International Journal of Applied Engineering Research
ISSN 0973-4562 Volume 10, Number 10 (2015) pp. 27375-27386

http://www.ripublication.com

In Search of Principles and Methods of Pedagogical Content Knowledge Based on Narrative

Hyeon-Suk Kang

(Kyungpook Natl' Univ.)
Department of Education, Teachers' College,
80 Daehakro, Bukgu, Daegu, 702-701, Korea
E-mail: hskang84@knu.ac.kr

Abstract

This study is to explore the principles and methods of pedagogical content knowledge (PCK) based on teachers' narrative and personal knowledge. In the study of subject education, pedagogical content knowledge is one of the essentials for enhancing the profession in subject matter instruction at elementary and secondary school level. Generally speaking, PCK is well known to every teacher as core tools of teacher's teaching profession. According to the point of view about narrative meaning and knowing, PCK is a kind of narrative way of knowing. From the recent study about the relation of narrative to PCK, there are four dimensions of narrative within PCK. Through these four dimensions: practical experience, interpretation, reflection, and transformation, we can create new principles and methods curriculum and instructional change. Narrative-based PCK can be used as a useful strategy for enhancing teachers' profession. Furthermore we can change and promote teacher's consciousness of teaching practicum and practical mentality in teaching area.

Keywords: narrative, pedagogical content knowledge, teacher's narrative, teaching profession, narrative knowing, folk pedagogy, personal practical knowledge

1 Introduction

Today, teachers are required to have diverse experience, knowledge, and skill. In teacher education, the profession of teaching is demonstrated into a variety of ways: teaching skill, pedagogical knowledge, content knowledge, guidance, curriculum knowledge, and educational aims. Considering that there are many types of teacher's knowledge, pedagogical content knowledge is seen as a special sort of knowledge. Since the proposed pedagogical content knowledge, many efforts for clarifying the

nature of pedagogical content knowledge have been conducted in the field of teacher education.

There are many discourses about a teacher's teaching profession and teaching activity. In a field of subject education, the theme of how we can teach a subject is a very important thing. With the help of growing knowledge about teaching methods and curriculum, we come to understand effective teaching strategy in subject education. Since Shulman's (1987) suggestion of pedagogical content knowledge, we have discussed a variety of strategies in internalizing instructional contents. Researchers of teacher education have emphasized the importance of pedagogical content knowledge. Now how can we approach the effective method of crafting a pedagogical content knowledge?

Still other aspects of pedagogical content knowledge spring more or less equally from subject matter and general pedagogical knowledge or from previous constructions of pedagogical content knowledge. This may be common in the design of learning activities, formulation of teaching strategies, and awareness of students' misconceptions (Marks, 1990).

In my opinion, the thinking of pedagogical content knowledge is a way of narrative thinking. Interest in narrative as a way of knowing is a prominent feature of teacher research in a number of efforts in approaching pedagogical content knowledge. In case of focusing on the relation of narrative to pedagogical content knowledge, we can search the orientation and principles of narrative-based pedagogical content knowledge.

Clearly the concept of pedagogical content knowledge is difficult to pin down theoretically. In a practical sense, however, it represents a class of knowledge that is central to a teacher's work. According to Deng (2007), pedagogical content knowledge is a sort of knowledge, which is transforming the subject matter. Moreover he contends that pedagogical content knowledge has intellectual roots in curriculum history. There are Jerome Bruner, Joseph Schwab, John Dewey concerning transforming the subject matter. It argues that transforming the subject matter is not only a pedagogical but also a complex curricular task in terms of developing a school subject or a course of study. I think Deng's suggestion is valid in that pedagogical content knowledge needs to be narrated to learners for understanding the subject matter. Taken together, pedagogical content knowledge and narrative should be integrated for enhancing the intrinsic value of the subject matter. Because there is a narrative nature of the pedagogical content knowledge, we should develop principles and methods of narrative-based pedagogical content knowledge.

