Title: The knowledge base for physical education teacher education (PETE): a comparative study of university programmes in England and Korea

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THE KNOWLEDGE BASE FOR PHYSICAL EDUCATION TEACHER EDUCATION (PETE): A COMPARATIVE STUDY OF UNIVERSITY PROGRAMMES IN ENGLAND AND KOREA

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Abstract

This study compares and explains the knowledge base (Kirk et al, 1997; Shulman, 1987) for teaching physical education in Physical Education Teacher Education (PETE) programmes in England and Korea from the 1960s to the present. In the USA (Siedentop, 1989), the UK (Kirk, 1992) and Australia (Macdonald et al, 1999), the erosion of time spent on content knowledge (CK) for sports and other physical activities has been noted as a matter of concern. The academicisation of the physical activity field and the marginalisation of PETE within it are major factors in the shift in the knowledge base.

Data was presented from a comparative study of four PETE programme in two countries in respect of social constructionism (Berger and Luckmann, 1966). The historical resources such as timetables, curricula and official documents were analysed using documentary methods and grounded theory. Grounded theory was also used to analyse interviews with previous and present teacher educators, student teachers, and teachers who graduated from each university.

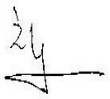
I found that for universities in both countries, first, the hours of theoretical content knowledge (TCK) and practical content knowledge (PRACK) in PETE had been reduced over time. Time for units of physical activity had decreased significantly. Second, student teachers learnt physical activity to introductory levels only, and the spiral system for the physical activity curriculum, where students ideally move from introductory to advanced levels of knowledge, did not work well. In terms of differences between the countries, first, in England there were many sessions where PRACK was interrelated with pedagogical content knowledge (PCK) and knowledge of learners and their characteristics (KLC). However, this was less common in Korea. In particular, interrelationships between PRACK and PCK and KLC were very weak because the Korean system is based on the study of kinesiology. Second, many students and teachers in England requested sessions to assist them to teach at GCSE and A Level. In Korea, in contrast, the need for PCK and KLC was identified.

I conclude by confirming that CK forms only a small proportion of the knowledge base for teaching physical education confirming that there is a gap between the knowledge base in PETE and the knowledge requirements for teaching physical education in schools. I suggest developing special units in the PETE course based on models of learning, teaching and philosophy and being suitable for inclusion in the academic and scholarly culture of the university.

DECLARATION

I declare that this thesis is my own unaided work. It is being submitted for the degree of Doctor of Philosophy at the University of Bedfordshire.

It has not been submitted before for any degree or examination in any other University.

Name of candidate: Chang-Hyun Lee Signature: 

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List of contents

List of tables

2. Literature review

3. Methodology

4. University of Brighton

5. University of Bedfordshire

6. Seoul National University

7. Inha University

8. Discussion: Comparison of four PETE courses

List of Figures

2. Literature Review

3. Methodology

4. University of Brighton

6. Seoul National University

7. Inha University

Abbreviations and Acronyms

England

BCHE: Bedford College of Higher Education
CSE: Certificate of Secondary Education
CNAA: Council for National Academic Awards
ITE: Initial Teacher Education
GTP: Graduate Teacher Programme
HMS: Human Movement Study
NCPE: National Curriculum Physical Education
NQT: Newly Qualified Teacher
Ofsted: Office for Standards in Education
PGCE: Postgraduate Certificate in Education
PSCHE: Personal, Social, Citizenship and Health Education
PTS: Practical Teaching Studies
QTS: Qualified teacher status

Korea

HOPE: Humanities-Oriented Physical Education
PECR: Physical Educational Curriculum Revisions
TATTI: Third Assessment of Teacher Training Institute
TRE: Teacher Recruitment Examination
USMG: United States Military Government

Commons

BA: Bachelor of Art
BEd: Bachelor of Education
COE: Certificate of Education
PETE: Physical Education Teacher Education
PETEr: Physical Education Teacher Educator
TE: Teacher education

Shulman's knowledge

CK: Content Knowledge
TCK: Theoretical Content Knowledge
PRACK: Practical Content Knowledge
GCK: General Content Knowledge
PCK: Pedagogical Content Knowledge
CCK: Curriculum Content Knowledge
KEC: Knowledge of Educational Contexts
KLC: Knowledge of Learners and their Characteristics
KED: Knowledge of Educational Goals

1. Introduction

During my experience as a student teacher in Korea and a PhD student in England, I have thought that physical activities in physical education have gradually taken a marginal role. This thinking was a starting point for my thesis. Considering this theme for my PhD study, I thought about the complex issue of how I embody specific contents. For example, where is a big issue of reduction of physical activities in physical education located, kinesiology or PETE? Why did this phenomenon happen? What was the result? Why is this change important? These questions posed a challenge to me.

Fortunately, many scholars (e.g. Kirk, 1988; 1992; 2006; 2010; Kirk et al, 1997; Siedentop, 1989; Tinning, 2002; 2006) already studied similar topics. Through conducting a literature review of their studies, I could narrow my topic.

First, I confirmed that the reduction of physical activities mainly issued in PETE courses in England and Korea showing that there were various discussions in terms of pros and cons from the 1960s to the present day (e.g. Carroll, 1986; Fitzclarence and Tinning, 1990; Hargreaves, 1982; Kirk, 1992; 2010). Second, I confirmed that this phenomenon happened mainly because of academicisation, scientization, specialisation, and fragmentation (Kirk, 2006). Among these, I selected academicisation as my main perspective because various phenomena (e.g. scientization, specialisation and fragmentation) are based on academicisation (e.g. the transition from diploma level to degree level PETE courses in England). Third, I confirmed that there were similar situations in England and Korea. In addition, I also found that some contexts were very different even if they looked similar in content. Fourth, I confirmed that the reduction of units of physical activities in the PETE course has not happened by itself. This means that I had to find various affiliated reasons why this change occurred. Fifth, I confirmed that I had to classify and define the knowledge base such as physical activities, professional knowledge, etc. Sixth, I confirmed that I needed to tools to analyze the various components in terms of the knowledge base.

After a process of narrowing down the focus, I made my own initial themes. I decided that I would study the changes of the knowledge base in four PETE courses in England and Korea from the 1960s to the 2010s concentrating on changes of curriculum in terms of academicisation by using two perspectives; Shulman's (1987) and Kirk et al's (1997) knowledge and comparative studies.

Although when I decided on my theme, I was a little bit biased towards the negative concept for the reduction of physical activities, through studying my methodology, I had to discard this kind of stereotype. Even if the situation was negative, regardless of those merits and demerits, first, I had to try to find the facts and reasons. The judgement for the facts and reasons was the next steps because I had to confirm the exact facts and reasons to interpret the situations. This means that I could abandon my bias through studying of methodology which was called social constructionism (Berger & Luckmann, 1966). Based on this perspective, Goodson (1983) showed the socio-historical changes of curriculum in school. Kirk (1992) debated that academicisation in PETE was one of the main socio-historical components. This means that I had to find my socio-historical components for my thesis. However, without a literature review, it was an impossible work. Therefore, because of these reasons, through analyzing my literature reviews, as I mentioned before, I decided that academicisation was a first socio-historical component in my thesis. Based on this literature review and through my findings, I will show other socio-historical components in my results such as the reason for the emphasis on professional knowledge in PETE.

Based on the literature, I decided to study four PETE programmes in England and Korea. The reason why I selected the PETE course to carry out my research was that, first, examining the knowledge base in the PETE course was surely a perfect case. Second, there was already well connected research (e.g. Kirk et al, 1997). Kirk et al in 1997 already studied PETE courses in Australia from the 1960s to the 1990s from similar perspectives to my study. This means that my study builds on this work and extends on it by adding some more methodologies such as

Shulman's framework and comparative study. Based on this study, I found similar, different and new results such as demise of education studies and second subjects, decreasing of discipline knowledge showing comparative views in England and Korea. These comparative perspectives, which had very different backgrounds in terms of cultures, histories, regions and the developments of PETE, will give us more ample point of views of the knowledge base for PETE internationally.

Finally, why is this research important? Based on my results, we can reflect on our past and present. Moreover, we can predict the futures of school physical education and PETE because the future is connected to the past and the present (Kirk, 2010). Unfortunately, I confirmed that physical activities in the PETE courses in two countries had marginal roles, evidenced by a dramatic reduction of hours for practical content knowledge in England and relatively low status of physical activities in Korea, though many lecturers stressed physical activities as basic contents. Meanwhile, there was the development of professional knowledge in terms of sport pedagogy in both countries. Through these fruitful results, I could predict some futures and suggest one direction. This will be argued in my final chapter. This chapter will also be helpful to those considering the development of PETE courses.

In the next section, I briefly explain each chapter.

Chapter 2: Literature Review

This chapter reviews literatures on PETE in England and Korea in six sections. First, I discuss theoretical perspectives on the academicisation of PETE. Second, I define the meaning of academicisation in PETE. Third, I make clear the concept of knowledge in PETE discussing research using Shulman's (1987) and Kirk et al's (1997) frameworks for the knowledge base in PETE. Fourth, I review the history of PETE in two countries. Fifth, I present arguments of researchers on the curriculum such as the perspectives of Goodson (1993) and Kirk (2006) reflecting that the curricula are changed through many contestations by the persons concerned, based on social constructionism (Berger & Luckmann, 1966). Finally,

I explain the purposes of comparative study describing that comparison itself is fruitful. Based on these reviews, I compose my research questions.

Chapter 3: Methodology

This chapter describes my methodologies and methods. First, my methodologies are social constructionism which means humans are active in constructing their society (Theisen & Adams, 1990). However, social constructionism as methodology acknowledges objective reality such as predominance or ascendency, which is constructed by society, denying relativism which admits equal status in both sides (Andrews, 2012). Second, I examine the process of collecting historical data from the 1960s to the present and the interviews conducted with student teachers, teachers, teacher educators and previous teacher educators (in all, 117 people) in four PETE programmes in two countries. Finally I consider the process of analysis drawing on documentary methods (Payne & Payne, 2004) and grounded theory (Corbin and Strauss, 2008).

Chapter 4, 5, 6 and 7: Results

These four chapters show the historical changes of the knowledge base in each PETE programme (University of Brighton and University of Bedfordshire in England, Seoul National University and Inha University in Korea) addressing research question 1 and 2.

RQ1. Applying Shulman's and Kirk et al's framework, what is the knowledge base for teaching physical education within university PETE programmes in England and Korea?

RQ2. Is any component of the knowledge base in Shulman's and Kirk et al's framework given priority within university PETE programmes in England and Korea?

Chapter 8: Discussion: Comparison of four PETE courses

This chapter discusses four PETE courses based on the comparative perspective such as the capturing of similarities and differences, cautioning against

overstatements of them (Dimmock, 2007) and, as such, clarifying to research question 3, 4 and 5.

RQ3. What are the similarities and differences between the knowledge bases for teaching physical education in each country, and how might we explain these similarities and differences?
RQ4. What are the interrelationships of the components in Shulman's and Kirk et al's framework within university PETE programmes in England and Korea?
RQ5. Is there any evidence, as argued by Siedentop and others, of a shift away from practical to theoretical content knowledge?

To clarify these research questions, I discuss the similarities and differences of physical activities, discipline knowledge, professional knowledge, education studies, second subjects, liberal arts, other outside components and the reasons of those changes based on changes of historical curriculum and amounts of hours of units in the PETE courses.

Chapter 9: Conclusion: The futures of PETE in England and Korea

This chapter discusses the future of PETE in two countries replying to research question 6.

RQ6. What is the future of PETE programmes in an academicised field?

I discuss possible futures for PETE based on my results and discussions. On the basis of this discussion, I identify one idea to develop units of physical activities within future PETE programmes.

2. Literature review

2.1. Introduction

The purpose of this chapter is to review the literature on PETE in England and Korea. First of all, I am going to discuss the theoretical perspectives on the academicisation of PETE programmes. Second, I will define the meaning of academicisation in PETE. Third, I will make clear the concept of knowledge in PETE. Especially, I will discuss researches using Shulman's (1987) and Kirk et al's (1997) frameworks for the knowledge base in PETE. Fourth, I will review the history of PETE in England and Korea. Fifth, I will present arguments for research on the curriculum based on social constructionism. Finally, I am going to explain the purposes of comparative study. These are the six main topics in this literature review. Based on these reviews, I will compose my research questions.

2.2. A theoretical perspective on the academicisation of PETE programmes

There are many articles about PETE. Tinning (2006) discussed two main streams within the literature, "the first has as its focus the theoretical orientations in PETE programmes themselves, the second has as its focus the theoretical orientations to research into PETE" (Tinning, 2006, p. 370). The theoretical perspective offered by Tinning included "a brief historical perspective, core concepts, major findings, and major trends and future directions" (Tinning, 2006, p. 370).

Concerning the first stream, theoretical orientations in PETE programmes, Tinning (2006) categorized different forms of PETE using concepts from the teacher education literature. He mentioned that many scholars (Bain, 1990; O'Sullivan, 1996; Kang, Shin-Bok, 2003; Vendian and Nixon, 1985; Rink, 1993; Fernandez-Balboa, 1997; Macdonald, 1997) already identified different forms of PETE using the teacher education literature before he classified PETE. They adopted the reviews of the field of teacher education by scholars such as Zeichner

(1983), Peck and Tucker (1973), Feiman-Nemser (1990), and Doyle (1990). Tinning especially mentioned two scholars in PETE, Rink (1993) and O'Sullivan (1996), who researched PETE using the teacher education literature. Both used, in particular, the Feiman-Nemser framework to analyze PETE. In contrast to their choice of this framework, Tinning initially selected Zeichner's (1983) four orienting perspectives to consider PETE. However, because three scholars' frameworks resonated with one another, he insisted that each framework could correspond with the others as follows:

Table 1. Similarities in orientations in PETE programmes (adapted from Tinning, 2006, p.371)

Feiman-Nemser (1990)	Doyle (2001)	Zeichner (1983)
Practical	Good employee	Traditional/craft
Academic	Junior Professor	-
Personal	Fully functioning person	Personalistic
Technological	-	Behaviouristic
-	Innovator	-
Critical	Reflective practitioner	Critical inquiry

He introduced and analyzed articles related to the key concepts within Zeichner's framework, which were the Traditional/craft, Behaviouristic, Personalistic, Critical orientations. Though the academic orientation (Feiman-Nemser, 1990) and Reflective practitioner (Doyle, 2001) were not included in Zeichner's framework, Tinning explained they also denoted important trends. Tinning adopted Locke's (1984) assertion to explain the academic orientation as follows:

> "Locke went on to say "Today, others are heard speaking the powerful, universalistic tongue of science to legitimise their vision of teacher education" (p. 9). But the science to which Locke is referring is not the science of teaching that became associated with teaching effectiveness research and increasingly powerful in the development of programmes within the behaviouristic orientation. Locke was concerned at the time with the rise of the sub-disciplines as essential knowledge for teachers of physical education." (Tinning, 2006, p. 372)

From the 1960s, the legitimate influx of sub disciplines such as exercise physiology, motor control/learning, biomechanics, history of sport, and so on in

PETE was discussed not only in America but also in England and Korea (Kirk, Macdonald & Tinning, 1997; Kirk, 2000; You, Jeong-Ae, 2005). This phenomenon was also reported in England and Australia in the 1970s and the 1980s (Kirk, 2000; 2006). In other words, the influence of academicisation in PETE programmes has been very strong in a number of countries since the 1960s.

Concerning the second stream, which was theoretical orientations to research into PETE, I will discuss this in the methodology chapter.

2.3. The meaning of academicisation in PETE compared to TE

Tinning (2006) provided a definition of the academic orientation in PETE. Although he followed a trend within the literature of Teacher Education (e.g. Feiman-Nemser, 1990; Doyle, 2001; Zeichner, 1983), he also added a more specific account of the academic orientation in respect of PETE. Based on Tinning (2006)'s perspective on academic orientation, I account for a difference of academic orientation between TE and PETE. I then explain trends in research of the academic orientation in PETE.

Feiman-Nemser (1990) defined the academic orientation TE as a follow, "The academic orientation in teacher preparation highlights the fact that teaching is primarily concerned with the transmission of knowledge and the development of understanding. (Feiman-Nemser, 1990, p. 221)"

According to this definition, Rink (1993) claimed that evidence of the academic orientation in PETE was subject matter knowledge such as games, sports, dance and fitness. Tinning (2006) mentioned that Rink's (1993) assertion stemmed from Locke, Mand and Siedentop's (1981) argument. They claimed.

> "Since we have argued that the subject matter of physical education is motor play activity, it is logical that a program designed to prepare teaching professionals in this subject matter should be designed around activity courses. …… The purpose of this section is to describe the

> program as a course of study, to identify the organizing centers, to explain certain features which might run contrary to the ways in which university programs typically function, and to show how the model reflects our sense of appropriate attention to the priorities of teacher education in physical education and the problematic elements to which all programs must respond." (Lock, Mand & Siedentop, 1981, p. 48)

Locke et al (1981) insisted that physical activities had to be at the centre of PETE programmes. Many scholars (e.g. Kirk, 1988; 1992; 2006; 2010, Kirk et al, 1997; Kirk and Macdonald, 2001b; Locke et al, 1981; Locke, 1984; Rink, 2006; Sidentop, 2002; Tinning, 2002; 2006) also agreed with their opinion that physical activities were a main content knowledge in PETE.

However, Kirk (2006) and Tinning (2006) mentioned that stressing sub-disciplines in PETE is more closely associated with academicisation rather than stressing physical activities. They offer definitions of the academic orientation within PETE that may be more accurate than Rink's (1993)

> "Most contemporary PETE programmes comprise subject matter content knowledge that includes physical activity and also what has been broadly termed the biophysical and socio-cultural sub-disciplines of the field of kinesiology (exercise physiology, motor control/learning, biomechanics, history of sport, sociology of sport, etc.). There are however, challenges to the centrality of sub-discipline knowledge of sport and exercise science for the preparation of teachers of physical education." (Tinning, 2006, pp. 372-373)

> "Academicisation refers to the process of aligning a field of practical knowledge such as the physical activity field more closely with other more traditionally academic fields. As we have already noted, this process was realised through the shift from sub-degree qualifications such as diplomas, to degree level qualifications and easier access for graduates to masters and doctoral programs. The effect of acdemicisation of the physical activity field is that the field becomes more like traditional academic fields in terms of scholarly practice so that it is more readily accepted in the academy." (Kirk, 2006, p. 13)

Tinning (2006) discussed the notion of academicisation. He suggested that sub-disciplines in the PETE curriculum played an important role as content knowledge. And Kirk (2006) extended the meaning of academicisation in PETE to include the

raising of status of qualifications such as the promotion from diploma to degree and access to masters and PhD courses in PETE. Because their explanation reflected more factual contexts in the PETE porgramme, I adopted their definition about academicisation in my study.

2.4. The overview of Knowledge

In this part, I will discuss concepts of knowledge from various perspectives.

2.4.1. General meaning of knowledge

Before mentioning teacher knowledge, I will explain the general meaning of knowledge. It is very difficult to define knowledge as having one aspect because there are many kinds of concepts of knowledge in various areas. Indeed, Berger and Luckmann (1966) considered "knowledge as created by the interactions of individuals within society which is central to constructionism" (in Andrews, 2012, p. 40). However, there is a basic concept for knowledge which is socially legitimated. For instance, knowledge in the Oxford Dictionary means facts, information, skills and awareness.[1] In detail, this knowledge is described as facts, feelings or specific education which a person obtains through experiences or education. Including these meanings, there are also other more explanations in here. Thus, there are generally many concepts of knowledge. This concept exploring knowledge is similar to one perspective of sociology - the sociology of knowledge. That is, knowledge is strongly associated with a social base. Karl Mannheim in *Ideology and Utopia* (1936) showed the explicit formulation of this concept. He argued that "a range of social positions (not merely social class) determine forms of knowledge and that it is not possible to grant one point of view greater truth-value than another" (in Scott & Marshall, 2009, pp. 387~388). In respect of sociology of knowledge, I will debate knowledge in the context of education (one kind of social position).

[1] http://oxforddictionaries.com

2.4.2. Meaning of knowledge in the educational context

First of all, I will mention knowledge as defined in the Oxford Dictionary of Education (Wallace, 2009, pp. 150~151) to explore knowledge in terms of education. In this dictionary, knowledge in the educational area has to be at least related to the cognitive, affective and psychomotor domains in Bloom's Taxonomy (Bloom et al, 1956) because education includes these three domains. However, many educationists asserted that knowledge in education has to be understood in various contexts such as involving moving beyond the 'who', 'what' and 'when' to the 'how' and the 'why'. And this book explained that knowledge in education tended to be constructed culturally, socially, and politically rather than absolute. Following this suggestion, we have to ask wider questions for ourselves. For example, we should ask what legitimate or worthwhile knowledge is because teaching and learning would be understood by implicit knowledge. In this context, I will introduce knowledge in education in respect of Ryle (1949) and Bruner's (1960) view.

2.4.3. Meaning of knowledge in the context of Ryle's knowledge and of Bruner's structure

Ryle (1949) divided knowledge into two parts as 'knowing that (propositional knowledge)' and 'knowing how (procedural knowledge)'. In the 1960s, while Peters (1966) was trying to define the aim of education using 'knowing that' and 'knowing how', he regarded physical education (or activities) as just 'knowing how'. This means that physical education was not included in the area of education. However, this judgement was disputed by many scholars (e.g. Kirk, 1988; McNamee, 2009; Morgan, 2006). Because of these critiques, physical education earned a place in education.

Bruner also left behind remarkable achievements about knowledge in respect of education. In particular, he concentrated on the structure of knowledge suggesting that the subject matter which students had to be taught in school was a structure of knowledge. For example, students have to learn basic concepts through leaning

relationships between mutual context contents (structure of knowledge) in the subject matter. His stress for the structure of knowledge was revealed in his one sentence. “We begin with the hypothesis that any subject can be taught effectively in some intellectually honest form to any child at any stage of development (Bruner, 1960, p.33).”

In this sentence, we could confirm his intention that teaching the structure of knowledge was very useful for students’ learning. He suggested the spiral curriculum to accomplish the curriculum reform based on teaching the structure of knowledge in the 1960s. These two concepts are basic in terms of educational views of knowledge.

