Smith, 1995; Parra, 2012), level of "technical rationality" emphasized the application knowledge towards given ends; level of "practical reflection" concerned more about beliefs and values; and level of "critical reflection" involved consideration about consciousness and unconsciousness ideology influence (Brooker, & Odonoghue, 1993). In 2001, York-Barr, Sommers, Ghere, and Montie

created their four levels of reflection, namely, description, analysis, overall meaning and implication in action in teaching (York-Barr, et al, 2001), all of them related to teacher self-assessment and self-efficacy. Similarly, Osterman and Kottkamp depicted their framework of reflection on problem solving, based on teacher self-efficacy (Osterman & Kottkamp, 2004). Taggart and Wilson (2005) summarized the pyramid model of reflective teaching, contained technical, contextual and dialectical three rigid levels, incorporating and extending and developing the works of Van Manen, Collier, Grimmett et al, Lasley, et al (Taggart, & Wilson, 2005). Technical level included past experiences reference; teacher competency towards meeting outcomes et al; contextual level included value commitments , alternative practices, validation of principles et al; and dialectical level included individual autonomy, moral, ethical, or sociopolitical issues et al (Kochendorfer, ,1994; Taggart & Wilson, 2005,p3 figure1-1). Larrivee designed the survey of reflective practice to help assess the process of development of reflective practice for preservice teachers through online interaction, and she described the development process from the beginning pre-reflection, through the pathway of surface reflection and pedagogical reflection, and to the highest form of critical reflection (Larrivee, 2008). Surface reflection and pedagogical reflection was the period of conflicts suffering in teaching, because of the limited strategies and striving for solving the problem by enhancing teaching skills (Larrivee, 2008).

Summary

Motivation has been studied from bio-physiology to psychophysiology, from psychology in individual differences to in social behaviors, from learning in class to learning by internalization. Paradigms reviewed in McDougall, William James instinct theories, driven-reduction theory from Clark Hull, Berridge's incentive theory in neural circuitry, emotion, personality traits and personal experiences of individual differences, Bandura social learning theory, Expectancy-Value theory, Goal-Achievement theory in learning and Self-Determination theory by Deci and Ryan. While for career motivation, model of *Factors Influence Teaching Choice* (FIT-Choice), based on Wigfield–Eccles Value-Expectancy Theory

was explained.

Reflective practice is dispensable from motivation of reflective practice study. Deway, Van Menan, Schon, Zeichner, Valli and others theory were analyzed in synthesis for understanding reflective practice in depth.

While, theories are intertwined for good phenomenon interpretation, even not exclusive. Therefore, theories are worthy of consideration into creating a new model of motivation in this research.

CHAPTER THREE: METHODOLOGY

This grounded theory study is aiming at generating a model for primary school preservice teacher in Leshan Normal University. Study questions are:

1. What factors should be considered for consisting primary school preservice teacher reflective practice motivation?

2. What model is needed to help interpret and understand the motivation of reflective practice process of shaping?

This chapter presents the specifics in grounded theory design, researcher, sampling, constant comparative analysis method, study main procedure, trustworthiness and ethical consideration.

Grounded Theory

A grounded theory methodology is employed in this study to explore factors consist of motivation to do reflective practice, conceive the framework of the relations of inter-factors and create a motivation model. Research will follow the procedures as outlined below according to Strauss and Corbin (1990). Brief explanation of the grounded theory and rationale for this study is presented at the beginning that is imperative and important.

Grounded theory is a systematically qualitative methodology, which makes inquirer generate the theory of a process, action or interaction through all data collection and systematic analysis (Creswell, 2007, p63; Strauss & Corbin, 2008). Grounded theory was founded when Anselm Strauss and Barney Glaser published the book *The Discovery of Grounded Theory*, in 1967. They differentiated priori methodologies by holding that the 'theory' should generate from the process of people interaction, in other words, 'theory' should ground in the views shaping from all participants (Creswell, 2007). However, two grounded theory founders split on its use (Ralph, et al, 2015). Strauss portrayed the precise and structural procedure to conduct grounded theory study with Corbin (Strauss & Corbin, 2008). Whereas, Glaser emphasized that Strauss and Corbin's theory was a qualitative research analysis method rather than

conceptualization abstract from its original intents and criticized them betraying the original intents of Grounded Theory that was done by constantly comparative method till the 'theory' emerged (Bryant & Charmaz (Eds.), 2007). Charmaz introduced the new prospective in the debate on the procedures of the grounded theory, called 'constructivist ground theory' (Bryant, & Charmaz, (Eds.), 2007), follower Clarke turned it to the 'postmodern' direction development (Clarke, 2005), which made her go further on the social 'situation' consideration. Even their theoretical opinion varied, some basic principles are similar: a. Grounded theory is a methodology concerned about process, actions, variability of actions and relations. b. Grounded theory is theorized from the all data collection from participants. Due to the principles abovementioned, this study rests in the opinions from Strauss and Corbin systematic procedures that help discover the process and interaction, and present clearly what phenomena pre-service teacher experienced by theory framework generation. In contrast to other qualitative approaches, Corbin held that data analysis from the first data, which enabled researchers to capture all the potential information as soon as they perceived (Corbin, & Strauss, 1990). Through the rigid and constant analytical procedures from open coding, axial coding, selective coding and substantive-level theory, study goes back and forth to make theory fit all data perceived.

Researcher

Researcher is a 4th Ph.D. student in Education, however, she did not experience teaching as a primary school teacher. Even though, the researcher goes through the completely educational periods from kindergarten to doctor's life. Nearly 30 years' personal learning and reflective practice experiences help her integrate varied voices and concepts to explore the factors considered to generate motivation theory objectively. Creswell reminds that researcher's biases, values, and so on would influence understanding phenomenon and theory modeling (Creswell, 2013), nevertheless, researcher tried hard to avoid her personal compound by peer discussion.

Theoretical Sampling

Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyze his data and decides what data to collect next, and where to find them in order to develop his theory as it emerges.

(Glaser & Strauss, 1967, p 45 paragraph 1)

The process of theoretical sampling broaden the properties and dimensions of the categories and provide more conditions and context factors to enrich the data, so it is important to pay attention to the area beyond prior perception. When the concepts and category emerge, saturation in the data is important to densify categories. Saturation means that properties and characteristics of category is fully developed from the repeated analysis on the perspective of researcher (Glaser & Strauss, 2005). Even though Glaser and Strauss claimed that earlier literature review could undermine the consequence of theoretical sampling, it was acknowledge that building the theoretical sensitivity was crucial to the study, because prior knowledge and experience would influence researcher's decision inevitably (Strauss & Corbin, 2008; Bryant & Charmaz, 2007). However, it is noteworthy that researcher cannot decide sampling after first round analysis of data, that is to say, generated theory after analysis will show the direction of next sampling choice. In this study, snow-ball sampling method (Biernacki & Waldorf, 1981) with constant comparative analysis (Glaser & Strauss, 2005) was employed in the process of theoretical sampling. Purposeful sampling was initially best fit about the primary school preservice teacher with teaching experiences (Creswell, 2013), then 3rd-4th year students teacher in the discipline were fixed, after, we did personality traits assessment via HEXACO of 375 preservice teachers in 3rd -4th grades. We focused on the main distribution group students, and sent them emails for asking participation. Less of them replied, because most of them declined us to take teaching video in class, and finally 15 participants were recruited in the beginning of the first interview cycle. In the end, sample size expanded to 23 participants, there was no new finding emerged with saturation, which was the point of finishing sampling (Creswell, 2013).

Constant Comparative Analysis Method

Constant comparative method is the combination of explicit coding and analytic procedure, used with theoretical sampling. Glaser and Strauss defined four stages of constant comparative method "1. Comparing incidents applicable to each category. 2. Integrating categories and their properties. 3. Delimiting the theory. 4. Writing the theory."(Glaser & Strauss, 2005, p 105 paragraph2)

During the process of comparing incidents, it is important to compare with previous ones in the same or different category, thereafter, it helps generate the characteristics and properties of category quickly. Categories integrating can be done by its self, when it is conducted with theoretical sampling method, because after accumulative calculating the incidents, diverse properties and categories become to integrate systematically (Glaser & Strauss, 2005). Delimiting the theory includes theory level and category level. Modification will be done on the eliminate irrelevant properties and strengthen internal connection by adding details of characteristics, when theory solidifies, and another is the reduction from the list of original categories, irrelevance categories to the core category is delimited through theoretical saturation (Glaser, & Holton, 2004). When substantive framework of the theory emerges, it is the time to outline the story line and make accurately statement of theory.

Main Procedure

This study conducted 3 months (depending on data collection) during the time of preservice teacher school placement. Constant data collection includes in depth interviews and video shooting in class. Methods of theoretical sampling and constant comparative analysis goes through the process from the first data analysis to the framework creating and testing in data analysis (Glaser & Strauss, 1967). Because of the huge amount of data, nVIVO 11 plus is employed in the study for analysis. In general, data analysis route begins with open coding and core categories in coding grouping. Then analysis proceeds to synthesize memo sorting, formulate theoretical coding from selective coding, generate grounded theory for modeling and

revise theory fit all data, test it by situating at last (Bryant& Charmaz (Eds.), 2007).

Coding is a labor-intensive work without standard steps, but it is helpful for further comparative analysis. Coding process cannot been broken down into discrete sections, but open coding, the first step to get exploration journey, should be done like that carefully. Line-by-line open coding minimizes the possibility of important category missing, avoids simplex direction lead by particular selectiveness in the research (Glaser & Strauss, 2005). Microanalysis in open coding enables the characteristic and properties of conceptual meaning underneath description to emerge, literally, similar conceptual meaning parts form one 'category' by the process of 'conceptualizing', which makes the category classified by distinct properties (Strauss & Corbin,2008). While the microanalysis coding is recursively constant process, it gives more opportunities to discover the meaning and relationship hidden in the words. Hypothesis is created when the relation among concepts emerge at the conceptual level through the process of constant comparative analysis (Glaser& Strauss, 2005; Strauss & Corbin, 2008). Axial coding synthesizes the discrete categories and construct scaffolding by according to the relation analysis to explain the phenomena. Memo writing coupled with coding at the outset makes better theoretical sensitivity building and facilitates theoretical sampling (Strauss & Corbin, 2008). Selective coding is the integrative process to refine the core variables to overarch the framework. Sufficiently dense of all dimensions of categories is the precondition to support appropriate selective coding.

Before start

Theoretical sensitivity

 (1) Theoretical literature review

 (2) Personal knowledge and experience in the research field

Open coding: data breaking down, examining, comparing, conceptualizing and classifying categories.

 (1) Labeling phenomenon

  •Writing notes by asking what is it. Moreover, what does it represent?

  •Giving the concept of the essence of the phenomenon or event.

•Comparing to other concepts if they are in the same meaning.

(2) Discovering categories

•Comparing concepts and classifying similar concepts into group "category".

•Giving the name of the category by the identical properties and phenomena interpretation.

(3) Developing dimensions and characteristics

•Highlighting the dimensions of property.

•Outlining the characteristics and properties in rubric.

•Providing broadly point of views of relation.

Axial coding: connections making with assembly among categories.

(1) Conditions and context

•Clarifying the conditions which give rise to the phenomena in each category.

•Locating the dimensions and properties of the phenomena related to the category.

(2) Intervening conditions and action strategies

•Broadening context structure including time, space, gender, nationality, teaching experience, family background, personality, interests, parents' educational levels, et al.

•What do preservice teacher do with the respect to preserved category.

•What is the interaction among preservice teachers pertaining to the category?

(3) Consequence emerges on the connection making.

Selective coding: central (core) category refined from relationship building.

(1) Story line

•Prioritizing one category over others.

•Making clear if the category can explain others.

(2) Constructing story line with related category

•Illustrating core dimensions and properties.

•Relating other category to the core by adding conditions, context, strategies and consequences.

(3) Validating the story line

•Validating the theory against the data.

•Reviewing and going back to find if something missing.

Data Collection

Data collection was in the middle time of preservice teacher school placement in 2018-2019 academic year. 23 participants in this study, sent to different primary schools in Leshan city, were doing 3 months (Sep-Dec, 2018) intensive practice. That made collection task more difficult and more complicated. Therefore, collection schedule (see Figure 3.1) described the process of arrangement.

	NAME	8：25-9：10 AM	9：30-10：15 AM	10：45-11：30 AM	11：45-12：30 AM	13：30-15：00 PM	15：00-16：30 PM		CONNOTAITON	
2	CAIFANRONG		Shooting Video		Interview			WI-Monday	WI-Monday	WI-Monday
3	CHENJIAHAO	Interview						WI-Tuesday	WI-Tuesday	WI-Tuesday
4	DUFEI		Shooting Video	Interview				WI-Wednesday	WI-Wednesday	WI-Wednesday
5	HELI			Shooting Video		Interview		WI-Thursday	WI-Thursday	WI-Thursday
6	LIMIN			Shooting Video		Interview		WI-Friday	WI-Friday	WI-Friday
7	LIXUE		Shooting Video		Interview			WII-Monday	WII-Monday	WII-Monday
8	LIYUNI	Shooting Video		Interview				WII-Tuesday	WII-Tuesday	WII-Tuesday
9	LIYUNII		Shooting Video		Interview			WII-Wednesday	WII-Wednesday	WII-Wednesday
10	LIANGYUNXI	Shooting Video	Interview					WII-Thursday	WII-Thursday	WII-Thursday
11	LIAOXIN		Shooting Video	Interview				WII-Friday	WII-Friday	WII-Friday
12	LINPINGPING			Shooting Video			Interview	WIII-Monday	WIII-Monday	WIII-Monday
13	LIUXIA		Shooting Video	Interview				WIII-Tuesday	WIII-Tuesday	WIII-Tuesday
14	LIUYI				Shooting Video		Interview	WIII-Wednesday	WIII-Wednesday	WIII-Wednesday
15	LUMINGXING	Interview			Shooting Video			WIII-Thursday	WIII-Thursday	WIII-Thursday
16	SHENJIABIN		Shooting Video		Interview			WIII-Friday	WIII-Friday	WIII-Friday
17	WANGHONGLING				Interview	Shooting Video		WIV-Monday	WIV-Monday	WIV-Monday
18	WANGJIANNING					Interview		WIV-Tuesday	WIV-Tuesday	WIV-Tuesday
19	WANGQIAO					Shooting Video	Interview	WIV-Wednesday	WIV-Wednesday	WIV-Wednesday
20	WEITIANHENG	Interview		Shooting Video				WIV-Thursday	WIV-Thursday	WIV-Thursday
21	XIEMENGCI	Interview			Shooting Video			WIV-Friday	WIV-Friday	WIV-Friday
22	XINGYONGHUI		Shooting Video	Interview				MONTHI	MONTHII	MONTHIII
23	XURUI	Shooting Video				Interview				

Figure 3.1 Schedule of Data Collection

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Data Analysis

CAQDAS nVIVO 11 was utilized in data analysis. Following the coding procedures in Chapter 3, from theoretical sensitivities, to open coding, axial coding and selective coding, this study did analysis combined with manual coding methods of Saldna's cyclical process (Saldana, 2013, p59). See Figure 3.2. Research started with data collection and cleaning, and cleaning includes interview transcripts. In order to keep transcripts aligned with accuracy, nVivo Chinese version was employed in the very beginning. Manual coding organization was necessary for the huge data body in this study, even though CAQDAS was indispensable for processing the big population size from the multi-dimensional points of view. Because CAQDAS definitely could not do auto-coding without researcher's intervention accurately, especially transcript texts were corpus body without emotion. Therefore, manual coding was vital to move on to further coding procedures. Excellent findings were consistent with excellent coding work (Strauss, 1987). Then, pre-coding work was done until uploading into the software. Data were reorganizing through the approach of comparative analysis, coding processing was guided by the protocols of different methods as Saldana recommended in her book, such as elemental methods includes in VIVO methods (grounded theory use) or grammatical methods, exploratory methods, procedural methods, affective methods, and literary and language methods. That Saldana called 'First Cycle of Coding'. After open coding in the first cycle, grouping categories and generating themes were considered to rest in critical thinking. Theory was generated from well modeling rather than being emerged electronically. That theoretical modeling in spiral comparative analysis processing, Saldana named 'Second Cycle of Coding'.

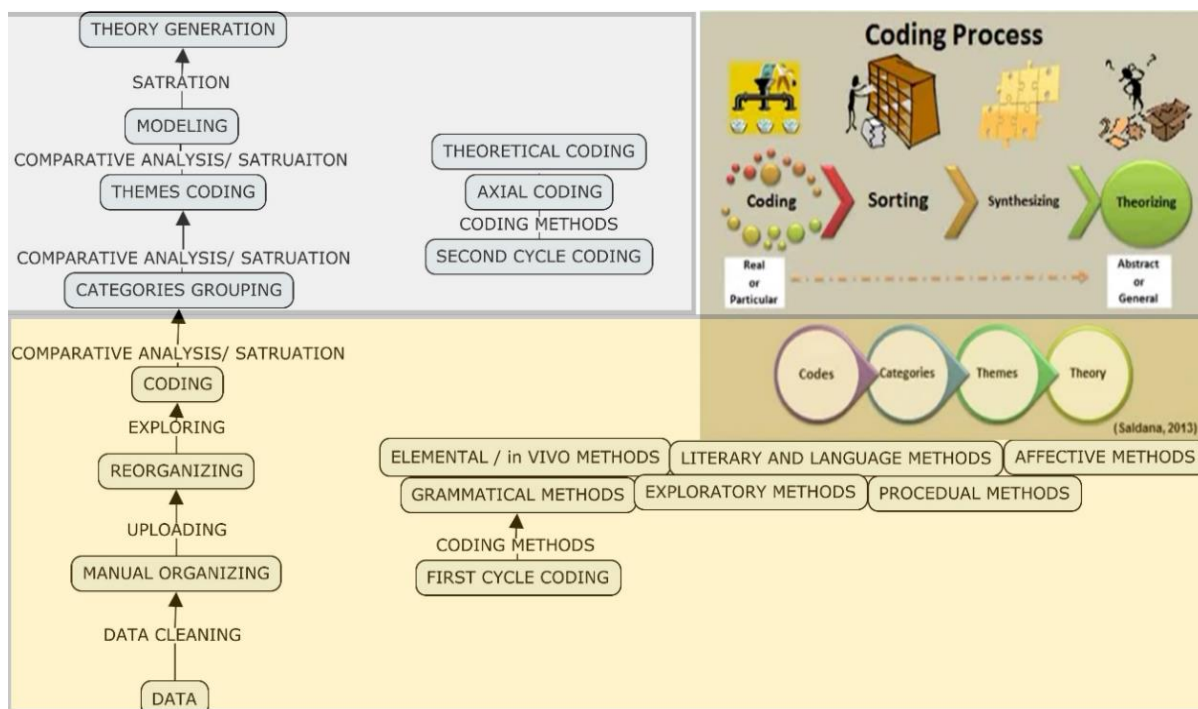*Figure 3.2* Circular Coding

Picture sources from: Cartoon picture from Philip Adu presentation of qualitative data analysis, https://www.youtube.com/watch?v=6tuY-4HYrQk

Step 1. Cleaning/Pre-Coding

Raw data transcript manually in Chinese, initial organizing work from sentence by sentence. 316 open coding was presented for overview. Figure 3.3 shown the tip of an iceberg of the manual coding.