In this article, I try to develop the orientation and principles of narrative-based pedagogical content knowledge with the condition of conceiving of pedagogical content knowledge as narrative knowing. By the benefit of the integrative discussion about pedagogical content knowledge and narrative, we can extend the scope of subject education and teacher's profession. I especially intend to focus on the narrative nature of the pedagogical content knowledge.

2 Narrative and Pedagogical Content Knowledge

2.1 Meaning and Nature of Narrative

The words "narrative," "narration," and "narrate" have Latin roots that suggest a close connection with knowledge and expert or skillful practice. (Whyte, 1981) There are many discussions about the nature of narrative since 1990. In the flow of various discourses about narrative, we can construct the optimal definition of narrative. Narrative refers to the structure, know1edge, and skill required to construct a story. Story and narrative, in everyday language, are taken to refer to the same thing: accounts of action usually involving humans or humanized animals. A story has characters; a beginning, a middle, and an end; and is held together by a series of organized events, called plots (Gudmundsdottir, 1995: 24).

According to Bruner, we can premise two sets of thought mode while preaching on narrative mode of thought; paradigmatic mode of thought and narrative mode of thought (Bruner, 1985; 1987; 1996). The former, structured as logical statements, is scientific knowledge with a causal relationship. Whereas the latter, structured as story, is arbitrary and illogical. Humans have differently developed their experiences with their surroundings within diffident cultural bases. The former mode aims for explanation. The latter pursues interpretation, which requires understanding. Explanation premises causal existence and can physically be verified. As for the narrative mode of thought, however, seemingly existing meanings are judged by circumstantial relevance or probability. In this context, narrative should be understood as process of searching for genuine hypothesis that corresponds with wide and deep human imagination, rather than explained as a curriculum where scientists pursue verifiability.

Polkinghorne (1988; 1996) has also been a major contributor to the conceptualization of narrative knowing as distinct from "scientific" or "paradigmatic" knowing. In his 1988 work, Narrative knowing and the Human Sciences, he identifies three levels or realms of reality-the material realm, the organic realm, and the realm of meaning. They developed sequentially - that is, the organic after the material and the realm of meaning after the organic realm-through an evolutionary process of increasing complexity. He says, "The emergence of human beings from life in general to reflective consciousness and language is a threshold change that has brought about a unique level of reality that I will call 'the order of meaning," (1988a: 2). The point here is that the physical sciences were developed to study things in the material and organic realms. The human sciences, on the other hand, study those matters that fall within the realm of meaning. Nevertheless, many of the human sciences have modeled themselves after the physical sciences in terms of philosophical premises and methodology. In Polkinghorne's (1988) view this is unfortunate and inappropriate because inquiry in the realm of meaning yields a different type of knowledge from that which is obtainable from the material or organic realms. He notes that knowledge in the realm of meaning is "structured according to linguistic forms and one of the most important forms for creating meaning in human existence is the narrative" (p. 183).

Narrative or narrative mode of thought means story or constructed story. We use narrative thinking to critique the tendency of technical model of teaching-learning

focusing on narrative knowing suggested by Bruner, Polkinghorne etc. Narrative involves various levels of the meaning of narrative and schooling. In this paper we argue the possibility of new methods of pedagogical content knowledge is constructed on the basis of narrative theory and educational process. In these contexts, a model of teaching-learning should be constructed by culturalism rationale. We should pay attention to the complementary possibility of new schooling and pedagogy. The content we teach should include various knowledge and mode of thought. In the future we should consider these problems in curriculum development and develop the more specific possibility of narrative-based teaching-learning (Kang, 2014a; 2014b).

Narrative is another way of knowing and meaning in human life. Teachers try to teach the subject matter by a variety of teaching skill which focus on eliciting learner's interest and need. In the process of teaching, the teacher who has his own story and tale about instructional contents can effectively teach the subject matter. Here is the point that teacher's narrative plays a role in transformative process, from content to experience.