2.4.4. Meaning of knowledge in the context of the academic orientation in TE: centring content knowledge

If this is so, how could we explain knowledge in TE? Shulman (1986; 1987) is a scholar who explained teacher knowledge showing seven categories of teacher knowledge. I will explain this in the knowledge in PETE in detail. Here, I discuss the academic orientation in TE because the academic orientation is one of important components in my study. As I explained in chapter 2.3, the academic orientation in TE is a little bit simpler than it in PETE. Feiman-Nemser (1990) noted that a characteristic of TE based on the academic orientation meant that teachers had to teach worthwhile things which students could not obtain for themselves. She insisted that subject-matter knowledge which was central to the academic orientation was an impetus in teacher education. What then is subject matter knowledge in teacher education? Schwab (1964) noted that subject matter knowledge in TE contained knowledge of the content of a subject areas, knowledge of the substantive and syntactic structures. Shulman (1986, 1987) and Grossman (1990) insisted that subject matter knowledge is an essentiality to the teaching of students in a school and not really debatable. For example, subject matter knowledge in Mathematics education is mathematics itself. Siedentop (2002) argues:

> "In math or English or music or art, the task of defining the content knowledge base would be straightforward. That is because the math, English, music, and art that children learn in school is clearly related to the math, English, music, and art that prospective teachers learn in the university as content knowledge in their teacher preparation programs." (Siedentop, 2002, p. 368)

According to this explanation, Siedentop (2002) gave an easy example to note a lucidity of subject matter knowledge in TE such as "math itself".

2.4.5. Meaning of knowledge in physical education: discipline and subject matter knowledge

Knowledge in physical education can be divided into discipline knowledge and subject matter knowledge. First, knowledge connected to a discipline is, for example, exercise physiology, sport biomechanics and sociology of sport, etc which are included in the area of kinesiology. Second, knowledge related to the subject matter is contents which students learn in school (You, 2010).[2] She also mentioned Ryle's knowledge to explain subject matter knowledge in physical education suggesting that the subject matters in physical education include 'knowing that' and 'knowing how'.

> "It is impossible that the subject matter in physical education is explained just establishing of relationship between knowing that and knowing how. It is applicable to other subject matters in types of classification. The situation which physical activities are carried out is comprised of both propositional knowledge and procedural knowledge. For example, there is the knowledge which knows or understand a football (=propositional knowledge) and the knowledge which does or plays a football (=procedural knowledge) in football." (You, 2010, pp. 317~318, written by Korean language)

She explained the subject matter in physical education in terms of Ryle's knowledge with a real example proving that the subject matter in physical education included two components of Ryle's knowledge.

[2] In fact, discipline knowledge in England has entered to the area of subject matter knowledge since the 1980s (Green, 2008) even if discipline knowledge has been still more effective in the area of kinesiology.

2.4.6. Meaning of knowledge in PETE: components of Shulman (1987) and Kirk et al (1997)

I am going to discuss knowledge in PETE. Shulman's components in TE and PETE are the most used components. Many scholars in physical education identified knowledge for PETE (e.g. Fernandez-Balboa, 1997; Kirk et al, 1997; NASPE's guideline, 2003; Rovegno, 2003; You, 2010). Among them, I selected components of Shulman and Kirk et al.

2.4.6.1. The description of Shulman's components

One important way of thinking about knowledge in TE is Shulman's (1987) framework, which consist of seven categories of knowledge. These are content knowledge (CK), general content knowledge (GCK), pedagogical content knowledge (PCK), curriculum content knowledge (CCK), knowledge of educational contexts (KEC), knowledge of learners and their characteristics (KLC), and knowledge of educational goals (KED). The contents in each component are laid out in the table below:

Table 2. The seven categories of Shulman's knowledge based for teaching (1987) (adapted from Metzler, 2000, p.56)

No.	classification	contents
1	Content knowledge	knowledge about the subject matter to be taught
2	General pedagogical knowledge	knowledge about teaching methods that pertain to all subjects and situations
3	Pedagogical content knowledge	knowledge about how to teach a subject or topic to specific groups of students in a specific context
4	Curriculum knowledge	knowledge about developmentally appropriate content and programs at each grade level
5	Knowledge of educational contexts	knowledge about the impact of context on instruction
6	Knowledge of learners and their characteristics	Knowledge about human learning as it applies to teaching
7	Knowledge of educational goals	knowledge about the goals, purposes, and structure of our educational system

This above table summarises Shulman's (1987) knowledge base for teaching. First, in PETE, content knowledge consists of the rules, tactics and skills, etiquette and tradition of practical physical activities such as football. Second is general pedagogical knowledge; if a physical education teacher teaches students, he needs to use management or communication methods, such as using a clear voice, and wearing tidy clothes, but also to have a method for coping with students' misbehaviour. Third in Shulman's framework is pedagogical content knowledge, which is a method for teaching content knowledge. In teaching games, for example, physical education teachers might learn how to design, use modified games and use a reciprocal teaching style so that pupils learn the rules, skills and tactics of games. The fourth category, curricula content knowledge, may involve the physical education teacher in considering at which Key Stage the Sport Education Model might be introduced, in relation to the NCPE. Fifth is knowledge of educational contexts, such as the NCPE, how units of work at particular Key Stages might relate to the NCPE, and the school as an institution with its particular history and local characteristics. Sixth, a teacher needs information about his students, their prior experiences, their levels of interest and ability, and so on. Finally in Shulman's framework is knowledge of educational goals, such as knowing that Sport Education Model aims to produce competent, literate and enthusiastic sportspersons.

2.4.6.2. Research using Shulman's components: CK and PCK in physical education

Capel (2007) noted that many scholars in the area of physical education research studied CK and PCK.. Though many scholars also studied curriculum knowledge, they tended not to mention Shulman in their articles, whereas in studies of CK or PCK, Shulman is invariably mentioned. I will now describe the research on CK and PCK.

First, Lawson and Placek (1981) divided CK into "physical activity" (practical content knowledge (PRACK), p. 22) and "intellectual discipline of subject matter

(theoretical content knowledge (TCK), p. 22)". After they studied CK, many scholars (e.g. Capel et al, 2009; Hayes et al, 2008; Herold & Waring, 2009; Gower & Capel, 2004; Siedentop, 2002; Tinning, 2002; Walkwitz & Lee, 1992) also researched CK. Siedentop (2002) and Tinning (2002) noted that the PRACK was a substance and a deliverer of sport culture in PE and PETE. Based on this classification, I have classified CK under two groups in PETE as shown in Table 3 below:

Table 3. CK (explanations and examples) in PETE

Shulman's Categories		Definition of categories	Units in examples of Shulman's categories	The sentences in the units that provide evidence of the categorisation	Examples that teachers need to teach PE in school
CK	Theoretical content knowledge (TCK)	knowledge about the subject matter to be taught	Physiology of Exercise	Develop ideas on how these topics may be covered in the A level syllabus.	Subjects of GCSE & A-level
	Practical content knowledge (PRACK)		Area of Learning A	The experience of athletics, dance, gymnastics, and swimming.	Football, Cricket, Basketball, Baseball

There are two kinds of CK in PETE such as TCK and PRACK in table 3. It is a kind of practical classification rather than theoretical classification such as the structure of knowledge because these contents belong to the curriculum in school. First, physical education teachers in England teach theoretical contents such as GCSE PE or A-Level PE (TCK) in classroom and they in Korea also teach those contents to students in school because students in school have to take a term-end theoretical examination of physical education lecture.[3] This style of lecture is very similar to class such as mathematics and biology, etc. Second, they teach football, cricket, and so on (PRACK) in the playground. Even if they can teach rules or histories in football in classroom, most PE teachers teach physical activities in the pitch or gym. This classification will be drawn upon in my study.

Second, many researchers have studied PCK. Housner and Griffey (1985)

[3] In Korea, theoretical contents in school are very small parts in school curriculum.

researched differences between experienced teachers and inexperienced teachers in terms of the application of PCK. Rovegno (1992; 1995), McCaughtry (2004), Capel (2007), Herold & Waring (2009) and You, Jeong-Ae (2010) also studied PCK in PETE. Schempp et al (1998) and Fernandez-balboa (1997) studied the relationship between CK and PCK. Fernandez-Balboa (1997) suggested five knowledge bases for PETE based on Shulman's framework. Based on Fernandez-Balboa (1997)'s knowledge, the new knowledge for PETE was made by NASPE (2003). Amade-Escot (2000) noted the research on PCK in America from the late of 1980s to 1990s and compared this to the *didactique* tradition of physical education in France which, she argued, is a similar concept to PCK. These Shulman's components mainly used to analyze the PETE curricula of two countries with a way of Kirk et al's components.

2.4.6.3. Kirk et al's components

Kirk, Macdonald and Tinning (1997) explained a process of change of PETE in University of Queensland and Deakin University for 20 years using six components to analyze this PETE program as follows.

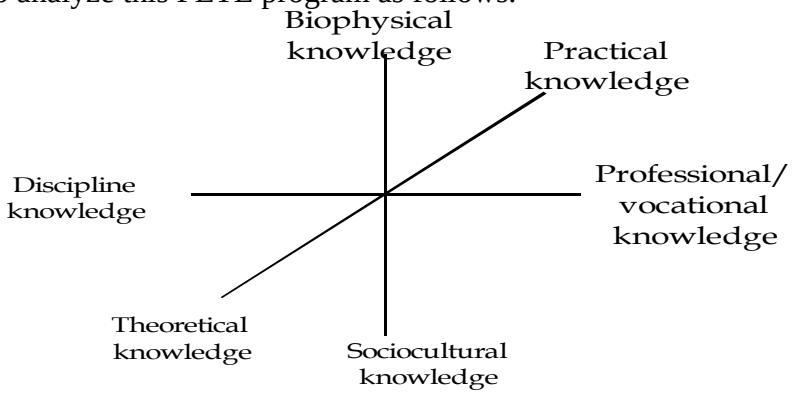

Figure 1. The six categories of Kirk et al's framework based for teaching (1997) (adapted from Kirk et al, 1997, p. 277)

They explained this figure as a three-dimensional framework of interdependent factors.

> "The framework takes the form of three intersecting continua. One continuum, the horizontal axis, is concerned with the relationship

between discipline-based knowledge and professional and vocational knowledge. A second continuum, the vertical axis, is concerned with the relationship between biophysical knowledge and socio-cultural knowledge. A third continuum, a front to back axis, concerns the relationship between practical and theoretical knowledge." (Kirk et al, 1997, p. 277)

In table 4, I explain this framework.

Table 4. The six categories of Kirk et al's knowledge based for teaching (1997)

Axis	Classification	Content	Examples in curriculum in University of Brighton
Same	Biophysical Knowledge	Biophysical science subjects p. 278	Foundations of Sport and Exercise
	Socio-cultural Knowledge	Socio-cultural subjects p. 278	Social Perspectives on Sport
Same	Discipline Knowledge	Discipline-based though with some vocational elements, predominantly theoretical and drawing on both biophysical and socio-cultural knowledge p. 277	exercise physiology, sport sociology
	Professional Knowledge	A line of work that requires a specific qualification such as a lawyer, doctor or teacher (Inglis & Aers, 2008, p. 154)	Independent Professional Development
same	Theoretical Knowledge	A theory is an example proposed of a particular problem, and the test of it is whether the explanation holds up p. (Inglis & Aers, 2008, p. 192)	Qualitative Analysis of Human Movement, Independent Professional Development[4]
	Practical Knowledge	Physical activities	Track and Field Athletics, Learning and Teaching Through Athletics

These six components are practically a little bit broader than Shulman's components. For example, Principles of Physical Education in Seoul National University and Education Studies 2 in University of Brighton were difficult to categorize inside of Shulman's components because they includes both PCK and CCK. On the other hand, professional knowledge in Kirk et al's components include most components (PCK and CCK) in two units because professional knowledge contains broad components related to knowledge to become a teacher. These two units are more associated with theoretical knowledge than practical knowledge because these units contain more theoretical contents rather than

[4] The unit of Independent Professional Development in the University of Brighton is sometimes considered both professional knowledge and theoretical knowledge.

practical knowledge such as physical activities. Moreover, even if lecturers in these two units teach teaching ways in the classroom, gym or playground, they mainly teach these units based on the theoretical background. The unit of Foundations of Sport and Exercise is mainly included in biophysical knowledge and theoretical knowledge because it contains, of course, biophysical and theoretical contents. However, it is arguable whether this unit is discipline knowledge or professional knowledge because it is difficult to judge which components are more than another. In this case, I decided that units of discipline knowledge are mainly units which are based on discipline knowledge such as biomechanics, exercise physiology even if it contains professional knowledge. In this aspect, sport pedagogy used similar meaning of professional knowledge in this thesis.[5]

In summary, I have explained general knowledge, teacher knowledge, and physical education knowledge to refine the notions of knowledge in my research showing that knowledge is able to define as the context of specific areas. I will use Shulman (1987) and Kirk et al's (1997) framework in my study based on teacher knowledge. In the next part, I will introduce the argument of content knowledge in PETE.

2.4.7. Arguments about CK in PETE

As I mentioned before, CK in PETE includes many sub-disciplines such as exercise physiology, motor control/learning, biomechanics, and history of sport. You, Jung-Ae (2010) noted that CK in physical education could display various aspects because CK in physical education only contained physical activities in

[5] Armour (2011) defined sport pedagogy based on various explanations (e.g. Haag, 1989; Kirk, Macdonald & O'Sullivan, 2006; Tinning, 2008). For example, "Sport pedagogy is the foundation of effective teaching and coaching in physical education and youth sport (p. 13)", "Sport pedagogy is a multidimensional, multilayered term that represents the complex learning process in physical education and youth sport (p. 14)", "Sport pedagogy is that place where you will bring together your knowledge from all the other sub-discipline of sport sciences (p. 14)", "Definition of sport pedagogy are contested but it has clear links to pedagogies in health and personal/social development (p. 19)", and "Sport pedagogy is founded on the recognition that it is essential to 'diagnose' learners' needs as a key step in designing practice. This is important in order to counteract some of the potential harm done to young learners when they are engaged in inappropriate learning activities (p. 21)." In terms of these various definitions, in my thesis, units related to sport pedagogy (or professional knowledge) consist of various contents which student teachers should learn to become a teacher in school based on mainly studies of academic development of physical education such as Sport Education Model, TGfU, including learning, teaching and curriculum of physical activities which Kirk, Macdonald & O'Sullivan (2006) mentioned 'pedagogy' should include.

educational areas. This is one of the reasons of existence of exercise physiology and motor control/learning which are associated with physical activities as CK in PETE. Nevertheless, there are many arguments about CK in PETE between knowledge based on physical activities and knowledge based on theories. For example, Kirk (1988; 1992; 2006; 2010), Locke et al (1981), Lock (1984), Rink (2006), Siedentop (2002), and Tinning(2006) continuously insist that CK based on physical activities in PETE is the most important component.

On the other hand, some scholars note an emphasis of sub-disciplines (Henry, 1965; 1978; Newell, 1990). Henry's discussions (1964; 1978) are one of the important scholars insisting on the academic movement in physical education. Though kinesiology in the USA was developed from PETE, the scope has been expanded to various sporting areas. Although he could not be convinced of a requirement of this scientific development (disciplinary movement) in PETE such as a scientific trend in teaching, he noted that disciplinary movement in kinesiology was positively necessary in respect of inter-disciplinary studies. He showed some developmental examples in universities of America insisting that physiology, coaching, nutrition etc in kinesiology would be developed rapidly. Moreover, he emphasized on a development of Master's and PhD courses in kinesiology to survive to the future. Although he wrote about kinesiology from a macro perspective rather than mentioning PETE, his article was suggestive and realistic in PETE because only teaching theoretical contents based on practical contents (e.g. football, hockey, etc) was not easy in a university where was placed in a summit of an academy at that time. Moreover, in England, many colleges related to PETE from the middle of 1970s adopted academic subjects to enter a degree or university level similar to a disciplinary movement of America (Fletcher, 1984; Kirk, 1988; 1992; 2010; Webb, 1999).

As a result, CK in PETE has appeared in the literature. I have confirmed that many scholars insisted that CK in PETE has been mainly PRACK, keeping that sub-discipline subjects in PETE still have been a considerable role because of practical situations such as belonging in a university. Based on this basic review,

in next section, I will investigate the substantive and historical changes to PETE in two countries in chapter 2.5.

2.5. A history of PETE: An overview of physical education from the 1960s to the 2010s in England and Korea based on the academicisation

The academicisation of PETE means not only a shift from diploma to degree level but also the scientization, specialisation, and fragmentation of knowledge (Kirk, 2006). Many scholars have debated the academicisation of PETE. For example, Carroll (1986), Hargreaves (1982), Kirk (1988; 1992; 2006) and Fitzclarence and Tinning (1990) discuss academicisation in England. Kirk (1992) in particular researched components of sub-disciplines of physical activities that were cultivated in PETE programmes in the 1970s. In addition, Kang, Shin-Bok (2003) also discussed academcisation in Korea. Based on this basic notion, I will argue academicisation of PETE in two countries.

2.5.1. Academicisation of PETE in England

2.5.1.1. General changes of PETE from the 1960s to the present

There are three patterns of a teacher education system in a university setting in the world. They are objective, open and mixed type (Lee, woo-Il, 1992). The pattern in England is the objective type because most student teachers in England become teachers - around 90% since the 1960s.[6] Even if the proportions of student teachers who became teachers were sometimes less than 90% because of economical problems, overall the rates have been very high. Based on this basic information, I will explain the history of PETE programmes in England.

The policy of higher education had been a binary line by 1992. This means that

[6] About 90% fourth year student teachers in 2008/9 have become PE teacher (http://www.beds.ac.uk/howtoapply/departments/physical/about).

universities had kept their characteristics such as being autonomous and independent institutions. Meanwhile, colleges, higher education and polytechnics were controlled by local authorities or central government. However, because of Further and Higher Education Act in 1992, colleges, higher education or polytechnics merged with or changed to universities and the binary system was abolished. This is important in framing PETE and higher education.

The PETE in England has been in keeping with the context of change of TE. The demand for teachers in the 1960s after the Second World War increased because of growth of numbers of students. It caused the systematization of TE. Because of these social requirements, the leverage of central government for teaching colleges, which were already influenced by local authorities and central government, was much stronger than in the past. The English government tried to reform educational systems to catch up with these demands. A key event was the implementation of the Robbins Report (1963) in the 1960s and the 1970s. At that time, the labour government provoked the growth of numbers of universities, polytechnics and teacher training places as the suggestion of the Robbins Report (1963). For example, the numbers of physical education teacher training colleges had increased from 47 in 1963 to 109 in the 1970s. Moreover, the Robbins Report recommended student teachers who just had a Certificate of Education (COE) in teacher training college obtain a Bachelor of Education (BEd) degree. This means that some student teachers who completed their teacher training colleges for three years could enter a BEd course in university on a one year course. For example, two or three outstanding student teachers who obtained a COE degree in Bedford College of Physical Education entered a BEd course in Cambridge University in the 1970s. For these reasons, we could see the implementation of the Robbins Report (1963) as a starting point of academicisation in TE and PETE as a national policy. Nine years later, the James Report (1972) promoted the qualities of TE. James Report officially asked all teacher training colleges to become higher education or polytechnics. Although they suggested two or three years BEd course, the government finally decided the BEd course should run as a 3-year ordinary or 4-year honours BEd. This was a long awaited policy for teacher training collages

because they could grant BEd degrees not through universities, but through their own institution, even if the conferment was supervised by Council for National Academic Awards (CNAA). However, teacher training colleges which taught one main subject could not promote the BEd course. Because of that, there were many amalgamations in the 1970s between teacher training colleges. For example, Bedford College of Physical Education merged with Bedford Training College and Mander College of Further Education in 1976 to meet the standard of the James Report. Finally, the title of the three merged institutes became Bedford College of Higher Education (BCHE) in 1976. This means that they taught various main subjects such as physical education, English and biology and could give their own BEd degree from1976. Because of many of these mergers, about 200 teacher training colleges in 1972 had reduced 28 in 1982. Other 170 colleges merged as polytechnics or higher education and became an incorporated a sector in universities. During these dynamic changes, most student teachers in PETE at the early of 1980s could obtain a BEd degree. The period from the 1960s to the early 1980s was a time of prosperity in PETE. However, the periods of the decline in the TE have started since the end of 1980s because of dramatic cut in higher education funding. On account of this economic problem, there were just 14 PETE courses in the polytechnics and higher education, and four PETE courses in universities in 1988 compared to 107 PETE courses in the 1960s, this reduction happened very quickly and was shocking. Along with this, the decrease of amounts of hours in the official curriculum in the PETE has also begun since the 1980s. For example, although student teachers in 1982 had 18~20 hours a week in the timetable in Bedford College of Higher Education (BCHE), student teachers at present have 10~12 hours a week in the same course. As a result, the academicisation in the PETE course had been made progress from the 1960s to the 1980s. For example, even if the PETE curriculum in the 1980s was in its infancy compared to other courses in universities, the curricula in the PETE course had developed and sophisticated more than the previous curriculum in the PETE course. This means that there was room for development in the future even

if there was a decline such as decreasing of funds in the 1980s.[7] Through the Further and Higher Education Act (1992), most polytechnics and higher education has been upgraded as a university since 1992. For example, Brighton Polytechnic in 1992 changed its title as University of Brighton. Because of this change, student teachers in the PETE course in this university have been able to receive BA degree instead of BEd degree since 1992. Through this process, academicisation in PETE course occurred in respect of the undergraduate degree completed in 1992.

In addition, examination in physical education in school[8] has started since the 1980s. This means that the subject matter contents of physical education were included in Certificate of Secondary Education (CSE). Because of this examination, physical education teachers' role or status increased (Carroll, 1986). Even if there have been no specific reports of the influence from this introduction of examination in school to PETE, because many students in school have selected GCSE PE or A-Level PE (Green, 2008), we could predict that there have been some influences from this change.[9] Moreover, National Curriculum Physical Education (NCPE) in 1992 was released based on The Education Act in 1998. Even if physical education in the National Curriculum introduced not 'core' but 'foundation' subjects, it is meaningful historically that physical education became an official subject in the National Curriculum in England. However, this NCPE was not suggesting new directions and structures but offering the classification of familiar and traditional subjects (Penney and Evans, 1999). This means that the establishment of NCPE did not affect the academicisation of PETE so much. It has affected the reorganization of units of physical activities in some PETE courses.[10]

2.5.1.2. Contestations of academicistion in the PETE course

[7] Saunders (1988) summarized the PE course from the 1960s to the 1980s in the context of teacher education, higher education in England. I summarized the part of PETE in his article. In addition, I put some of my findings as all examples such as the changes of Bedford College.
[8] School means school level (CSE, GCSE, 'A' level) and F.E. level (city & Guides, BTEC, Tradec) in Carroll's article (1986).
[9] I will show this influence in my result.
[10] I will show also the influence from NCPE in chapter 8.10.

In this section, I will discuss the argument of academicisation of PETE in England. First, I will explain the pros and cons of academicisation of physical education in school. Second, in addition, I will explain for and against of academicisation of PETE.

The academicisation of physical education deepened while physical education subjects were including Certificate of Secondary Education (CSE) in school in the 1980s (Carroll, 1986). Carroll noted that the presence of examinations of physical education in school indicated the success of academicisation bringing with it a variety of purpose for the teachers such as a mechanism for role survivor, a status determinant and a means of professional development (Carroll, 1986).