1	Node	Name	Sources
2	Dominant Parenting Role	absolutely dominate all her life	
3	Non-Grades Craving	academic achievement pursuing is nothing	
4	Grades Craving	academic scores help to get a good job in the competition	
5	Steady Salary	acceptable salary	
6	Administrative Inhibition	Administration in charge of education	
7	Mentor's Impact	Admiring teachers with literature and elegance	
8	Attitude of Teaching	attitude of teaching is important	
9	Spontaneous Response	automatically focus on students, not for responsibility	
10	Divorced Family	bad impact on childhood for incomplete family	
11	Study Attitude	bad maths scores	
12	Professional Development-Temperament Changed	bad temper can change when you are a teacher, because student will not develop their growth even you get range and shout at them	
13	High Self-Esteem	believe in herself high self esteem	
14	High Self-Esteem	believe that he did better than others	
15	Interaction on Class	care about students participation and communication	
16	Earning for Living	caring more about getting a job	
17	Respecting Student's Voice	cherishing students voices, encourage them to express	
18	Liking Children	childre are lovely and make teacher touched	
19	Interpersonal Communication	children cannot disguise themselves and pretend to do sth they don't like to	
20	Empathy	children like playing	
21	Critical Thinking	children should be understood from 360 dimesion	
22	Interaction on Class	class management is important for student learning	
23	Competitive Job Position	competitive job position	
24	Ambitious in Competation	competitive personality traits, seeking for methods to win, reflection on how to win	
25	Ambitious in Competation	competitive, eager to win	
26	Sympathy	complaining about children's life today, without sufficient playing time and varied approach of playing, tedious IT life now	
27	Complaining about Educaction	complaining about didactics in higher education	
28	Complaining about Educaction	complaining about primary school art courses	
29	Grades Craving	concentrate on academic scores seeking	
30	Critiques on Education	criticising education experts	
31	Critiques on Education	criticising higher education	
32	Critiques on Education	criticising teaching materials in primary schools	
33	Dominant Parenting Role	depress her emotion and property	
34	Complaining about Educaction	difference in professional competence of teachers between cities and countries	
35	Reflective Practice-Teaching	discrepancy between well-designed teaching and real teaching,	
36	Reflective Practice-Approach	do reflective practice from consulting with mentors	
37	Attitude of Life	do what she wants to, and don't do what she is not interested in	
38	Professional Development-Improving Skills	doing reflective practice beacuse she thought she did not well	
39	Reflective Practice-Approach	doing reflective practice from peer discussion	
40	Teaching Context	doing reflective practice in the teaching context	
317	Socia-Culture Development	you cannot teach student in the ways like your teacher teach you, because everything changes	

Figure 3.3 Data Cleaning

Step 2. Coding

Reflective practice motivation factors were established in coding-Nodes, which were confirmed by all participants. After peer discussion, Nodes were listed in the spit sheet, as Figure 3.4 shown the details in open coding below.

Name	Sources	References
Administrative Inhibition	1	1
Ambitious in Competation	2	4
Attitude of Life	9	14
Attitude of Study	2	2
Attitude of Teaching	10	15
Belief	4	5
Career Ambition	7	8
Career Expectation	16	24
Competitive Job Position	1	1
Complaing about Education-Imbalance	3	3
Complaining about Educaction-Courses	1	1
Complaining about Educaction-Higher Education	1	1
Complaining about Teacher's Life	4	4
Critical Thinking	5	7
Critiques on Education	4	10
Dependency	5	5
Divorced Family	1	1
Dominant Parenting Role	9	15
Earning for Interests	2	2
Earning for Living	8	8
Emotion	2	2
Emotional Intelligence	1	1
Empathy	1	1
Experiences	1	1
Family Background Impact	14	14
Family Background Impact-Teacher Family	1	1
Family Education	2	4
Grades Craving	4	8
Harmonious Family	9	9
Independence	3	3
Indivisual Talent	2	2
Interaction on Class	6	7
Interests	11	17
Interpersonal Communication	7	9
Life Expectation	7	9
Liking Children	6	8
Materials Pursuing	2	3
Mentor's Impact	4	4
Mentor's Impact-Attitude	1	1
Mentor's Impact-Personality Traits	1	1
Mentor's Impact-Teaching Style	2	2
Non-Grades Craving	9	9
Parents' Care and Protection	1	1
Parents' Educational Background	9	9
Parents' Hope and Expectation	4	6
Parents' Personality Traits	1	1
Parents' Temperament	1	1
Parents'Value Influence	1	1
Permissive Parenting Role	4	5
Personal Experience	3	4
Personality Traits	1	1
Personality Traits-	2	2
Personality Traits-Dominant	3	3
Personality Traits-Earnst	1	1
Personality Traits-Easygoing	1	1
Personality Traits-Explorative	2	2
Personality Traits-Extraversion	2	2
Personality Traits-Good Temper	2	2
Personality Traits-Intraversion	3	3
Personality Traits-Neuroticism	3	3
Personality Traits-Persistance	1	1
Personality Traits-Pushy	3	4
Personality Traits-Rebellion	1	1
Personality Traits-Straghtforward	1	1
Professional Development	11	16
Professional Development-Emotion Control	1	1
Professional Development-Enriching Knowledge	1	1
Professional Development-Improving Skills	5	7
Professional Development-Personality Traits Changed	1	1
Professional Development-Practice Experience	1	1
Professional Development-Strategies	2	2
Professional Development-Temperament Changed	2	2
Psychophysiology	2	2
Refelctive Practice	16	21
Reflective Practice-Approach	13	25
Reflective Practice-Content	7	9
Reflective Practice-Discrepency	1	1
Reflective Practice-Teaching	1	2
Reflective Practice-Timing	13	16
Self-Abasement	1	3
Self-Actualization	1	1
Self-Awareness-Assessment	1	1
Self-Confident	1	1
Self-Discipline	1	1
Self-Esteem	4	9
Sex Discrimnation	6	7
Social Media Influence	1	1
Social-Culture Development	1	1
Spontaneous Response	6	7
Study Attitude	1	1
Sympathy	1	1
Teacher Benefits	4	4
Teacher Needs	2	5
Teaching Belief	2	2
Teaching Context	10	10
Teaching Experience	17	22
Teaching Experience-Adequate	6	6
Teaching for Students	17	24
Teaching for Students-Students Response	4	5
Team Work	1	1
Temperament Inheritance	1	1
Time	2	2
Value	2	2

Figure 3.4 Open Coding

Then axial coding was employed after open coding, and categories were created around core coding-Nodes (Creswell, 2012). Final coding categories, through spiral cyclic comparative analysis, were presented in following tables (Table 3.1-3) and overview diagram in Figure 3.5.

Table 3.1 Themes within the Category of Time Course

Name	Sources	References
TIME COURSE	14	19
Casual Thinking	2	2
Reflective Thinking	10	10
Spontaneous Response	6	7

Table 3.2 Themes within the Category of Environment Influence

Name	Sources	References
ENVIRONMENT INFLUENCE	18	78
Familiy Influence	18	66
Family Background	18	45
Family Education	9	13
Family Value	5	8
Social-Culture Development	7	12
Social Media Influence	2	2
Social Value	7	10

Table 3.3 Themes within the Category of Interaction

Name	Sources	References
INTERACTION	23	428
Interaction with Students	7	9
Interpersonal Relation	7	9
Self-Interaction	23	410
Attitude	17	56
Emotion	12	27
Personality Traits	16	29
Psychophysiology	22	83
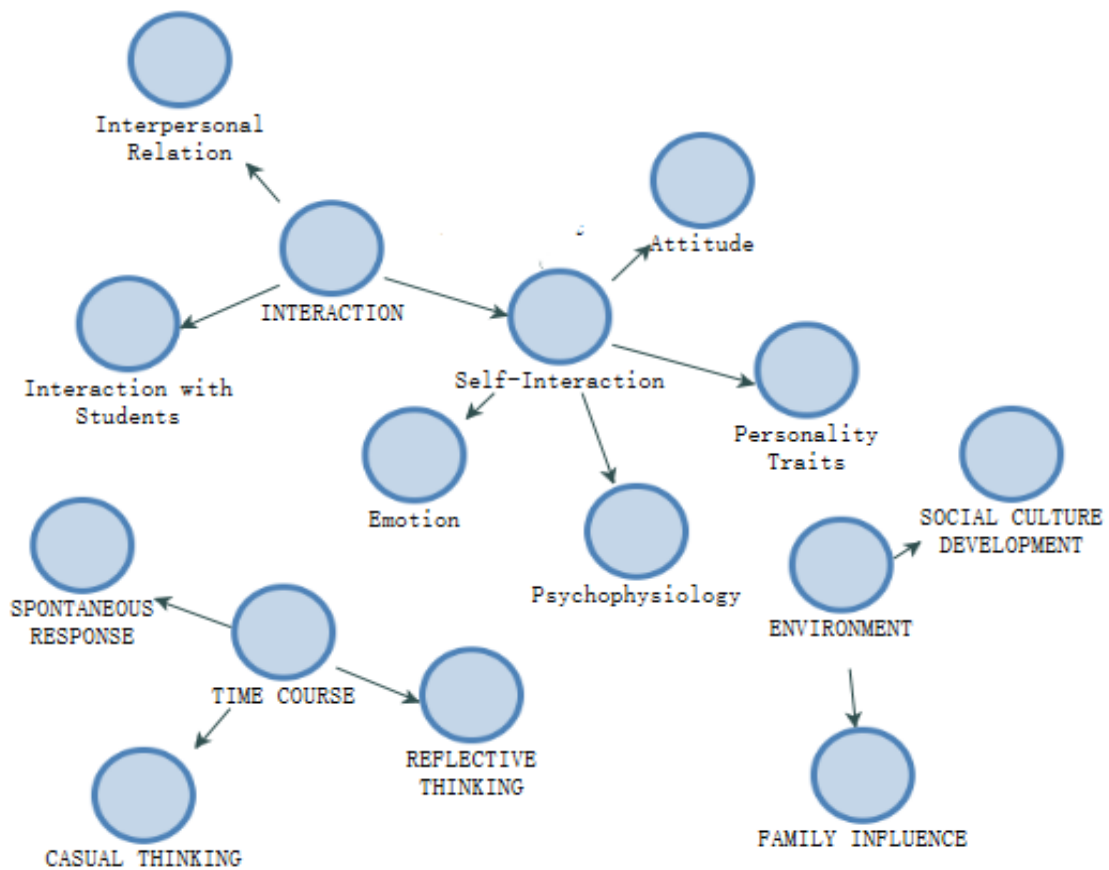
Figure 3.5 Axial Coding

Step 3. Finding Validation

Reviewed all the data materials to make sure that the findings were complete saturated. Validate the findings in credibility, transferability, dependability, and confirmability through the methods of peer review, feedback from participants, triangulation and so on to raise the study trustworthiness quality.

Trustworthiness

Lincoln and Guba concluded criteria of trustworthiness, which was the term used in the qualitative study to explain the quality (Lincoln & Guba, 1985). They make the analog between "credibility" and "internal validity"; "transformability" and "external validity"; "dependability" and "reliability"; "confirmability" and "objectivity" (Lincoln, & Guba, 1985).

According to the criteria, this study presents them by following paragraphs respectively.

Credibility

Credibility refers to the extent of accuracy of the phenomenon description. To make sure the credibility of the study, many techniques such as triangulation, peer debriefing, member checks, prolonged engagement are employed. Triangulation goes through the data collection and analysis. Multiple sources of data are collected to increase the internal validity, including interviews, audiovisual materials (video clip of teaching / record of interviews) and other works includes drawings. Data was analyzed through manual work, computer assist qualitative analysis software nVivo 11, member checks and peer debriefing. Member checks allowed the participants to make sure of the thoughts and words in my analysis derived from their original thinking and performance. Peer debriefing took place in the seminar, my study report presented among peers, and their valuable opinions were incorporated into my ongoing research. Apart from these, my supervisor's assistance brought benefit to the whole study, and his knowledgeable opinion was the unique nutrient for my career.

Transferability

Guba, Creswell, and other researchers argued the generality in the qualitative research (Lincoln & Guba, 1985; Creswell, 2014). In order to enlarge the extent of transferability to the readers' situation, enough thick descriptions and contextual information is addressed precisely. This study intends to provide genuine reference to more readers in problem solving.

Dependability

Dependability appears coupled with credibility, refers the accuracy of the findings (Lincoln & Guba, 1985). Outsiders of the research help uncover irrational and illogic findings. Besides, this study is based on grounded theory; saturation process in the theoretical sampling method of grounded theory consolidate the dependability from another aspect.

Confirmability

Confirmability refers to the extent of data representing participant's feeling without researcher's influence and bias (Lincoln & Guba, 1985). Therefore, reflective thinking of researcher and external audit is useful to ensure that participant actual feeling and experience is represented accurately in the data. As reflective practice is the main area in this study, for researcher, reflective thinking habit is precondition to carry out the project. Therefore, reflective diary of research is utilized to help eliminate personal bias.

Ethical Consideration

Ethical approval by universities is needed for research. Consent forms is shown with the ethical approval to the participants before the study, including quotation permission. Researcher make great effort to protect participants from any kinds of harm, any kinds of privacy invasion, any kinds of embarrassment, and any kinds of risks. Participants have the right of knowing the benefits and risks of the study, have the right of control the content and length of participation, and have the right of rejecting uncomfortable finds used in the study. All data materials are destroyed after research.

CHAPTER FOUR: RESULTS

Overview

Grounded Theory, regarded as the systematic approach, applies meticulous codes involved gradual synthesized cyclical data analysis to create a theory rooted in the data. This study focuses on the factors for modeling reflective practice motivation through the process of investigating the perspectives and experiences of preservice-teachers. Factors and characteristics are identified during the coding/nodes procedures, and are grouped into categories and developed concepts and themes through the cyclical coding-recoding process, which all lead to emerge the canon prototype of model and generate the new theory. It is like that "Generating the bones of your analysis," in coding (Charmaz's, 2006, p 45), putting "Analytic meat on the analytic bones" (Strauss, 1987, p245) and finally resembling bones into functional theoretical skeleton to work. The model of reflective practice motivation with the purpose to interpret the developing structures of preservice teacher experiences. This chapter is to showcase the findings of systematically analysis cycles with CAQDAS (Computer-Assisted Qualitative Data Analysis Software) nVIVO 11 Plus. Research results present through gradually analysis of 23 unstructured in depth interview transcripts, 375 preservice teacher HEXACO Personality Inventory-Revised questionnaires (including 23 interviewees), and 23 interviewees' teaching videos and other art works. This chapter is also to provide the streamlines of grounded theory themes generating with the theoretical sampling and comparative analysis of the data through the multi-presenting approaches. Quick recap the research questions guided the study for overarching the data processing, see Figure 4.1.
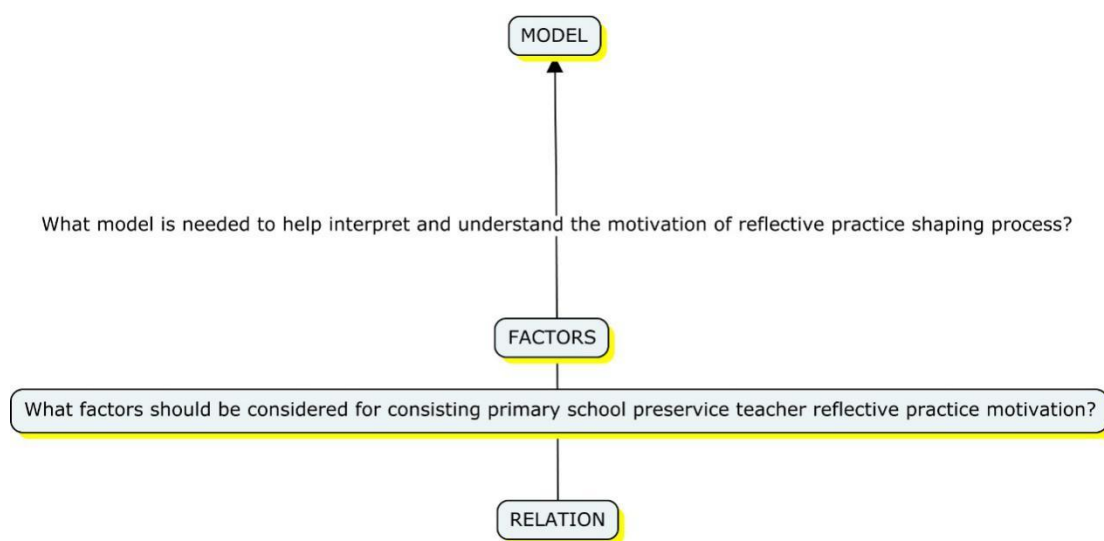
Figure 4.1 Research Questions in Cmap

Population/Sample Characteristics

This study is composed by 23 participants from education faculty in Leshan Normal University for in depth interviews and video shooting, which present the homogenous characteristics in discipline and individual diversities in reflective practice. Most of them from different parts of Sichuan Province in China with varied family background, such as single-child family, sibling's family, complete family and divorced family, see Figure 4.2 split sheet in colors. They are in the 3rd and 4th year of bachelor degree study, covered all ranges of primary school teaching areas, literature and linguistics, mathematics, art and sports. More than half of them are from small cities or towns of Sichuan, while one male comes from big city of Hangzhou in Hangzhou province, one female comes from traditional city Putian of Fujian province. And the rest are from countries or other rural areas, furthermore, less of their parents are well-educated, see demographic information via Google Pro (Hangzhou and Putian are in the East China approaching the coach line, see global model in Figure 4.3).