2.2 Values in Pedagogical Content Knowledge

The term Pedagogical Content Knowledge first received widespread attention in Lee Shulman's 1985 presidential address to the American Educational Research Association, in which he emphasized it as "the particular form of content knowledge that embodies the aspects of content most germane to its teachability" (Shulman, 1986: 9). There are two special kinds of knowledge in promoting teacher's profession about how teach a subject matter; content knowledge and pedagogical knowledge. Most educational leaders think of content knowledge as more important knowledge in teaching profession than pedagogical knowledge. The debate and controversial discussion about the priority of teacher's knowledge have been treated as a core issue in teacher education. The possibility of integration of content knowledge to pedagogical knowledge began to emerge as an important tool in advancing teaching profession.

Early in educational history, Dewey's psychologizing of the subject matter and Bruner's psychology of a subject matter is an important motto in the integral possibility of two kinds of knowledge. These educational ideas emphasize the importance of internalization of subject matter. In the process of teaching a subject matter, educational content should be internalized by teacher's genuine educational efforts. In this case, if teachers want to transform instructional contents into learner's mind, teachers should try to rethink, revise, and reflect existing method of transmitting knowledge. Here is point in nesting pedagogical content knowledge. As Gudmundsdottir (1990) have written:

Pedagogical content knowledge has two major components, content and pedagogy. The content in pedagogical content knowledge has to be reorganized to take into consideration student, classroom, and curriculum. This reorganization revolves around teachers' personal values and those embedded in their specialization. Thus, in pedagogical content knowledge, content does not stand in isolation. Indeed, the unique quality of pedagogical content knowledge is that special amalgam of pedagogy and content, especially among experienced teachers (Shulman, 1967: 8). To

teach an orientation involves adopting some teaching methods and rejecting others. This means that teachers will develop a repertoire of teaching methods that they believe are in tune with the ideas they believe are important for students to learn. (p. 47).

According to above discussion, the core value of pedagogical content knowledge keeps in tune with personal value and curriculum. Most of teachers' contents of narrative are embedded in personal value in contextual teaching culture. In this case, narrative itself could be applied to pedagogical content knowledge because teachers' narrative required to understand and to transmit instructional content is an integral part of content and pedagogy.

3 Relation of Narrative to Pedagogical Content Knowledge

In my opinion, pedagogical content knowledge is an extension of a narrative way of knowing. Ever since Lee Shulman (1987) introduced the concept pedagogical content knowledge, increasing numbers of researchers and teachers have come to recognize that it represents an important element in the teachers' knowledge base. The concept refers to the teachers, ways of knowing and understanding their subject matter that is "unique for teachers and teaching" (Shulman, 1987; Gudmundsdottir, 1995).

Pedagogical content knowledge is a practical way of knowing the subject matter. It is learned mostly on the job from trying things out and observing, talking, and working with other teachers. Tradition provides the narrative models to draw upon to understand and construct the present, and it is maintained by the sense of accumulated practice that is also shared by others. The narratives told within a tradition are "packages of situated knowledge" (Jordan, 1989; Gudmundsdottir, 1995).

The study of teachers' stories and narratives brings us right to the heart of pedagogical content know1edge, in all its variety and richness. Such a study should focus on the four dimensions of narratives within pedagogical content knowledge: practical experience, interpretation, reflection, and transformation (Shulman, 1987; Gudmundsdottir, 1995: 30-35; Kang & Seo, 2009; Kang, 2015). There are significant interactions among four dimensions as illustrated in Figure 1.