Fitzclarence and Tinning (1990) insisted that physical activity was a unique physical education. They did not want to include "a field of academic worthy of examination (p. 175)" in physical education. Though this trend, which followed Academicisation, made politically a stable situation, Kirk (1988) insisted that we needed to assess more carefully physical education's future:

> "What we do not need in physical education is to replicate the errors of other "high status" subject areas in terms of content-dominated courses, didactic teaching methods, rote learning and unrealistically high standards of achievement." (Kirk, 1988, p. 151)

Kirk (1988) was deeply worried that physical education in school was to imitate bad characteristics of theoretical subjects such as rote learning. However, about 10 years later, Green (2001) noted that CK in the form of biomechanics, physiology and sociology appeared gradually in school programmes in the form of GCSE PE and A-level PE from the 1980s in England, concluding that "the academicisation of PE can legitimately be described as an emerging orthodoxy" (Green, 2001, p. 70). He (2008) noted that this trend would be sustained in the world of physical education. That is, even if there were opposite or worrying opinions against the academicisation of physical education in school, it has become orthodoxy in

England.

In addition to this academicisation trend in physical education, I will discuss the academicisation in PETE. Although the first undergraduate degree program was started from the late 1940s at the University of Birmingham, degree level qualifications for physical education teachers were not common place (Kirk, 2000). In the late 1960s, the adoption of scientific subjects in degree level physical education was a starting point of academicisation (Kirk, 2006). This choosing of scientific subjects in degree level in the 1960s had an affect in PETE courses interlinking the endeavour of PETE course of upgrading from diploma to degree level, at the time. Moreover, since then, including physical education subjects in CSE, as I mentioned, in the 1980s was also one component of strengthening the trend of academicisation in PETE. Carroll (1986) mentioned that "It seems to me that establishments training P.E. teachers need to look at all these new examination developments and urgently incorporate them in their program" (Carroll, 1986, p. 239). She strongly agreed with the trend of academicisation of PETE and introducing the academicisation of physical education.

> "Provision and finance is being made available for training of teachers in the new syllabuses through the examination boards. The encouraging (C.S.E) news is that each of the new examination board consortium will provide a Model in physical education" (Carroll, 1986, p. 235)

Carroll noted that physical education teaching extended to new studying areas such as theoretical units in CSE in physical education. Whitehead and Hendry (1976) also greeted the introduction of examination of physical education in school showing that the then demerit of physical education teachers' role in school. For example, marginal roles of physical education in terms of subjects in school affected physical education teacher's role and status.

In contrast, Hargreaves (1982) was against the academicisation of physical education through his 10 proposals. He noted that academic respectability in

PETE had to be abandoned. He insisted that though knowledge of physiology, psychology etc was needed in PETE at BEd level, student teachers had to concentrate on obtaining contents related to physical activities because the effect of academicisation would be a possibility that many primary or secondary students in school would lose their right of enjoying physical activity. Indeed, he thought that PETE strongly would affect students' physical activity in school. Kirk (1992) was also concerned about PETE based on academicisation of physical education.

> "But this popularity and dominance does not guarantee that the three or four year trained physical education teacher will necessarily have a prominent role in teaching competitive games and sport in schools. ….. Meanwhile, the physical education teacher may be permitted a minor role in teaching games and sports, but will find his or her time consumed by teaching and assessing the new academicized physical education subject." (Kirk, 1992, p. 164)

He worried that the education of practical physical activity in PETE would be reduced continuously and physical education teachers' role would be changed to a kind of administrator through academicisation.

In summary, there have been many contestations of academicisation in terms of negative or positive perspectives since the 1960s, showing many changes in PE and PETE. Moreover, the influence has been still ongoing and need to be studied with diverse views such as effects for PETE curriculum.

2.5.2. Academicisation of PETE in Korea

The pattern of a department of physical education in university in Korea is mixed type because compared to English Qualified teacher status (QTS) system of objective type (over 90% graduates become a teacher), about less 10% of fourth year students who graduate a department of physical education become a teacher.[11] For example, five students out of 45 graduates in Department of

[11] In physical education, there were no specific statistics about this. Lee, Jong-Jae et al (2009) reported about 10% among

Physical Education of Seoul National University in 2010 became a teacher.[12] Based on this basic information, I will explain the history of PETE programmes in Korea.

2.5.2.1. The PETE course in Korea being affected by the USA

At present, there are 25 departments of physical education started by Seoul National University in Korea (Jo, Mi-He & Park, Yun-Hee, 2010). PETE policy in Korea was started by the United States Military Government (USMG) after Korea was emancipated from Japan in 1945. At that time, USMG established some colleges of education in universities to supplement insufficient numbers of teacher because Japanese teachers went back to Japan. After that, because of urgent economic development in Korea from the 1960s, even if the pattern was mixed type, because demand of teachers had been higher than supply of teachers by the end of 1980s, the demand and supply of teachers was not a big problem. However, the situation has been reversed since the early of 1990s showing that competitions to pass the teacher recruitment examination has been very severe. It is a big issue at present in Korea (Lee, Jong-Jae et al, 2009). Although PETE first has started in Seoul National University in degree level since 1945, there were also other teacher education systems such as two year course or four year course in the 1960s. At that time, Korean military junta planned that all two year courses were elevated to the four year courses to enhance the quality of secondary school teachers (Choi, Ji-Yong, 2003). Even if it looked a kind of academicisation in TE, nobody has debated whether the phenomenon was caused by academicisation or not in PETE. Moreover, Kang and Choi in 1991 introduced the disciplinary movement in the USA of physical education (e.g. Henry, 1964; 1978) in Korea. This means that they were the first scholars who mentioned the trend of academicisation which was happened in the USA in the 1960s to Korea at the early of the 1990s. Because of the gap of at least 30 years between the shift in Korea in the 1960s and the introduction of academicisation in physical education

applicants in the teacher recruitment examination in all subjects became teachers from 1983 to 2008 showing that the proportions have reduced 12.6% in 1993 to 7.4% in 2008. Based on this resource, I guessed that fourth year students in department of physical education became a teacher less than 10%.

[12] This resource is from an internal document in Seoul National University.

in the 1990s, it was difficult to judge whether the shift from diploma to degree in Korea in the 1960s caused the academicisation or not. On the other hand, Kang (2003) noted that the academicisation in PETE in Korea started from the late 1980s suggesting that the occurrences of PhD courses in physical education in the late 1980s and the establishment of Korea Association for Sport Pedagogy in 1994, was influenced more profoundly by the academicisation of physical education in the USA. As a result, we confirmed that the PETE course in Korea has been affected by PETE in the USA.

2.5.2.2. The change of the PETE courses in Korea based on Kirk's components

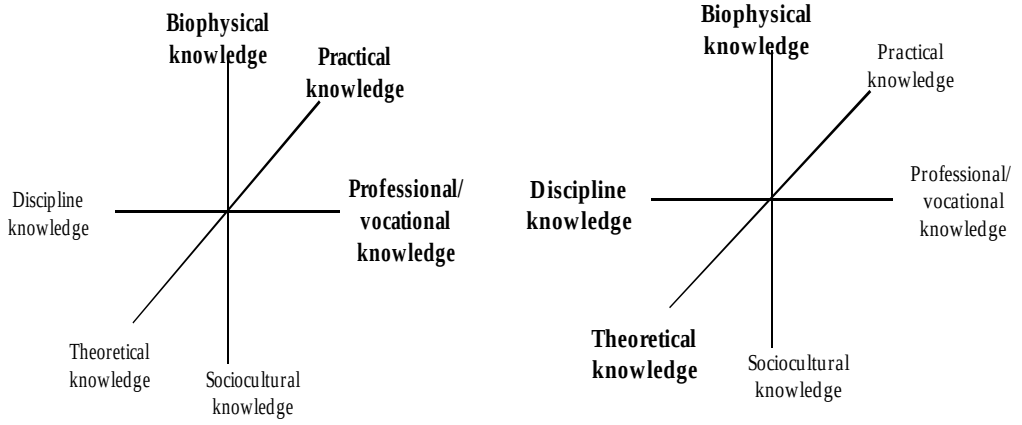

Figure 2. The change of knowledge in PETE in Australia from the early of 1970s to 1986 (Kirk et al, 1997)

In this part, I will debate the change in the PETE course in Korea. Choi (2005), Lee (2008) and Han (2010) worried about the situation caused by fragmentation and segmentation of physical education in Korea. In Korea, physical education was closed to kinesiology because they worried about detached research (fragmentation) of sport psychology, motor learning, sport society, and sport pedagogy, and so on. Han (2010) made a counterproposal which was in consilience to Wilson (2003). However, there were no Korean articles about abuses and solicitudes which had happened in PETE in Korea from academicisation. Although they have not mentioned academicisation or the disciplinary movement, based on the fact that PETE in Korea was affected from

America, I found similar evidences in Korean articles and situations. I will explain PETE of Korea based on Kirk et al's (1997) interpretation of PETE of Australia between pre- 1970s and the 1980s (see figure 2). First, PETE of Australia was shifted from Professional/Vocational knowledge to Discipline knowledge. Compared to this shift, many Korean articles reported that units which were related to sub-discipline knowledge such as exercise physiology, motor learning, sport psychology, or sport sociology, and so on was at a higher ratio than units of Professional/Vocational knowledge such as units of 'instructional principles on physical education subject matter', 'theory of physical education', 'curriculum in physical education', or 'teaching and learning methods in physical education', and so on (Kang & Kwak, 1995; Ahn, 2003; You, 2005; Jung & Kim, 1999; Han, 2010; Cho & Park, 2010). Cho & Park (2010) showed that a percentage of 93.3% of contents and 6.7% of units of professional knowledge. However, they did not write about the acquired reasons. Because the curriculum pattern of department of physical education in Korea is mixed type, it is difficult to concentrate on Professional/Vocational knowledge. If the student teacher educators in universities of Korea concentrated on only PETE, education for the 90% of students who do not or cannot become a teacher in a secondary school will become weak. This fact was also one reason why the curriculum of department of physical education in Korea had many units associated to discipline knowledge. Moreover, based on the fact that PETE was affected from America (Choi, Eui-Chang, 2003; 2005), this situation was also related to academicisation, because of the disciplinary movement from the 1960s, subjects such as exercise physiology, sport biomechanics, or sport psychology seemed to be emphasized in the curriculum of PETE in Korea. I could not find sources which compared the curriculum of the department of physical education between the 1960s and the 1990s.[13] Regarding this situation, You (2005) insisted that Professional/Vocational knowledge related to teacher education in Korea should increase for the PETE programmes in universities. Second, PETE in Australia was shifted from practical knowledge in pre- 1970s to theoretical knowledge in the 1980s. Compared to this shift, if

[13] I will show the result of this in chapter 6 and 7.

secondary students want to become a student in a department of physical education, they need a practical test in Korea. It is a very important component to success in a university entrance exam. Compared to this, the English practical test is less important to enter a department of physical education (leading to QTS). In Korea, there are 25 departments of physical education. The entrance exam of all departments includes the practical test. But the components of the practical test are different for each university. Kim (1994) researched 17 courses associated with the physical education (kinesiology) university entrance exam from 1993 to 1994. He noted that the ratio was 31.6% in 1993 and 29.3% in 1994. Park and Kim (1997) surveyed 84 courses related to physical education (kinesiology) of Korea and found 31.6% in the ratio of entrance exams. From these resources, I could not find the trend of academicisation. However, drawing on my personal experience, in the case of Department of Physical Education in Seoul National University, the practical subjects were reduced from 11 in 1998 to five in 2000. They were again increased from five in 2000 to eight in 2005. The reduction was not only numbers but also the ratio in whole percentage of the entrance exam. About this my experience, unfortunately, I could not confirm the situation with official resources. It was just my experience as a staff member in charge of the entrance exam in Department of physical education in 2008. In addition, in the teacher recruitment examination to become a physical education teacher, though practical test subjects are different in each region, applicants have to do a practical test. Cho (2009) reported that the ratio of practical tests in all subjects including theoretical tests, Practice teaching presentation, and so on has been reduced continuously. Although there was an article which noted the reduction of the practical test in the Korean' entrance exam for becoming a physical education teacher, there was no an article to explain the reasons. Thirdly, PETE in Australia stressed biophysical knowledge in the 1970s. In the 1980s, the knowledge was stressed more than in the 1970s. Related to this shift, I could not find out Korean resources to compare.

Based on Korean articles, I can confirm that the phenomenon associated to academicisation in Korea exists. However, although this phenomenon is related to academicisation, based on politics, societies, educations or histories of Korea, I

need more research to investigate these facts because I just confirmed the contents only from Korean articles.

2.5.3. The reasons for comparing PETE in England and Korea

Why do I want to make a comparison between England and Korea? Firstly, England has had a long tradition in physical education and Korea more recently has been accepting suitable ideas of economically developed countries such as the USA after the end of the Korean War. However, the physical educational system of Korea has been developing differently from America because of the different size of country, scales of economy, political situations and cultural differences. Secondly, there are differences in ways to become a secondary school teacher between England and Korea. There are three ways to become a teacher in England; 1) where students complete three or four year degree course in a department of physical education in university, 2) Where graduates of sport-related programmes complete a one year course in a university called a postgraduate certificate course in PE (PGCE) 3) Where graduates of sport-related programmes complete a one year course based on school-based training programme called a graduate teacher programme (GTP). In contrast, there are three ways to become a secondary school teacher in Korea. 1) Where students complete four years degree courses like England, 2) Where students graduates of sport-related programmes complete 2.5 years Master's degree course in a university, 3) Where students who have good grades (top 5%) in some university sports departments complete related education studies. However, if Korean students pass these three methods, they need to take a Teacher Recruitment Examination (TRE) to become a tenured teacher. If students graduate from a department of physical education without the TRE, they can be employed only on one-year contracts or in private secondary schools. Most students want to be tenured teachers because one year contract teacher's status is unstable and it was difficult to be hired in private secondary schools. These differences will be interesting to make a comparison between the two countries that have developed differently, particularly in terms of similarities and differences in the knowledge base, and whether similar trends such as

academicisation, fragmentation and scientization can be found in each country. Different as well as similar trends of PETE through the two countries' development process of PETE will become evident. In table 5 I introduce the basic differences of PETE in England and Korea in 2010.

Table 5. Overviews of each university in England and Korea

	UNIVERSITY OF BEDFORDSHIRE (England)		INHA UNIVERSITY (Korea)	
Duration to graduation	4 years		4 years	
Span of Semester	October/2009~May/2010		March/2010~December/2010	
The number of units	All units: 30		All units: 75	
	First year	4	First year	6 7
	second year	5	second year	9 12
	third year	9	third year	11 11
	fourth year	12	fourth year	12 7
The kinds of credits	15, 30, pass/fail		1, 2, 3, pass/fail	
Graduation credit	480 (360 + 120)		130	
Difference of entrance exam of university	Theoretical content knowledge is included in A-level test		Theoretical content knowledge is not included in Scholastic Ability Test (Korean A-level test).	
	The proportion of practical test is low.		The proportion of practical test is high.	
	Because PE is included in A-level test, theoretical content knowledge is contained in syllabuses		Though theoretical test about PE is included in a curriculum of a school, the effects to enter a university are few.	
Difference of curriculum	Some units are taught by many lecturers		Most units are taught by one lecturer. Unofficially, some units are taught by two ~ three lecturers such as exercise physiology.	
	All units concentrate on making teachers		Many units give other information aside from methods of becoming a teacher.	
	Student teachers do not need to take courses from other departments.		Student teachers have to take courses which from other departments such as educational sociology, curriculum theories, history of the cosmos, or basic Chinese words etc.	
Experience in a school	First year: six weeks, second year: six weeks, third year: eight weeks, fourth year: 12 weeks		Second and Third year: 60 hours (30 hours + 30 Hours) Fourth year: four weeks	
Difference after graduation	Even if there is a small test which is taken by a government to become a Newly Qualified Teacher (NQT), it is not so difficult.		If student teachers want to become a teacher, they need TRE which is taken by a government. It is a very difficult test.	
	Most student teachers become NQT.		1 ~ 6 people out of 40 students (each year) become teachers.	

2.6. A perspective on the curriculum based on social constructionism:[14] Curriculum changes in terms of Goodson and Kirk

I will debate curriculum change based on social constructionism concentrating on two theorists who frame my research - curriculum change based on Goodson's (1993) theory in the educational section, and Kirk's (1988; 1992; 2006) theory in the PETE section.

2.6.1. Ivor Goodson – curriculum research

Goodson argued for a process of curriculum change in a school from the 1900s to the 1990s in respect of the "socio-historical approach to curriculum studies" (p. 3) using official documents, statistical data and interviews (Goodson, 1993). He especially noted efforts of subjects such as Biology, Geography, Rural studies and Environment that tried to become proper academic subject-centred curriculum which was a kind of British education tradition. He also refuted academic subject, intellectual development which were developed by conservatives' assertion (e.g. Peters, 1966) about subject-matter knowledge suggesting that the curriculum have changed in school, socio-historically. His essential logic was that conservatives' assertion was associated with hegemony of the era debating that subject matter knowledge which was connected to academic subject and intellectual development had hegemony of the era, at the time. In other words, Peters (1966) wanted to see education as aspect of Ontology. This means that education is absolute one (e.g. academic subject, intellectual development) rather than a socially constructed one (e.g. various subjects such as Biology, Geography, Rural studies and physical education). Goodson (1993) denied this ontological concept. For example, academic subjects which Peters viewed as education are also from an education which is socially constructed. As time has gone by, the knowledge of education has been changed continuously having been influenced by the then current society. He made three hypotheses to research his study. (These three

[14] I explained social cunstructionism as a methodology in the chapter 00.

hypotheses played an important role in Kirk's (1988, p. 91) study)

> 1) Subjects are not monolithic entities but shifting amalgamations of sub-grounds and traditions. These groups, within the subject, influence and change boundaries and priorities.
> 2) In the process of establishing a school subject (and associated university discipline) base subject groups tend to move from promoting pedagogic and utilitarian traditions towards the academic tradition. The need for the subject to be viewed as a scholarly discipline will impinge on both the promotional rhetoric and the process of subject definition, most crucially during the passage to subject and discipline establishment.
> 3) In the cases studies, much of the curriculum debate can be interpreted in terms of conflict between subjects over status, resources and territory. (Goodson, 1993, p. 3)

In respect of these hypotheses, he showed many examples in the curricula of school.

For example, in school Biology in the 1900s, although they tried to make it an independent subject, it was difficult to attain its purpose because of an inadequate scholarly capacity compared to Chemistry and Physics in the early 1900s. This means that obstructive elements in Biology were vocational and had low educational status. However, Biology became an independent subject similar to Chemistry and Physics in 1949 because of a gradual academic development of Biology. The number of candidates each year taking Biology O- Level test had increased from 1925 to 1949 (See table 6). Socio-historical components in Biology were given vocational status or inappropriate academic status.

Table 6. Percentage of Total Number of Candidates each Year Offering Biology, Chemistry and Physics, 1925-1949 (adopted from Goodson, 1993, p. 45)

	1925	1928	1934	1937	1949
Biology	2.7	4.0	13.1	23.5	31.4
Chemistry	47.1	50.4	51.1	45.8	31.9
Physics	33.4	39.7	43.0	40.1	30.3

Goodson noted the situation as follows.

> "The place which is occupied by advanced biological studies in schools, especially boys' school at present, is unfortunately that of vocational training rather than of an instrument of education. This quote confirms the

> low status of utilitarian elements within the status hierarchy of subjects, as does an earlier contention that biology like the other sciences should be taught 'without any attempt at vocational trend but on orthodox academic lines' The tradition pursuit of 'academic' status through university establishment of the subject was rendered difficult because of the hegemony of botany and zoology. ..... The utilitarian and pedagogic elements in biology which so retarded its progress to high academic status were found within human biology and in certain fieldwork aspects of the subject." (Goodson, 1993, p. 53)

Goodson also showed an example of the education of the environment which was not in the British tradition as a subject in school but rather a worldwide trend. The time was later than Biology. He debated the process of the education of the environment of belonging to an entry of A-Level curriculum from 1965 to 1975. This process was opposed to the case of Biology. Because there was no the British tradition of academic level about that, there were disagreements about whether it would be suitable or not in school curriculum. Finally, it disappeared in school subjects. The socio-historical component in the education of environment was not related to the depth of academic capacity but too difficult and broad areas to pupils in school.

In summary, Goodson insisted that the most important thing was that there were special reasons those subjects survived as school subjects. He stipulated this process as socio-historical aspects showing various examples such as above two examples.

In terms of this socio-historical view, what were the components of physical education or PETE to survive in a school or a university? Kirk (1988; 1992; 2006) selected academicisation, fragmentation and scientization to explain these unique situations in physical education and PETE. He detailed examples of PETE in England and Australia.

2.6.2. David Kirk - academicisation

Kirk studied physical education with various views (e.g. critical views (Kirk,

1986a; 1986b; 1989; McKay, Gore, & Kirk, 1990), objectives approach (Kirk, 1988, chapter 6; 1993), reflective views, social historical views (Kirk, 1988 chapter 3, 5; 1998; 2010; Kirk & MacDonald, 2001a; Kirk & MacDonald, 2001b; Kirk et al, 1997 ;Kirk, 2006; Macdonald, Kirk & Braiuka, 1999) from the 1880s to the present day. In the middle of those, he studied PETE in respect of view by time (from the late 1960s to the mid 1990s) and space (Australia and the UK) (Kirk, 1988; 2006; 2010; Kirk et al, 1997) through Goodson (1983). He debated important social changeable components of physical education and PETE such as the increase of physical education teachers, the promotion of level from diploma to degree in higher education and the change of physical education curriculum. In his many perspectives, I have concentrated on his research into PETE based on the social historical view of academicisation.

Kirk (1988) mainly noted the curriculum of secondary schools in Australia. For example, in chapter 5 of his book (1988), he debated the relationship between health education and physical education in Queensland State Secondary Schools (QSSS) based on Goodson's (1983) first perspective which I mentioned before. He noted that the subject of physical education did not exist before 1964. However, a demand for physical education teachers was increasing because of an increased enthusiasm for sports (see table 7). The subjects of physical education in school expanded from sports-based activity programmes to theoretical subjects and practical activities (games and sports; gymnastics; aquatics). Moreover, health education tried to be included in physical education. Finally, the title of physical education changed to health and physical education (HPE) in 1976. Moreover, he noted academicisation in the school curriculum. In chapter 8, although implication in an examination subject of a physical education subject was important because of the contexts of politics and trends of the period, he insisted that we had to consider the nature of physical education and its inclusion to the examination subject. For example, he noted that we had to reject the division and dichotomy between theoretical and practical views of physical education because we would fail to notice an integration of physical education insisting that physical activities in class had to become a main subject.