Person	Family	Name	Sex	Township	Hometown	Parents'Educational Background
Cases\\李云	Divorced Family	LIYUN-I	Female	City	Chongqing	High
Cases\\梁芸菥	Complete Family	LIANGYUNXI	Female	City	Leshan	High
Cases\\刘霞	Siblings-Family	LIUXIA	Female	City	Luzhou	High
Cases\\刘逸	Siblings-Family	LIUYI	Female	City	Leshan	High
Cases\\鲁明星	Complete Family	LUMINGXING	Male	City	Hangzhou	High
Cases\\谢孟慈	Siblings-Family	XIEMENGCI	Female	City	Leshan	High
Cases\\张丽	Single-Child-Family	ZHANGLI	Female	City	Guangan	High
Cases\\蔡繁荣	Single-Child-Family	CAIFANRONG	Female	City	Liangshan	Low
Cases\\陈佳浩	Single-Child-Family	CHENJIAHAO	Male	Country	Zigong	Low
Cases\\杜菲	Single-Child-Family	DUFEI	Female	City	Guangan	Low
Cases\\何丽	Complete Family	HELI	Female	City	Meishan	Low
Cases\\李敏	Siblings-Family	LIMIN	Female	City	Yibin	Low
Cases\\李雪	Complete Family	LIXUE	Female	City	Ya'an	Low
Cases\\李芸	Divorced Family	LIYUN-II	Female	City	Leshan	Low
Cases\\廖欣	Single-Child-Family	LIAOXIN	Female	Country	Neijiang	Low
Cases\\林平平	Single-Child-Family	LINPINGPING	Female	City	Meishan	Low
Cases\\沈佳斌	Complete Family	SHENJIABIN	Male	City	Neijiang	Low
Cases\\王红玲	Siblings-Family	WANGHONGLING	Female	City	Leshan	Low
Cases\\王建宁	Complete Family	WANGJIANING	Female	Country	Nanchong	Low
Cases\\王巧	Siblings-Family	WANGQIAO	Female	Country	Ya'an	Low
Cases\\魏天恒	Single-Child-Family	WEITIANHENG	Male	Country	Meishan	Low
Cases\\幸永慧	Single-Child-Family	XINGYONGHUI	Female	Country	Mianyang	Low
Cases\\徐瑞	Single-Child-Family	XURUI	Female	City	Putian	Low

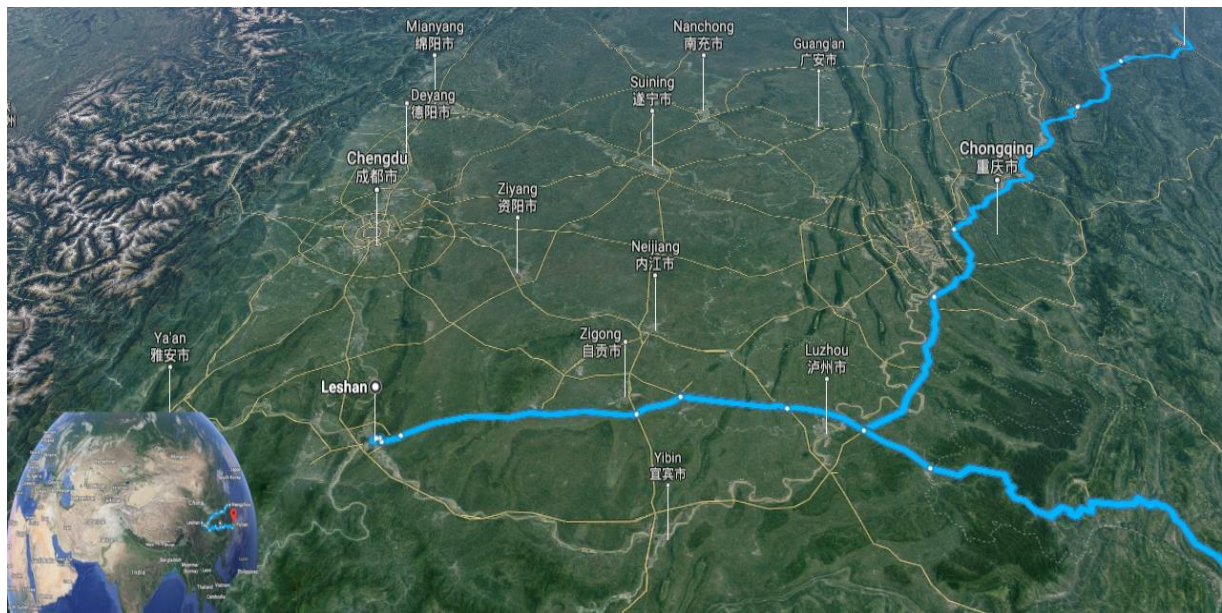*Figure 4.2* Demographic Information 1

Figure 4.3 Demographic Information 2，from Google Pro.

All of them have more than 2 semesters school replacement experiences, most of them have 3-4 years part-time job of teaching assistant working experiences: WANGHONGLING has ran her own culture school with collaboration of her friends for 4 years , XIEMENGCI has worked in the her parent's culture school for years, HELI has worked in the training school for 3 years. LIYUN, LAINGYUNXI, LIUXIA, LIAOXIN, LIXUE, LIMIN, ZHANGLI, XINGYONGHUI, and WANGQIAO all have the part-time job of teaching in culture schools. "Culture School" means 'Extra-Curricular Classes', which is the mainstream of the after-school lives of students in China aiming to improve their academic performances or develop their art talents. Well-equipped culture schools have multiple services ranged from picking up students from school every day to 1 vs 1 VIP tailored training design to apply for Worldwide Top 100 universities, they hire famous teachers in all kinds of subjects in the city, and preservice teachers in universities as well. Normal universities students are benefits from that; they do part-time teaching there and earn more extra money. Therefore, most preservice teachers have culture school teaching experiences, no matter what subject she/he taught, easily access to practice teaching and good chance to support their living, that's a win-win business. Figure 4.4 presented one Culture School curriculum advertisement for further understanding. After-school lives of teachers and students are the extending of teaching and learning in class as such, in China.

Figure 4.4 Advertisement of Chinese Culture School

Picture from: http://zbs08.cn.qiyeku.com/productshow-42656313.html

Grounded theory study is intended to generate the theory from all data of individuals in their own context, aiming at exploring and understanding the psychological phenomenon, rather than generalizing to the large population (Strauss & Cobin, 1990), while 23 participants in the study consists of the population size covered kinds of characteristics. Twenty-three healthy participants' names are pseudonyms for confidentiality agreement, four males and nineteen females. Here participants' information should be addressed more from nVIVO memo. Interviewee 1.

LUMINGXING, male, is not going to be a primary school teacher anymore, he decided to take more competitive Civil Service Exams, even though primary school teacher is another kind position of civil servant. Every preservice teacher is supposed on schedule to pass the Teachers Exams for the primary school teacher position generally, in China. LUMINGXING is from the core of metropolitan city Hangzhou, Zhejiang Province (see Figure 4.5 presented below to overview the background city of him). Correlation of coding matrix with Jaccard's Coeffient demonstrated below in Split Sheet, see Figure 4.6, summary of his

idea points correlated with others. In the interview, he said:

> Bachelor Degree is the requirement for applying for Civil Service Exams, so I need to study in the university, while if I fail to pass the exams, I will do my own business like real estate. Because all my family members are businessmen, except my uncle who is the director of X bureau in the government. Our big family need me to be in a higher position in political field, which means we will make more money in future.

	Broad & Deep	Relatively Broad	Relatively Deep	Emerging
	Global Leaders	**Global Diversified**	**Global Specialists**	**Global Contenders**
Global	Abu Dhabi	Amsterdam	Astana	Chengdu*
	Beijing	Brussels	Luxembourg*	Moscow*
	Chicago*	Dublin	Qingdao*	
	Dubai	Frankfurt	Shenzhen	
	Hong Kong	Milan	Washington DC*	
	London	Paris*		
	Los Angeles*	San Francisco		
	New York			
	Shanghai			
	Singapore			
	Sydney			
	Tokyo			
	Toronto			
	Zurich			
	Established International	**International Diversified**	**International Specialists**	**International Contenders**
International	Boston	Athens*	Almaty	British Virgin Islands*
	Calgary	Bangkok*	Bermuda	Buenos Aires*
	Geneva	Copenhagen	Busan*	Dalian
	Hamburg*	Edinburgh	Casablanca	Doha*
	Kuala Lumpur	Istanbul*	Cayman Islands	Hangzhou*
	Madrid*	Johannesburg	GIFT City-Gujarat*	Jakarta
	Melbourne	Rome*	Guangzhou	Malta*
	Montreal	Stockholm	Guernsey	New Delhi*
	Munich*	Vienna*	Jersey	
	Seoul*		Rio de Janeiro*	
	Stuttgart (New)		Taipei	
	Vancouver			

Figure 4.5 Global Position of City Hangzhou

Picture source from: The Global Financial Centres, Index 25, p 15-Table 6.

Source A		Source B		Jaccard's coefficient	
Internals\\SHENJIABIN		Internals\\LUMINGXING		0.333333	
Internals\\WEITIANHENG		Internals\\LUMINGXING		0.28	
Internals\\ZHANGLI		Internals\\LUMINGXING		0.222222	
Internals\\LUMINGXING		Internals\\LIMIN		0.210526	
Internals\\XINGYONGHUI		Internals\\LUMINGXING		0.205128	
Internals\\XURUI		Internals\\LUMINGXING		0.193548	
Internals\\LUMINGXING		Internals\\CAIFANRONG		0.190476	
Internals\\LUMINGXING		Internals\\LIUXIA		0.184211	
Internals\\LUMINGXING		Internals\\CHENJIAHAO		0.181818	
Internals\\LUMINGXING		Internals\\HELI		0.176471	
Internals\\WANGHONGLING		Internals\\LUMINGXING		0.170732	
Internals\\LUMINGXING		Internals\\LIUYI		0.166667	
Internals\\WANGJIANNING		Internals\\LUMINGXING		0.166667	
Internals\\XIEMENGCI		Internals\\LUMINGXING		0.16	
Internals\\LUMINGXING		Internals\\LIAOXIN		0.142857	
Internals\\LUMINGXING		Internals\\LIYUNI		0.136364	
Internals\\LUMINGXING		Internals\\LIYUNII		0.125	
Internals\\WANGQIAO		Internals\\LUMINGXING		0.121212	
Internals\\LUMINGXING		Internals\\DUFEI		0.115385	
Internals\\LUMINGXING		Internals\\LIXUE		0.1	
Internals\\LUMINGXING		Internals\\LIANGYUNXI		0.1	
Internals\\LUMINGXING		Internals\\LINPINGPING		0.071429	

Figure 4.6 Ideas Correlation with Others-LUMINGXING

Interviewee 2.

LIYUNII, she is from a split family and her father married with the home wrecker. Her childhood is fraught with hatred. However, she is stronger than imagination. She said:

I didn't like my father's child, after all her mother was the mistress. But, hatred had become less these years, my father did well. My mother has nothing except me, and she relies on me. I am going to be a teacher in my mother's city, not only for my mom, but for my boyfriend as well. However, both of my parents are extremely strict with me, especially in the interpersonal communication.

Summary chart of key topics she mentioned is shown below in Figure 4.7, words correlated to interpersonal communication takes more than 35% in her main interview body, self-development takes about 30% and career development takes about 20%. Environment and family influence takes also outstanding percentage part in the conversation respectively.
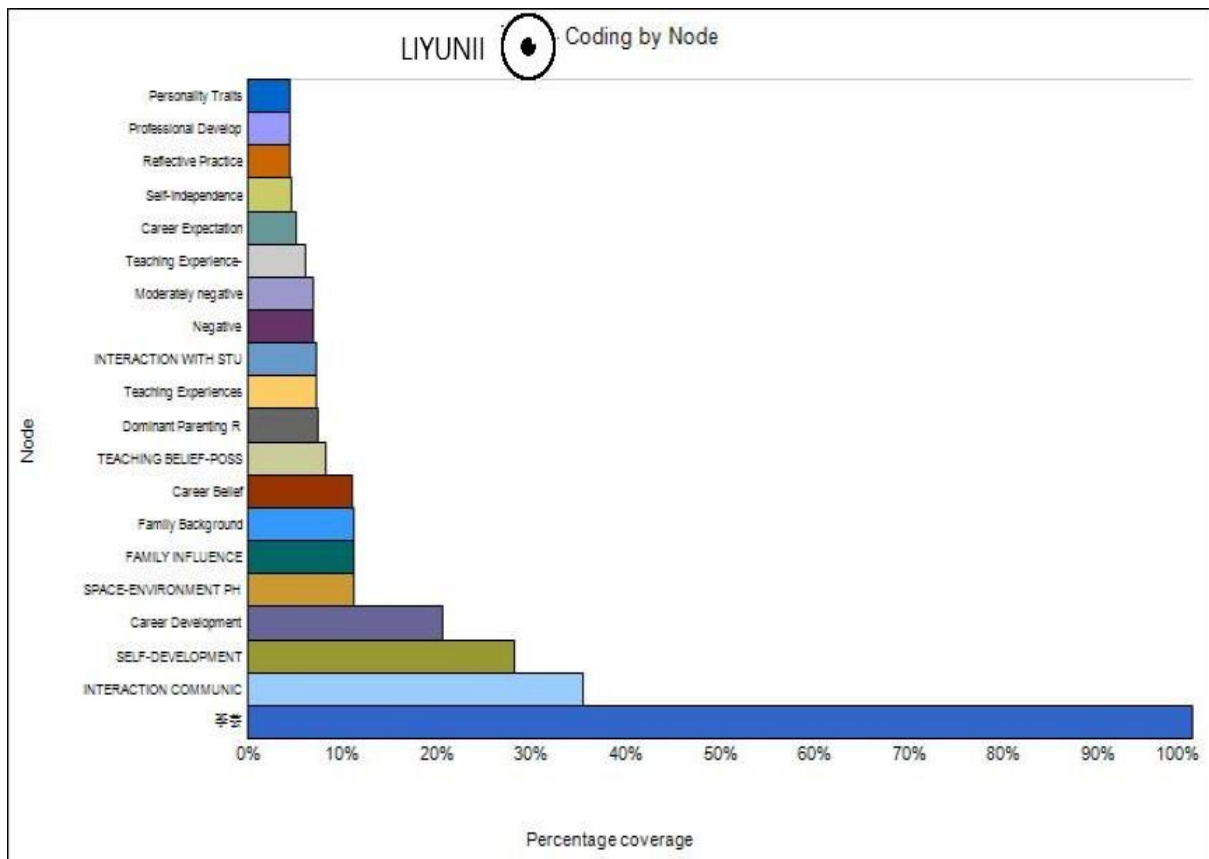
Figure 4.7 Topics Summary of LIYUNII

Interviewee 3.

CHENJIAHAO, he is a talkative person. During the interview, he criticized lots of educational problems in the country primary schools, from teachers to experts, from local school management to national administrative department. He shared his experiences and his unique ideas, while he didn't want to be a teacher teaching in the less developed country schools, he talked more negative issues though. His talk is full of critics, but he is not the person to change the situation. He choose to quit, seeking for living in the big cities, even though he is from the poverty areas. He said:

> Nobody knows themselves why to choose to be a teacher, they are only hunting for a job, except me. Nobody's idea was beyond me in my class, they knew little, however, what I had is not inherited from my parents and what I learned is not from my parents as well. Educational experts are living in the big cities, what curriculum materials they made are served for the students in the city, rather than the rural schools students.

Education reform guidelines are excellent in China, but they couldn't execute out of the cities, because it's the discrepancy between cities and countries in economics, that's inequity.

Interviewee 4.

WEITIANHENG, from the most impoverished district. He is not tall, wearing glasses and in a black suit, is too shy to do eye contact. He speak slowly but clearly. He said:

My parents are peasants, I will be back home and teach there. If it's not necessary, I will give the chance of promotion to others. I enjoy the life in the country, because I am from country. I don't have much needs of living, it's no difference in living between cities and countries. Teacher's salary is enough form me.

From nVIVO Diagram Comparison of Nodes presented in Figure 4.8, it indicates that they hold different opinions even they are both from countries. While some similarities features would be found in the shared Nodes summary. Family influence and career development has big impact on their teaching practice, however, varied. What make them go separately, even from the similar family education beginning? Further analysis results will uncover the truth stories.
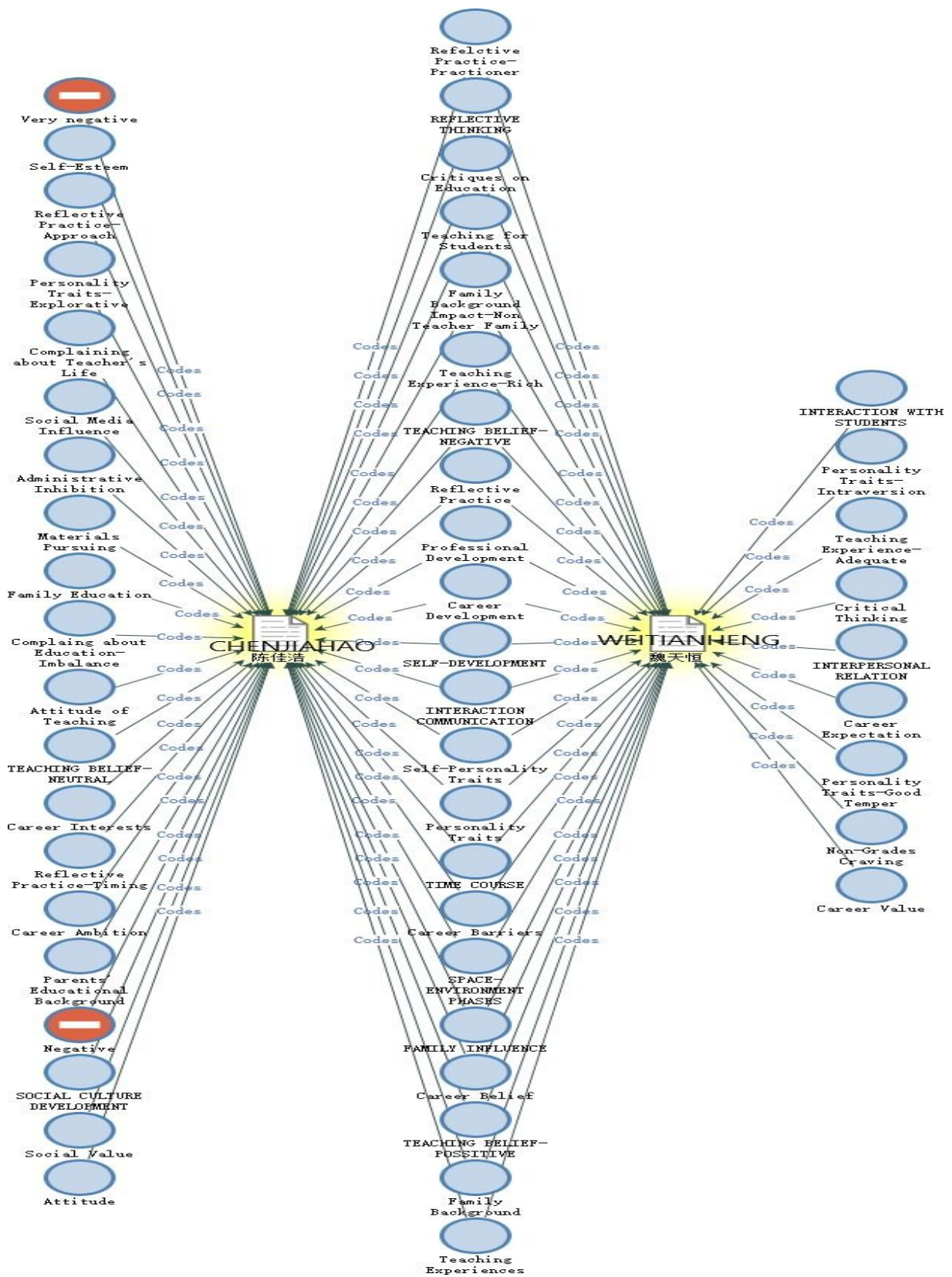
Figure 4.8 Nodes Comparison -WENTIANHENG vs CHENJIAHAO

Interviewee 5.