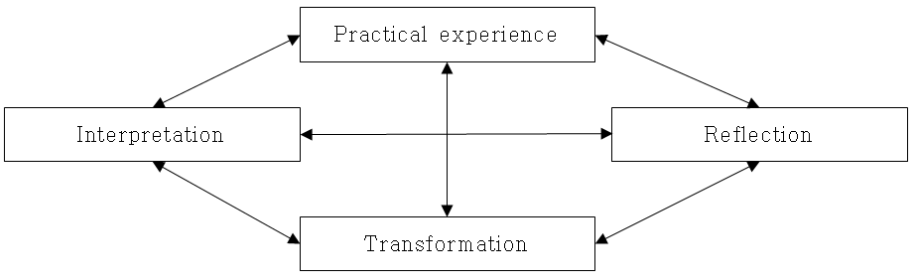

Fig. 1. Four Dimension of the Narrative within PCK

3.1 Practical Experience

Practical experience is crucial to teacher's narrative. Practitioners who work with people usually encode their experiences in narrative form. Often they use case histories and narrative explanations, as is exemplified in Schon's (1983) work. The practitioners he studied were architects, engineers, and psychotherapists, but only the latter group dealt with people, and they characteristically offered Stories to explain and justify their thinking and actions. Similarly, the world of the teacher is one filled with human activity and cares. Telling a story as practical experience is a natural process of narrative. The narration of practical experience comes naturally, like learning a language. In this dimension, narrative quality within pedagogical content knowledge goes toward teacher's practical growth through genuine participation and practice.

3.2 Interpretation

Interpretation is a core tool for understanding experience. In the construction and telling of a narrative there is always someone who is an interpreter, situated, as Barthes says, between our experiences and our efforts to make sense of them and describe them. Narratives are never straight copies of the world like photographic images. This narrative is an interpretation of the text, which in turn is an interpretation of an earlier text - interpretations are always inevitably interpretations of interpretations. To interpret in this way requires that teachers learn to look and comprehend texts, practices, and classrooms pedagogically. In this dimension, narrative quality within pedagogical content knowledge goes toward teacher's creativity and imagination through intuition, image, and rhythm.

3.3 Reflection

Reflection is a pivotal window for self-growth. But the most important lessons in pedagogical interpretation take place on the job in a cycle of practical application and reflection. Reflection involves thoughtful explanation of past events. Mere moments and happenings have no systematic cognitive connection. They stand behind one another in a temporal sequence and it is only through reflection that they begin to take on the form of a story and acquire meaning. In this dimension, narrative quality within pedagogical content knowledge goes toward teacher's critical thinking through civic and moral judgment.

3.4 Transformation

Transformation is natural process of teaching with narrative. Narratives are a valuable transformative tool. They allow us to understand the world in new ways and help us to communicate new ideas to others. We can make worlds in many new ways (Goodman, 1978). Narratives allow us to discover new meanings by assimilating experiences into a narrative schema. In most cases, transformation involves progressing from an incomplete story to one that is more complete and compelling. In this dimension, narrative quality within pedagogical content knowledge goes toward teacher's autonomous choice through reflective practice.

3.5 Interaction

As mentioned above, four theses dimensions are narrative-embedded process in nature. If teacher uses pedagogical content knowledge in teaching a subject matter, he inevitably considers his own past experience and practice as transformative tool. The transformation of instructional subjects into teaching contents is conducted under the condition of teacher's personal knowledge. Teacher's personal-practical knowledge (PPK) is central medium for interacting four dimensions. With the help of the PPK, the transition of practical experience to interpretation, interpretation to reflection, reflection to transformation proceeds. Therefore, pedagogical content knowledge is closely interwoven with teacher's PPK. Because the working process of pedagogical content knowledge is thoroughly internal-personal process, the interaction of four dimensions is also activated through PPK. But it is important to be careful about the interactive process. This process is not linear mechanism, but organic mechanism. This means that the interactive process have dynamic flow with forward and backward feedback process. In this process, teacher's narrative is presented and represented through PPK in pedagogical settings.

4 Principles and Methods of PCK through Narrative

4.1 Principles of Narrative-based PCK

Narrative is a basic structure through which we make meaning of our lives. The facts of our existence - actions, events, episodes - constitute the raw material of life. But a human life is more than a list of happenings. Without some process of understanding what they mean, the facts are merely a data set. Meaning has to do with values and beliefs - what do we want to happen, what do we hope will be the next event in our lives? Meaning has to do with context - what is the importance of certain facts or happenings in relation to others, and when considered as a part of a larger whole? Meaning has to do with interpretation- how do we bring our own store of knowledge to bear on our understanding and put our own spin on the actualities of life? Valuation, contextuality and interpretability are qualities of narrative. To make meaning narratively means that we understand the raw material of our existence in a story-like form (Rossiter & Clark, 2007: 13).