Table 7. Number of physical education teachers as a proportion of the total number of full-time teachers employed in state secondary schools in Queensland for selected years (Adapted from Kirk, 1988, p. 94)

Year	Number of physical education teachers	Total number of teachers	Number of physical education teachers as a percentage of total number of teachers
1964	23	3013	0.76
1968	91	3764	2.41
1972	142	5179	2.74
1976	287	7186	3.95
1980	377	7579	4.97
1983	492	8598	5.72

Kirk worried about more detailed demerits of academicisation of physical education in school.

> "One of the off-shoots of scientific functionalism in physical education in the late 1960s and through the 1970s was the academicization of physical education as a degree level subject in tertiary institutions. ….. suggesting that there is the danger of a trend over time to first of all gradually reduce the amount of time spent within programmes on practical physical activity, and then to continue to increase the scientific, bio-physical aspects of the subject at the expense of socio-cultural knowledge." (Kirk, 1992, p. 164)

Having researched academicisation of physical education in school field (1988; 1992), He studied academicisation of PETE with Macdonald and Tinning in 1997. They noted a change of a process of PETE in University of Queensland and Deakin University for 20 years based on Goodson (1988) and Bernstein's (1990) theories. They debated the curriculum of PETE with persuasive examples from the 1970s to the 1980s suggesting that the most effective component in academicisation of PETE was a shift from diploma level to degree level in Australia. The period of diploma level in the 1970s stressed Biophysical knowledge, Practical knowledge, and Professional/vocational knowledge. Biophysical knowledge, Discipline knowledge and Theoretical knowledge was emphasized, during the period of academicisation in the 1980s. Although Biophysical knowledge was still stressed in 1986, Kirk (2006) noted that Socio-cultural knowledge was more emphasized than Biophysical knowledge in the 2000s because Socio-cultural knowledge had flowed continuously to PETE.

In addition, Kirk (2010) noted physical education futures with many explanations such as id^2 of physical education-as-gymnastics, id^2 of physical education-as-sport-techniques, id^2 of physical education-as-sport and id^2 of physical education-as-physical-culture. Based on his plentiful descriptions, Kirk (2010) predicted three possibilities of physical education's future. The third possibility was extinction. Although he noted that physical activity in school would be alive because the subject matter knowledge of physical education was special and unique in school education based on Evans's opinion (2004), he suggested that the highest potentiality was an extinction of PETE.

> "One of the strongest forces propelling physical education towards extinction is the form of physical education teacher education that has emerged along with the academicisation of higher education, physical activity programmes since the 1970s. The consequent reduction and marginalisation of the experience of practical physical activity has produced teachers better suited to teaching senior high school examination versions of physical education than the core programmes for younger pupils." (Kirk, 2010, p. 137)

In summary, Kirk debated the change of curriculum of PETE from the past to the future insisting that academicisation was one of important components of the change of PETE based on social constructionism. This is one of my main concepts in my study because I am convinced that the trend of academicisation of PETE would be adaptable in the PETE course in Korea based on this research and my experience in Korea. Up to now, I have showed the arguments of curriculum based on the perspective of Goodson and Kirk suggesting that curricula were consisted of socio-historically. In the next section, I will explain the comparative study.

2.7. An overview of comparative study

Theisen & Adams (1990) mentioned that "Comparison can help us to understand, to extend our insights, and to sharpen our perspectives. If we wish to know something well, many writers tell us, we must examine it in comparison." (p. 277)

and quoted Swanson's (1971) sentences that "Thinking without comparison is unthinkable. And in the absence of comparison, so is all thought and scientific research" (p. 145). On the other hand, Even if there have been some comparative articles between England and Korea, most of them have been printed in the Korean language and are about introducing developed programmes from England to Korea (e.g. Cho et al, 1997) and the number of articles are also very small. Because of these reasons, I will argue for a comparative study in terms of methodological dimensions explaining general articles about comparative education research, comparative physical education research and comparative PETE research rather than showing articles which compared England and Korea.

2.7.1. Comparative education research

2.7.1.1. Is it a discipline or a methodology?

The methodology of comparative education research has been developed later than other fields. However, there have been some debates whether comparative educational research has been a discipline or a methodology. Up to now, there were a few scholars (e.g. Kerawalla 1995; Sutherland 1997; Chabbott 2003) who insisted that comparative education research was a discipline. However, many scholars described comparative education research as a tool or a perspective which can be used in other social science research (e.g. Anthropology, History, Psychology, etc) as well as in education (Bray, 2007). Moreover, Dimmock (2007) argued that cross-cultural research methods in education were in their infancy because there were no representatives or typical methods for comparative education research. In addition, Rust, Soumare, Pescador & Shibuya (1999) analyses three comparative journals (Comparative Education Review, Comparative Education and International Journal of Educational Development) between 1955 and 1994. They reported that just 65 articles (3.5%) since the middle of 1960 articles directly studied the comparative methodology (see table 8).

Table 8. Number of Articles Devoted to Research Methodology in CER, CE, and IJED from Their Inception Until 1994 1995 (Adopted from Rust et al, 1999, p. 91)

Years	CER	CE	IJED
1955-59	3	…	…
1960-64	5	…	…
1965-69	4	4	…
1970-74	8	2	…
1975-79	5	6	…
1980-84	3	3	4
1985-89	7	1	1
1990-94	3	1	3
Total	40 of 947	17 of 675	8 of 347

Note - Ellipses = not in publication; CER = Comparative Education Review; CE = Comparative Education; IJED = International Journal of Educational Development.

This result shows that published articles about the comparative methodology are extremely small compared to numbers of articles about comparative research. Rust et al (1999) noted that data collection strategies of comparative education research were similar to the strategies in single-country studies describing that there were few articles to explain comparative education methodology in detail. They made nine categories of comparative articles which were published in above three journals in the 1960s and the 1980s/1990s based on data-collection research strategies to explain in more detail. They noted that it was represented by articles about literature reviews of contemporary conditions and comparative research studies (see table 9).

Table 9. Percentage of Studies Relying on Various Data-Collection Research Methodologies in The 1960s and the 1980s/1990s (Adapted from Rust et al, 1999, p. 100)

	1960s	1985-95
Theory	8	7
Experiment	0	0
Existing Data Search	8	11
Literature Review	48	26
History	15	5
Comparative Projects	15	16
Project Review	1	6
Content Analysis	0	6
Participation/ Observation	2	8
Interview	1	8
Questionnaire	1	8

As I mentioned before, they explained that although articles' volumes have been increased, on the surface, they have not used properly comparative education methodology. For example, although about half of the scholars (48%) in the 1960s had used just literature reviews as Data-Collection Research Methodology, as time went by, various research methods were used by the 1980s such as comparative projects, project reviews and interviews, etc. After all, they concluded that uses of comparative education methodology in comparative education had been not insufficient as quantitatively and qualitatively in the 1990s.

Then, they (1999) looked at comparative education research in respect of data analysis mentioning that comparative education research was mostly qualitative research (71.2%) in these three journals in 1985, 1987, 1989, 1991, 1993 and 1995 (See table 10).

Table 10. Breakdown of Qualitative and Quantitative Studies in CER, CE, and IJED in 1985, 1987, 1989, 1991, 1993, and 1995 (Adopted from Rust, Soumare, Pescador & Shibuya, 1999, p. 105)

	CER (%)	CE (%)	IJED (%)	Total (%)
Quantitative	21 (4.9)	15 (3.5)	38 (8.9)	74 (17.3)
Qualitative	98 (23.2)	107 (25.0)	99 (23.2)	304 (71.2)
Combination	20 (4.7)	11 (2.6)	15 (3.5)	46 (10.8)
Other	1 (.2)	0 (.0)	2 (1.2)	3 (.7)
Total	140	133	154	427

Note. CER = Comparative Education Review; CE = Comparative Education; IJED = International Journal of Educational Development.

On the other hand, they announced that the quantitative research style of comparative study supplemented insufficient parts of large-scale surveys such as detail aspects of broad resources or phenomenon. For these reasons, comparative studies have tended to concentrate on individual cases. Following this trend, comparative education research also has selected studies which were small scale and in-depth.

In summary, Rust et al (1999) suggested two proposals in comparative education research. First, they noted that scholars who studied comparative education research had to also study their own research methods announcing that they failed

to explain their own research strategy, and second, they need to study their own methodological issues as they tended to fail to explain their own research methodology. Dimmock (2007) also argued that present researchers had to fulfil these empty spaces because there were many valuable research areas in comparative methodologies or methods. After all, we have confirmed that comparative study even in the educational area still has been not perfect frame but beginning steps or developing steps in terms of comparative education research. This means that comparative education research is closed to methodology. That is, the given conditions in comparative education research seem to be not mature or proper to become a discipline suggesting that comparative education research belongs to a domain of methodology.

2.7.1.2. General difficulties of comparative education research

I am going to discuss the general difficulties of comparative education research. Dimmock (2007) mentioned difficulties of comparative education research as follows.

> "The most challenging aspects of developing methodology of a cross-cultural kind are grounded firstly in the contestability of the concept of culture itself, and secondary in developing data collection methods and instruments that adequately capture cultural similarities and differences between people and organizations in different societies." (Dimmock, 2007, p. 297)

He noted that stereotypes need to be avoided in comparative education research. For example, there will be a possibility a difference between western culture and eastern culture as much as a difference in English culture and French culture. We have to keep in mind such differences.

Rust et al (1999) also noted some studies (e.g. Bereday, 1964; Holmen, 1977; Noah & Eckstein, 1969) announcing methodological difficulties in comparative education research. To overcome these weak points, Dimmock (2007) insisted on publishing more articles related to methodologies and methods showing some latest researches (e.g. Bray et al, 2007; Thomas, 2007).

2.7.2. Comparative physical education research: no specific methodologies

It is difficult to define the comparative physical education field because this field has various features (Kudlorz, 1989). However Bennet, Howell and Simiri's (1975) say that:

> "In the main, it is considered to be a comparative analysis of dominant characteristics and developments in physical education and sport in two or more societies, cultures, countries, or areas for purpose of investigating their similarities and differences. It involves the study of contemporary school and sport programmes in terms of their philosophical foundation; their historical, geographical, economical, political, educational, and cultural background; their aims, problems, solutions; and their implications for other countries. Moreover, issues such as sport and politics, sport and economics, sport and internationalism, and amateurism and professionalism are analyzed." (Bennet et al, 1975, pp. 3-4)

Many scholars (Hardman, 2009; Kudlorz, 1989; Mutimer, 2009[15]; Pooley, 1988) noted that comparative physical education research was developed influenced by comparative education research. Mutimer (2009) explained that comparative physical education research cannot be escaped from a methodological area suggesting that comparative education research also included in the methodology area which is the same as Bray's (2007) opinion. However, Devine (1986) mentioned a possibility of a discipline of comparative physical education research. In the physical education area, there is much comparative research in books, articles, and journals (e.g. Bennet et al, 1975; Hardman, 1999; 2001; 2002; 2009; Hardman & Marshall, 2000; 2006; Louis & Louis, 1964; Nixon, 1970). Mutimer (2009) noted the reason why comparative study was used in the physical education area. The most general purpose is practical reason. That is, if there is insufficient research in one area they try to supplement with good cases from another area through comparative study.

[15] Mutimer's article which is in "International and Comparative Physical Education and Sport" (Zeigler, 2009) was written in 1969-70.

There are many books or articles which are related to methodology before the 1990s (e.g. Bennett, 1970; Howell, R., Howell, M., Margaret and Toohey, 1979 Morrison, 1967; Pooley, 1988). Even if some scholars invented methodology for comparative physical education research, Kudlorz (1989) and Hardman (2009) mentioned methodology for comparative physical education research as follows.

> "Obviously there exists no single accepted and universal method of scientific investigation. … Comparative physical education is closely connected with comparative education in its history, aims, definition, etc., as well as in its methodology." (Kudlorz, 1989, p. 68)

> "At present, comparative physical education and sport studies' methodology is deemed to embrace a range of analytical tools to be applied to comparative data. Comparative study no longer attempts to define a single methodology and no one single method is developed as canon. In recent years comparative education scholars have adopted a range of methodological approaches to develop ways of dealing with complex issues." (Hardman, 2009, p. 113)

In other words, many research themes in comparative physical education research should study not one methodology but various methodologies.

Comparative physical education research has made progress such as the numbers of books, articles with a study of methodology for comparative physical education research (e.g. Bennett, 1970; Morrison, 1967; Haag, 1986; Howell, R., Howell, M., Margaret & Toohey, 1979). Pooley (1988) described four methodologies which were used in comparative physical education research based on the analysis of journals of Comparative Physical Education and Sport was published from 1980 to 1985 as a follow (See table 11).

Table 11. Comparison of methodological approaches (by percent) used in papers founded in a journal of Comparative Physical Education and Sport (1980-1985) (Adopted and revised from Pooley, 1988, p. 5)

Methodological approach	Social Science method	Historical-philosophical method	Area study: regional, country	Miscellaneous
Percentage	50	30	10	10

Although Pooley (1988) did not explain a meaning of each methodology and the process of classification of methodologies, based on the title of each methodology in this table, we can judge that the methodologies in comparative physical education research are similar to general methodologies. However as I mentioned before, some scholars (e.g. Bennett, 1970; Morrison, 1967; Haag, 1986; Howell, R., Howell, M., Margaret and Toohey, 1979) in physical education area designed a methodology for comparative physical education research. However, it has been not easy to find articles using these methodologies which were suggested for comparative physical education research. Many articles studying physical education in respect of comparative perspective has used general methodologies (e.g. quantitative or qualitative study). In particular, curriculum comparative studies (e.g. Zeigler, 1986; Kan et al, 2007; Hong, 2008) of physical education in schools and universities have used Bereday's (1964) methodology in comparative education area. Although these are not enough to conclude a trend of methodology for comparative physical education area, methodologies for comparative physical education research have been still affected by comparative education area or social science.

I have mentioned many scholars who studied methodologies in comparative physical education research, even if they omit the terminology of 'comparative' in their methodology, their studies can be applicable to methodology for physical education, education, or social science. That is, methodologies in comparative physical education research have adopted methodologies which were suggested by comparative education research. On the other hand, Pooley (1988) mentioned that researchers who considered methodologies for comparative physical education research did not need to adhere to special methodologies for only comparative physical education research. He insisted that comparative study itself was the most important.

> "It is very important that-whatever type of methodology is chosen, whether social, historical, or pedagogical models-the method of analysis must use comparative data. This assumes that at least two units, systems, regions, states, organizations, or institutions are compared." (Pooley, 1988, p. 7)

After all, Pooley (1988) insisted that comparison itself in comparative physical education research can represent the research suggesting that we did not need to find unique methodologies for comparative physical education research. He gave many examples for comparative physical education research (e.g. politics, curriculum, country) insisting the importance of comparative themes. He insisted that it is better to find the special or unique themes for comparative physical education research rather than concentrating on methodologies which were similar to other areas because this was more pertinent to developing comparative physical education research. This means that the most important methodology in comparative physical education, education, or social science research is comparative research itself.

2.7.3. Comparative PETE research: the reason for selecting comparative study

I did not find any articles which studied PETE using comparative study. This means that it was difficult to find proper literature reviews to select a methodology in my research. However, although Kirk did not study PETE in terms of comparative study, he introduced many methodologies and methods for PETE in his research or case studies in England (1988; 1992; 2008) and Australia (1988; 1997 (with Macdonald and Tinning); 2002; 2006; 2010). This was very helpful in selecting my methodology. My research has clarified the change of knowledge base for PETE in respect of social constructionism such as Goodson's socio-historical aspects (1993), Kirk's academicisation (2006), Kirk et al's physical education teacher knowledge (1997) and Shulman's teacher knowledge (1987) based on comparative study (England and Korea).

I now explain the reason why I have selected comparative study in my research. There are many literature reviews about the knowledge base for PETE (e.g. Siedentop, 1989; Rink, 1996; Rovegno, 1993, 1995; Tsangaridou, 2006; Fernandez-Balboa, 1997; O'Sullivan and Doutis, 1994; Kirk, 1988; 1992; Green, 2008; Kang & Choi; 1991; You, 2010; Choi, Eui-Chang, 2003; 2005; 2010).

Although these are all interesting and important studies they tended to be theoretically focussed or limited to studies of one place. Although Kirk did not use comparative study methodology, he did show the various perspectives of PETE in England and Australia. I am influenced by this for my study. I thought that if I compared PETE of England and Korea which was developed in perfect different cultures, I would explain the knowledge base for PETE with other directions compared to the existing research. If I make clear the knowledge base for PETE with real case studies which mean studies of curricula, interviews, etc in England and Korea, I have the potential to add something new to the topic of the knowledge base for PETE. Rust et al (1999) mentioned that the trend of comparative education at present is to study various real situations rather than to conduct literature reviews like the 1960s. In line with this trend, I will focus on the authentic case of four departments of PETE in universities in England and Korea.

2.8. Conclusion

In this chapter I have discussed a theoretical perspective on the academicisation of PETE programmes, the meaning of academicisation and knowledge, a history of PETE, the arguments about the curriculum and the overview of comparative study as literature reviews. First, I reviewed a theoretical perspective on the academicisation of PETE programmes and the meaning of academicisation in PE and PETE comparing the concept of TE. Second, I explored knowledge in PETE based on general knowledge, educational knowledge and teacher knowledge. Based on this, I noted that knowledge in PETE was closely connected to teacher knowledge and debated the complexity of CK in PETE. Third, I explained the big trends of PETE in England and Korea through PETE history and the reasons why I compared two countries referring to debates in PETE in terms of academicisation. Fourth, I showed discussions of education and PETE in respect of social constructionism such as the change of subjects in school (Goodson, 1993) and the change of PETE in Australia (Kirk et al, 1997). Fifth, I explained comparative study of education, physical education and PETE in terms of

methodology concluding that that there were no specific comparative methodologies in physical education but the comparison itself is a good tool or methodology in my research. Based on these literature reviews, I constructed the following research questions:

Research questions

1. Applying Shulman's and Kirk et al's framework, what is the knowledge base for teaching physical education within university PETE programmes in England and Korea?
2. Is any component of the knowledge base in Shulman's and Kirk et al's framework given priority within university PETE programmes in England and Korea?
3. What are the similarities and differences between the knowledge bases for teaching physical education in each country, and how might we explain these similarities and differences?
4. What are the interrelationships of the components in Shulman's and Kirk et al's framework within university PETE programmes in England and Korea?
5. Is there any evidence, as argued by Siedentop and others, of a shift away from practical to theoretical content knowledge?
6. What is the future of PETE programmes in an academicised field?

3. Methodology

3.1. Introduction

My study has tried to understand changing patterns of the knowledge base for PETE through examining curricula, organizations, documents, etc of PETE courses in universities in England and Korea based on a development of academicisation. Before I explain my methodologies and methods, I mention Payne & Payne's (2004) definition of methodologies and methods as follows:

> "Methods are the specific techniques used in social research whereas, although strictly meaning studies of methods, the term, 'methodologies' is usually employed to indicate the sets of conceptual and philosophical assumptions that justify the use of particular methods." (Payne & Payne, 2004, p. 148)

Based on their definition of methodologies and methods, in this part, having explained methodologies affecting to my research, I noted the methods (specific techniques) to carry out methodologies.

3.2. Methodology

3.2.1. Overview of social constructionism

I have researched my study in the methodological framework of social constructionism (Berger & Luckmann, 1966). This theory has been criticized among sociologists because there was not a big meaning showing that social life has been socially constructed (Scott & Marshall, 2009). However, many scholars who study social constructionism made a basic concept for that as follows:

> "Society is actively and creatively produced by human beings. They portray the world as made or invented-rather than merely given or taken for granted. Social worlds are interpretive nets woven by individuals and groups. …… the basic features of social order are captured in the principle that Society is a human product. Society is an objective reality. Man is a social product." (Scott & Marshall, 2009, p. 698)

Scott & Marshall (2009) introduced this concept to the Oxford Dictionary of

Sociology and describe how it was constructed by William Isaac Thomas, Alfred Schultz and Berger & Luckmann. Even if they acknowledged reality which was maintained by realism, especially objective reality, they insisted that this reality was socially constructed and interpreted by human being. This is a distinguished difference between social constructionism and relativism which argues that social constructionism is same as relativism as a methodology by realism. That is, the negative point of relativism as a methodology is that there is a possibility to insist that both parts which interpreted differently are correct. On the other hand, social constructionsim recognizes the one superiority which was interpreted between two facts (Andrews, 2012). In this sense, social constructionism as a methodology has merit compared with relativism. Moreover, social constructionism appeared in sociology of education in the UK with Mary Douglas and Basil Berstein introducing the idea that educational knowledge is also socially constructed (Scott & Marshall, 2009).

Before explaining social constructionism, I will explain the difference between constructivism and social constructionism because even if these terms are used sometimes as a common meaning or interchangeably, there are big differences each other. Andrews (2012) explained "Constructivism proposed that each individual mentally constructs the world of experience through cognitive process while social constructionism has a social rather than an individual focus." (Andrews, 2012, p. 39)

Constructivism has been developed in cognitive psychology while transferring education and physical education using Piaget or Vygotsky's theory. Piaget (1971) was more concerned with the learner as active in the learning process in developing his/her construction of knowledge cognitively. On the other hand, Vygotsky (1986) stressed, even if children's cognitive development was important, it was mainly happened through social activities. Because of this reason, constructivism in educational area has a tendency to focus on individuals or classrooms. For example, there have been many discussions such as teaching and learning, curriculum concentrating on children's education program (Rovegno,

2006). In terms of this, Rovegno (2006) mentioned that, even if constructivism focus is mainly on theoretical interests in learning, there are no astonishing debates based on constructivism because it is linked to learning, teaching, curriculum, etc.

Meanwhile, social constructionism has been more concerned with society rather than individuals. Many scholars (e.g. Andrews, 2012; Burr, 1955; Scott & Marshall, 2009) acknowledge that Berger & Luckmann (1966) have been the most influential in social constructionism. As I mentioned before, they insisted that society is a product of human activity and humans are also produced by society while producing various intellectual, essential products. Among this debate, they introduced the concepts of objective reality and subjective reality. This means that society is constructed objectively and subjectively. The former concept is that social world and man socially interacts on each other. In turn, the result will affect other people showing routinisation and habitualization. This repeated behaviour can be reproduced without big effort. This means that an innovation will easily happen rather than people start to renew all things. And the meaning of the habitualization is included in routinely by structuring general storage of knowledge. This finally becomes an institutionalization by society while future generation get experience objectively the type of knowledge. Indeed, the objectivity will reaffirm through an interaction between individuals and other people. Subjective reality, otherwise, means reality which is not necessary to redefine the concept such as usual conversation by people. This means that reality is in practical to some extent taken for granted (Andrews, 2012).