CAIFANRONG, she grows in the minority autonomic district (YI ethnic group) with poor quality of source maintenance. She has bad study experiences with students of YI group, complaining about hygiene problems of theirs. However, she said that she could understand their lives in the mountains; they were short of water supply. She has a boyfriend who is not the Mr. Right for her. She gets off on working with children and she wants to live a stable life. Nevertheless, she is easy to get irritated or on edge.

Interviewee 6.

DUFEI, she is an interesting girl. She dreamed to be a doctor when she was a little girl. She always makes mistakes on class; however, she said her mentor got more awkward than she did. She said:

> No one can predict future, neither do I. Now I am preparing the Teacher Exams, I found I always got wrong in teaching. There is no worst thing than the students telling you the truth. But, I pretended to present them that my mistake was a tripe designed for you. The second time, I was wrong again, I said to students that you were so clever to get out of the tricky tripe again. The third time, no third time, I am the tripe itself if I has the third mistake.

Interviewee 7.

HELI. She said she was shy with introversion personality traits. However, she changed after her travelling alone to the furthest northeast city, more than 3100 km from her home, when she was in high school. She is extraversion and good at communication now. She has an idea of owning a cozy coffee shop.

Interviewee 8.

LIMIN. She was a grades craving person. She took twice university entrance exams with the purpose of squeezing into the famous university. She even wanted to take the third time, she's crazy. She's pushy, so she was considering to take Civil Service Exams, because she dared to be a teacher. She was too sensitive to take care all the things, she worried about her imperfect.

Interviewee 9.

LIXUE. She wants to be a primary teacher for the steady salary status, which is the capital to attract men.

Interviewee 10.

LIYUNI. She enjoys the process of teaching and learning with children. She criticizes university teacher's didactics in old tradition. She is good at observation, and prefers to learn from observation.

Interviewee 11.

LIANGYUNXI. She takes everything easy. She feels life is too short to be yourself, so she thinks nothing is important at all.

Interviewee 12.

LIAOXIN. She is a study assiduous student. She practices 3-5 times before each real teaching, and each teaching plan takes her more than 3 days to design.

Interviewee 13.

LIPINGPING. She likes her mentor very much; she believes that teaching students to be a good person made more sense to all. She promises to become a teacher like her mentor.

Interviewee 14.

LIUXIA. She thinks that interpersonal communication with adults is more difficult than with children. She dislikes brown-noser who makes her way to power by currying favor with others. She is rebellion in adolescents.

Interviewee 15.

LIUYI. She is obviously self-abasement girl. She always thinks she is not good. She has a strong urge to be better. She is fractious in class without control. She is inextricably bogged down in this problem, despite how hard she tries.

Interviewee 16.

SHENJIABIN. He was born in Sichuan, grew up in Guangdong province. He would to leave the job of teaching if he still has the low steady salary in five years. He would inherit the business from their parents.

Interviewee 17.

WANGHONGLING. She is study in Art. She collaborated with her friend in running the small art workshop. She would expand it after her graduation.

Interviewee 18.

WANGJIANNING. She has special career pursuing in culture school teaching in future. She said that students were less than normal class in primary school. She would get mad if she works with more 50 students eight hours every day.

Interviewee 19.

WANGQIAO. She is a typical grade-craving student. She likes competition, and she is aiming to be a famous primary school teacher in her province.

Interviewee 20.

XIEMENGCI. Her voice is too weak to hear, even though in the class. Her class is a mess, but her voice is still flat as always. See video cut image below, Figure 4.9. She is from a knowledgeable teacher family. Her grandpa has graduated from outstanding university during world II, and her parents are the alumni of her university.

Figure 4.9 XIEMENGCI Teaching

Interviewee 21.

XINGYONGHUI, she is perfect craving and straightforward. She would be angry with team members if they don't do well as she expected. She knew she was too harsh, but not mean.

Interviewee 22.

XURUI. She has a talent for Chinese lute. She suffered a tumor surgery when she was in elementary school. She lives in the province with patriarchy tradition. Many girls marries earlier before their twenties in her home town Putian, Fujian province.

Interviewee 23.

ZHANGLI. She is born in a police officer's family. She has a rebellious sister. She has only one dream, to be a primary school teacher. She is willing to anything with the purpose of being a good teacher. See video-cut image below, Figure 4.10.

Figure 4.10 ZHANGLI Teaching

Each participant out of the same faculty opinions varied, they are independent individuals, which broaden the data properties as such. Here, Figure 4.11 shown their coding similarity correlation 3-D plot through their interviews. That demonstrates that research sampling fit well.
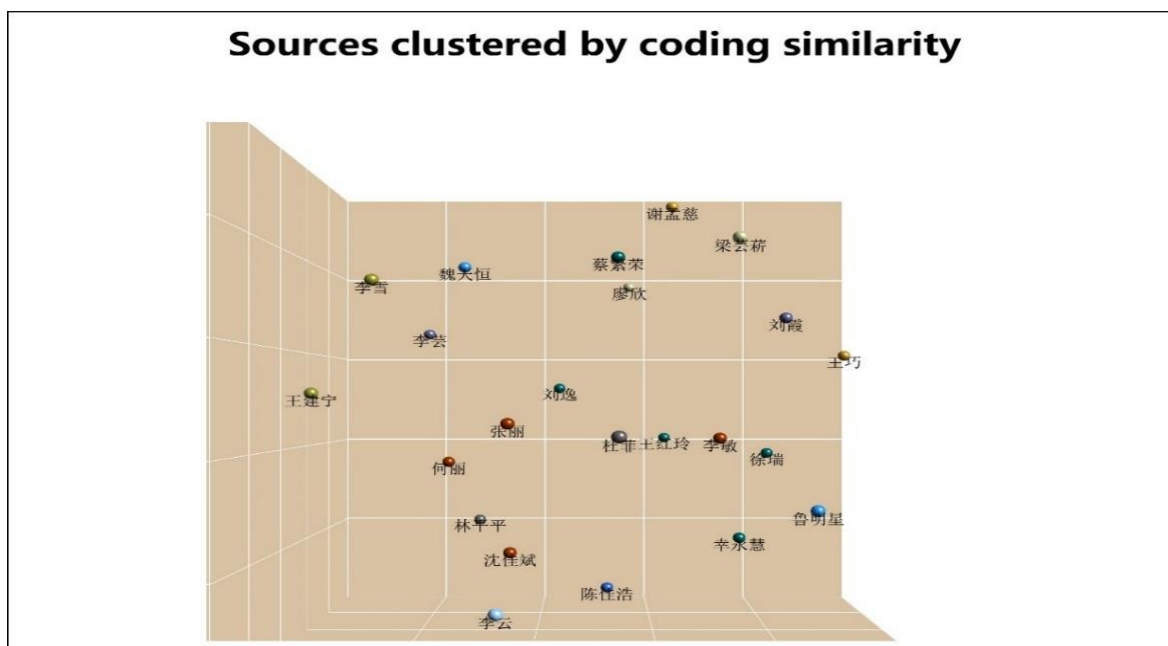
Figure 4.11 Individual Source Cluster

Time Course

Time course is the terminology in fMRI data processing; here it describes the evolutionary changes in motivation by the accumulative paths of thinking. Participants' motivation to do reflective practice could be categorized into three stages thinking issues, causal thinking, reflective thinking and spontaneous response. As participants described in their interviews.

LIUXIA stated:

I don't know when and why I am the reflective practice exactly, I feel like to do it always after class, mostly at night, because I need time, I need enough time to think.

XINGYONGHUI said:

When I am walking down the street, it suddenly happens to me. Then I will go through all what I have done today. I don't know what push me to reflect and I cannot stop thinking. Additionally, I feel a strong urge to do reflective practice when I am writing my diary at night.

CAIFANRONG said:

I like doing reflective practice in teaching, but always after class, sometimes on class, while it should be within the teaching context. But I think reflective practice motivation of mine is a habit.

LIAOXIN said:

When I go to bed every night, I would like to do reflective thinking, that right time induce you to think, if you ask me what is the motivation to do the reflective practice, my answer is the right environment in the right time.

LINPINGPING said:

I am aware of my reflective thinking when I am teaching, but I cannot find some optimal solution to solve my problems. I need enough time to think about it.

XURUI said:

Preservice teacher should do reflective practice, while more and more practices, reflective practice is a continuous process, it's a long time work not limited to a few days. Motivation is not intended to do something, or in some conditions with purpose, it automatically happens.

WEITIANHENG said:

I won't do reflective practice if I am saturated in the teaching contexts. I don't think more about it when I am back from schools. After all, I have only a few weeks school placement this time, even though I also did a few weeks last year, I found nothing changed for me.

HELI stated:

I never voluntarily do the reflective thinking, it happens spontaneously. Generally, it happens automatically, sometimes when I was watching TV or playing PC games, it happened to me. I don't know why.

LIMIN said:

Paying more attention to students is much more than teacher's responsibility. If you want them to acquire the knowledge, however, they are distracted by the novelty; you will worry about their learning. It is spontaneous response of teacher.

LIXUE said:

I don't think I have any kinds of motivation to do the reflective practice, it naturally happens. I will reflect on my teaching immediately after class.

SHENJIABIN said:

I don't do reflective practice on purpose, I do it automatically whenever I am alone.

It is found that their motivation to do the reflective practice is spontaneous response without purpose. But whether it is not deliberate or not? Taking some examples for further explanation.

ZHANGLI said:

At the very beginning, when students' responses out of my teaching design, or beyond my imagination, I feel I cannot think, my brain stop functioning, I am embarrassed to move on. But experiences are accumulated with the time, now, it never happens again, but I still feel nervous when I have no idea to deal with something in class. Generally, it gets better.

LIXUE said:

You are in a maze, you cannot give the feedback to them (students), even though you are aware of what happens, you cannot actually, there is no time for you to think about how to solve the teaching urgency immediately. What you can do is letting it go. However, you can have a deep reflection on it after class, especially at night when you are alone, while it's different. What happens in class is never the same as you think.

WANGQIAO said:

I know what the problem is; nevertheless, I don't have enough time to think how to make it better. If you have the time, it's better to do the class management for teaching.

Taking a look at the anatomical pictures of heart conductive system and external cardiac control before doing explanation of the issues above, Figure 4.12.
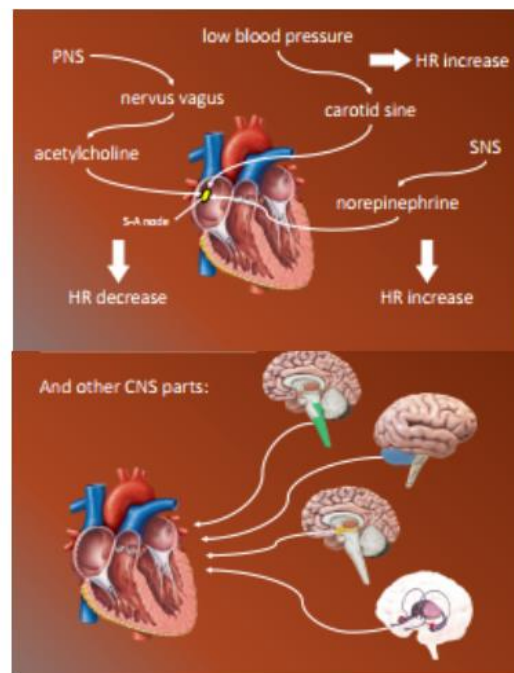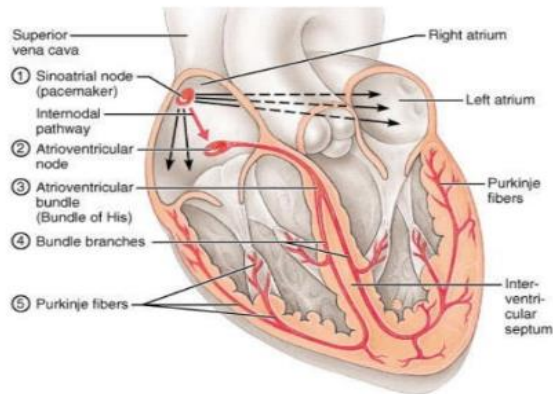
Figure 4.12 Heart Functioning and Brain

Source from Psychophysiology human behavior and physiological response, 12. Heart Activity and Behavior I: Developmental Factors, Motor and Mental Activities, Perception, Attention, and Orienting Responses. Author, Andreassi, J. L. (2007). New York: Psychology Press.

Heart works like a pump, which provides oxygen and nutrients to the whole body including the brain. While heart rate is influenced by the peripheral nervous system (parasympathetic nervous system and sympathetic nervous system) and some centers in central nervous system as medulla oblongata, cerebellum, hypothalamus and amygdala. Pay attention to the carotid baroreceptors, which monitor the blood pressure and send message to regulate the heart rate for sufficient brain blood supply. Go further to some classical experiments in literatures. Rouselle, etal did the experiment to investigate- if the physical need requirement of oxygenated blood can mask the changes of psychological (mental tasks) need requirement. The results shown the cumulative effect of the heart rate (Rouselle, Bascovich, & Kelsey, 1995). Schell & Catania found that the more pronounced the HR (heart rate) decreased, the more accurate the perception is (Schell& Catania, 1975), and Steel and Lewis shown their result that after presenting a task, the HR increased and then decreased below the baseline, which was demonstrated universal phenomenon in the experiments (Steel William, Lewis Michael, 1968).

Those results all supported the hypothesis from Lacey theoretical framework of the relationship between the heart activity and problem solving: when gathering information, the HR would decrease as concentrated attention, while when solving problems, the HR would increase as energy need for brain processing (Lacy, 1967). Then we go back to the issue in this study, why they cannot give the feedback even they are aware of what the problem is. They are preservice teachers, not experts; they are lack of professional skills, lack of wide knowledge, and so on. In general, they are short of teaching experiences. Each student's response out of their experience in teaching would make them in trouble, which means complicated tasks rush into their mind suddenly. Brains needed energy to processing, while heart rate raises up, limited time screws up brain functioning. They failed to have critical thinking that time, in other words, that bad experiences accumulated to challenge their future teaching. What is important for them? That is 'time', time to experience, time to think, time to reflect, time to practice, and time to develop. So, it can be found that they said motivation was spontaneous response, it indicated that, they were adapted to do it in the familiar environment, however, more than the 'habit'. That means time and environment influence has significant correlation with motivation of reflective practice, if we used math equation to describe the motivation, which would be like this:

1. Motivation : $F(m) = F(t) \cdot G(e)$

F(m):Function of reflective practice motivation, m=motivation

F(t): Function of behavior changes along the time course, t=time

G(e): Function of environment influence changes, e=environment

*Environment Influence*

Influence, it can be describe in frequency, intensity, and phases. Phases is the terminology in physics, refers to a particular point in the cycle of a waveform (Hass, 2003), or denotes that is a uniform of all physical properties of the material (Modell, Michael; Clement John Adkins, 1983; Enrico Fermi, 2012). Look at the model of phases created in software Matlab in Figure 4.13.
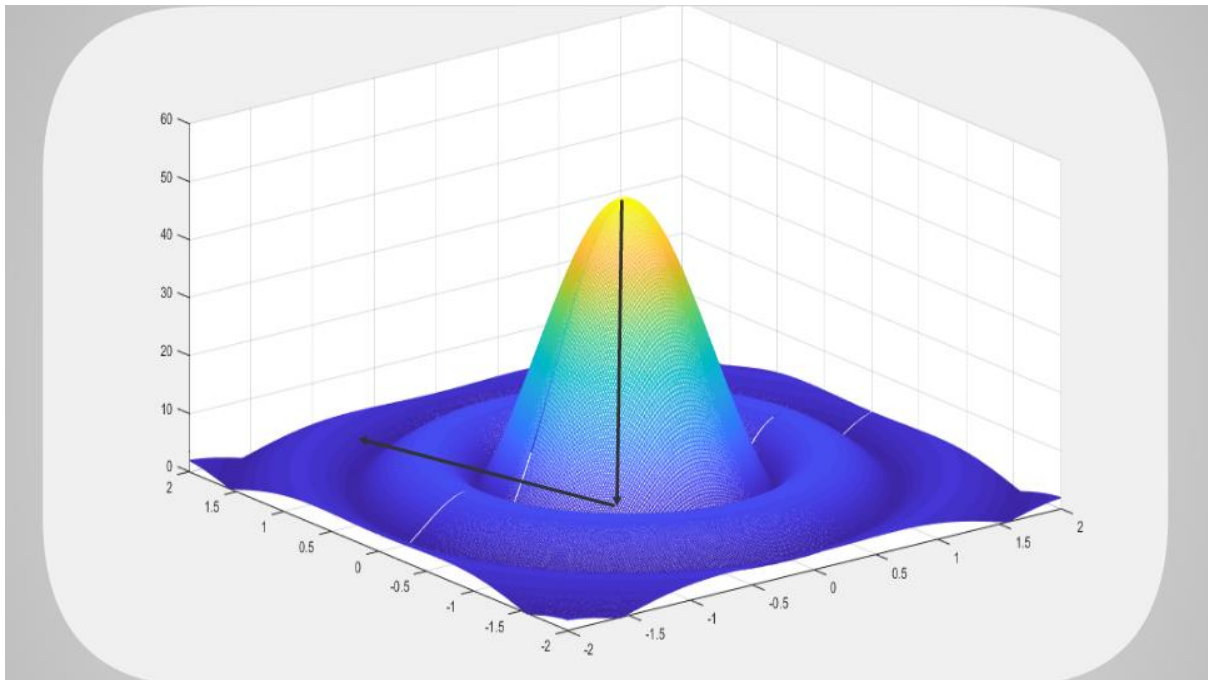
Figure 4.13 Phases in Environment

Multiple infinite sine waves consist of the environment influence (a space composed by environment influence factors), here single sine wave only for better understanding from its property. Distance from horizontal black line to the vertical is the environment phases, which means the phase position on the time-course wave, in reality, such as school atmosphere of yesterday, today, tomorrow and some day in the future. While environment includes many specific branches, like social environment, family environment, school environment and so forth. Similarly, each environment branch is made of infinite time-course waves' combination, and each single wave could be interpreted as social media influence, social value, family education or family background, and so on. Influences are intertwined with each other from the study results, family influence is nourished in the social environment, while school influence is twisted with family influence and social-culture influence. The overlapped area means multi-factors effect of the influence integrated together. However, two points should be emphasized: a. environment influence has intensity, which is the power transfer over one period of the wave, depends on density in physics. b. Influence doesn't has boundary in reality, while it has frequency. Intensity has the positive correlation with the square of influence frequency.

c. environment influence is consist of infinite waves with miscellaneous properties of waves. Each property wave maybe the combination of inferior waves of kinds of sub-properties. See Figure 4.14. The red wave consists of an array of six blue waves. It's the same principle in ECG, EEG and fMRI data analysis. Each property wave varies, may be thick, may be lean, when they group up, it shapes the frequency spectrum; additionally, if close correlation waves group has higher density than lower degree of familiarity. It will be stronger or bigger when kinds of influence waves with high frequencies integrate together, or it will be smaller or weaker when kinds of influence waves with low frequencies.
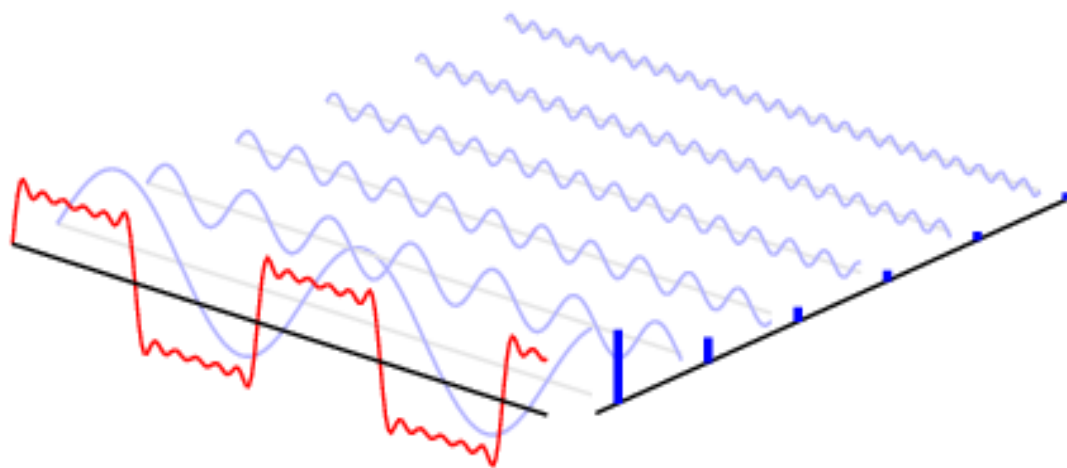
Figure 4.14 Decomposition

Picture from http://pgfplots.net/tikz/examples/fourier-transform/

However, if two different waves from two varied influence group at the same phase, it could has different result of influence compound. Such as, one single wave with low frequency in social-culture influence add to the wave with high frequency in family influence at the phase of having class at school:

Social value: Showing full respect to teacher's authority

Family value: Listening to your own voice, and expressing your self

Phase set in the classroom

Time set at doing reflective practice with mentor

Question: Preservice teacher's opinion on teaching plan far away from mentor's idea, what is the result?