According to Rossiter and Clark (2007), there are three qualities of narrative: valuation, contextuality, and interpretability. We can draw upon the principles of developing a pedagogical content knowledge through three qualities. In case of valuation, from the premise that narrative is teachers' personal value, we should pursuit pedagogical content knowledge by teacher's personal experience and value. Contextuality is concern for the learner's interest and classroom culture in constructing pedagogical content knowledge. Narrative-based pedagogical content knowledge cannot be constructed in a state vacuum. Pedagogical content knowledge under the certain classroom is in nature a teacher's narrative and context. Interpretability is tune with narrative knowing. Rossiter and Clark (2007) emphasized that narrative meaning implies narrative knowing. An understanding of the epistemological implications of the narrative orientation is requisite to its effective application in educational just facts, and as discussed in the previous section, is

loosely defined by qualities we associate with stories - contextuality, intentionality, interpretability; It is a connected, relational, and constructivist orientation to knowledge. This stands in contrast to the positivist approach to knowledge that has been associated with and favored by much of the academic community in the Western world throughout the last century; In recent decades, a number of writers have developed and discussed narrative knowing as an alternative to the scientific mode. The philosophical ground and basic assumptions related to narrative knowing are explored by Bruner in Actual Minds, Possible Worlds (1986).

In his thinking about culture, mind and education, he suggests four principles or tenets that guided his psycho-cultural approach to education. Through his suggestions, we can construct the principles of narrative-based pedagogical content knowledge. These are (Bruner, 1996; Kang, 2014a; 2014b): the perspective tenet, the constraints tenet, the constructivist tenet, and the interactional tenet. In case of the perspective tenet, pedagogical content knowledge goes toward the teacher's view and intention. Through this tenet, teacher's narrative is transformed into reflection, third dimension of narrative. In the constraints tenet, pedagogical content knowledge goes toward teacher's development and immature profession. Through this tenet, teacher's narrative is transformed into practical experience, first dimension of narrative. In the constructivist tenet, pedagogical content knowledge goes toward teacher's philosophy and value. Through this tenet, the teacher's narrative is transformed into interpretation, second dimension of narrative. In the interactional tenet, pedagogical content knowledge goes toward teacher's professional decision and action. Through these tenets, teacher's narrative is transformed into transformation, fourth dimension of narrative.

4.2 Methods of Narrative-based Pedagogical Content Knowledge

As discussed above, some methods of developing a PCK through narrative are suggested (Gudmundsdottir, 1995; Kang, 2015). If we imagine narrative as vehicle of classroom, the interaction of teacher and student is full of dialogue and discussion for understanding curriculum. We can suggest methods of narrative-based PCK in accordance with narrative within PCK. It may be summarized as follows.

First, story or narrative required to achieve instructional objectives is used by narrative as subject matter of instruction. In this case, PCK moves toward teacher's compiling and plotting stories. It makes intuitive sense that experienced teachers should know their subject matter differently than those who are not engaged in teaching. In this case, narrative as 'instructional subject matter' is effective method for entertaining instructional events aiming at psychologizing subject matter.

Second, narrative is used by means of transmitting instructional contents. In this case, narrative as delivery tool is extended in vein of choosing a number of existing stories. Values and narratives are inexorably intertwined. Together they have one fundamental principle in common, a principle that is basic to the narrative nature of pedagogical content knowledge (Gudmundsdottir, 1995). This basic principle is that narrative helps us interpret the world. Values and narratives are interpretative tools that constitute a practical, but also highly selective, perspective with which to look at the world around us. In this case, narrative as 'transmitting vehicle of

instructional content' is effective method for delivering instructional content aiming at clear and efficient transmission.

Third, narrative as instructional contents is emphasized by teacher's teaching content. In this case, PCK influences the possibility of reaching instructional objectives. Teachers live in stories. They use them in order to tell their students about some of the things they know. In this case, narrative as 'instructional content' is effective method for managing instructional process aiming at overcoming the abstraction of a subject matter.