Related to my research, Goodson and Kirk persuasively explained social constructionism by using curriculum in secondary school (Goodson, 1993) and physical education and PETE (Kirk, 2010). Even if I already explained their research in my literature review, I showed one example which was related to my study and used social constructionism as a methodology. Macdonald, Kirk & Braiuka (1999) noted students' interface in a department of physical education and human movement studies. Although the students had applied for that department

because they had liked physical activities, they underwent a change to the knowledge of physical education (or kinesiology) between their school days and their university days because they in earnest learnt a theoretical knowledge such as physiology, history, etc in a university. They (1999) explained the situation with Bernstein's (1990) production, reproduction, adaption and modification of educational discourse. For example, after a student, whose knowledge of physical education was dominated by physical activity, entered a department of physical education, he learnt theoretical knowledge about physical education. As time went by, his theoretical knowledge was more classification. Although he selected physical education because it was less academic then Maths, English, etc in a school, he found this interesting area in the theory of physical education during his university days. The phenomenon was being stronger than in the past because his theoretical knowledge for physical education had more depth. They (1999) interpreted this phenomenon from a social construction perspective which showed that students in a department of physical education experienced the interface from their school knowledge to their university knowledge. It showed the clear process of social construction of students' content knowledge suggesting that students who study subject matter knowledge in PETE were undergoing disorder which is main subject matter knowledge between physical activities and theoretical knowledge.

Up to now, I have explained the overview of social constructionism in respect of society, education and physical education. I will next explain the reason why I have selected social constructionism.

3.2.2. Reasons why I have selected social constructionism as a methodology

The starting point which I have chosen social constructionism is that I acknowledge objective reality. The process of build of objective reality which I already explained is similar to the construction of knowledge of PETE for forty years in England and Korea. Moreover, significant knowledge which is formulated in terms of social constructionism is also important that the knowledge

is the production between human and society. This means that I do study (epistemological) knowledge or reality which is socially constructed rather than not directly studying knowledge or reality in ontology. That is, I will not discover reality or knowledge in PETE in terms of ontology or realism, whereas, I will study the process of social construction of knowledge of PETE based on historical and contextual aspects. Moreover, I will research which knowledge in PETE is a priority, why the knowledge is the priority and how is this trend for the future. Because of these reasons, I selected social constructionism as my methodology. I will alert to relativism such as there are no priorities in knowledge in PETE or all knowledge is equal. Based on this study, I will try to judge social construction of knowledge in PETE.

So far, I explained social constructionism as my methodology. In next section, I will show the research trends in PETE.

3.2.3. Trends of research methodology in PETE

Tinning (2006) summarised the various research methodology trends in PETE. As I already explained, there were two main streams in theoretical orientation in the PETE. The second stream is related to methodology which was theoretical orientations to research into PETE. Tinning (2006) categorized the PETE literature as follows:

Table 1. Knowledge, PETE, human interests and research (adapted from Tinning, 2006, p.376)

Orientation	World view	Purpose of teacher education	Human interests	Research paradigm
Behaviouristic	Objective reality science for a better world	Prepare skilled technicians of teaching	Technical Prediction Control	Empirical-analytical Natural science
Personalistic	Multiple realities Subjectivity meaning	To develop the individual teacher as a person	Practical interpretive understanding	Hermeneutic Interpretive Phenomenological
Traditional/ craft	Reality exists in 'the field' not in theory Practice is best	Prepare teachers for the current system	Practical technical mastery	Simple descriptive modelling
Critical inquiry	Reality is socially constructed Social inequities, power and oppression	Challenge the school system where necessary	Criticism Liberation Emancipation Critical theory	Action research Case study Feminist Poststructuralist

Before he proposed this framework, he introduced some articles related to theoretical orientations for research in PETE. He noted Bain's (1990) three orienting perspectives. They are behaviour analysis, occupational socialisation, and critical theory. He also paid attention to Macdonald's review (1997) in PETE research. She investigated 15 empirical studies, 29 interpretive studies and eight critical studies. As a result of these studies, she noted predominant trends; socialisation, Shulman's knowledge framework and constructivism. Based on this research, Tinning (2006) presented four major organizing perspectives as table 1. Though 'knowledge' was not indicated in this table, Tinning mentioned 'knowledge' as a part of key theoretical orientations. He finally noted five orientations. He also gave many examples to analyze knowledge orientations (e.g. Siedentop, 1989; Rovegno, 1993, 1995; Jenkins and Veal, 2002; Tsangaridou, 2006 and so on). There were also Shulman's categories (1987). He noted that Shulman's categories eagerly provided the framework of research in PETE. On the other hand, he noted separate ways to research knowledge orientation such as Fernandez-Balboa's (1997) work and O'Sullivan and Doutis's (1994) overview. In my literature review, Shulman's categories were used by one of the most important frameworks to analyze knowledge orientation because there were many resources to classify in the area of PETE.

3.2.4. Application of comparative methodologies in my study

Jobert (1996) noted that research which contained a cross-national comparative aspect had to reinterpret the prior research which was executed in each country because the prior research was done in isolation in each country. She also noted that if a researcher used the resource as it is, he/she will commit dangerous errors. She noted that we carefully needed to consider economic and social aspects, that is, socio-economic contexts in each country. Dimmock (2007) studied educational institutes in terms of comparative study. He insisted that we had to abandon stereotypes which we should follow specific cultures or concepts:

"A major aim of comparative study in the future should be to analyse

> educational organizations, whether they happen to be located, according to cultural frameworks and concepts that are not dominated by any one particular cultural or ethnocentric standpoint or baseline. This would yield more authentic comparison and constitute more genuinely useful scholarship." (Dimmock, 2007, p. 298)

Based on their perspectives, I will pay attention to distinguish the similar phenomenon which is different as a context in England and Korea.

I will now introduce articles which were helpful to my research which are in the comparative education and physical education research field, explaining the process of application of them to my methodologies.

First, the difficulties of contestability stem from a different judgment between traditionalists and modernists whether one culture keeps its particular values or not (Pooley, 1988). Considering this, my theoretical orientation has been certain because my methodologies (e.g. Goodson's (1993) socio-historical and Kirk et al's (1997) academic perspective) belong in the modernists' view.

Second, it is not robust research to overstate differences between cultures in order to make them fit with one's hypothesis. In general, this is the most important part to reliability and validity of research. I tried to compare facts between two countries considering context of history, society, culture, etc. Especially, when I compared curricula of PETE, even though I hypothesize that practical subjects have been decreasing based on the literature reviews, I noted authentic facts based on original sources not to purposively conclude result to be a suitable hypothesis.

Third, Bray (2007) noted that researchers in comparative education research had to avoid a stereotype. In this aspect, I should try to escape Korean articles' trends in physical education area which most of Korean scholars studied their research to develop Korean system based on researches in developed countries (e.g. Kang et al, 2007; Kim, Myung-Su, 1996; Cho & Park, 2010; Cho et al, 1997; Hong, 2008). This research was essential in physical education area in Korea because the

situations in developed countries were very good examples which could be used to improve Korean systems. Moreover, it was helpful in developing Korean systems in physical education area. However, I had to avoid this stance of Korean articles in comparative study because my study was not about arguing that one physical education system was better than another one. In other words, my study tried to make clear the *reason* of common or different features in PETE between two countries with perspectives such as cultural, social, or historical view. Through this comparative process, I have tried to confirm macroscopic perspective in the knowledge base for PETE in the world.

From now on, I introduce two articles (Haag, 1986; Pooley, 1988) in comparative physical education research which were helpful for my methodology of research. However, there have been some limitations to drawing upon their studies (Haag, 1986; Pooley, 1988) to mine because they just explained theoretical aspects of comparative physical education research. However, Kirk et al's (1997) research which was used both theoretical and practical aspects which I draw upon.

Haag (1986, p. 44) noted for Comparative Research in Sport Pedagogy as a follow.

> Horizontal: comparison in different social settings (state) at a given time.
> Vertical: comparison in different time sections in regard to the same questions.

Comparative methodology like this has been suitable for my research. Haag (1986) announced that this concept stemmed from Kneller (1960) who studied in comparative educational area. The content is as a follow.

> "The method of comparing systems involves both the vertical and horizontal approaches. Both must correspond to the goal the individual sets for himself. The horizontal approach is the more challenging but also the more difficult. This method seeks to analyze educational systems in all their elements and aspects, both separately and collectively. The most characteristic vertical approach is the practice of examining educational systems one by one. Here the comparison with other systems is apt to be incidental or secondary." (Kneller, 1960, p. 321)

Haag (1986) predicted that a study would become a complicated suggesting a possibility of combining research using by horizontal and vertical methodology. This methodology has been helpful to my research. For example, this methodology has been helpful to design a concept of relationship between vertical components (curricula in PETE from 1960s to the present in England and Korea) and horizontal components (knowledge base of student teachers, teachers, PETErs in England and Korea at present).

In addition, Pooley (1988) noted problems in dealing with comparative methodology in physical education research based on his reading lists of comparative physical education research (see Figure 1 below).

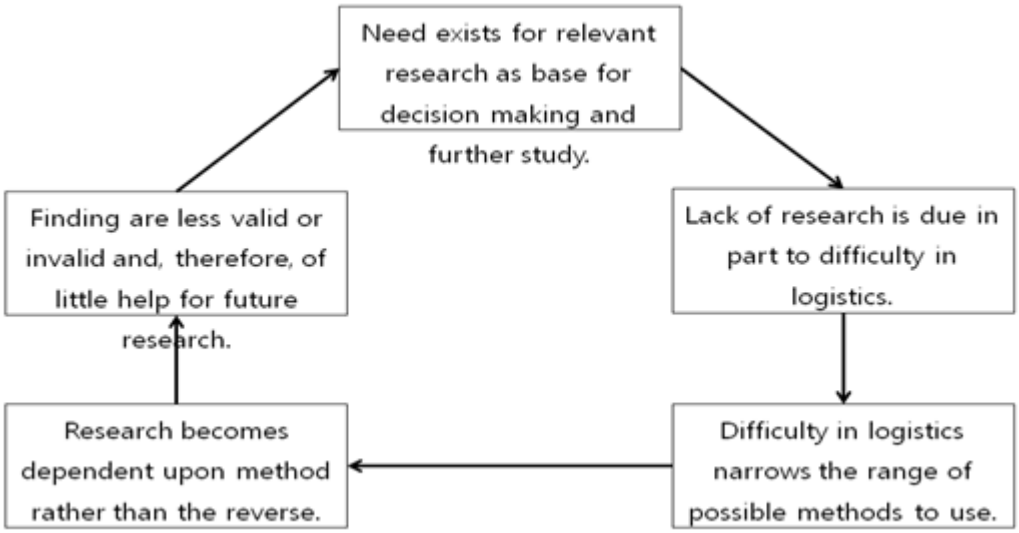

Figure 1. Problems in conducting research in comparative studies in physical education and sport (Pooley, 1988, p. 6)

I have tried not to commit these errors shown in figure 1 in my study. Moreover, I have done my very best to reflect these four comments in my research as follows.

First, Pooley (1988) insisted that studies which could improve the present critical situation had to be a main part in comparative physical education research informing that researches which were able to rectify were extremely insufficient. This idea is similar to Tinning (2006)'s concept in PETE. Tinning (2006) also

noted that articles in PETE were deficient based on theoretical orientation. In respect of Pooley (1988) and Tinning (2006)'s comments, I adopted Kirk (1988; 1992; 2006; 2010)'s and Kirk et al (2007)'s idea which was that academicisation in PETE was not affirmative to the future.

Second, Pooley (1988) suggested making a detailed design, precisely because comparative physical education research which had an insufficient detailed plan could narrow a scope of research. I have tried to promote my research design supplementing my pilot study which was done before doing my full-scale research.

Third, Pooley (1988) criticized that many comparative physical education research studies were not suitable for topics but to fit into 'methods'. He insisted that we had to consider research topics and methodologies before thinking of methods suggesting that consideration of 'fitting method' in advance blocked various applications of methods according to topics. I have researched which the knowledge base for PETE was in respect of social constructionism comparing in England and Korea. That is, in advance, I had selected my topic (e.g. the knowledge base for PETE) and methodologies (e.g. social constructionism, comparative study). After that, I made a choice my methods (e.g. documentary analysis, Grounded theory, interviews, etc).

Fourth, Pooley (1988) insisted that findings of research until that time were uncertain or not persuasive suggesting that this trend would not be helpful to develop futures. To overcome this situation, he noted that we had to analyze and interpret collecting data, minutely. That is, researchers had to consider how their study contributes to a society predicting to their result of study, persistently. My fourth research question (What is the future of PETE programmes in an academicised field?) is correspondent to his fourth concern. This means that I have been trying to find developmental components to the future. And, I will explain my analysis and interpretation in my part of methods.

In summary, I have tried to clarify with two directions in this methodology. First,

I have had a focus on the history of theoretical orientations in PETE in England and Korea based on social constructionism and comparative study. For example, as a part of the academicisation of PETE dating from the 1960s in England, the amount of programme time given to practical subjects was reduced. At the same time, the theoretical components were increased gradually (Kirk, 1992). In this way, I have made clear the history of PETE. Second, I have cleared up the theoretical orientation to research into PETE in England and Korea based on knowledge orientation. Especially, I have noted researches about Shulman's categories. For example, I have inquired into the reason why pedagogical content knowledge (PCK) is mainstream in Shulman's categories based on comparative study. In other words, first, I have tried to clarify historical change of PETE with social constructionism in England and Korea. Second, I have tried to clarify current common and different points of PETE in 2010 in England and Korea.

3.3. Methods

3.3.1. Overview of methods

I collected documents such as time tables, personal student teachers' reports, syllabuses and interviewed with previous chairs, previous lecturers, course leaders, unit lecturers, teachers and current student teachers (altogether 117 people) in four PETE institutes in England and Korea from the 1960s to the 2010s. I used Documentary Methods and grounded theory to analyze and interpret this data. Based on this overview, I will explain my methods part.

3.3.2. Data collections

3.3.2.1. Historical data

Cohen et al (2007) introduced Historical and documentary research. They announced the difficulty to reconstruct historical data insisting that historical data was not portraits but sketches. And, they insisted that historical data always had

various components. They delineated the importance of historical data as follows.

> It enables solutions to contemporary problems to be sought in the past.
> It throws light on present and future trends.
> It stresses the relative importance and the effects of the various interactions that are to be found within all cultures.
> It allows for the revaluation of data in relation to selected hypotheses, theories and generalizations that are presently held about the past (Hill & Kerber, 1967).

And they (2007) stressed researchers to have to select clear historical data because we could lose our way if we select too broad or vague resources. They suggested four topics such as where do the events take place? Who are the people involved? When do the events occur? What kinds of human activity are involved? I have considered these topics in my methods.

They insisted that we had to collect existed resources which were classified according to primary sources (e.g. tools, figures, fossils, manuscripts, charts, laws, archives, etc) and secondary sources (quoted materials, textbooks, encyclopedias, etc). They preferred primary sources to secondary sources because secondary sources which were reprocessed had limited worth. Tinning (2006) also showed similar opinions as follows.

> "In too many studies we rely too heavily (often totally) on the work of "second-order" scholars who have themselves developed or taken ideas from "first-order" theorists. One of the problems with this is that we might be merely compounding limited thinking. Of course the perfunctory reference to some "leading or in vogue" theorists is also to be avoided. What is necessary, however, is an engagement with the theorising behind the ideas that form the central tenet of the study." (Tinning, 2006, p. 380)

Based on the importance of primary sources or first-order which were recommended by Cohen, Manion & Morrison (2007) and Tinning (2006), I showed my collected historical data (primary sources and secondary sources) as follows (see table 2). I collected historical data in England from the 1960s to the 2010s because the big change in PETE has started since the 1960s and in Korea from the 1970s to the 2010s because it was difficult to find primary data before the 1970s.

Table 2. Lists of historical resources in England and Korea in terms of primary and secondary sources

		England		Korean	
		UNIVERSITY OF BEDFORDSHIRE	UNIVERSITY OF BRIGHTON	SNU*	IU*
Span of data collection		January 2010~June 2010 (pilot study) March 2011~ October 2012	July 2011~April 2012	July 2011~January 2013	July 2011~April 2012
Historical curricula analysis		1960s-2012	1960s-2012	1970s-2012	1979-2012
primary sources	1960s	TIMETABLE SUBJECT TIME ALLOCATION IN BEDFORD PHYSICAL EDUCATION (curriculum 1969)		Report cards of 93 student teachers from 1978 to 2009 the course catalogue from 1972~2012	Report cards of 49 student teachers from 1985 to 2009 the course catalogue from 1979~2012
	1970s	TIMETABLE SUBJECT TIME ALLOCATION in 1973 (curriculum 1973)	CHELSEA COLLEGE OF PHYSICAL EDUCATION 1972 HANDBOOK, (curriculum 1972) 1975-1979 Personal Record, (curriculum 1975) JRH/SMG/7.7.77 Cert.Ed./B.Ed. Course (Human Movement at Advanced level) for specialist teachers of physical education, (curriculum 1977)		
	1980s	BEDFORD COLLEGE OF HIGHER EDUCATION B.E.D. (HONS) DEGREE – SECONDARY REVIEW MARCH 1991 VOLUME I THE CONTEXT OF THE PROPOSAL (curriculum 1982) BEDFORD COLLEGE of higher education INITIAL B.E.d. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986 (curriculum 1986) ONUTLINE OF EDUCATION AND PRACTICAL TEACHING STUDIES INCLUDING SCHOOL EXPERIENCE in 1989 (curriculum 1989)	B.Ed. Honours Degree Specialist Physical Education Programme Student Handbook 1983/84 Course structure, assessment and organisation (curriculum 1983) B.ED.HONS. PHYSICAL EDUCATION COURSE 1989-93 STUDENT HANDBOOK 1989-93 (curriculum 1989)		
	1990s	BEDFORD COLLEGE OF HIGHER EDUCATION Secondary B.Ed. Honours Degree Application for Temporary Approval for September 1994 (curriculum 1994)	1994-1998 Personal Record (curriculum 1993) BA (HONS) QTS PHYSICAL EDUCATION DEFINITIVE COURSE DOCUMENT Revised September 1996 (curriculum 1996)		
	2000s	Course Information Form (CIF) in 2008 (Curriculum 2008)	BA (Hons) Physical Education with QTS, Proposal for Revalidation, May 2000 (curriculum 2000) BA (Hons) Physical Education with QTS, Definitive Document September 2002, Revised September 2003, FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL (curriculum 2003)		
	2010s	Course Information Form (CIF) in 2010 (Curriculum 2010)	PS BA PE 2010b FINAL 08-9 09-10 cohorts (curriculum 2011)		
	Other data	Various syllabuses and time tables			
Second sources		Women First- The Female Tradition in English Physical Education 1880-1980 (Fletcher, 1984) The Challenge of Chang in Physical Education: Chelsea College of Physical Education – Chelsea School, University of Brighton 1898-1998 (Webb, 1999) SEOUL NATIONAL UNIVERSITY SINCE 1946 (2006). College of Education at Seoul National University since 1946 (1996) Brochure 1963~1964 in College of Education at Seoul National University (1964) The 50th Anniversary 1954~2004 Inha University (2004) A Comparative Study on Physical Education Teacher Education Programs in Korea and America (Mi-Hye Cho & Yeon-Hee Park , 2010)			

SNU* SEOUL NATIONAL UNIVERSITY, IU* INHA UNIVERSITY

I collected historical data (primary sources) from the University of Bedfordshire and University of Brighton held in their archives. While I was staying there, I took a photo or scanned all resources. And I obtained personal report cards and the course catalogue in Seoul National University and Inha University because it was difficult to find official primary sources which were related to PETE courses. Because of these insufficient resources, I referred more second sources in Korea than England. Based on these resources, I calculated the amount of hours in each PETE course from 1960s to 2010s and I made a division such as periods of COE, BEd and BA in England.

3.3.2.2. Interviews and questionnaires

I am going to explain the overview of interviews and questionnaires. Before starting this research, I completed my pilot study between January 2010 and June 2010. After finishing this pilot study, I decided the scope of interviewees and completed questionnaires.

Table 3. Overview of interview schedule and numbers

		England		South Korea	
The subject of Higher Education		University of Bedfordshire	University of Brighton	Seoul National University	Inha University
Span of interviews		January 2010~June 2010 (pilot study) March 2011~ October 2012	July 2011~April 2012	July 2011~January 2013	July 2011~April 2012
Historical curricula (documents) analysis		1960s-2012	1960s-2012	1970s-2012	1979-2012
The participants and number of interviewees	Previous chairs	1	0	1	0
	Previous lecturers	1	1	1	0
	Course leaders	1	1	1	2
	Unit lecturers	12	6	16	9
	Teachers	5	4	11	8
	Preset student teachers	10	7	10	9
Numbers		30	19	40	28
Numbers in each country		49		68	
All numbers		117			

Interviews

I had individually interviewed with 117 people such as previous chairs, previous lecturers, course leaders, unit lecturers, teachers who was a four year student teacher in each PETE course, and preset fourth year student teachers with Qualified Teacher Status (QTS) in my research. I had interviews two or three times with important interviewees and exchanged e-mails to supplement inadequate contents. There were several reasons why I interviewed various people. First, I had to have a sense of perspective to study PETE courses. For example, I confirmed that it was difficult to judge PETE curriculum or priorities of knowledge, based on only lecturers' opinions from my pilot study where I had interviewed only lecturers because I found that there was a possibility that student teachers or previous student teachers could have other opinions in their lessons. Based on this discovery, I added student teachers and teachers as my interviewees to study their priorities of knowledge, concepts for their course and way to learn various components etc. Second, I had to add previous chairs, previous lecturers as my interviewees because I could confirm the contents and reasons of historical resources with them. For instance, even if there was a change of curriculum in Seoul National University, I could not find historical resources about the reason of change. However, I could confirm the fact and reason through the interview with previous course leader who was in charge in the 1980s. Third, I supplemented interviews with teachers because I could confirm contents from learning in PETE course to application in school based on interviews with teachers. Fourth, I could obtain various cultural differences which did not obtain by books and articles through my interviews. It was very helpful to understand contextual features in two countries. I sent a questionnaire to interviewees before having interview with them. Before starting interviews, I received the confirmation from interviewees. Finally, these interviews were all recorded under the agreement with interviewees. Interviews with English were transcribed by a transcription company. And I transcribed and then translated interviews in Korean myself.[1]

[1] In this interview, interviews with teachers (9 people) in England were less than interviews (19 people) in Korea. However, 18 present lecturers were all previous PE teachers. On the other hand, just six lecturers among 27 present lecturers were PE

Questionnaires

I designed questionnaires which were comprised of semi-structured contents for each group. And I considered contextual situations making questionnaires in England and Korea. For example, when I made a questionnaire for student teachers, I made the questionnaire for English student teachers on the premise that student teachers nearly became all teachers because over 80% of student teachers in England became a teacher. On the other hand, I made the questionnaire for Korean student teachers according to the situation because 5% of student teachers became a teacher. Because of this reason, 9 student teachers among 19 student teachers in Korea were a student who did not want to become a teacher. And questionnaire for them were a little bit different[2].