WANGQIAO said:

I will stick on my own idea, if I feel that I am right. Teaching is for students, rather than mentors. Compared with mentor's comment, personal development is more important for me.

While if conditions changed with low frequency of social-culture influence and high frequency of family influence, what is the result?

WANGHONGLING said:

I will keep salient, and observe students response with mentor's plan, if it works well, I will revise my plan, and if not, I will implement it when I am the teacher. It is polite to mentors, and good for me.

Therefore, influence added results in different behaviors, which depends on the property, frequency, phases, and intensity. While what is the environment influence described in this study, two-dimensions will be presented from their transcripts.

Family Influence

Family background. LIYUNII is grew up in a divorced family, XIEMENGCI and WANGHONGLING are born in the teacher's family. SHENJIABIN, CAIFANRONG, XURUI and HELI have relatives engaging in teaching. CHENJIAHAO, WEITIANHENG, XINGYONGHUI, WANGQIAO, LIAOXIN, and WANGJIANNING are from counties. And more than two thirds of their parents havn't well educated, working as peasants and builder laborers. In order to grasp the whole picture of family circumstances, take a view at the figure of comparative GDP statistics of Chinese cities (Figure 4.15), and inner cities GDP statistics in Sichuan Province. Axial city Chengdu (capital city of Sichuan province) with Sun sign as indicator. Therefore, it's demonstrated that they are not from the wealthy family except LUMINGXING who is from Hangzhou, furthermore, half of them have siblings.
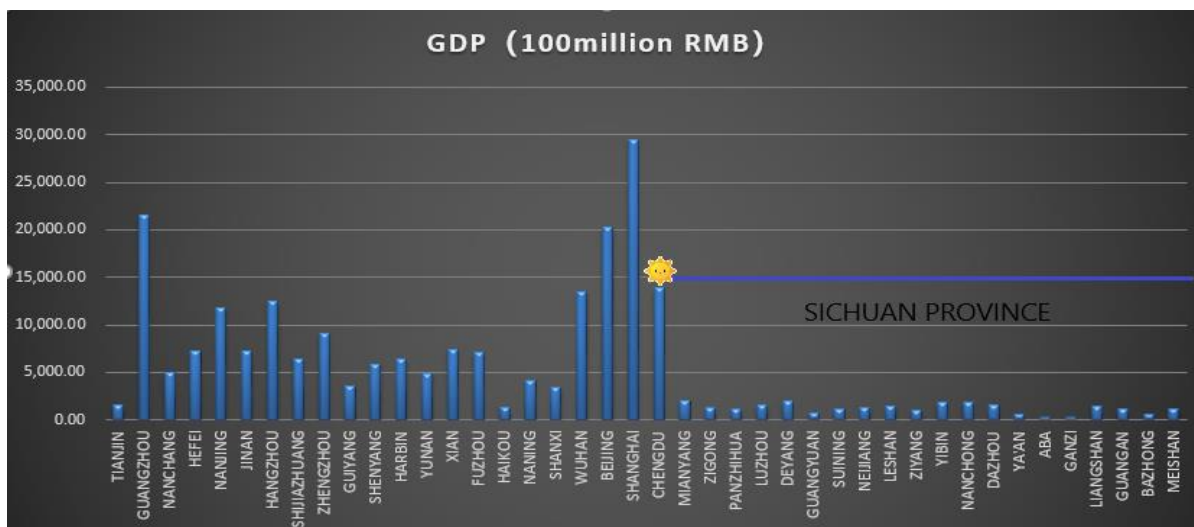
Figure 4.15 National Cities-GDP

Source from National Bureau of Statistics of China, link: http://data.stats.gov.cn/index.htm

CHENGJIAHAO said:

I am from the rural district with national financial support, and I know how students study in the schools with low quality of teaching.

WEITIANHENG said:

I like the life in the country, simple and pure, without any disturbance with noise. I

enjoy walking in the field.

XINGYONGHUI said:

I must learn hard, because my parents drop out of primary schools for living. They didn't help me in study, I don't want to be the parents like mine, I want to provide my children with good family education in future.

Dominant parenting role in China

Parents decided the way not a way to develop for children. They struggled for a better future carrying the parents' hope. Whose lives they are living?

LIXUE said:

My parents felt teacher was a good for girl, two vacations, steady salary and stable life, even though I never dreamed of being a teacher.

LIYUNII addressed:

My father said that teacher was good. He hopes that I can be a teacher.

LIAOXIN said:

My parents told me that nurse or teacher was the best choice for career. Now, I found that to be a teacher was not so bad.

LIUYI said:

I am afraid that I cannot communicate with my parents. I tried, but failed. If I told them something fit their imagination, that's fine, no matter which way or method of talking. But if I told them something which disobeyed their will, they would get irritated immediately, no matter how sweet words you used. They push me to talk with my friends.

ZHANGLI said:

My father said I should be a teacher, which would be easy to get married.

LIUXIA said:

I don't want to be a teacher, because I don't want to follow the map my parents deliberately designed. Why can't I have my own life? Therefore, I refused to be a

teacher in the very beginning.

WANGQIAO said:

I don't have boyfriend, because my mother told me that it's too early to have a boyfriend when I was studying in the universities, and she said that I could have when I had the independent and affluence financial status.

XURUI said:

My parents said that girls needed stable life rather than the career ambition. So parents chose the subject of primary school teacher when I was filling the form of university application.

SHENJIABIN said:

My family wanted me to a teacher, they like teachers. Of course, they told me that if I tried and failed to like it, I could leave the career. While, I should try, try for my parents.

Parents take the dominant roles in the family in China, it's more than tradition. Confucius's theory is part of the reason of social value shaping, while many other factors consist of the main idea. Like sex discrimination based on financial independency, not limited to the country of China though.

LUMINGXING said:

Frankly speaking, I like making lots of money, because I am a man. I will get married and support my whole family. I don't care if my future wife has a job or not, of course, it's better to stay at home and take care of our children. I am in charge of financial issues of our family and she is in charge of keeping her beautiful as always.

XURUI said:

Girls will marry to someone who can afford family expense. Of course, he will take the responsibility of our family.

ZHANGLI:

My father is a policeman, and my mother is a housewife. In my family, my father is the authority, he said 'yes', nobody could say 'no'. So my sister became a rebellious girl recently.

All above mentioned demonstrate that who has the advantages in financial position, who takes the role of dominance in the family. In other words, who contributes to the family more, who owns the leadership, it serves well in the agriculture society, even in the countries of today, which means that women also can take over the pole of power in the family on the conditions of her competence of making money. However, permissive role of parenting is compatible in the family.

WANGHONGLING said:

When I grow up, my parents have negotiated with me more and more, and sometimes they ask for my opinion on some big issues. I feel that they would like to let me have critical thinking, and we can exchange our ideas usually. They want me to express my own idea freely.

XURUI said:

I don't have any stress from my parents. My mother told me that you were not the little girl any longer, you would have you own idea, and I promised that I would have another kind of attitude with you.

Social-Culture Influence

SHENJIABIN said:

Everything is different from my primary school period and everything is changing. Nowadays, children are so smart, and schools are well-equipped. Once I thought teaching was so easy, I would copy the model of my primary school teachers. I was going to teach as they taught me. But when I was on the stage, I looked at the students in uniforms with fast responses, reading in the high quality appliances setting classroom, I recognized that I was wrong. Teaching is not easy today.

LIUYI said:

Children are clever and lovely. I think they are clever than the six year's-me. I don't like their lives, full of IT appliances, smartphones, iPad, iTouch, et al and extra-curricular classes. I was happier when I was in my primary school. We played many

games after class, like Hopscotch，Skipping Rubber Band, Playing Marbles, and Kicking Shuttlecock.

LUMINGXING said:

I want to make lots of money, and everyone around my family has the same goal as me. We didn't think man would be a teacher in primary school, because man should do business to earn more money.

CHENJIAHAO said：

When you turned on TV, bad news of teachers came out frequently. Some primary school teacher punished students with needles, some school canteen provide food with lower quality of hygiene; some parents sued school for damage and so on. I am not comfortable when I am listening to this kind of news about teachers. I wonder whether I still want to be a teacher or not.

No matter where they are or what they are doing, social-culture and family influence regulate their value, belief, decision making, behavior, emotion, mood, personality traits and others. As emphasized, how long environment influence last depends on the time-period, what is the environment influence power depends on intensity. If it can be described in math equation, it would be written like this:

2. $G(e)= F(t)•P$

P: Power of environment influence

$P= I• \int_{-\infty}^{\infty} f(X)$

G (e): Function of environment changes, e=environment

F (t): Function of behavior changes along the time course, t=time

$\int_{-\infty}^{\infty} f(X)$: Frequency spectrum, which is the density of frequency

f(x): Function of frequency changes in the different property environment phases

Interaction

Interpersonal Relations

LIUXIA said:

Human is complicated animal, what you look at is not the truth. Someone like expressing good to you and others not, someone pretended to be good to you and others not, I don't like to make friends with the person who has too sociable. Therefore, I would rather work with children than adults.

XINGYONGHUI said,

Sometimes I hate maintaining interpersonal relationship, keep myself away from treading in the muddy water. I am striving for excellence, not perfection.

WEITIANHENG said,

In my opinion, primary school teacher is better. Students, in the elementary school or high schools are taller than I am. I am afraid they don't listen to me, and they are stronger and rebellious, so it's better to teach in the primary school. No matter how strong they are, they are still children.

From their voices, they think children are small, naïve, and easy to control. In other words, they refuse to work with adults for complicated relation, if it means that they refuse to take advice from the person who is in the different 'field'. It can be understood that different field have different phases and different frequencies. They cannot talk with other on the wave.

Interaction with Students

LIMIN said:

Sometimes you had a bad mood; however, it disappeared when you communicated with children on class. When you are playing with children, you will forget all your private troubles. But when class is over, you are back into the mess again.

CAIFANRONG said;

Students' participation in class is dispensable, of course they are assiduous in learning, so you should find some proper approach to communicate with them aiming to enrich their knowledge and improve their skills.

LIUYI said:

Occasionally, students' responses and learning results haven't matched my requirements, I am so sad. I know it's the fault of mine, I should do better.

LIUXIA said:

Every child like playing without control. I know what they want, while I am thinking what I can do to help them acquire the knowledge under the condition of their needs.

WEITIANHENG said：

When they are not listening, I will stop to keep discipline in class. If you continue to speak, it make no sense. Because students learn nothing. Therefore, you should stop and wait for them.

Compared with adults, children are less harmful for them, in their opinions. While, they raise their self-confident and self-esteem level through the interaction with children in class. They represent their advantages to keep their priorities among the children. Because, as they said, children were naïve with less experiences than they had.

Self-Interaction

Interaction with persons, with students throw the self-actualization seeds in the soil of self-interaction. This part of self-interaction will be presented in the following 4 sections.

Psychophysiological Functioning

CAIFANRONG said:

When I was in bad mood or I had my menstruation time, I couldn't do reflective practice, I couldn't think actually, all my behaviors were following the guidelines of the distraction of my psychophysiological problems.

CHENJIAHAO said:

I like thinking, I like doing reflective practice for improving my professional skills everywhere. I cannot tell you when I was doing the reflective practice, while I would say, I did it all the time.

LIMIN said:

I always reflected on the ways to communicate with my friends, my colleagues, and other persons except my parents. But I don't often do reflection on teaching. I value friendship and interpersonal communication. I care about what they are saying about me.

LIAOXIN said:

Reflective practice is not like the thing you can choose, every preservice teacher like me would do it after class, because mentors were there ready to give your recommendations. Every day, every time, every person did the same task, please forgave my words 'task', after class during our school placement. No matter what school were you in, the formula is the same.

LIUXIA said:

When I was doing teaching practice at the beginning, I focused more on the classroom management. I felt I could not teach in the noisy classroom, I would be crazy. Discipline, that's prerequisites for me. I tried many methods to keep classroom discipline, and then management in class was not a big problem. Then, I focused on the teaching process, and students' response. I found how to introduce smoothly my teaching ideas depended on the students' response. Now, I am automatically pay attentions to their feedbacks to deconstruct my design.

Those interviews infer that doing reflective practice is the obligatory job for them every day during the school placement. Most of them have at least two semesters' practices (each semester includes three months), reflective practice accompanied with them more half years cumulatively, even more. Whatever they like or not they would do it every day once they walked into the classroom. While something happens, even they are unaware of.

WANGHONGLING said:

Once upon the time, I believed that personal competence was important for professional development in career, I always did my work alone. Now, on the contrary, I feel teamwork would help me more, I am glad to work in teams. Solidarity power is much stronger, what I always quoted is that one and one is more than two. I dared to express myself before, now I am good at communication.

SHENJIABIN said:

I had a very bad temper, with a proclivity towards sudden violent outbursts. Then after I did practice in the primary schools, I found anger made no sense in class. Students still did the things, which they were in favor of. Anger is nothing than a short madness. I feel it was necessary to change my teaching method to attract them. Now, it worked, and I personality traits changed. When you experience it with showing all of your cards, you would like to change the result.

What their statement conveyed is that they changed with or maybe without consciousness. Can it be interpreted in our brain functioning? Many psychologists and neurologists do believe that affective action of motivation can be implicit processing, being unaware of (Damasio, 2004; Anderson & Adolphs 2014; Berridge and Kringelbach, 2015, 2016; Greenwald & Banaji, 2017). Nowadays functional magnetic resonance imaging (fMRI) has proven a widely useful tool for investigating neural network dynamic functioning during complex cognitive processing in our brain (Peterson R. L., 2005). It not only provides the brain activity evidence based on biological drives, such as hunger or thirst, fear or pain, sex or aggressiveness, etc., but maps specific neural circuitry when processing multiple information simultaneously through selection, evaluation, and value weighted as well, like incentive motivation (reward motivation). Incentive motivation is promoted by many behavioral psychologists established on the base of homeostatic theory, drive-reduction theory, arousal theory, etc al (Mcdougall W., 2012), and brain motivation systems modulate incentive values (Berridge, 2004, 2018). Incentive motivation is lied in the reward, including 'wanting', 'liking' and 'learning'. "'Liking' reflects the hedonic impact of pleasure reward, generated by

anatomically small neuro-chemically restricted and functionally fragile brain circuit…tucked within larger limbic structures like nucleus accumbens and limbic cortex, irrespective of dopamine signals" (Berridge, 2018,p10). That means brain reward pathway in dopaminergic system is not the kernel neural network of the hedonic pleasure 'liking', which of dissociable network is determined by neurochemical influence, such as satiation consumption. In contrast, 'wanting' of dopamine system, distinct from cognitive desire but coefficient, is cue-triggered of temporary peak of desire, relied on dopamine release. Incentive salience 'wanting' proactively facilitate compelling quality to cognitive wanting and help motivate action (Salamone et al., 2015; Ryan and Deci, 2000; Kruglanski et al., 2014). Reward mostly are learned in real life, incentive salience seek for cue-trigger through physical stimuli and imagination, more repetition stimuli in 'wanting' and 'liking', more learned outcome being amplified (Berridge, 2006). For incentive motivation, neurotransmitter dopamine release is indispensable (Berridge, & Kringelbach, 2008), orbitofrontal cortex, anterior cingulate, and basolateral amygdala are correlated with reward prediction, and striatum could play important role of encoding under conditioning (Reeve Johnmarshall & Lee Woogul, 2012, p367). Motivation in the brain as incentive salience is the core process mediated by mesocorticolimbic systems, however, dopamine release system is widely accepted that reward 'wanting' is distinct from reward 'liking' (Castro & Berridge, 2017; Berridge, 2018). Totally, motivation process is the combination of subjective and objective feeling and functioning, which work consists of cognitive processing and mesocorticolimbic system 'wanting' and hedonic hotspots dissociable neural network 'liking'. Physical stimuli or imagination can be the cue triggering compelling reward, neurochemical release involving neurotransmitters change the quality of 'wanting' (valence in excitement and inhibition) or the property of 'liking'(aversive goad). Monetary Incentive Delay Task (MID Task) founded by Knutson et al (Knutson et al., 2000; Knutson et al., 2001) is to elucidate the distinction between anticipation and consumption of rewards. From then on, MID task has been used to investigate the neuronal process like anticipation and outcome phases of reward and loss processing involved in distinct regions of neutral reward circuitry (Lutz, K., & Widmer, M, 2014; Oldham et al., 2018). Many results shown the findings