Fourth, narrative is used with the conception of thinking tools. According to this approach, instruction plan is designed by logic of narrative knowing. In this case, teacher's teaching is plot of story line and narrative structure. In this case, narrative as 'thinking tool' is effective method for re-designing overall instructional process aiming at restructuring the structure of teaching.

We use narratives to make sense of facts, whether they are various kinds of text or curriculum or instructional practice, from the moment we first walk into a school. The texts used in teaching, such as textbooks and other curriculum materials, require that teachers look at them with 'pedagogically-seeking eyes.' Understanding, according to classical hermeneutics, requires that the reader reconstruct the text. The interpreter must know the texts, be intimate with the texts and the subject matter they represent, and immerse himself or herself in this world of texts and subject matter (Gudmundsdottir, 1995).

Narratives and stories are the tools practitioners frequently use to make sense of experience and organize it into a body of practical knowledge. The theory of textual interpretation suggests that understanding a story involves a reconstruction - new text is created out of old text. Teachers are in a unique position because they also have to interpret these texts pedagogically, that is, with a mind to the understanding of their students. It is pedagogical interpretation that I believe is at the heart of pedagogical content knowledge. Good teachers do this and have done so since the dawn of human kind (Gudmundsdottir, 1995). If Dewey, Bruner, Schwab, as discussed above, hoped to change society through educational reform, with a focus through professionalizing teaching, with an emphasis on enhancing teachers' professional knowledge- subject matter knowledge in particular (Deng, 2007: 202).

I think the four methods, as mentioned above, are very simple strategies because of lacking concreteness and practicality. These methods need to be strengthened by educational process, instructional aims/objectives- content- teaching skill- evaluation etc. In the future, narrative-based pedagogical content knowledge should be examined and developed by teachers' PPK. It is time to reflect and revise a new model of pedagogical content knowledge beyond the mechanical integration of pedagogical knowledge to content knowledge.

5 Discussion

As emphasized in previous section, pedagogical content knowledge is a way of narrative knowing in teaching context. To sum up, the intention and effort for constructing a pedagogical content knowledge basically goes process of narrative

thinking. In this process, transformative tool into learner-friendly knowledge is in flow of the narrative learning.

From this viewpoint, Bigge and Shermis (2004) indicate that the construction of pedagogical content knowledge is under the narrative-centered process. Narrative is a natural vehicle for folk psychology. A narrative's principal property is its inherent sequentiality. It is composed of a unique series of events, mental states, and happening involving human beings as characters or actors. "Narrative knowing" says Polkinghorne (1996), "is a fundamental mode of understanding by which people make sense of their own and others, actions and life events"(p. 77).

Gudmundsdottir (1990) considers pedagogical content knowledge as a narrative way of knowing. According to his study, the image of teaching as a narrative concern is further illuminated by the work of Ben-Peretz (1990), Carter (1992), Connelly and Clandinin (1988), Doyle (1992), Egan (1988), Elbaz (1191), and Jackson (1986). Shulman's focus on the PCK is in the uniqueness of teacher's knowledge and personal curriculum. Finally, the tendency of research about narrative-based pedagogical content knowledge is biased on the somewhat abstract and theoretical one.

For overcoming existing problems of handling pedagogical content knowledge, this article tried to develop principles and methods of narrative-based pedagogical content knowledge. I suggested four dimensions of narrative within PCK with assistance from Gudmundsdottir's concept. They are: practical experience, interpretation, reflection, and transformation. Four theses dimensions are narrative-embedded process in nature. If the teacher intends to use pedagogical content knowledge in teaching a subject matter, he rethinks and reflects his own experience narrated. In this personal construction of valuable experience, teacher brings his story, happenings, and events to instructional context. The transformative process into pedagogical content knowledge through narrative inevitably is interwoven with four dimensions. Therefore, pedagogical content knowledge is closely interwoven with teacher's narrative, belief, value, image, teaching rhythm, and oral history. These elements of narrative are gradually experienced and elaborated by flow of practical experience, interpretation, reflection, and transformation. Teacher's practical experience is formed through interpretation of pedagogical process with interaction between instructor and learner. Interpretation without reflection falls into mechanical repetition of teaching activity. Only reflection-driven practical experience goes toward an authentic understanding. Pivotal to this process is transformation into pedagogical content knowledge through narrative.