3.3.3. Analysis

Collecting data and analyzing data in qualitative methods happened concurrently (Spradly, 1980). Moreover, because I spent nearly 2.5 years in collecting data, I had to analyze data simultaneously whilst collecting data. For example, after finishing my pilot study, I supplemented the insufficient parts for my research. During my full-scale study, after completing one research of PETE course such as collecting data, interviewing with various people and analysis, I also added my inadequate parts to research other PETE courses. I have used two methods such as documentary methods and Grounded theory.

First I explain documentary methods. Payne & Payne (2004) illustrated Documentary methods as follows:

> "Documentary methods are the techniques used to categories, investigate, interpret and identify the limitations of physical sources, most commonly written documents, whether in the private or public domain." (Payne & Payne, 2004, p. 60)

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teachers. In this aspect, I do not need interviews with teacher in England as much as interviews with teachers in Korea.

[2] There are questionnaires in appendix 1

They mentioned that documentary methods were a good tool to analyze written documents. As I mentioned before, I collected historical resources in PETE courses. This data included the time table for students, all syllabuses of units which were obtained from staffs in charge of this work. I consulted this method while I was analyzing my historical resources.

Second, I explain Grounded theory. This has been accepted a general methodology to make a kind of theory using by inductive way which was invented by Strauss and Glaser in 1967(Cohen et al, 2007). And Charmaz (2005) illustrated that "A major strength of grounded theory methods is that they provide tools for analyzing process, and these tools hold much potential for studying social justice issues (pp. 507-508)." Payne & Payne (2004) noted that grounded theory was conducted in most qualitative methods using an inductive framework. In Grounded theory, coding which means that "a particular step in analysing data, when the raw materials are converted into a more organised format that is easier for the researcher to inspect and understand (Payne & Payne, 2004, p. 36)" or "the process of disassembling and reassembling the data (Cohen et al, 2007, p. 492)" is the most important tool in analyzing data. This means that raw data have meanings through the process of coding. Corbin and Strauss (2008) made three steps introducing open coding, axial coding and selective coding. They denied prefect application of Grounded theory to each research. For example, they recommended categories such as casual conditions, phenomenon, context, intervening conditions, action/interactional strategies, consequences in axial coding. They recommended these categories to use flexibly in their own research because there was a possibility to make not a theory inside of categories in axial coding but a proper theory based on their own resources.

3.3.4. Application of these analysis methods

I will show two examples which I completed based on these analysis methods.

3.3.4.1. Making categories

First, I needed a common tool or way to analyze the PETE curricula in two countries, to do this I used documentary methods. This means that I tried to make a big category and sub categories based on repeated data collection, making categories, and applying categories in my results and so on. Table 4 shows the process of applying documentary methods in my study.

Table 4. Deciding frameworks and analyzing curricula in Seoul National University

Row data	Choice	year	coding		
			Big categories	Sub categories	Sub categories
Shulman's framework (1987) Fernandez-Balboa's framework (1997) NASPE's framework (2003) Kirk et al's framework (1997)	Shulman's framework (1987) Kirk et al's framework (1997)	2009/10	Kirk et al's framework in 2009/10	Physical activities, professional knowledge and discipline knowledge	Findings
			Shuman's components inside of Kirk et al's framework in 2009/10	Eight components in Shulman's framework inside of three above components in Kirk et al's framework	Findings
		1978~2012	Kirk et al's framework from 1978 to 2012	Physical activities, professional knowledge and discipline knowledge from 1978 to 2012	Findings

I originally used various frameworks to analyze PETE courses such as Shulman's framework (1987), Fernandez-Balboa's framework (1997), NASPE's framework (2003) and Kirk et al's framework (1997). Fernandez-Balboa's framework (1997) and NASPE's framework (2003) were made based on Shulman's framework (1987). However, I finally chose Shulman's framework as it is used by many scholars as well as Kirk et al's framework (1997) because it was the only

framework which analyzed PETE courses in historical terms. It is also a little bit broader than Shulman's framework. This means that it was applicable in analyzing the PETE courses in respect of history.

Now, I will show the process of application of two frameworks. I analysed the latest year such as the curriculum in 2009/10 in University of Bedfordshire, the curriculum in 2011/12 in University of Brighton in two ways.

First, I used Physical activities, professional knowledge and discipline knowledge to categorise and analyse the curriculum in 2009/10 (see table 4 and 5) based on Kirk et al's six components (1997). I considered one thing - the unit of Foundations of Sport and Exercise in University of Brighton is mainly included in Biophysical Knowledge because it contained obviously biophysical contents. However, it was arguable whether this unit is discipline Knowledge or professional knowledge because it is difficult to judge which components are more than another. In this case, I judged basically the unit based on the interview data. And if I could not conduct an interview with the lecturer in that unit, I made a decision that units of discipline knowledge were mainly units which are based on discipline knowledge such as biomechanics, exercise physiology even if it contains professional knowledge. On the other hand, I did not use biophysical knowledge, Socio-cultural knowledge and theoretical knowledge as the main components to analyze the curriculum because it was difficult to categorize them. For example, although many units which are related to professional knowledge were ambiguous whether it is Socio-cultural knowledge or theoretical knowledge, it certainly belonged to the category of professional knowledge. By the way, I used Socio-cultural knowledge and biophysical knowledge as a framework in University of Brighton to show the development of socio-cultural knowledge (see table 8 in University of Brighton). Through this analysis, although I could confirm this trend, it was very difficult to make categories using by two components because of ambiguity of units.

Table 5. The numbers, times and credits of units of physical education in 2012[3]

		All numbers which were opened	Minimum standards*	A (2009-2012)	B (2009-2012)	Remarks
Contents of professional knowledge	The numbers	4	4	4	4	Units of physical education which "A" and "B" student teacher took: 69 and 76 credits.
	The hours per week	11	-	11	11	
	credit	11	11	11	11	
Contents of discipline knowledge	The numbers	29	8	13	14	
	The hours per week	69	-	30	32	
	credit	66	20-21	28	30	
Contents of physical activities	The numbers	47	5	30	35	
	The hours per week	94	-	60	70	
	credit	47	5	30	35	

*Minimum standards in which a student teacher had to join.

Second, I used Shulman's components to analyze one unit which was categorized based on Kirk et al's six components (1997) (see table 6). For example, I researched which of Shulman's components are priorities in Track and Field 1 which was inside of category of physical activities (one of Kirk et al's components) through my interviews. And I studied the interviewees' syllabus before the interview took place. We could see this result in chapter 4.2.2.

Table 6. The units which were analyzed by Shulman's components

	Units in Seoul National University	CK		GPK	PCK	CCK	KEC	KLC	KEG
		TCK	PRACK						
Physical activities	Track and Field 1(Track)		2		1				
	Health Exercise		1		2	3			
	Gymnastics 1 Floor Exercise		1		2				
	Track and Field 2 (Field)		2		1				
	Soccer		1						
	Gymnastics 2Vaulting Horse and Bar		1		2				
	Table Tennis		1						
	Traditional Martial Art		1						
	Swimming2		1						

[3] I made this table based on the official course catalogue and the appendix 1 in chapter 4

	Volleyball		1						
	Physical Fitness Training		1		2				
	Korean Archery		1						
	Handball		1						
	Rugby		1		2				
	swimming3		1						
Professional knowledge	Principles of Physical Education			6	5	4	2	3	1
	Sports Pedagogy					1	2		3
	Teacher Preparation for Student Management	4		2	3	3	1	2	3
	Study of Physical Education Teaching Materials and Method Guidance			5	1	3	4	2	
	Seminar in Physical Education								
Discipline knowledge	Introduction to Health and Exercise Science						1		
	Logic and Essay Physical Education						1		
	Sport Management						1		
	Motor Learning and Psychology						1		
	Sport Sociology						1		
	Sport Marketing						1		
	Sports Policy						1		
	Leisure Recreation						1		
	Measurement and Evaluation of Physical Education					1	2		
	Physical education for the Disabled						1	1	
	Methods of Research in Physical Education						1		

Third, it was difficult to use Shulman's knowledge to analyze the curriculum in Seoul National University from 1978 to 2009 because it was too detailed. For example, Principles of Physical Education in Seoul National University was difficult to categorize inside of Shulman's components because the unit includes both PCK and CCK. On the other hand, professional knowledge in Kirk et al's components included most components (PCK and CCK). Because of this reason, I selected in Kirk et al's components to categorise and analyse the curriculum from the 1970s to the present.

Table 7. Detailed information of units that student teachers took from 1978 to 2009 in Seoul National University based on Kirk et al's framework

Units of discipline knowledge

	Numbers of units	Hours per week for four years	Hours for 15 weeks for four years	credits	
				credits	Proportions compared to all units
53 students from 1978 to 1995	16.4	46.1	690.6	41.4	28.6%
30 students from 1996 to 2008	14.4	36.1	542	32.5	25%
Five students in 2009*	13.4	31.8	477	29.2	21.2%

Professional units

	Numbers of units	Hours per week	Hours for 15 weeks	credits	
				credits	Proportions compared to all units
53 students from 1978 to 1995	2	6	90	6	4.3%
30 students from 1996 to 2008	2	6	90	6	4.6%
Five students in 2009	4	11	165	11	8.5%

Physical activities

	credits		Average of amounts of hours per person	All credits
	Average of credits per person	Proportions compared to all credits		
53 students from 1978 to 1995	29.2 credits	20.4%	874 hours	142.5
30 students from 1996 to 2008	29.1	22.3%	873	130.7
Five students in 2009	26	19.9%	780	131.2

* "Principles of Physical Education" was an optional unit from 1978 to 1985. However, all students who I selected randomly took "Principles of Physical Education". And randomly selected five students did not choose Seminar in Physical Education (optional). Students randomly selected three from 1978 to 2008 and five in 2009.

Table 7 is a result of analysis of the curriculum in Seoul National University from 1978 to 2009 based on Kirk et al's framework. I analysed numbers of hours, credits and particular changes of them in 88 student teachers' reports. There is one example of interpretation of contents in the chapter 6.3. And I explain the application of using Grounded theory in the next part.

3.3.4.2. Using Grounded theory

Second, my first research question is that 1. Applying Shulman and Kirk et al's framework, what is the knowledge base for teaching physical education within university PETE programmes in England and Korea? Among this question, I will show the change of physical activities by using Grounded theory.

Table 8. The analysis of physical activities in University of Brighton from the 1960s to the 2010s based on grounded theory

Applying Shulman and Kirk et al's framework, what is the knowledge base for teaching physical education within university PETE programmes in England Korea?			
Raw data	Coding		
	Open coding	Axial coding	Selective coding
Documents, interviews	Documents and interviews related to physical activities	The change of physical activities from 1960s to the present: amounts of hours and sport events, teaching methods, etc. the reason of the change of amounts of hours of physical activities The relationship between PCK and PA The relationship between CCK and PA The change of balance in teaching physical activities	The reduction of hours of physical activities Getting better balance between student teachers' abilities of physical activities and their teaching abilities of physical activities Consequences: The reduction of hours of physical activities vs Getting better balance between student teachers' abilities of physical activities and their teaching abilities of physical activities

First of all, I collected historical data such as syllabuses, time tables from the University of Brighton from 1960s to 2010 and had interviews with previous course leaders, previous lecturers, present lecturers, teachers and student teachers (raw data). Second, I classified the resources which were related to physical activities (Open coding). Third, I confirmed the change of amounts of hours in physical activities in the PETE course (phenomenon) and found the reasons why the amount of hours reduced through interviews (context). And I analysed the change and reason of physical activities classes (context). Phenomenon and context are a category in axial coding. Fourth, I repeated this process until I could not find other contents (saturation). Fifth, through these repeating works, I drew three results (selective coding) in table 8. Scott (1990) stressed authenticity, credibility, representativeness and meaning in the research. Basically, my methods

of analysis fits into these requirements as I used the same approach in table 8 in categorising my result. The following photographs show the process of analysis (see figure 2).

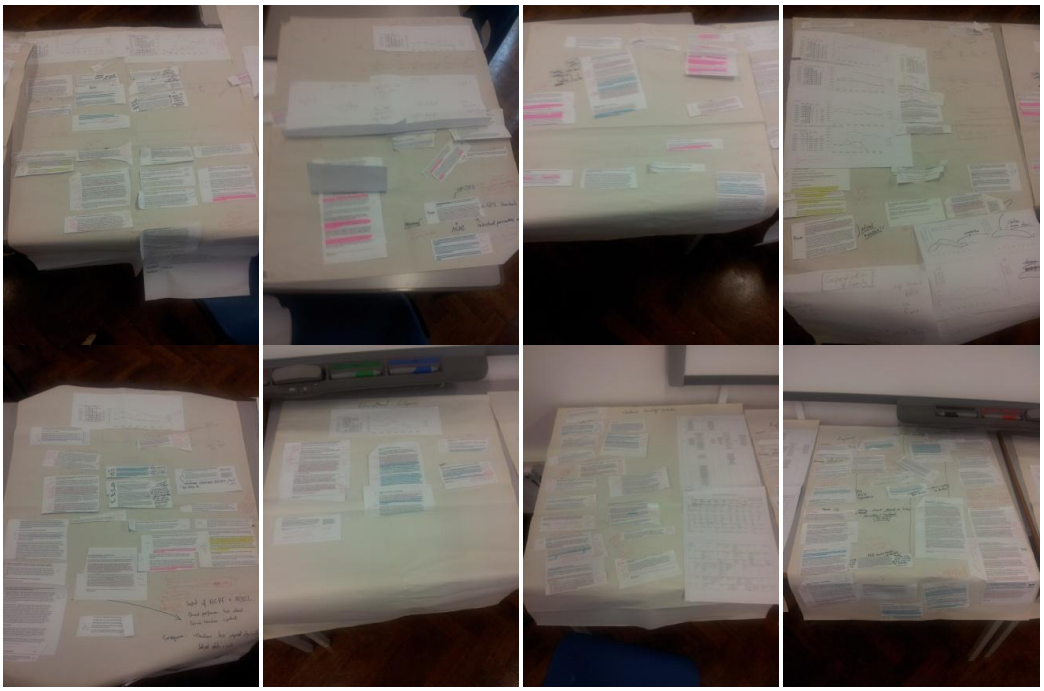

Figure 2. The process of the analysis

3.3.5. Ethical Considerations

Although the universities are named in this research, the names of the interviewees and any identifiable information about them have been changed. All interviewees signed a consent form to participate in the research.[4] Regarding the historical documents I analysed as part of the research, again, all names and identifiable information were annonymised. The raw materials which I collected during my research were stored in a secure place only accessible by me. When I needed to analyse my resources with my supervisors and experts, I changed all the real names to pseudonyms. This said, in this thesis, I used authentic titles of each university because it is impossible to anonymize the identities of institutions in the historical study. Because I used the real title of each university, I will put an

[4] There is a consent form in appendix 2 in chapter 3.

embargo on my thesis to protect the institutions.

3.4. Conclusion

In this chapter, I introduced my methodology and methods. First, my methodology is social constructionism which means humans and society construct each other. Moreover, humans are very active in constructing their society. However, social constructionism as a methodology acknowledges objective reality which was constructed by society. This means that social constructionism as a methodology denies relativism which has equal means in both sides. For example, I have to find a trend of hegemony (a kind of objective reality) in PETE course in England and Korea. Second, based on this philosophical background, I collected historical data and had interviews with various people. And I used mainly documentary methods and Grounded theory to analyse these resources. Through these processes, I generated my data that forms the basis of my results.

4. UNIVERSITY OF BRIGHTON

Before explaining chapter 4, I will note the construction of chapter 4, 5, 6, and 7. In these four chapters, I describe factual changes and analysis rather than my interpretation. This analysis is then drawn together in chapter 8 with a comparison of the PETE courses in each county and an associated discussion. To analyze each PETE course, I adopt Shulman (1987) and Kirk et al's (1997) frameworks, as discussed in chapter 2, to analyze the most recent PETE curriculum in each institution (2011/12 curriculum in University of Brighton, 2009/10 curriculum in University of Bedfordshire, 2012 curriculum in Seoul National University and 2011 curriculum in Inha University). This is followed by an examination of the curricula from the 1960s to the present in the four PETE courses drawing mainly upon Kirk et al's framework. The reason for this difference between the analysis of the latest curriculum and the analysis of the curriculum of the previous 40 years was that insufficient detail on the historical curricula was available to use the detailed analysis of Shulman's framework. Thus the organisation of these four analysis chapters is similar although the contents differ according to contexts of each PETE course. Moreover, these chapters will mainly answer research questions 1 and 2.

4.1. Introduction

The PETE course in University of Brighton started in1898. The original name was the Chelsea College of Physical Education. Up until 1971, the course was for women only and became a three year Certification course by 1967. After that, some students who obtained good marks during the three years Certification course could enter the next stage of education (BEd course) as a fourth year student in London University Institute of Education in the 1970s. During these periods, the English government demanded teaching colleges to develop their teacher education such as through merging of colleges or obtaining BEd degree.[1]

[1] There is in detail contents in chapter 2.5.1, Robbins Report (1963) and James Report (1972).

To comply, Chelsea College of Physical Education merged into various institutes such as including in East Sussex College of Higher Education (1976~1979) and Brighton Polytechnic (1979~1990) and Chelsea School of Physical Education, Sports Science, Dance and Leisure (1990~1998) within Brighton Polytechnic (1990~1992) and University of Brighton (1992~1998). At present (2013), PETE programme belongs to School of Sport and Service Management at the University of Brighton. During 1987 to 1991, all students had to undertake a four year BEd Honours course to become a teacher replacing the BEd three year course in 1986. The course title changed from BEd (Hons) to BA (Hons) Physical Education leading to Qualified Teacher Status (Secondary) in 1993 and was developed as a modular course.

Staff

During 2011/12 there were 9 full-time lecturers and no part-time lecturers. Three of the 9 lecturers have a PhD degree and the remainder have a masters' degree. The lecturers sit in the School of Sport and Service Management. Some additional lecturers sit in the Department of Sport Study teaching units of discipline knowledge such as Foundations of Sport and Exercise Psychology.

4.2. Analysis of the curriculum in 2011/12 at UNIVERSITY OF BRIGHTON

I will explain the knowledge base of the curriculum in 2011/12 in detail based on documents, resources of interviews with lecturers, teachers and students.

4.2.1. The analysis based on Kirk et al's framework

Analyzing this course with Kirk et al's components, most student teachers took 42.9% for hours of units of professional knowledge, 40%~45.7% for hours of physical activities and 11.4%~17.1% for hours of units of discipline knowledge (see table 1).

Table 1. The numbers, times and credits of units of physical education in 2011/12[2]

		All numbers which were opened	A (2009/10-2012/13)	Remarks
Contents of professional knowledge	The numbers	14	14	32 weeks of teaching experiences in two placements
	The hours per week	30 (390)	-	
	credit	280 levels	-	
	Proportions of hours	42.9%		
Contents of discipline knowledge	The numbers	4~6	4~6	
	The hours per week	8~12 (104~156)	-	
	credit	40~60	-	
	Proportions of hours	11.4%~17.1%		
Contents of physical activities	The numbers	14~16	14~16	
	The hours per week	28~32 (364~416)	-	
	credit	140~160	-	
	Proportions of hours	40%~45.7%		

The PETE curriculum in 2011/12 consists of two 13 week semesters. There are 37 units in the curriculum with students taking 34 units of the 37 units (30 compulsory units, two choices from physical activities and discipline knowledge and two optional physical activities). One unit accounts for either 10 or 20 credits. Intermediate School Placement and Final Professional Placement for School experiences were each worth 60 credits. 10 credits normally equate to 2 hours per week. No units of liberal arts or educational units are available.

Students complete an initial school experience placement for two weeks in the second year and two placements of 15 weeks in the third and fourth years.

4.2.2. The analysis based on Shulman's framework

In the following section I will examine the curriculum utilising Shulman's knowledge bases to frame the analysis.

4.2.2.1. Physical activities

Students can engage in 12 predominantly practical units in years 1 and 2 at

[2] I made this table based on the official course catalogue and the appendix 1 in chapter 4

University of Brighton. In years 3 and 4 they take select one practical unit each year and one additional unit that can be either practical and or discipline knowledge oriented. The key practical areas of the pre-2008 NCPE are clearly evidenced in the practical physical activity units undertaken at University of Brighton: Dance, Track and Field, OAA, Games and Gymnastics. The following table outlines the knowledge bases for each unit prioritised in rank order by the unit leaders.

Table 2. Result of 14~16 units of physical activities which were analyzed by Shulman's components

	Title of units	Credits	TCK	PRACK	GPK	PCK	CCK	KEC	KLC	KDG
First year	Dance	10	2	1						
	Track and Field Athletics	10								
	Outdoor and Adventurous Activities	10		1	2	2		3		4
	Games	10	3	1	4	2				
	Gymnastic Activities	10	2	1						
	Swimming and Water Safety	10	1	1						
Second year	Learning and Teaching Through Outdoor and Adventurous Activities	10	1	1						
	Learning and Teaching Through Games Activities	10	2	1	3	3	3			
	Learning and Teaching Through Swimming and Water Safety	10		4	2	1	3			
	Learning and Teaching Through Athletics	10								
	Learning and Teaching Through Gymnastics activities	10		2		1			3	
	Learning and Teaching Through Dance	10		2		1			3	
Third year	Selected Practical Activity	10								
	Choices	10								
Fourth year	Selected Practical Activity	10								
	Choices	10								
sum		16~18 units and 364~416 hours								

First year units concentrate on improving PRACK, while second year students learned a variety of Shulman's components through physical activities. One lecturer who taught the unit of Dance and Learning and teaching through Dance explained her units as follows:

> In general, the Level 1 module is what we would call a subject study module. We don't stop and say "how might we teach this?", there's no explicit pedagogic input, it's all about the study of dance, them as a

> performer, a choreographer – the person who makes up a dance and like a critic, an appreciator of dance.
> The processes that they go through, for example they learn about dance technique, they learn an introduction to simple aspects of dance technique or simple aspects of choreography, at Level 1 we don't then go "how will you help a child to make up dance content?", "what might a child find difficult about this?", it tends to be more focused on them and their subject knowledge.
> So that when it comes back in Year 2, we look at it from the teacher's point of view and say "as the teacher, how will you help a child?". There is some reference back, for example in the Year 1, we might look at a professional choreographer, we might watch a video of a professional choreographer, we might make up a piece of choreography in the style of the professional choreographer.
> In Year 2 we would stop and say, "why would you do that?", "is that a good strategy to use for the children?", "as the teacher, how are you going to make a selection, how are you going to progress it?", so the general principle is that in Year 1 it's pure subject study, in Year 2 it's about them teaching and understanding (lecturer1 University of Brighton).