that ventral striatum, anterior insular, thalamus, and amygdala are recruited in the neural activities in prediction of reward, irrespective of their valence, nevertheless , dorsal striatum encodes optimal choice; and a range of regions including ventral striatum, OFC/vmPFC, PCC, subcallosal cortex and thalamus are linked to the neuron activation in reward outcome (Haber & Knutson, 2010; Atallah et al., 2007; Cho et al.,2013; Bartra et al., 2013; Clithero & Rangel, 2014; Liu et al.,2011). Moreover, NAcc shell activity, influencing ventral striatum, is related to assigning reward value and hedonic response (Xia et al., 2017; Castro & Berridge, 2014). See Figure 4.16, mesocorticolimbic pathway of dopamine reward system in the brain. However, mesocorticolimbic pathway helps translate estimation and prediction into decision making by value function through recent reward history including reward rate and reward prediction error (Hamid, et al, 2016; Colombo, 2014; Heydari & Holroyd, 2016; Wolfram Schultz, 2016). All above demonstrate that brain reward system help preservice teacher make their choices according to the recent brain working history. Moreover, dopamine reward reference, value, and prediction construct the frequency of environment phases setting and motivational factors properties. They regulated their visual selection, sensory propensity and reward expectation (Maclean & Giesbrecht, 2015; Hickey, Kaiser, & Peelen, 2015; Anderson, et al, 2016).
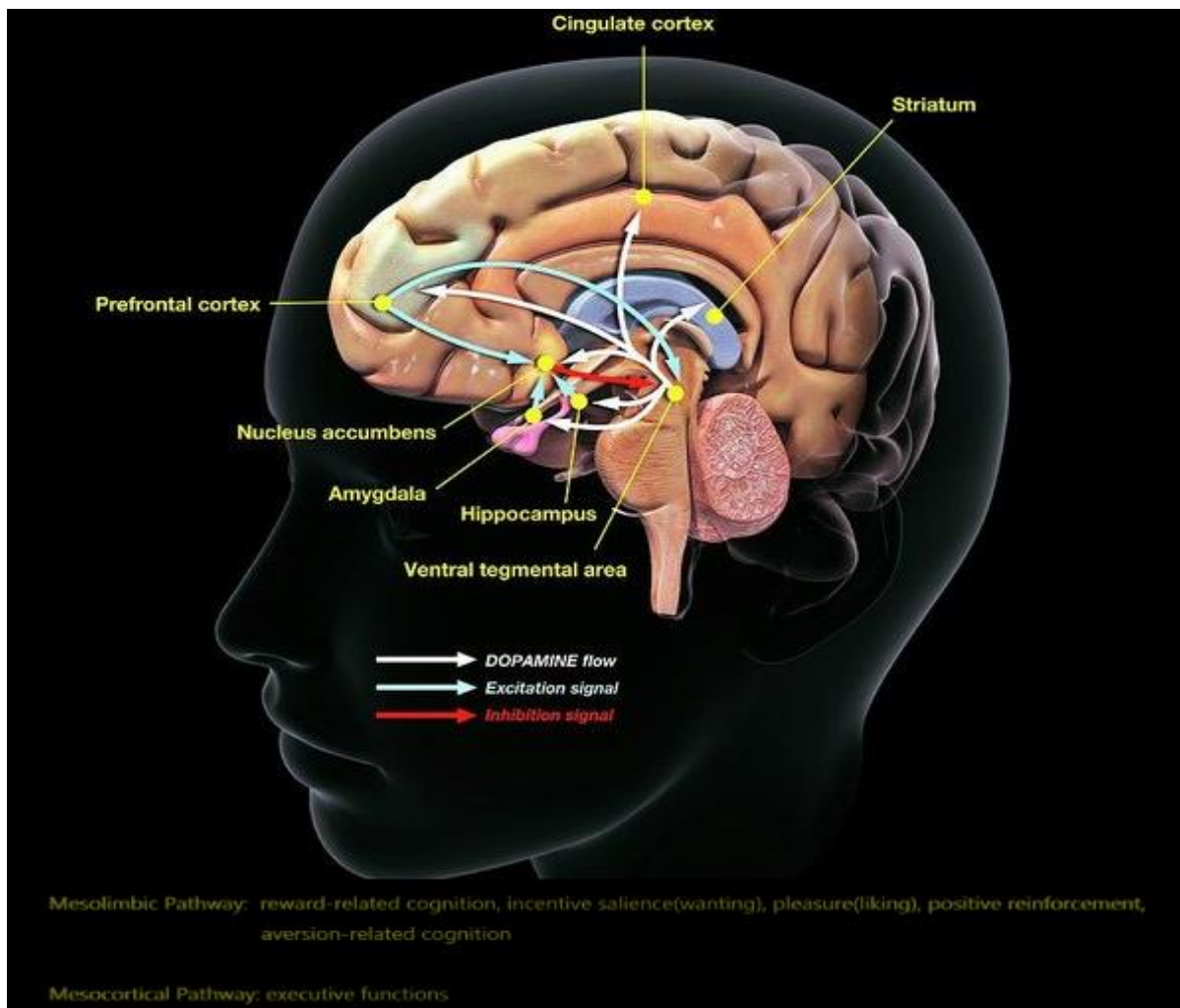
Figure 4.16 Dopamine System

Picture from: https://fineartamerica.com/featured/dopamine-brain-mechanism-jose-antonio-penasscience-photo-library.html

Emotion

XINGYONGHUI said:

When some students messed up the class, a fearful tangle of my ideas were all in muddle. I couldn't help to shout at them 'Shut up' and let the troublemaker come out. If they didn't listen to me, I would punish them seriously. I knew I couldn't be like that, but I could not help, I was down in the lumps. Mood is important for me in this period. It is easier to enrich knowledge and improve skills than to regulate my mood.

For knowledge accumulation, I can learn gradually, while, mood, I want to know how to have a good mood every day. Because it influences my teaching a lot.

LIUYI said:

For me, the perfect teaching is that we satisfied with other (students). It's a state beyond description, I teach well and students learn well, I am positive and they are positive as well. However, ideal is much differ from reality. I knew I was not good enough, but when they didn't do well as I imagine, I would get angry. I want to be happy. Why it's so difficult for me.

LIAOXIN said:

I don't have a dream. Teaching made me happier. That's cool. I would like to do all the things for my happiness. When I was happy, I would think lots of things, not limited to reflective practice in teaching. However, I couldn't do much when I was down. Of course, when you had a bad mood, such as during your period time, you couldn't get through the class successfully, which doesn't mean you made some mistakes, it's…just a jumbles of mess.

WANGQIAO said:

Not everyone has good mood always, up and downs of your mood influence you to make a decision. I am not motivated to do something in the bad mood. Because I would like to get it released. But it's weird, when I failed to do something, I would reflect on it immediately, even though I was sad.

WANGJIANNING said:

We cannot help students if we don't understand them. Sometimes, you saw the student was naughty, you may thought he was... while you suddenly saw he was extremely polite to others on the way to home, at that time, your evaluation may change. Of course, it depends on my mood, if it happens when I am in good, naughty means lovely probably. But if I was not good enough, lovely probably was naughty. That would be the truth.

From their opinions, it could be seen that emotion could not influence motivation itself,

while it can help assign a value into the motivation function. Moreover, emotion is regulated by brain system including dopamine system. Lövheim proposed the theory of constructed emotion on the relations of dopamine, noradrenaline, and serotonin shaping emotion (Lövheim, 2012). Besides, dopamine system is correlated to sex hormones release (Yoest, Cummings, & Becker, 2015; Jacobs & Desposito, 2011; Barth, Villringer, & Sacher, 2015), evidence can also be found in their statement above 'Period Time'. Female teachers are more than male teachers in primary schools, so estrogen changes (E2) is worthy of consideration in motivation. See the Figure 4.17. Dopamine terminals are influenced by the inhibition effect of GABA (gamma-Aminobutyric acid) release, which is inhibited by estrogen activity, finally that leads to the result of promoting dopamine release, and estrogen can raise up the level of serotonin and decrease 5-hydroxytryptamine receptors which will has the effect on the cognition and emotion (Barth, Villringer, & Sacher, 2015).
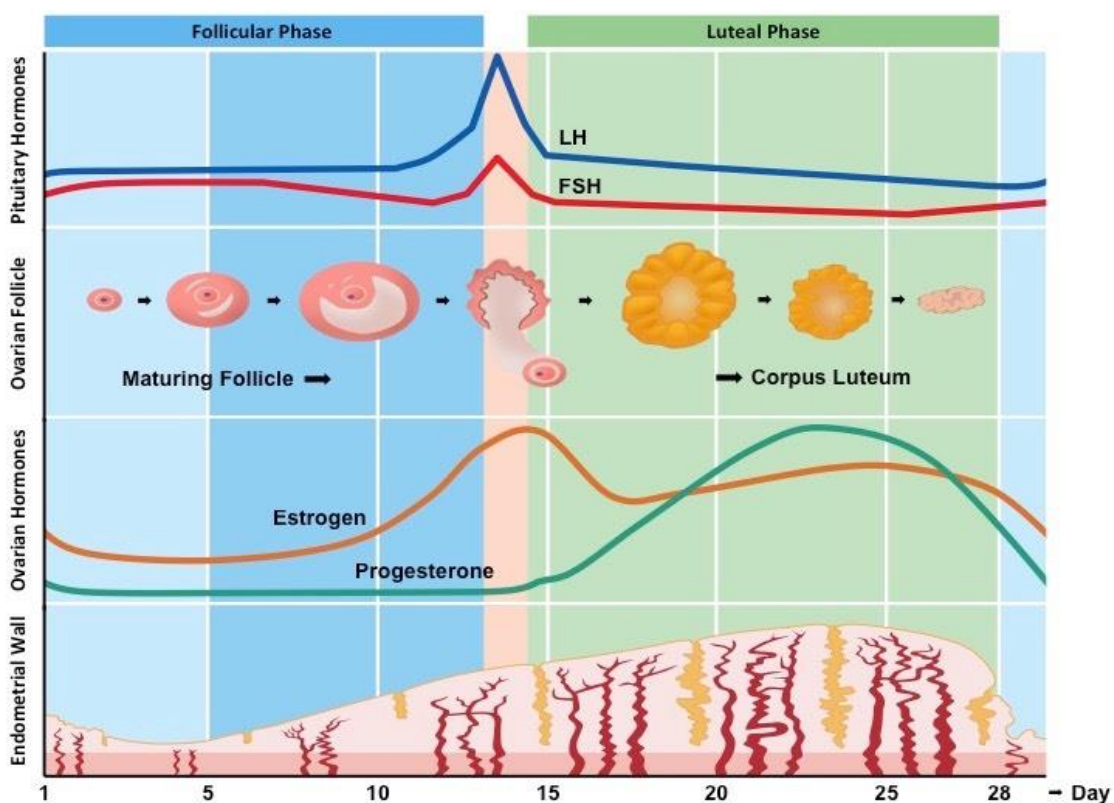

Figure 4.17 Estrogen Release

Source from: http://ib.bioninja.com.au/standard-level/topic-6-human-physiology/66-hormones-homeostasis-and/menstrual-cycle.html

While Norris, Larsen and Cacioppo found that the personality traits, eg. Neuroticism, had the correlation with emotional factors via the electrodermal response, shown that individuals with lower level of neuroticism reacted to different kinds of emotional stimuli comparably, however, individuals with higher level of neuroticism reacted significantly more; furthermore, individuals higher in neuroticism had higher react to negative stimuli than positive stimuli, and individuals lower in neuroticism had higher react to positive stimuli than negative stimuli (Norris, Larsen & Cacioppo, 2007). That demonstrated that the individual differences in personality traits could has the varied responses by their own value, even they endure the same emotional phenomenon.

Personality Traits

In the period of sampling, personality traits assessment was executed through the online-questionnaires in the faculty. International HEXACO-PI-R (Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, Openness to Experience) with Chinese version was employed, which had been tested with the test-retest reliability coefficient 0.851, the test-retest reliability coefficient of six dimensions between 0.809-0.951, content reliability, construct validity and criterion-related validity satisfying the psychological standards (Sun, 2015). Surprisingly, results processed by SPSS 24 shows that anxiety and university entrance exams grades has significant correlation, and sentimentality has significant correlation with university GPA (see Table 4.1). Like interviewees said that they were not grades craving any more in the universities, teaching practice and preparation for job that was the right way to the future. HELI, LIANGYUNXI, LIAOXIN, LIUYI, WANGHONGLING, XURUI, WEITIANHENG, and ZHANGLI said their grades fluctuated around the middle level. Even though CAIFANRONG, CHENJIAHAO and WANGQIAO have high-level of self-esteem and are ambitious for career, they are not the grade-cravings definitely.

Coefficientsᵃ

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.977	.339		11.730	.000		
anxiety	.283	.107	.149	2.643	.009	1.000	1.000

a. Dependent Variable: Academic

Coefficientsᵃ

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.180	.467		6.802	.000		
sentimentality	.294	.142	.117	2.065	.040	1.000	1.000

a. Dependent Variable: AVS

Table 4.1 Regression Analysis

CHENJIAHAO said:

I hope I can be the famous teacher in future. Because I thought I was different from other. When I was in elementary school I found I was different. I tried to smoke, I tried to join the gang, I tried to fight with others, I tried to drop out of school, I tried many things, however, I found it was not the way of living for me. I picked up my courage and studied hard, I wanted to escape from there. I wanted to be a better man. That time I knew, what grades means to me, it was a tool of approaching to my dream. While, it's nothing than a tool. When I came into university, I didn't need it any more. I threw it away.

WANGQIAO said;

Grades in the university was less important than practice. Of course, if I got a good GPA, I would be happy, but if not, that's okay. But I never drop down to the 3ʳᵈ place in my class. I would like to be the great teacher with good reputation. I will.

CAIFANRONG said:

My job is not depend on grades now. So I don't need struggle for raising up. I will do what's good for my future, for my career, for my job. Right now, the big issue is getting a good job. I reflect on my teaching every day, I need to improve my professional skills as soon as possible, but it's time consuming work. I never imagine it could be done in months.

While no matter what personality traits they have right now, it serves as the constant components to construct motivation. Personality traits can influence motivation of reflective practice in teaching, while it cannot be the variable in the motivation function. However, personality traits like emotion contribute to the environment phases setting. For example, CAIFANRONG, she is a competitive person and she likes literature. When she was in high school, she got 19 points (100-point scale) in mathematics. She said:

Of course, I was not happy when I had the lowest grade in my class. My math's' teacher didn't like me, who like the student with 19 points. She always fired criticism at me. And sometimes she took me to her office for punishment. But I am good at literature and linguistics, because I had a good memory skill, I always got the 1st place in the literature exams.

She is extraversion and loves competition. Why she had 19 points in math, she didn't want to have a revenge. One the one hand, teacher's attitude, sad mood, difficulty of the task, self-confidence and self-esteem, all happened in the class gave her the bad experience of that phase point, on the other hand, literature she liked took her a fabulous journey of experience, she enjoyed the glory of champion, which satisfied her needs. That class phase setting of math is built up. It is learned that personality traits is only the property material to shape environment influence.

Attitude

Value, belief and attitude of teaching is the typical side product from self-interaction, interaction with students, interpersonal interaction, and environment interaction.

CHENGJIAHAO said:

Teacher is a job for most primary school teachers. It's a job of living. Most of them don't have passion for teaching, and the standard teaching materials enlarge the gap between teachers in the cities and countries. Primary school teachers have larger space to present themselves. Results is all that is the reality.

XINGYONGHUI said:

Every time before my teaching, I would like to practice several times, I practiced in front of the mirror. Almost every night when I am going to bed, I would like to review all the procedures in my mind. I will make sure I won't make mistake when I am teaching. Student will not give you one more chance to do it, they will not trust you anymore.

LIAOXIN said:

It took me more five days to prepare for one lesson, it's could be done fast, while I liked to think over and over again till perfect, well, not perfect, but I was satisfied with it. When I am doing it, I will do it well. I like to enjoy the process.

LIMIN said:

I hope I can live a stable life with steady salary, less workload of mental work and more vacation. I don't like the job in company, struggling for performing better to avoid the risk of being dismissed. I am young with many ideas, I am going to have a stable job and after, I will open my own shops on-line to earn more extra money.

WANGHONGLING'S drawing, Figure 4.18.
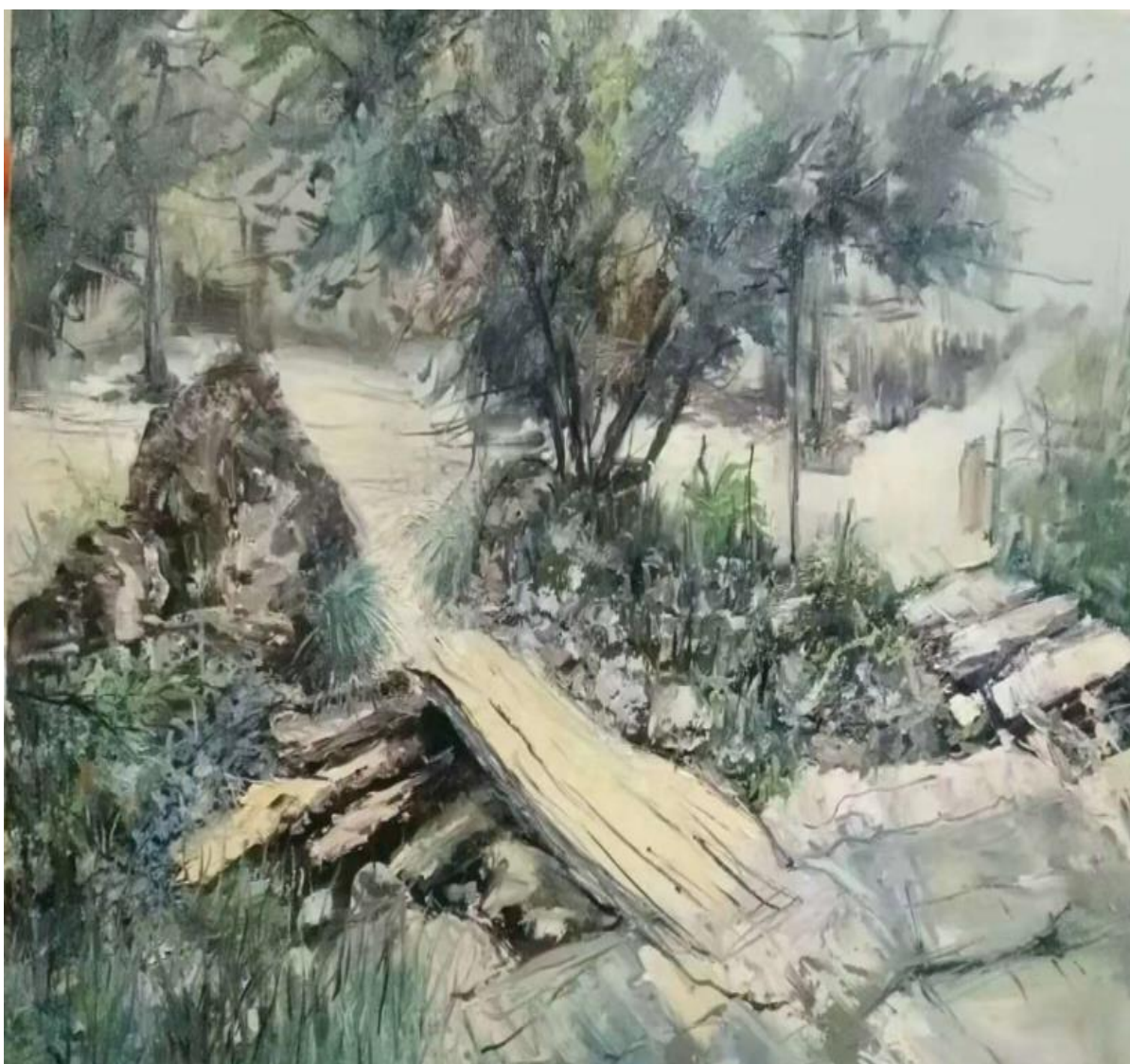
Figure 4.18 Art Work of WANGHONGLING

This freehand brush work describes part of the forests. Freehand brush work is the traditional Chinese painting includes poem, calligraphy and seals, formed in the long period of exploring and culminated in the Ming dynasty. This genre of work emphasizes the spiritual characteristics rather than physical similarity chasing. WANGHONGLING is an independent girl with a dream of designer; nevertheless, she choose to be a teacher to get a stable job for living. She said that art was the work after you had satiation. She valued individual competence, which could be caught in the essence of the freehand brush work, free of interaction with reality. She has dreams, but without absolutism and persistence. She always said that it's okay, and 'Okay' is her attitude and belief.