Polkinghorne distinguishes narrative knowing and methods of inquiry from scientific knowing. Narrative knowing focuses on sequences of events, not necessarily categories. Narrative deals not just in objectively observable facts, but also attends to the motivations, desires, and intentions inherent in human experience. A narrative way of knowing includes a cluster of epistemological assumptions having to do with the knower's relationship to the known. In that relationship with the knowledge we seek, we participate in its revelation and its creation. Therefore, with help of Polkinghorne's discussion, we can create new principles and methods of narrative-based pedagogical content knowledge.

From another viewpoint of Bruner's folk pedagogy, the rationale of pedagogical content knowledge is interpreted as folk psychology. When he talked of folk pedagogy, he was talking about what we might call the received wisdom, about what children need to learn, what teachers need to teach, how this teaching should done and so on. So, as mentioned above, narrative-centered process seeking pedagogical content knowledge is emphasized in our discourse about teaching profession.

References

[1] Bigge, M. L., Shermis, S. S. Learning theories for teachers. Boston: Pearson (2004).

[2] Bruner, J. S. "Narrative and Paradigmatic Models of Thought", in E. Eisner(ed.), Learning and Teaching the Ways of Knowing: NSSE., Chicago: Univ. of Chicago Press (1985)

[3] Bruner, J. S. "Life as Narrative", Social Research, 54(1), (1987), 11-31.

[4] Bruner, J. S. The Culture of Education. Cambridge, Mass.: Harvard Univ. Press (1996)

[5] Cochran, K, DeRuiter, J., & King, R. Pedagogical content knowing-an integrative model for teacher preparation. Journal of Teacher Education, 44, (1993), 63-272.

[6] Deng, Z. Transforming the subject matter: Examining the intellectual roots of pedagogical content knowledge. Curriculum Inquiry, 37(3), (2007), 279-295.

[7] Gudmundsdottir, S. Values in pedagogical content knowledge. Journal of Teacher Education, 41(3), (1990), 44-52.

[8] Gudmundsdottir, S. The narrative nature of pedagogical content knowledge. In H. McEwan & K. Egan(eds.). Narrative in teaching, learning and research. Teachers College. Columbia University (1995)

[9] Kang, H. S. and Seo, J. M. Preliminary study of developing a pedagogical content knowledge through teacher's narrative. The Journal of Elementary Education, 22(3), (2009), 217-243.

[10] Kang, H. S., Towards a cultural ecology of pedagogy based on Bruner's narrative theory. Advanced Science and Technology Letters, Vol.71 (2014a), 115-118.

[11] Kang, H. H., Jeon, H. J. A paradigm shift in early childhood education based on Bruner's narrative theory. International Journal of Early Childhood Education, 20(2), (2014b), 211-228.

[12] Kang, H. S. Development of narrative-based pedagogical content knowledge. Advance Science and Technology Letters, Vol. 92, (2015), 109-113.

[13] Marks, R. Pedagogical content knowledge: from a mathematical case to a modified conception. Journal of Teacher Education, 41(3), (1990), 3-11.

[14] McEwan, H., & Egan, K. Narrative in teaching, learning, and research. New York and London: Teachers College, Columbia University (1995)

[15] Polkinghorne, D.: Narrative knowing and the human science. Albany: SUNY Press (1988a)
[16] Polkinghorne, D. E. Stories told and lessons learned: Toward a narrative approach to moral development and moral education. Harvard Educational Review, 59(2), (1988b), 182-205.
[17] Polkinghorne, D. E. (1996). Narrative knowing and the study of lives. New York: Springer.
[18] Rossiter, M., & Clark, C. M., Narrative and the practice of adult education. Florida: Krieger Publishing Company, (2007)
[19] Shulman, L. Those who understand: knowledge growth in teaching. Educational Researcher, 15(2), (1986), 4-14.
[20] Shulman, L. Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 57(1), (1987), 1-22.