It is clear that the practical curriculum was spiralled to focus on content knowledge in the first year followed by how to teach dance and how to design a curriculum of dance for second year students. This is reaffirmed in table 2. Moreover, all lecturers who taught physical activities for first year students selected PRACK as a first priority with various components such as PCK, GCK and KLC included in second year units of physical activities. Student teachers concurred with this view:

> In Year 1 it's mainly about the physical ability but in Year 2 these two kinds of mix, we learn the activities through the sport but learning about how to teach it, so it is a bit mixed up. For swimming, we did that all in the swimming pool and then they would let us know how is the best way to teach, same for gymnastics (Student1 University of Brighton).

In the second year one student teacher illustrated the opportunities to engage in PCK, GCK and KLC:

> They taught it in the lectures, then they gave us a chance, our teaching scenarios, they would get a class of 20 kids in, for instance in swimming, then we had to put it into practice so they make sure we can write an essay on it, make sure you have the theory and knowledge, they don't just leave it there, they make sure you can do it in practice (Student7 University of Brighton).

Highlighting the focus on PCK for example during the teaching of swimming the lecturer directly gave feedback on the student's teaching in the swimming pool. Through these systematized units for first and second year, they developed their physical abilities and teaching abilities. In addition students could select two or four units of physical activities in third and fourth year. Among these four units, they had to select two units of physical activities as compulsory units. However, they could also select two additional practical units as options. The course leader mentioned that many student teachers selected physical activities as their additional options rather than units of discipline knowledge.

4.2.2.2. Professional knowledge

There are 14 core units in professional knowledge including 3 of teaching experience. All professional units are core units. Table 3 highlights Shulman's components as prioritised in rank order by staff or ticked as covered within each unit.

Table 3. Shulman's components developed through professional units

	Title of units	Credits	HpW	TH	TCK	PRACK	GPK	PCK	CCK	KEC	KLC	KDG	Placements
First year	Teachers as Educators	20	4	52					√	√		√	
	Education Studies 1	20	4	52			√	√	√			√	
Second year	Education Studies 2	10	2	26	√		√	√	√				Initial placement
	Independent Professional Development	10	2	26									
Third year	Education Studies 3	10	2	26									Intermediate School Placement
	Exams in PE 14-16	10	2	26									
	Creating a Positive Teaching and Learning Environment	10	2	26	√	√	√	√					
	Partnerships: School and Community Links	10	2	26									
	Education Studies 4	20	4	52				√	√	√	√	√	
Fourth year	PE in the 14 - 19 Curriculum	20	4	52	5	4	1	2	3				Final Professional Placement
	Personal, Social, Citizenship and Health Education	10	2	26			2			3		1	
	Sum (14)	280 levels and 30 hours per week and 390 hours per four years											

HpW: Hours per week, HpT: Hours per term

Students engage in two units in each of their first two years. In year 1 they examine the professional responsibilities of a teacher, the history of physical education, examine the different views on the aims of education in Teachers as Educators. They consider the content and structure of physical education within National Curriculum and students' pedagogic skills in Education Studies 1. In their second year students learn how selected government Acts and policies impact upon the teaching of secondary PE and how selected learning and teaching strategies should be used in order to meet the needs of children and young people through the teaching of PE in Education Studies 2. Practical knowledge and understanding of reflective practices as a means of enhancing professional development was developed in the Independent Professional Development unit. This unit is student-centered as explained by the lecturer:

> One student might say "I need to develop my subject knowledge in dance", another student might say "I need to learn more about special education needs policy", so you can see they're two different things, another student might say "I need to develop my communication skills", another student might need to learn how to be a netball umpire. Then they go away and they study and they find out how to do that, so for this module, they could do any one of those really (Course leader University of Brighton).

Student teachers learn practical and basic knowledge between the first year and third year and theoretical and deeper knowledge from third year to fourth year among professional knowledge. In year 3 students take 5 professional units covering knowledge and understanding of assessment and the assessment process in physical education in Education Studies 3 which develops on from Education Studies 1 and 2. Students consider the varied 14-16 PE examination specifications in order to select appropriate material to plan a range of learning opportunities in Exams in PE 14-16. They learn knowledge and understanding of issues relating to behaviour management in the secondary school context such as a classroom, children's behaviour, and behaviour management within a physical education setting in Creating a Positive Teaching and Learning Environment. The concept and role of partnerships in furthering the aims of physical education within and outside the National Curriculum is covered in Partnership: School and

Community Links. Assessment for learning at Key Stage 3 and 4, the mentor/trainee relationship in Initial Teacher Education (ITE) is covered in Education Studies 4. There are two units in the fourth year. Student teachers learn about planning the curriculum and content appropriate curriculum for Key Stage 4 Physical Education and the structure and content of 14-19 Physical Education in PE in the 14-19 Curriculum and key work on and critical approach to secondary PSCHE in Personal, Social, Citizenship and Health Education (PSCHE). Finally, student teachers join in school for two weeks in second year and each 15 weeks in third and fourth year as a school experience. Among these units, the course leader summarized the units of Education Studies 1~4 as follows.

> It's just all the kind of professional knowledge relating to teaching, we just try and break it up into little bits so in Year 1, the focus is for example related to aspects of teaching, we look at things like how to lesson plan, how to organise, something to do with teaching styles, how to give feedback and some aspects of teaching.
> In Year 2 we look at concepts such as, we go into a little bit more detail so we look at teaching styles, learning styles, differentiation, aspects of inclusion and then in Year 3 we look at aspects of inclusion in more detail, we look at children from different backgrounds, gender, class, ethnicity, race, homophobia, disabled children and then how to develop teaching practices, to try and help those children.
> These modules are really just things. They're to do with aspects of teaching and being a teacher ..... that all teachers would need. …… they're about aspects of teaching and being a teacher and yet we obviously relate them to physical education, but they're things they need to know about teaching, the teaching profession, how to be a teacher and the kind of things that teachers do in their day to day work (Course leader University of Brighton).

He explained that units increased in detail in Education Studies 1~4 focusing increasingly on the practice of teaching. Student teachers learned basic knowledge of education in the lower grades based on physical education, as they gradually became the upper grades, they learned more detailed knowledge related to assessments, teaching styles, models and the application of English situations such as the policy of partnerships in these professional units. One student teacher also summarized his studying about units of professional knowledge as follows reaffirming the scaffolded structure highlighted by the course leader.

> I think in the first year, we touched it in the education module and again it was more touching bases in the first year, second year is a lot more dealing with like the EAL pupils, dealing in the second year in more depth, the third year was putting into practice, fourth year reflecting, going over, making sure you haven't missed anything out but yes, they do cover (Student7 University of Brighton).

In addition to the units discussed above, three units focused on PSHE, 14-19 curriculum and Exams. The inclusion of 'Exams in PE 14-16' as professional knowledge rather than discipline knowledge was somewhat problematic as it is clear that this unit included significant theoretical components.

4.2.2.3. Discipline knowledge: Discipline knowledge centring PETE

Table 4. Result of 4-6 units of discipline knowledge which were analyzed by Shulman's components

	Title of units	Credits	HpW	HpT	TCK	PRACK	GPK	PCK	CCK	KEC	KLC	KDG
First year	Qualitative Analysis of Human Movement	10	2	26	√	√	√	√				
	Foundations of Sport and Exercise Psychology: An introduction to motor learning; Scientific basis of exercise, training and physical performance; Social Perspectives on Sport	10	2	26								
Third year	Independent Study Module	10	2	26	√	√	√	√	√	√	√	√
Fourth year	Independent Study Module	10	2	26	√	√	√	√	√	√	√	√
	Choice	10	2	26								
	Choice	10	2	26								
	Sum (4~6)	40~60 levels and 104~156 hours per four years										

HpW: Hours per week, HpT: Hours per term

Student teachers had to select two compulsory units of discipline knowledge, two independent study units and up to two optional units of either discipline or practical knowledge over their four years taking between 104 hours to 156 hours of units on discipline knowledge.

In first year students take two units of discipline knowledge. The first is focused on Qualitative Analysis of Human Movement. This unit was mixed class between physical activities and professional knowledge and discipline knowledge and is taught by a biomechanics expert and physical education expert to integrate the discipline knowledge with other knowledge bases:

> It's at a very basic level and it covers biomechanics, it's all about biomechanics and human movement but it's also about how you can capture things on video and then analyse movement to give feedback, so it's a little bit related to watching somebody and making judgements about their performance and then giving them feedback, based upon what you've seen. But the underlying disciplinary area is biomechanics. …… Stuart Mills is the biomechanist expert, I'm the physical education expert and we combine the two. We get the students to look at the moment, understand the biomechanical principles and I put the physical education slant on it. ….. We do six lectures in a lecture room and then we do small group things where students might perform a penalty flick in hockey and they film it and they look at the biomechanical principles on how to do it, how to make the ball go fast, apply a force for a long period of time, so theoretical then practical (Lecturer6 University of Brighton).

Based on this teaching, student teachers learned how to analyze students' movement such as children swimming and could give a feedback to their students through the observation based on biomechanical principles. In addition student teachers selected one additional discipline unit from An introduction to motor learning, Scientific basis of exercise, training and physical performance and Social Perspectives on Sport in year 2. In the second half of year 3 students and first half of year 4 students completed an Independent Study module. Through this course, they learned their independence of judgement and action in relation to an area of academic interest arising out of their course. One unit leader who was in charge of this course explained this unit as follows.

> For the independent study, they have to create their own title, having chosen their own area so the responsibility is now with them. I think it's important, particularly for teachers because when they are in school, they'll be setting questions for the pupils so it's a difficult process for them but a valuable one. So the idea is for them to focus on an area of interest, perhaps something which they haven't had time to pursue in another module or even something which is not in another module but is

> connected with being a PE teacher and they have to write between 6000 and 8000 words, with some supervised help from the tutor but they choose, within guidelines, they choose the topic, they have to write their title and shape the whole process of the answer (Lecturer5 University of Brighton).

The description highlights similarities to a dissertation unit where students select the disciplinary focus of the study.

4.2.3. Prioritisation of knowledge base 2011/12

In considering research question 2 ("Is any component of the knowledge base in Shulman's and Kirk et al's framework given priority within university PETE programmes") it is clear that the first priorities are units of professional knowledge (40-45%) and units of physical activities (43%). The lowest priority is discipline knowledge (10~17%) (See table 1). Second, considering contents in this PETE programme in detail, PCK, CCK and KLC based on PRACK were priorities in units of physical activities with most unit leaders teaching various components in Shuman's framework. Staff highlighted that most components in Shulman's framework were important in units of professional knowledge. Moreover, even if units of discipline knowledge are a very small part in this PETE course, student teachers learned TCK, PCK based on KEC in these units.

4.3. Analysis of the curriculum from 1972 to 2011: based on Kirk et al's components

4.3.1. Introduction: Overview of curriculum from 1972 to 2011

In this section I present an analysis of the curriculum between 1972 and 2011 Kirk et al's components.

In 1972 students emerged from the three year course with a Certificate of Education. Between 1972 and 1982 the course gradually changed from a 3 year Certification to a 3 year BEd and then to a 4 year BEd course. The COE course

was abolished in 1982. All students had to complete 4 years BEd course from 1983 to 1992. Finally, it changed from the BEd honours degree course to BA honours degree course in 1993 changing the course to a modular system.

Table 5. The change of hours of five areas in curriculum from 1972 to 2011[3]

	Hours of Education studies	Hours of Second subjects	Hours of discipline knowledge	Hours of professional knowledge	Hours of physical activities	PE Sum	All Sum	T.E (weeks)	degree
1972	380	100	375	35	540	950	1440	15	3COE
1977	248	160	410	45	590	1045	1453	15	3BED
1983	460	120	355	100	510	965	1545	15	4BED
1989	356	295	421	134	392	947	1598	20	4BED
1993	-	288	425	153	408	986	1190	34	4BED
1996	-	-	438	234	234	910	910	32	4BA
2003	-	-	234	312	364	910	910	32	4BA
2011	-	-	156	390	364	910	910	32	4BA

Table 5 indicates the change of the amounts of hours of units, the amounts of weeks of teaching experiences and the degree and in the curriculum from 1972 to 2011. The amount of hours in PETE curriculum had increased about 100 hours from 1440 hours in 1972 to 1545 hours in 1983. From1983 to 1989 the course remained at 1500~1600 hours. The hours gradually reduced from 1598 hours in 1989 to 910 hours in 2011.

4.3.2. Units of Education studies and second subjects: Removal of these areas showing rapid reduction of amounts of hours of curriculum from 1970s to 2000s

Education studies accounted for a significant proportion of professional knowledge in the 1970s-1980s. With the emergence of the study of sport pedagogy during 1970s~80s[4] a gradual shift in the teaching of professional knowledge appeared with educational studies officially disappearing from the time table in 1993[5]. Since then, units related to sport pedagogy have been an important role in professional knowledge of PETE. Two reasons for this shift were

[3] See in detail resource in appendix 2 in chapter 4

[4] There have been many articles (e.g. Mark Byra (2006), Connie Collier (2006)) showing the developments of sport pedagogy as a theory such as the development of teaching styles, models and curricula since 1960s.

[5] There is no specific areas for education studies in UNIVERSITY OF BRIGHTON (BA (Hons) Physical Education with QTS Student Handbook, 1993-96, p.4)

recognised by interviewees. Firstly, the fact that the government in the 1980s did not see a favourable eye to pure theory in teacher education was recognised:

> I started in Moral Education and Philosophy of Education and then those parts of the course came to an end, when Margaret Thatcher became our prime minister, she wanted to get rid of theory from students and everything had to be practical, so the sociology of education, the philosophy, the history, the psychology, they were all moved out, I didn't move out but the teaching of these areas reduced enormously (Lecturer5 University of Brighton)

Secondly, PETErs in the 1980s had some issues with the lack of practical application of education studies as one present lecturer recollected:

> Yes, the staff who taught these probably never picked up a tennis racket in their life, they came from a different background. …… Now we do that as well, now we're expected to have that knowledge base as well, so I think if I'm honest, it's coming back, it got lost a bit in the middle, if I'm honest I think we've lost sight slightly of some of the, I remember I did lots of work about Piaget and learning theories, all of those things (Lecturer1 University of Brighton).

Despite criticisms of education studies' lack of practical application it is clear that incorporating these units within the practical has resulted in the loss of discipline knowledge of education such as "Piaget and learning theories, all of those things".

Second subjects disappeared from the timetable in 1996. Webb (1999) explained the situation in the middle of 1990s in her thesis quoting Professor Murdoch's speech as follows.

> "There is evidence that some students would prefer to concentrate more specifically on chosen aspects of physical education, dance, sport and recreation to enhance their depth of knowledge in subject studies." (Webb, 1999, p. 155)

This means that many student teachers wanted to concentrate on the main subject rather than doing second subjects. One lecturer in this course in my interview explained the reason:

> I do remember these discussions very clearly, not sure how much detail but we did quite a bit of research, I don't know where that is now, we looked at the number of students who were actually teaching their second subject in school and it was very, very small. Then we looked at the number of students that were actually teaching the subject that they trained for, that was even smaller …… they didn't need their second subject to get a job and typically they weren't teaching their second subject, so I think the decision was taken big picture, they don't need a second subject, they do need students that can deliver, heavily fast growing examinations, changing emphasis on linking with other people and that was a sign of the times I think (Lecturer1 University of Brighton).

Considering that education studies had about 200 ~400 hours and second subjects had also about 100~300 hours from 1972 to 1996, their disappearance from the curriculum accounted for a significant reduction of hours in PETE programmes. Interestingly there were no increases in units of physical education after abolishing these areas.

4.3.3. Units of professional knowledge

4.3.3.1. Disappearance of education studies and increasing of amounts of hours of professional knowledge of physical education

With the disappearance of education studies in 1993 and second subjects in the 1996, we witness an increasing role of professional studies (see figure 1).

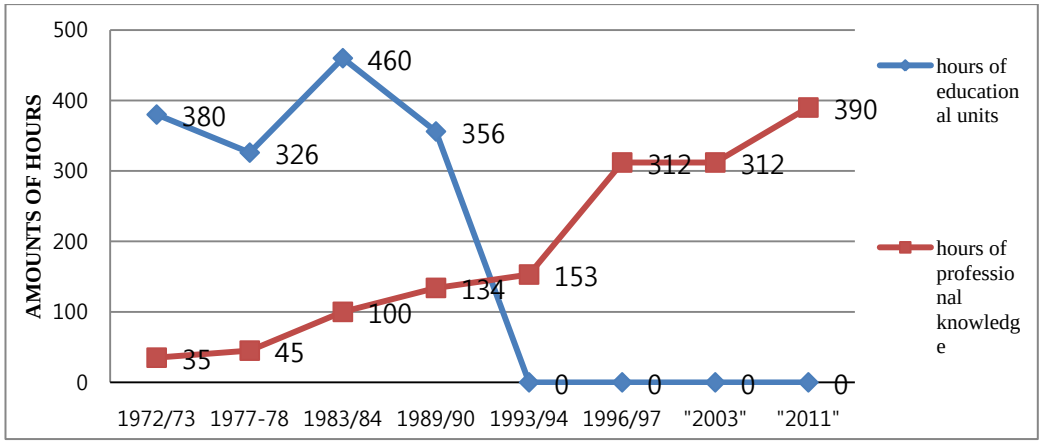

Figure 1. The change of units in professional knowledge in University of Brighton from the 1970s to the 2010s[6]

[6] See in detail resource in appendix 5 in chapter 4

Units related to professional knowledge (sport pedagogy) in PE emerged since 1972. These units in 1972 and 1980 were in the area of education studies or Human Movement Study (HMS). After that, these units established the foundation as their own area escaping from under education studies or human movement studies. For example, two units (Teaching and Professional Studies) of sport pedagogy in 1983 were officially offered from "physical education curriculum and teaching studies" as their special area separately from education studies.[7] This means that student teachers had started learning sport pedagogy as their own independent area since 1983 not included in education studies. Moreover, the amounts of hours for units of professional knowledge of physical education in 1983 increased to 70 hours compared to previous amounts showing about the rise of three times compared to previous amounts. Units for sport pedagogy in 1989 were opened in all grades interlinked with developments of sport pedagogy as study. In 2012, 13 units (390 hours) are offered. In the curriculum 1990[8], it was divided into three parts such as second subjects, education studies and physical education. However, after the reorganization of university system in 1993, the curriculum was divided into two parts such as stage one and stage two to classify into curriculum as a grade.[9] This means that all units were reformed to be centred physical education as second subjects and education studies disappeared in the PETE course. Based on these facts, I conclude that education for sport pedagogy as an independent area started in the early 1980s.

In this context, we should not overlook the professional knowledge in PETE in 1970s because although the ways or intentions of the professional knowledge were different it was taught through education studies, units of discipline knowledge (human Movement Studies) and units for physical activities. As I mentioned before, education studies played an important role for professional knowledge in PETE by 1993 as BA degree started although it had more theoretical aspects.

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[7] Brighton Polytechnic B.Ed. Honours Degree Specialist Physical Education Programme, Student Handbook 1983/84, p. 6.
[8] Brighton Polytechnic, Faculty of Education, Department of Secondary/Further Education and Chelsea School of Human Movement, B ED Hons Physical Education Course – 1990-94, Student Handbook, p. 13.
[9] University of Brighton, Faculty of Education, Sport and Leisure Chelsea School, BA (HONS) QTS Physical Education Definitive Course Document, Revised September 1996, p. 10.

4.3.3.2. Previous student teachers' memory about application of professional knowledge in PETE through academic development of physical education such as spectrums, models

Most students in this course have been satisfied with the professional knowledge of their PETE course. One lecturer in University of Bedfordshire who was a student teacher from 1987 to 1991 in University of Brighton recollected her course as follows.

> And I think also in terms of when I trained, the pedagogical approaches were not at the forefront of what we did, it was all very much warm up, practice, game, none of the Sport ED or the tactical games or cooperative learning, although I think there were elements of that, we used to call it whole/part/whole and group work …… I think from my perspective, I think we have a good balance of these areas, I don't think there's any one emphasis on one area more than another particularly, ……Yes, I think it was more the practical components and the school experiences that I remember has been more influential in terms of where I went and how I developed. In terms of curriculum knowledge and design, I don't think that was quite as inherent but then there wasn't such a formulated national curriculum at that stage, so it was all quite open to ..... people could design their curriculums as they wished at that stage so it was a bit kind of open ended and not so much focus at that stage (Previous student2 University of Brighton from 1987 to 1991 and present lecturer1 University of Bedfordshire).

Even if her course emphasized more physical activities rather than professional knowledge such as the pedagogical approaches at present, one another lecturer gave me some more detailed information about this.

> This was all to do with teaching strategies, so Mosston & Ashworth. …... because this is 20 years ago, we spent more time looking at Mosston & Ashworth's teaching spectrum, it was very much driven by the spectrum. So things like teaching games for understanding and sport education-teaching games for understanding I think was briefly mentioned but definitely not sport education or cooperative learning, nothing like that. …..We did a lot of stuff on whether you teach whole/part/whole, it was more at that level, at that time (Previous student3 University of Brighton from 1992 to 1996 and present lecturer3 University of Bedfordshire).

He explained that he learned more the spectrums than models at the early of 1990s. Based on the interviews with previous student teachers between the 1980s and the1990s, the developmental process of sport pedagogy pervaded PETE curriculum such as the development from teaching styles to models.

4.3.4. Units of discipline knowledge

4.3.4.1. The development of Human Movement Study (HMS) from the 1970s to the 1980s related to PETE

The amounts of hours of discipline units in University of Brighton had kept to about 400 hours from 1972 to 1996. As mentioned before, there was a big change of curriculum in 1993 because of the change from BEd course to BA course in University of Brighton. Although education studies disappeared in 1993, the amounts of hours of discipline units did not increase. Between 1996 and 2011 a gradual reduction of approximately 300 hours was evident with students only taking 156 hours of disciplinary knowledge in 2011 (see Table 6).