XIEMENGCI'S drawing, Figure 4.19.

Figure 4.19 Art Work of XIEMENGCI

XIEMENGCI is a girl as gentle as a lamb. She emphasized process of work. This picture is the traditional Chinese realistic painting called 'Gongbi', the opposite genre of freehand brush painting. Gongbi usually depicts figure in highly colored with detailed brushstrokes. This drawing presents the part image of XIEMENGCI, sensitive, easygoing, detail-oriented, with vigour. She said teaching was a cumulative work, and skills improve gradually. She liked to take everything slow and got more reply. More interpretations of her drawing rest in her interaction with environment. Butterflies with pairs in spring, it's the life of her, full of beauty.

LIUXIA'S drawing, Figure 4.20.

Figure 4.20 Art Work of LIUXIA

This drawing seemed like LIUXIA self-portrait, to some extent in sketching spirit. She is cool, rebellious, obstinate, assiduousness with kind heart. One of the oil painting characteristic is each additional layer has more oil than the layer below for presenting ideal effect of the figure. As she drew the mark line between likes and dislikes, she devoted every

effort to achieve the goals. She exerted herself to live genuinely, see picture cut from teaching video of LIUXIA in Figure 4.21. As famous artist Camille Pissarro (1830-1903) said, teacher of Paul Cézanne (1839-1906), that my life was the image of impressionism.

Figure 4.21 LIUXIA in Class

In summary, attitudes includes values and beliefs shape in the self-interaction gradually, which is the accumulative combination of multiple properties involved in the influence of environment. Such as, emotion and personality traits are two different properties, but they are in the family tree of attitudes of teaching, which enlarge the frequency spectrum of attitude property waves. If self-interaction can be described in equation, it could be like this:

3. *$f(x) = f(t) \cdot g(e) \cdot R$*

$R = $ Reward Rate • Reward frequency • Reward Valence (default)

f(x):Function of specific property of factor

f(t): Function of behavior changes during the specific time, t=time

g(e): Function of specific environment changes, e=environment

R: Interaction result (reward feedback)

(Eg: f (teaching belief) =f(time of teaching)•g(school)• Reward

=f (new teacher with one years' teaching experience behavior)

•g (professional skills training course) • Materials Reward)

So, integration:

Motivation: F (m) = F (t) •G (e)

G (e) = F (t) •P

$\because$ P= I• $\int_{-\infty}^{\infty} f(X)$ (Intensity Formula)

I $\propto$ f (x) ^2

F(x) = f (t) • g (e) • R

$\therefore$ G(e)= F(t)• I• $\int_{-\infty}^{\infty} f(f(t) \bullet g(e) \bullet R)$

$\therefore$ Motivation = F(t)• I• $\int_{-\infty}^{\infty} f(f(t) \bullet g(e) \bullet R)$

F (m): Function of reflective practice motivation, m=motivation

F (t): Function of behavior changes along the time course, t=time

G (e): Function of environment changes, e=environment

P: Power of environment influence

I: intensity of environment influence depends on frequencies

$\int_{-\infty}^{\infty} f(X)$: Frequency spectrum, which is the density of frequency

f(x): Function of frequency changes in the different property environment phases

f (t): Function of behavior changes during the specific time, t=time

g (e): Function of specific environment changes, e=environment

R: Interaction result (reward feedback)

Modeling

All equations derived from the principle of Fourier Transform, Fourier Transform is

widely used in physics, mathematics, signal system, engineering, computer science, medicine, and many others domain, how could it be applied into the interpretation of social phenomenon.

Fourier Transform

The Fourier Transform is the frequency domain representation of the original signal, which is a complex-valued function in the time domain. Basic Fourier Transform is interpreted from Fourier Series and expended to Fourier Synthesis that the frequency domain recover the original functions in the time domain. Simply, the image you see from the time domain is replaced by the intensity identified from spatial domain of frequency rather than one specific time point. Fourier Series describes that there is one wave spreading across the time line, which can be decomposed into several sine waves and cosine waves (can be transferred to sine waves,

Trigonometric Functions)，eg. F(x) = ¼ sin (θ) + ¾cos (θ) +…   See figure 4.22. The picture left hand side is the image of original single wave; its right hand side is the decomposition. While how to visualize the amplitudes and frequencies of the original wave? Each sine is the representation of the circular motion in the time domain, eg. Presented in the Figure 4.23. So, frequency domain is established with the transform of circular motion from the original wave in the time domain (See Figure 4.24). So, Fourier Transform, from time domain to frequency domain, is:

$$\hat{f}(\xi) = \int_{-\infty}^{\infty} f(x)\, e^{-2\pi i x \xi}\, dx,$$

For any real number ξ

Fourier Synthesis, from frequency domain, is

$$f(x) = \int_{-\infty}^{\infty} \hat{f}(\xi)\, e^{2\pi i x \xi}\, d\xi,$$

For any real number x
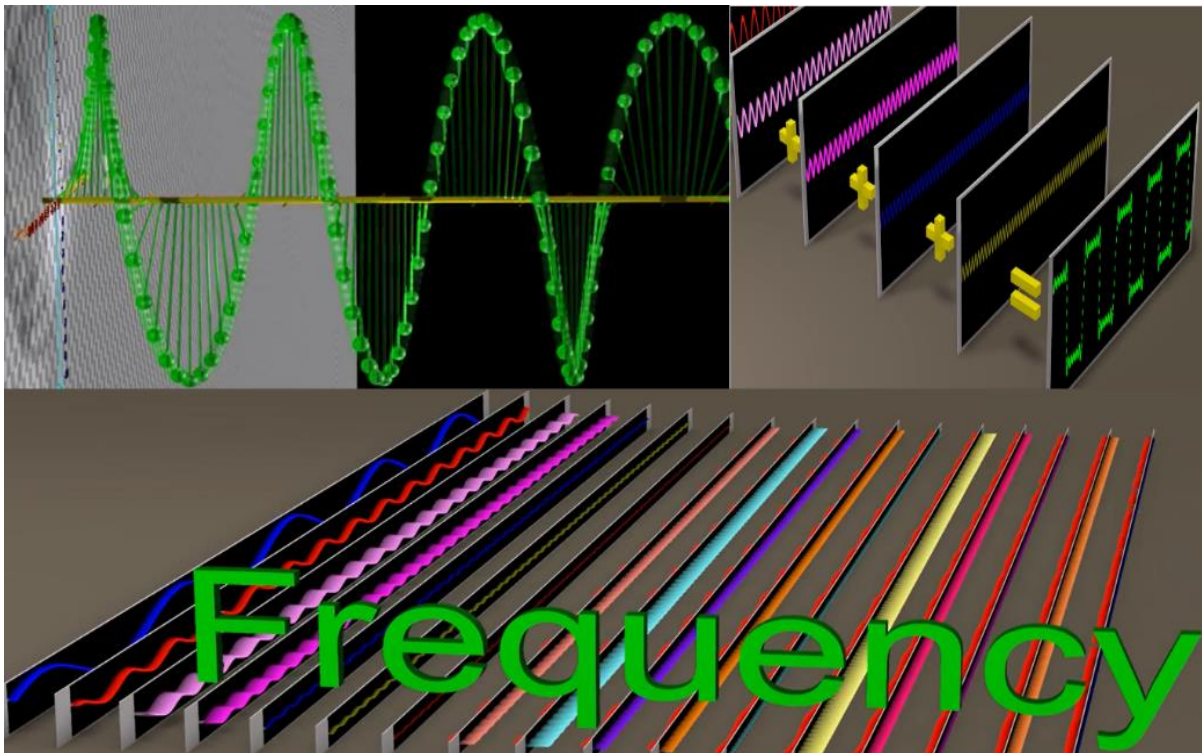
Figure 4.22. Fourier Series

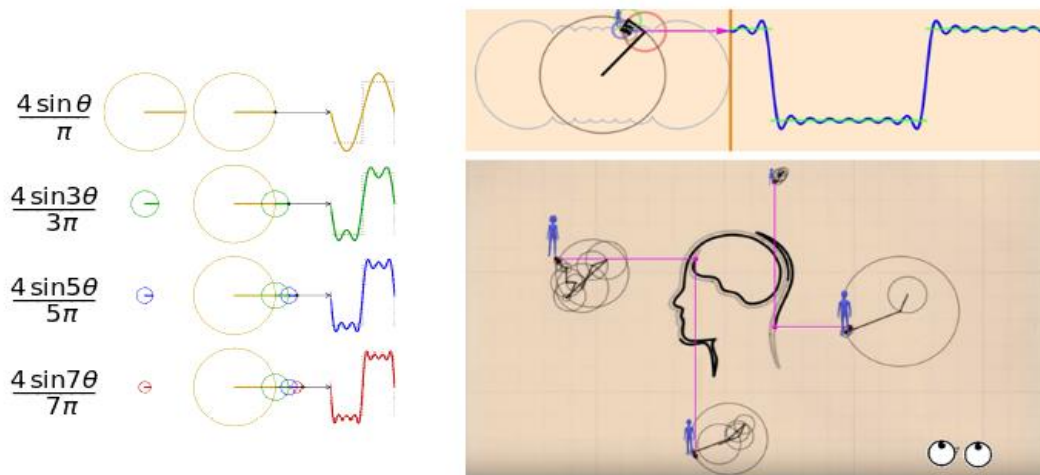Picture sources from: https://www.youtube.com/watch?v=r18Gi8lSkfM

Figure 4.23 Circular Motion

Pictures from:

https://en.wikipedia.org/wiki/File:Fourier_series_square_wave_circles_animation.gif

https://www.youtube.com/watch?v=ds0cmAV-Yek
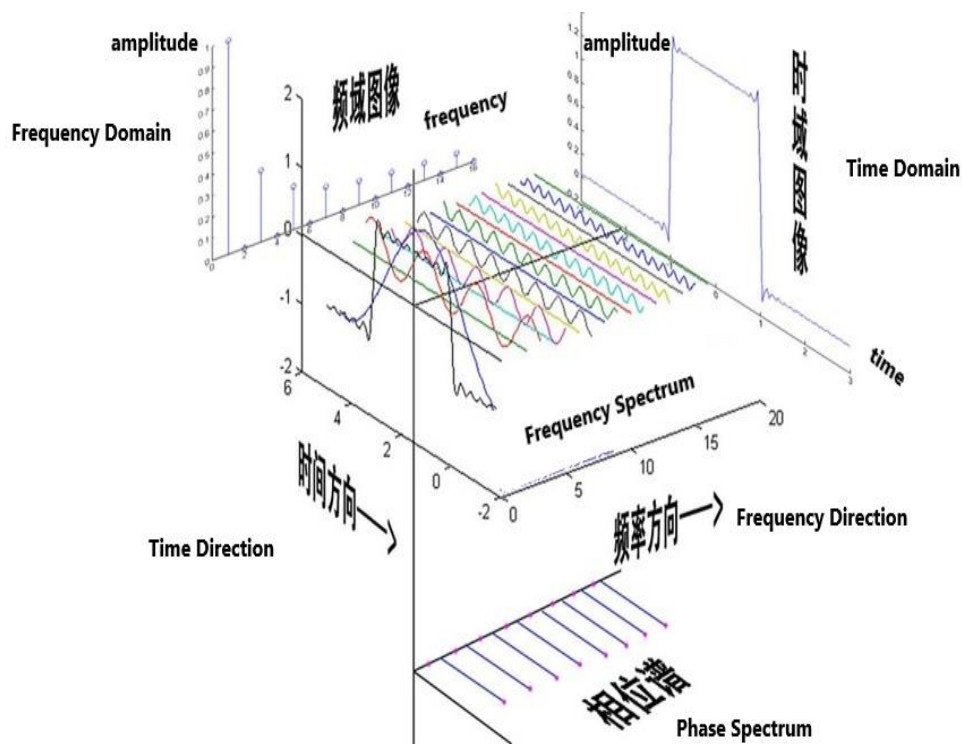
Figure 4.24 Fourier Transform

Picture sources from: http://blog.jobbole.com/70549/ @ Author: Heinrich

Preservice teachers behaviors are seen like shadow puppets, they running involved in the kinds of circles of environment influences, see Figure 4.23 above, how can we interpret their behavior motivations from the image of shadow puppets? It's better to decompose the behaviors into pieces of specific properties with the cumulative experiences in the time domain and environment influence intensities in the frequency domain. What preservice teachers' behaviors changes you've seen is like the image of conch spiraling up across the time course , what's behind the behaviors motivated them to do reflective practice is can be decomposed into the environment influence in frequency domain, and specific property in time domain (in Figure 4.23). Therefore, equations of motivation should be explained in words like this:

Motivation: $F(m) = F(t) \cdot I \cdot \int_{-\infty}^{\infty} f(f(t) \cdot g(e) \cdot R)$

Motivation of Reflective Practice=

  Accumulative experiences with time (Time Course from Nodes-Coding)

*Intensity of environment influence (Environment Influence from Nodes-Coding)

*Summation of different properties of factors involved in the specific environment influence with the reward level (Interaction from Nodes-Coding)

Saturation Examples:

SHENJIABIN (male)

Accumulative experiences with time:

Two years of teaching experiences, half year of school placement and half year of reflective practice

Intensity of environment influence:

School immersed teaching, professional mentor instruction, enjoying working with children, family support and encouragement, good social status

Summation of different properties of factors involved in the specific environment Influence with the reward level:

Extraversion personality traits with neuroticism changed in the class for bad students' feedback, feeling ashamed

Good mood in the classroom usually, value results

Smart with mathematics problems, getting respect from students in the class

Imagining to be a teacher always

Doing reflective practice without time and space limitation

Carrying family's hope and expectation

Proving himself to others

Man should support the family

Expecting earning fame and reputation in society

Doing critical thinking at night frequently

Motivation of Reflective Practice + Plus

Spontaneous Response

WANGQIAO (female)

Accumulative experiences with time:

Three years of teaching experiences, one year school placement, years of teaching competition experiences

Intensity of environment influence:

School immersed teaching, enjoying dominant position in the class, expressing herself freely, praise and support from mentor and instructors, satisfied feedback from parents,

Recognition from teachers, superiority position in the family, coming from country, high social status of teacher

Summation of different properties of factors involved in the specific environment Influence with the reward level:

Typical grade craving in schools,

Prize and praise from academic achievement in schools,

Competitive person enjoying winning, chasing fame,

Self-fish, High level of self-confident in study,

Doing reflective practice when she failed to…,

Expecting to get a stable job to prove herself,

Respecting authority in schools,

Dreaming of being famous teacher in cities,

Earning fame for family,

Getting position in the social latter

Motivation of Reflective Practice – Minus

Avoiding others look down upon her

CHAPTER FIVE: CONCLUSION

Study Overview

This grounded theory study focus on modeling the motivation of reflective practice of preservice teacher in primary schools. Participants with teaching practice experiences are target population in the research. Circular data collection takes 3 months according to the principle of sampling method and constant comparative analysis. Data processing follows the guidelines of Strauss and Corbin' coding procedures and Saldana's circular coding process. Result from nVIVO 11 plus shows that three themes of time course, environment influence and interaction are synthesized from categories of casual thinking, critical thinking, spontaneous response, family influence, social-culture influence, self-interaction, interaction with students, and interpersonal relations. Further motivation modeling is generated in functions based on Fourier Transform (Motivation: $F(m) = F(t) \bullet I \bullet \int_{-\infty}^{\infty} f(f(t) \bullet g(e) \bullet R))$. This study has contributed to broadening the knowledge of modeling motivation of reflective practice based on the mathematics equation of Fourier Transform by the approach of grounded theory with the CAQDAS nVIVO. It is the new perspective for modeling concepts from the combination of social science, psychology and neuroscience. Present result paves the way of exploring the new theory of motivation from the interdisciplinary views to interpret the phenomenon from the whole. Educators and teachers exerting to improve preservice teacher professional development in reflective e practice can obtain the practical implications from the result in education. Motivation contains all the information of the whole person, is more than simple conclusion from behaviors. Individual behaviors like conch are captured in mass, while they can be interpreted and read from the regular rules in time domain and frequency domain, see Figure 5.1. Future study should make more effort to investigate more details in psychophysiological motivation functioning in this model.
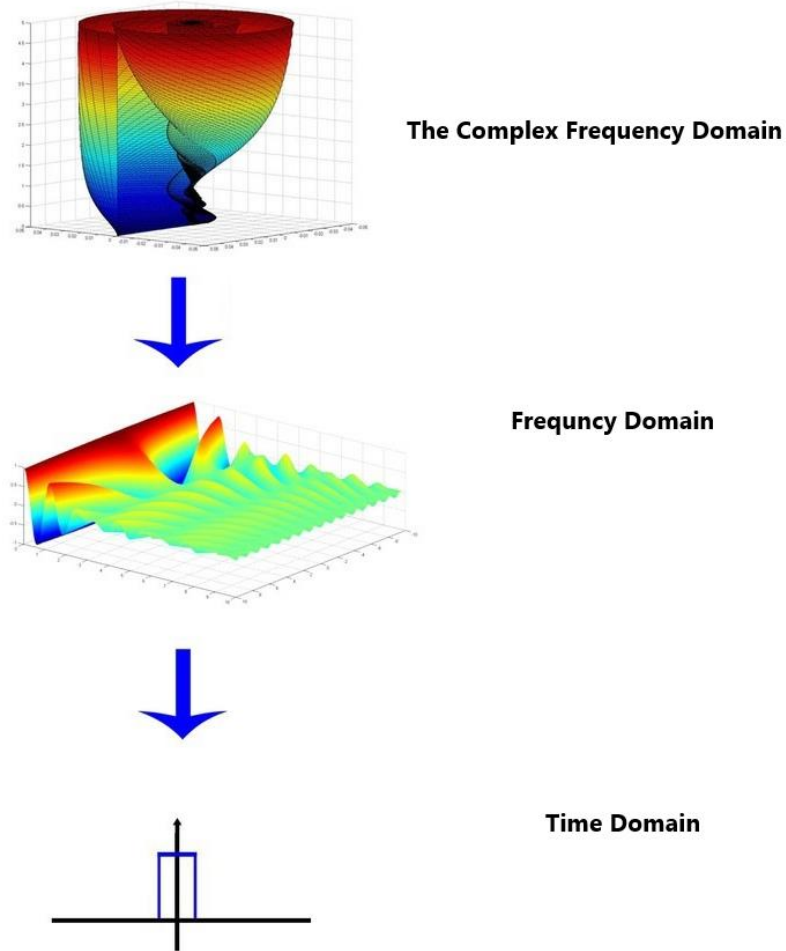
Figure 5.1 Behaviors Decomposition

Picture sources from: http://blog.jobbole.com/70549/ @ Author: Heinrich

<center><i>Delimitations and Limitations</i></center>

1. This study is delimitated to the primary school preservice teachers in the education faculty of Leshan Normal University in Sichuan Province in China. Study results would not represent preservice teachers in other disciplines and other universities.

2. Participants are voluntarily engaged in, which could not represent all the perceptions of all primary school preservice teachers.

3. In order to keep study in perspective that seminal literatures are important, because of the limitation in the literatures on motivation of reflective practice.

4. Time limitation is the barrier to collect more details gradually in the long-term, participants would present vary in different time. Therefore, many times, interviews in multiple environments in different time are necessary for good modeling.

Implications

This grounded theory leads the way in creating motivation model on the Fourier Transform by themes conceptualized in time course, environment influence, and interaction. It is important to get consensus on the integrative new model and apply enough, even though it has been always overlooked or ignored. Preservice teacher reflective practice are motivated from the psychological needs, physiological needs, family needs, professional development needs, experiences needs, or expression needs, and so forth. However, when you put them in the specific environment to analyze, which infers that all factors consisted motivation accommodate to trigger their behavior. Each person is looked as the holistic subject engaged in the whole influence combination environment. Decision-making and behavior presenting is the result of influential factors compound of synthetization and decomposition. Therefore, when they have been questioned with the quality of reflective practice, it is far more than the reflective practice itself, and when they are asked about the motivation of reflective practice, it is rather than the expectancy of reward, homeostatic in needs, personality push, bio-physiological conditions change, and others, or these factors automatic summations. For purpose of theoretical and practical relevance, implications of this study are summarized below.

None of literature incorporate motivation into reflective practice in teacher education. This functional model of motivation present the result of accommodation of multiple dynamic variable factors from the macro-level and process of the specific factor attribute change from the micro-level. This emergent theory directs the right way to evaluate behaviors and decisions for scholars and educators, and make it possible to help preservice teacher to improve their professional skills through reflective practice. Additionally, this model provides the perspectives in the teaching theory development with interdisciplinary and multi-dimensional analyzation and interpretation. The problem of teaching relies on the elements complex, but

rather than only teaching.

In practice, education should take more concerns about individual requirements and individual differences in the different environment in the specific time and give them enough time and room to improve themselves. Identical assessment only by performance should be seriously excluded. They should not be judged too harshly by the criteria of quality, while reflective practice is the process of ways of thinking and the result of accumulative experiences. Preservice teacher can choose what is necessary and essential; however, educators can navigate their explorative journey to show them how to attribute their value of necessity. What educators or scholars should do is to support and help preservice teachers develop, rather than telling right from wrong, good from bad; therefore, it should be taken into consideration of reconstruction in goals and curriculums of reflective practice in teacher preparation education.

In future studies incorporating those ideas will be developed and refined in both theoretical and practical field.

Future Research

Most of the population are undergoing the transition life from students to teachers, which is the vital period of life rather than professional development in career. A jumble of behaviors challenge the research result. While, some recommendation should be stated:

1. Additional population in sampling should be studied deliberately. Population can be enlarged candidates size gradually. That can serve theory generation better with sufficient categories. Feedback from students, mentors, faculty colleagues should be studied for enriching the data to better understand the reason of their decision making.

2. nVIVO is not compatible with Chinese texts analysis precisely, processing software barrier should be considered with pre-comparison in the software testing. Videos analysis can be employed to find more non-verbal behavior changes.

3. Quantitative research should follow the findings to validate the model transferability. Moreover, specific experiments should be done in psychophysiology to precisely uncover the relationship between the macro-level behaviors expression and micro-level brain

functioning in motivation.

4. Longitudinal study should take place to analyze the process of motivation changing, comparison results will show the credibility and dependability of this study modeling result in the long run.

Conclusion

It is complicated to explain the preservice teachers' behaviors in certain phenomenon by the precise motivation theory in literatures. However, Fourier Transform provides the good opportunity to understand decision-making with three dimensions integration. In the first theme of time course, time represents the dependency of motivation rest in time accumulation. Time shows the necessity for growth and development from practice with start but without end. In the second theme of environmental influence demonstrates the possibility of motivation triggering. People more than preservice teachers, live in the influence from family, other persons, and society, what they behave happened in the twisted correlations and influences. Motivation theories involved transformed and accommodated within the interplay of environment influences, it is hard to keep unchanged. Motivation is shaped in the process of the third theme of interaction. Interaction with time, with people, with environment fostered consciousness and thinking. Emotion, personality traits, attitudes, beliefs and value were the results of interaction between time and environment of preservice teacher's life. So, no other description or function template could be used for getting the point of motivation of reflective practice than Fourier Transform.

In conclusion, function of motivation reflective practice in this study will lead the way for a new direction; further promising research will refine, validate and develop the model from more specific perspectives.

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APPENDICES

Appendix A: Informed Consent

Title of Study: A GROUNDED THEORY STUDY TO CREATE REFLECTIVE PRACTICE MOTIVATION MODEL FOR PRIMARY SCHOOL PRESERVICE TEACHERS IN A CHINESE NORMAL UNIVERSITY

Principal Investigator: Mengjiao Liang

You are invited to be in a research study to develop a reflective practice motivation model. You were selected as a possible participant because of your lived experience in teaching practice in primary schools. Please read this form and ask any questions you may have before agreeing to be in the study.

Purpose of this study: This qualitative grounded theory study is to create a reflective practice motivation model to help improving professional development.

Procedures: If you agree to be in this study, I would ask you to do the following things: 1. Agree to participate in a 30-90 min interview that will include voice recording. The interview will focus on the participant's thoughts on the motivation of reflective practice based on their lived experience. 2. Agree to participate in video shooting in class. This video clips will focus on the teaching.

Risks and Benefits from the Study: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. Participants should not expect to receive a direct benefit from taking part in this study. The benefits to teacher education include identifying factors consisted of reflective practice education to develop their professional teaching skills.

Confidentiality: The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely in a password-protected laptop only accessible by the principal investigator. No reference will be made in oral or written reports which could link you to the study. You will NOT be asked to write your name on any study materials so that no one can match your identity to the answers that you provide. Rather, pseudonyms will beused to ensure confidentiality for all participants.

Compensation: You will not receive any compensation for participating in this study.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Palacky University. If you decide to participate,

you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Mengjiao Liang. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at lianme00@upol.cz or 420-608265475. You may also contact the researcher's faculty advisor, Pavel Neumeister, at pavel.neumeister@upol.cz.

Please notify the researcher if you would like a copy of this information for your records.

Consent to Participate:

"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled. I also understand that participation is voluntary and is not a requirement for my job."

Subject's signature_____ **Date** _____

Investigator's signature_____ **Date** _____

Appendix B: HEXACO-PI-R

HEXACO-PI-R

答题指导

下面的描述是一些关于人们在日常生活中所表现出来的行为及想法。答题时，请您**仔细阅读**每一句描述，然后在番号后的空格内填写一个

数字，以代表您对该描述**同意或者不同意**的程度。

如果您对该描述**极不同意**，请填写：……… 1。

如果您对该描述**不大同意**，请填写：……… 2。

如果您对该描述**沒有意見**，请填写：……… 3。

如果您对该描述**基本同意**，请填写：……… 4。

如果您对该描述**非常同意**，请填写：……… 5。

每个人所表现的行为或者想法都不一样，所以答案没有正确或错误，只要**如实作答**就可以了。非常感谢您的合作。

※ **请完整地回答每个题目，切勿漏答***

1 _____ 我觉得参观美术馆很无聊。

2 _____ 我经常清理自己的办公室或居家环境。

3 _____ 我很少有怨恨，即使面对那些对我很坏的人。

4 _____ 整体而言我对自己还算满意。

5 _____ 如果我必须在恶劣气候之下出行，我会感到害怕。

6 _____ 为了从自己不喜欢的人手中得到一些东西，我会假装对那个人很友善。

7 _____ 我喜欢去学习外国的历史和政治。

8 _____ 当工作时，我通常会为自己订下规模宏大的目标。

9 _____ 有时候其他人告诉我，我对别人太挑剔。

10 _____ 在团体讨论中，我很少表达自己的意见。

11 _____ 在一些时候，我会不由自主的为一些小事而感到焦躁不安。

12 _____ 如果知道我自己永远不会被抓，我会想要通过盗窃的方式获得一百万元人民币。

13 _____ 我喜欢做遵照惯例、简单重复的工作，而不是需要创意的工作。

14 _____ 为了找出任何可能的错误，我会反复检查自己的工作。

15 _____ 有时候其他人认为我太顽固。

16 _____ 我常常会避免跟其他人闲聊。

17 _____ 当我遭遇到痛苦的经验时，我需要其他人的安慰。

18 _____ 对我来说，拥有很多金钱不是特别重要。

19 _____ 我认为听取别人的极端意见是在浪费时间。

20 _____ 我在做决定的时候常常依赖自己当时的感受，而不会去仔细思考和比较得失。

21 _____ 别人认为我是一个很暴躁的人。

22 _____ 几乎所有时候我都精力充沛。

23 _____ 看到别人哭时，我也会想哭。

24 _____ 我认为自己是个普普通通的人，并不比其他人优秀。

25 _____ 我不愿花时间去阅读诗集。

26 _____ 我会在事前计划和组织要做的事，避免最后一分钟手忙脚乱。

27 _____ 面对那些对我很坏的人，我的态度通常是"原谅与忘记"。

28 _____ 我认为大多数人喜爱我的某些个性。

29 _____ 我不介意去做一些有危险性的工作。

30 _____ 即使我相信用巴结的方式可以得到奖励，我也不会这么做。

31 _____ 我喜欢看不同地方的地图。

32 _____ 为了达到目标，我通常把自己逼得很紧。

33 _____ 我通常会接受别人所犯的错误，而不会抱怨他们。

34 _____ 在社交场合里，我通常都是那个先主动搭讪的人。

35 _____ 比起大多数人，我担心的事少了很多。

36 _____ 如果手头很紧，我可能会禁不起诱惑去购买赃物。

37 _____ 我喜欢从事艺术创作，例如，写小说、写歌、绘画。

38 _____ 做事时，我往往不太注意小细节。

39 _____ 当别人不同意我的时候,我通常能让自己的意见保持相当的弹性。

40 _____ 我喜欢一群人聚在一起闲聊。

41 _____ 我可以面对困难的处境而不需要任何人的情感支持。

42 _____ 我希望能够住在一个很昂贵而且很高级的社区。

43 _____ 我喜欢那些对事情有独特见解的人。

44 _____ 我因采取行动前没有仔细思考而犯下很多错误。

45 _____ 即使别人对待我很差，我也很少生气。

46	____	大多数日子里，我都感到愉快和乐观。
47	____	当与我很亲近的人不开心的时候，我往往会感同身受。
48	____	我不想要别人对待我的方式好像我比他们优秀。
49	____	如果我有机会，我会想去参加古典音乐会。
50	____	别人时常取笑我房间或桌子凌乱。
51	____	如果有人欺骗过我一次，我以后都会怀疑这人。
52	____	我觉得自己是个不受欢迎的人。
53	____	面对可能使身体受伤的险境，我会很害怕。
54	____	如果我想从某人手中得到一些东西，即使那个人讲的笑话再不好笑，我也会哈哈大笑。
55	____	我觉得关于科学史和科技史的书都很无趣。
56	____	我为自己定下的目标，常常最后未完成就放弃。
57	____	我会用宽厚的态度去评论他人。
58	____	在团体中，我常是那个代表团体说话的人。
59	____	我很少因为压力或忧虑而失眠。
60	____	即使很有价值或金额很大，我也绝不会接受贿赂。
61	____	别人经常说我有很好的想象力。
62	____	为了在工作上精益求精，我会不惜花费很多时间。
63	____	当别人说我错了的时候，通常我的第一个反应就是跟他们争辩。
64	____	相比较于只需独自一人进行的工作，我更喜欢需要积极与别人互动的工作
65	____	每当我忧心某些事，我总想跟别人说说自己的忧虑。
66	____	我想让别人看到我开着名贵的轿车。
67	____	我认为自己算是个不墨守成规的人。
68	____	我不会因为冲动而做出不理智的行为。
69	____	大多数的人比我容易生气。
70	____	别人常常对我说，我应该试着快乐起来。
71	____	当亲近的人要离开一段很长的时间，我会有很深的感伤。
72	____	我认为我比一般人更有资格得到更多尊重。
73	____	有时候我喜欢静静地看着风吹过树稍。
74	____	在工作上，我有时候会因为没有事先进行很好的计划而遇到困难。
75	____	我发觉很难完全原谅曾对我刻薄的人。
76	____	我有时会觉得自已一文不值。
77	____	即使面对危急情况，我不会感觉到惊慌。
78	____	我不会为了让某人帮我做事而假装喜欢那个人。

79 _____ 翻阅百科全书这件事，我从没真正喜欢过。

80 _____ 我只做每天应做的最少工作量。

81 _____ 即使在别人犯了很多错误的时候，我也很少说难听的话。

82 _____ 在一群人面前说话，我会感到非常不自然。

83 _____ 在等待一些重大决定的结果时，我会变得非常焦躁。

84 _____ 如果我确定绝不会被抓到，我会禁不住诱惑使用伪钞。

85 _____ 我不认为自己是那种有艺术天份或创意的人。

86 _____ 别人常说我是个完美主义者。

87 _____ 当我坚信自己是正确的时候，我发觉自己很难去跟人妥协。

88 _____ 通常我到新环境做的第一件事就是交新朋友。

89 _____ 我很少跟别人讨论自己的问题。

90 _____ 如果有机会可以拥有昂贵的奢侈品，我会获得很大的快乐。

91 _____ 我发觉讨论哲学很乏味。

92 _____ 我喜欢想到什么就做什么，不喜欢按计划行事。

93 _____ 当有人侮辱我时，我发觉很难去控制自己的脾气。

94 _____ 大多数人都比平常的我要更乐观和更有活力。

95 _____ 即使在会让大多数人变得很感伤的情境中，我仍可不动情感。

96 _____ 我想让别人知道我是个地位高的重要人物。

97 _____ 我会同情那些比我不幸的人。

98 _____ 我会慷慨地为那些有需要的人提供帮助。

99 _____ 我不会因为伤害了自己不喜欢的人而感到不安或愧疚。

100 _____ 别人觉得我是个硬心肠的人。

Appendix C: Interview Questions

1. Please describe when and how you do reflective practice in teaching.

2. Please describe why you do the reflective practice.

3. Please describe what motivate you to do the reflective practice.

4. Please describe how this motivation influence/help you do the reflective practice.

Appendix D: Coding

Name	Sources	References
ENVIRONMENT INFLUENCE	18	78
Family Influence	18	66
Family Background	18	45
Divorced Family	1	1
Dominant Parenting Role	9	15
Family Background Impact-Non Teacher Family	14	14
Family Background Impact-Teacher Family	1	1
Harmonious Family	9	9
Permissive Parenting Role	4	5
Family Education	9	13
Parents' Educational Background	9	9
Family Value	5	8
Parents' Care and Protection	1	1
Parents' Hope and Expectation	4	6
Social-Culture Development	7	12
Social Media Influence	2	2
Social Value	7	10
Materials Pursuing	2	3
Sex Discrimination	6	7
INTERACTION	23	428
Interaction with Students	7	9
Interpersonal Relation	7	9
Self-Interaction	23	410
Attitude	17	56
Attitude of Life	14	37

Earning for Interests	2	2
Earning for Living	8	8
Life Expectation	7	9
Personal Experience	3	4
Attitude of Study	3	3
Attitude of Teaching	10	16
Career Development	23	215
Career Ambition	7	12
Ambitious in Competition	2	4
Career Barriers	10	26
Administrative Inhibition	1	1
Competitive Job Position	1	1
Complaining about Education-Imbalance	3	3
Complaining about Education-Courses	1	1
Complaining about Education-Higher Education	1	1
Complaining about Teacher's Life	5	9
Teacher Needs	2	5
Critiques on Education	4	10
Career Belief	21	83
TEACHING BELIEF-NEGATIVE	10	19
TEACHING BELIEF-NEUTRAL	5	6
TEACHING BELIEF-POSSITIVE	21	58
Teaching Experiences	17	28
Teaching Experience-Adequate	6	6
Teaching Experience-Rich	17	22
Teaching for Students	17	30
Career Expectation	18	28

Teacher Benefits	4	4
Career Interests	13	27
Liking Children	6	8
Career Value	15	19
Grades Craving	4	8
Non-Grades Craving	9	9
Professional Development	11	20
Emotion Control	1	1
Enriching Knowledge	1	1
Improving Skills	5	7
Management Strategies	2	2
Mentor's Impact	6	6
Personality Traits Changed	3	3
Professional Development-Temperament Changed	2	2
Emotion	12	27
Emotional Intelligence	12	27
Emotion Control	2	2
Self-	12	24
Self-Abasement	1	3
Self-Actualization	1	1
Self-Awareness-Assessment	1	1
Self-Confident	1	1
Self-Dependency	5	5
Self-Discipline	1	1
Self-Esteem	4	9
Self-Independence	3	3
Personality Traits	16	29

Mentor's Personality Traits	1	1
Parents' Personality Traits	1	1
Parents' Temperament	1	1
Self-Personality Traits	15	27
Personality Traits-Arbitrary	1	1
Personality Traits-Dominant	4	4
Personality Traits-Earnest	1	1
Personality Traits-Easygoing	1	1
Personality Traits-Explorative	2	2
Personality Traits-Extraversion	2	2
Personality Traits-Good Temper	2	2
Personality Traits-Introversion	3	3
Personality Traits-Neuroticism	3	3
Personality Traits-Persistence	1	1
Personality Traits-Pushy	3	4
Personality Traits-Rebellion	1	1
Personality Traits-Straightforward	1	1
Temperament Inheritance	1	1
Psychophysiology	22	83
Critical Thinking	6	8
Team Work	1	1
Reflective Practice	22	73
Reflective Practice-PR actioner	16	21
Reflective Practice-Approach	13	25
Reflective Practice-Content	7	9
Reflective Practice-Discrepancy	1	1
Reflective Practice-Teaching	1	2

Reflective Practice-Timing	13	16
TIME COURSE	14	19
Casual Thinking	2	2
Reflective Thinking	10	10
Spontaneous Response	6	7