Table 6. The change of units in discipline knowledge in University of Brighton from 1970s to 2010[10]

Years	Numbers of units	Amounts of hours	The duration of the course
1972	28	375	3 years
1975	16	437	
1983	25	355	4 years
1993	24	425	
1996	15	442	
2003	9	234	
2011	6	156	

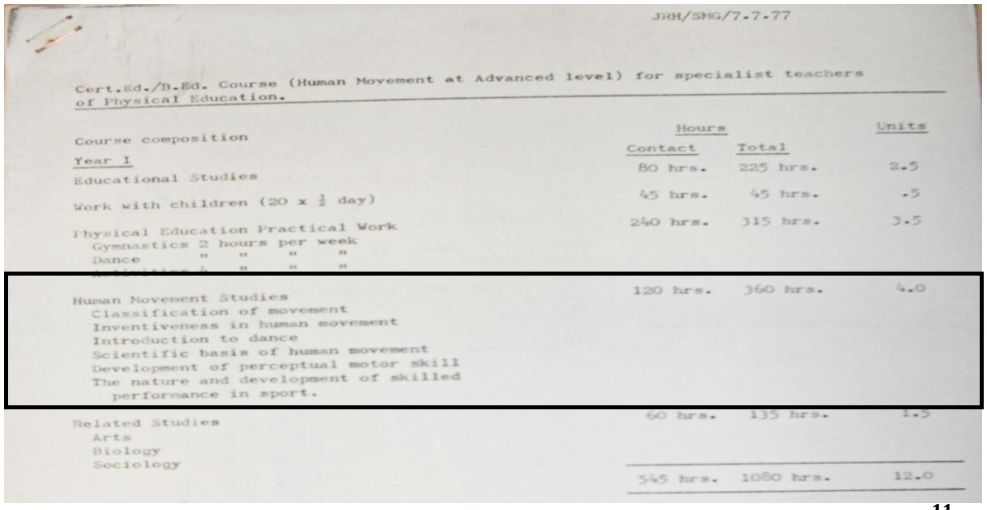
Student teachers in 1972 were taught many units of discipline knowledge to become a teacher (e.g. 375 hours in discipline knowledge and 35 hours in professional knowledge in 1972). This tendency was maintained until at least 1989 with the amounts of hours keeping around 400 hours related to discipline

[10] There are in detail resource such as titles, each hours in year, etc in appendix 3 in chapter 4

knowledge from 1972 to 1989. Webb (1999) described more detailed in her book.

> In keeping with current trends, during October 1972 the Physical Education Department supported the change of name from 'art and science of movement' to 'movement studies' as the title for the main course. When this suggestion was debated by the Academic Board in October 1973, it agreed to adopt the title 'human movement studies' in keeping with the title of the proposed new diversified BA degree which had been accepted by the University of Sussex for development. Chelsea was one of the first specialist physical education colleges to accept the subject of human movement to be studied in its own right.
> The new degree aimed to:
>
> (i) Develop an understanding of the nature and significance of human movement through the establishment of principles and the examination of theories of movement;
> (ii) Examine the development of skill in sport and in every day life;
> (iii) Review the contribution of movement study to man's health and social well-being;
> (iv) Consider the place of movement as a means of human communication;
> (v) Investigate the contribution of movement and physical activities to the child's development and education.(Webb, 1999, p. 93)

It is evident that 'movement' was one of the most important components during PETE course in the 1970s. When there were nearly no units related to the professional knowledge for the theories in the 1970s (see Figure 1), human movement as a theory were the best choice to teach student teachers. There is obvious evidence as a follow (see Figure 2).



JRH/SMG/7.7.77

Cert.Ed./B.Ed. Course (Human Movement at Advanced level) for specialist teachers of Physical Education.

Course composition	Hours Contact	Hours Total	Units
Year 1			
Educational Studies	80 hrs.	225 hrs.	2.5
Work with children (20 x ½ day)	45 hrs.	45 hrs.	.5
Physical Education Practical Work Gymnastics 2 hours per week Dance " " " "	240 hrs.	315 hrs.	3.5
Human Movement Studies Classification of movement Inventiveness in human movement Introduction to dance Scientific basis of human movement Development of perceptual motor skill The nature and development of skilled performance in sport.	120 hrs.	360 hrs.	4.0
Related Studies Arts Biology Sociology	60 hrs.	135 hrs.	1.5
	545 hrs.	1080 hrs.	12.0

Figure 2. The units and amounts of hours of HMS for first year in 1977[11]

Discipline units related to physical education were included in HMS. Although the

[11] JRH/SMG/7.7.77 Cert.Ed./B.Ed. Course (Human Movement at Advanced level) for specialist teachers of physical education, (curriculum 1977)

contact hours (240 hours) of physical activities in first year were bigger than its HMS contact hours (120 hours), the total number of hours and number of units of HMS was larger than any other area recognising its important part in the curriculum in PETE. We can see this emphasis in the Webb's book.

> "Under her (Miss Audry Bambra) guidance, courses at Chelsea had retained a balance between professional training, the acquisition of skill and academic study, but physical education and the study of human movement had been taken forward progressively. She had come to a realization that human movement is as fundamental an aspect of man's capacities, as are his intellect and his emotions, and as worthy of development through education. She felt, 'physical education should provide not only health-giving exercise and enjoyment, but an understanding of the importance of skilled and expressive action in every field of life'. The progression in her own thinking about physical education and the study of human movement was clearly demonstrated in her leadership of the College." (Webb, 1999, p. 114)

Miss Audry Bambra, Principal of Chelsea from 1958 to 1976, played an important role in the development of PETE in England. She had tried to develop PE and PETE through HMS in the 1970s.

However, there had been a change from 1980s to 1990s in discipline knowledge. The big frame of HMS disappeared at the early of 1980s in University of Brighton (see Figure 3).

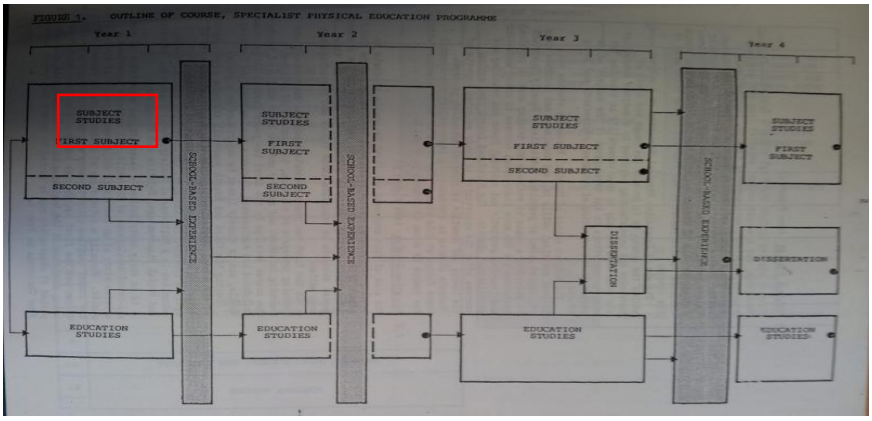


Figure 3. Outline of course, specialist physical education programme in 1983/84[12]

[12] B.Ed. Honours Degree Specialist Physical Education Programme, Student Handbook 1983/84, Course structure,

The human movement studies (HMS) were changed to "SUBJECT STUDIES" in the early 1980s. During this change, biomechanical units which were closely related to movement had gradually decreased and other scientific units such as Biological Basic of Motor Performance, Motor Learning etc increased keeping the amounts of hours at the early of 1980s (see Table 7). Moreover, there was also another change at the ends of 1980s. The title of "SUBJECT STUDIES" was changed to "PHYSICAL EDUCATION STUDIES" in 1989 (see the red boxes in Figure 3 and 4) increasing the amount of hours from 355 hours in 1983 to 421 hours in 1989 (see table 6).

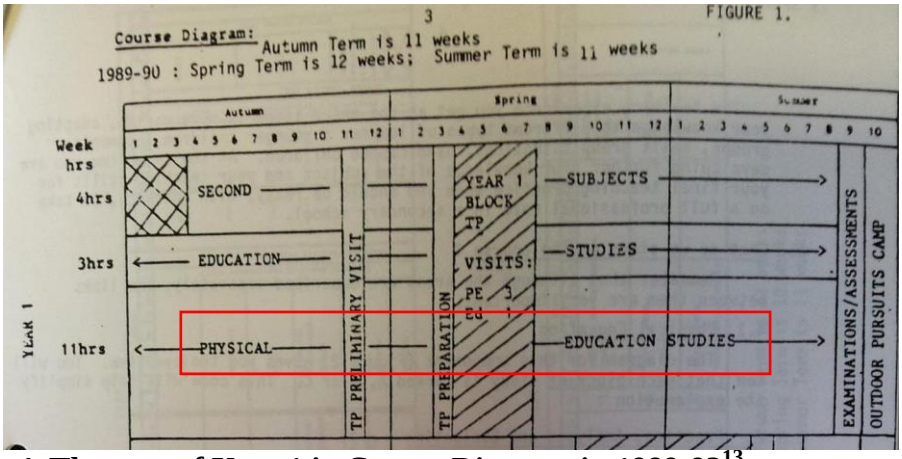


Figure 4. The part of Year 1 in Course Diagram in 1989-93[13]

4.3.4.2. Development of socio-cultural knowledge from 1993

During this change from "SUBJECT STUDIES" to "PHYSICAL EDUCATION STUDIES", units of socio-cultural knowledge started increasing showing that units of biophysical knowledge decreased from 1993 (see Table 7). In Table 7, even if units of socio-cultural knowledge have not increased from 1983 to 2003 showing to the dramatic reduction of units of bio-physical knowledge, considering that most units of professional knowledge such as Teachers as Educators in 2011 were related to socio-cultural knowledge, socio-cultural knowledge in University of Brighton at present has been more influential than bio-physical knowledge.

assessment and organisation

[13] B.ED. HONS. PHYSICAL EDUCATION COURSE 1989-93, STUDENT HANDBOOK 1989-93

Table 7. The change of units of bio-physical knowledge and socio-cultural knowledge in discipline knowledge from 1983 to 2003

	Discipline knowledge			Degree of the course
	Biophysical knowledge	Socio-cultural knowledge	Optional units or vague units	
1983	Biological Basic of Motor Performance: 3 Development of Motor Competence Development of PE Motor Competence Perceptual Motor Learning: 3 Cultural Movements Movement Concepts	Cultural Experience Aesthetic and Cultural Forms Cultural Exp. Of Dance: 2 Socio & CUl. Studies: 2 Aesthetics: 2 Pioneer	Related Theory: 3 Physical Education Options: 2	BEd
1989	Movement Observation and Analysis: 5 Perceptual Motor Learning: 3 Physiology of Physical Activity: 3 Movement analysis project with Year 1 Perceptual Motor Development	Physical Education Culture and Society: 3	Option Route Module: 4 Option Route Supplementary Module: 2 Option Route Independent learning assignment Option Route Summary	BEd
1993 one student	Foundation of Natural Science Skilled Behaviour in Sport Perpetual Motor Development & Children's Sport	Social Perspective on Physical Culture Approaches to Study Introduction to Research Methods Disability in Sport and Recreation Issues in Sport and Physical Culture Gender Issues and Physical Culture Applied Studies (dissertation)	-	BA
2003	Physiology Foundation of Sport and Exercise Psychology Exercise, Fitness and Health	Qualitative Movement Analysis in Physical Education Dissertation Preparation Dissertation: 3	Choice	BA

4.3.4.3. The reduction of hours and influence of discipline knowledge from 1993

There has been a significant reduction in the number of units of discipline knowledge since 1993 after becoming B.A course. The change really started with the increase of units of professional knowledge since 1996 and the decrease of hours of discipline knowledge from 234 hours in 2003 to 156 hours in 2011. If student teachers did not select units of discipline knowledge as optional units, the hours of discipline knowledge decreased to 104 hours. In contrast, professional knowledge has increased from 234 hours in 1996 to 390 hours in 2011 in units of professional knowledge (see Figure 5).

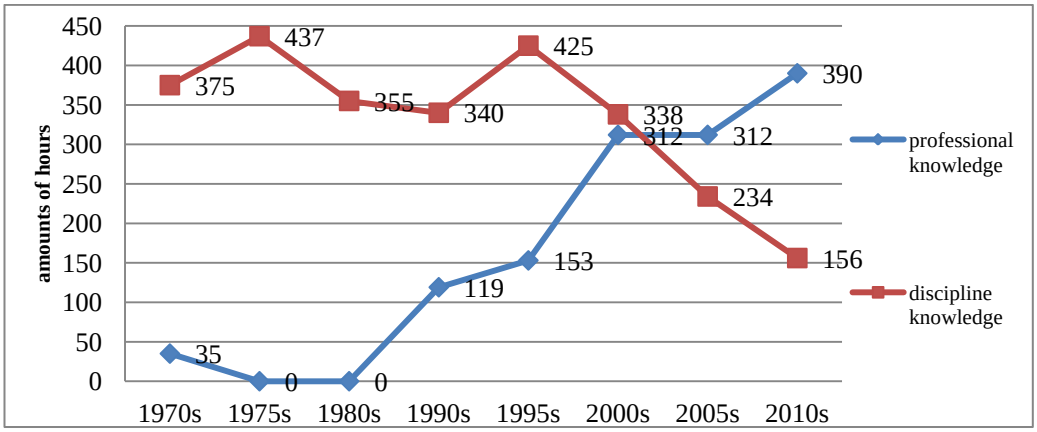


Figure 5. The change of hours between professional knowledge and discipline knowledge from 1970s to 2010s in University of Brighton[14]

In fact, although units related to human movement in discipline knowledge were a central to the PETE programme in the 1970s and 1980s, the importance and amounts has gradually declined since the middle of 1990s. There is just one unit (Qualitative Analysis of Human Movement) in 2011 which retains similarity to units of human movement in the 1970s.

Q: Could you explain about Qualitative Analysis of Human Movement?

> A: It's a disciplinary unit which the students do in their first year, so it's at a very basic level and it covers biomechanics. …… but it's also about how you can capture things on video and then analyse movement to give feedback, so it's a little bit related to watching somebody and making judgements about their performance and then giving them feedback, based upon what you've seen. …… Stuart Mills is the biomechanist expert, I'm the physical education expert and we combine the two. We get the students to look at the moment, understand the biomechanical principles and I put the physical education slant on it. …… We're both in the lecture room. We do six lectures in a lecture room and then we do small group things where students might perform a penalty flick in hockey and they film it and they look at the biomechanical principles on how to do it, how to make the ball go fast, apply a force for a long period of time, so theoretical then practical. …… It's about analysing movement which relates to GCSE and A Level, in the GCSE and A Level curriculum, I think students have to analyse movement and we get our students to analyse movement at a slightly higher level, so that they can teach GCSE. (Lecturer6 University of Brighton)

[14] There is in detail resources such as titles and hours in appendix 4 in chapter 4

This single unit in University of Brighton in 2011 is similar to the previously dominant units of the 1970s. As I highlighted within chapter 2.5.1.2 on TCK with the increasing popularity of GCSE PE and A-Level PE, it is surprising that over the same period discipline knowledge has decreased so dramatically. However, socio-cultural knowledge in discipline knowledge has increased its influence in combination with units of professional knowledge even if not by a comparable amount.

4.3.5. physical activities: The reduction of hours of physical activities

Table 8. The amounts of change of units in physical activities in University of Brighton from 1972 to 2010[15]

Year	1972	1975	1977	1983	1990	1993	2003	2011
Amounts of Hours	540	650	590	510	428	408	364	364
Duration and Degree	3 years, CEO			4 years, BED		4 years, BA		

Table 8 highlights that the number of hours of physical activity has gradually reduced from 600 hours in the 1970s to about 350 hours in the 2010s. Despite moving from a three year course in the 1970s, the number of hours were more 100~200 hours than the 4 year BEd course in 1983~1992 and more 200~300 hours than the 4 year BA course in 1993~2011. This means that the number of hours have drastically reduced since 1972.

Table 9. The change of numbers of areas based on the frame of NCPE from 1977 to 2011

	1977/78 (3 years, COE)*		1983/84 (4 years, BEd)		1990 (4 years, BEd)**		2011/12 (4 years, BA)	
	units	hours	units	hours	units	hours	units	hours
Athletics	3	-	5	35	2	35	2	52
Gymnastics	6	-	6	90	8	115	2	52
Swimming	4	-	3	25	2	30	2	52
OAA	3	-	3	35	2	22	2	52
Dance	5	-	6	110	8	115	2	52
Games	15	-	6	115	8	118	2	52
options	-	-	5	100			2	52
all	36	590	32	510	30	428	14	364

* There were no specific hours of each unit in 1977/78.

** Students could select between theoretical and physical activities options in 1990 meaning that student teachers could engage in more than 428 hours.

[15] There are in detail contents in appendix 6 in chapter 4

Firstly, the numbers of units have reduced from 36 units in 1977 to 14 units in 2011. The most dramatic reductions are evident in Gymnastics, Games and Dance with more parity developing between the practical areas.

Many lecturers who were a student teacher in the 1980s mentioned that student teachers' abilities of physical activities in their era were better than now, but present student teachers' teaching abilities of physical activities were better than those students in the 1980s.

> I think generally the physical ability of PE students in the past was higher than the physical ability of students now. I think the reasons were in the past, access to university and doing a teaching degree was quite heavily focused on your own practical ability to do activities, whereas now I think there's been a shift towards your ability to teach the activities rather than do them (Lecturer6 University of Brighton)

> I'll probably remember more of that things I really enjoyed and the things that stick in my mind are those practically based activities and perhaps less so, those theoretical aspects in terms of the philosophy and that kind of thing, although I do remember professional studies sessions (Previous student2 University of Brighton from 1987 to 1991 and present lecturer1 University of Bedfordshire).

Such comments related to courses in the 1980s reaffirm that PETE students had better physical abilities than student teachers now. However, they also explained that there was not enough pedagogic process in the 1980s. Furthermore, they mentioned that the level of units of physical activities in the 1980s was unnecessarily higher than now. It is clear that balancing the practical competence with practical knowledge is a challenge in PETE.

> I think the balance now is better, I'm not saying it's perfect but I think it's better because in the past, just being a good football player or just being a good athlete didn't mean you were a good teacher of physical education, I think that was a bit of a weakness in the past, there was an assumption if you were good at performing, you would be a good teacher which I don't think is always the case. Now it's much more balanced. Being a good performer is good but you need to be a good teacher first and foremost (Lecturer6 University of Brighton).

> I also believe that you do not have to be an outstanding performer to be a fantastic teacher, in fact when I was at university, I lived very close to a

> guy that played professional basketball during the 80s, he was an amazing player but he could not teach children. I did not have the ability that he had in performing but he didn't have the ability that I had in terms of teaching. …… I don't think necessarily the decline in accomplished performers is a problem necessarily because I don't think you have to be an Olympic medallist to be a fantastic teacher (Lecturer2 University of Brighton).

Current students also expressed some concerns about these insufficient amounts of hours of physical activities. The students mentioned that their highest level of sport events was normally developed in school rather than university. Moreover, all students mentioned the level of sport events which they learnt in university were introductory level. However, student teachers' opinion in their units of physical activities also acknowledged that perhaps this was sufficient:

> I think I could. I think they give us the foundation to be able to teach anything and if you want to go into more depth in things, then we can go and research that ourselves, so I might not necessarily know off the top of my head, all the teaching points for a push pass in hockey, but I know how to teach it as long as I'd found out the information myself (Student3 University of Brighton).

In recognising that present student teachers learn less physical activities through PETE programmes than student teachers' previous course, one lecturer explained the context as follows.

> I think that is partly to do with funding, it's to do with money because if every student is receiving 20 hours of face to face contact with their university tutor, then we wouldn't have enough people to accommodate that, so the way that you accommodate that within your budget is possibly to reduce the numbers of hours … (Lecturer2 University of Brighton).

Because of the reduced allocation of hours compared to previous periods, he explained they had to reduce units of physical activities to secure the units of professional knowledge which have been judged relatively more important components than units of physical activities. Moreover, even if student teachers have some complaints about insufficient hours of physical activities in this course, they have been normally satisfied with their units of physical activities learning various components.

4.4. Conclusion from 1972 to 2011

Considering the number of hours, the first priority has been physical activities throughout the whole 1972-2011 period examined in this chapter. Even though the amounts of professional knowledge have been similar to amounts of physical activities since the 2000s, the amounts of physical activities have been urgently reduced from 1972 to 2011. The second priority has changed from discipline knowledge in the 1990s to professional knowledge in the 2000s (see figure 5). This means that amounts of discipline knowledge have been the lowest since the early 2000s and amounts of professional knowledge have soared since the early of 1980s affecting the beginning of developments and necessity of sport pedagogy.
Considering course content, first, there has been a transition from just learning PRACK to learning PCK, CCK and KLC based on PRACK from the 1970s to the present. This means that the balance has improved in terms of teaching PRACK to students in school. Second, student teachers in University of Brighton have learned more TCK since the 1980s than learning KEC in the 1970s because of the establishment and popularity of A-Level PE in discipline knowledge. Third, there was an abolition of education studies in 1993 and second subjects in 1996 stressing more professional knowledge in physical education in the PETE course in University of Brighton.

As a result, the first priority in terms of numbers of hours for about forty years has been physical activities showing dramatic reductions of hours. Accompanying this change, the PETE course in University of Brighton has gradually taught student teachers various components such as PCK, CCK, KEC and KLC reducing only the teaching PRACK.

5. UNIVERSITY OF BEDFORDSHIRE

5.1. Introduction

The PETE course in University of Bedfordshire began in 1903 with 13 students. It was a course for middle and upper class female student teachers until 1952. It then became a public (or national) institute. It ran a three year Certification course until 1968, After that, students who obtained good marks during three years (Certification course) could enter the next stage of education (BEd course) as a fourth year student in the Institute of Education, University of London, from 1969 to 1971 and Cambridge University from 1972 to 1976. During these periods, the English government demanded that teaching colleges develop their teacher education programmes with the merging of colleges and the move to obtaining BEd degree.[1] Bedford College of Physical Education merged with Bedford Teacher Training College and Mander College of Further Education in 1976. The title of three merged institutes became Bedford College of Higher Education (BCHE). Students in BCHE could graduate with a BEd degree after 1976 through the Council for National Academic Awards (CNAA) without going to another university. Moreover, there were many more courses available to students such as the three year BEd course, four year BEd honours degree, a one year certificate course and so on. The PETE programme started recruiting male students from 1977. In 1982 all students were required to complete a four year BEd Honours course in to become a teacher and in 1983 students could take a Postgraduate Certificate in Education (PGCE) for physical education. The 4 year BEd course concentrated on secondary school since 1986 and no longer taught student teachers for primary school after 1985. Subsequently, BCHE merged with DeMontfort University in 1994. This merger meant that they could validate degree programmes without going through CNAA. A master's course for PETE was launched simultaneously. The course title changed from BEd to BA (Hons) Physical Education, leading to Qualified Teacher Status (Secondary) in 2000. Finally, they merged with the University of Luton in 2004 changing names to the

[1] There is in detail contents in chapter 2.5.1, Robbins Report (1963) and James Report (1972).

University of Bedfordshire after the Bedford campus split from DeMontfort University. At present (2012), the PETE programme belongs to Faculty of Education and Sport at the University of Bedfordshire.[2]

Staff

As of 2012, there are 14 full-time lecturers, two part-time lecturers and a number of visiting lecturers. Six of the 14 lecturers have a PhD degree and the remainder have a master's or BA degree. The Lecturers sit in the Department of Physical Education and Sport Studies. Some additional lecturers sit in the Department of Sport and Exercise Sciences teaching units of discipline knowledge such as Scientific Foundations.

5.2. Analysis of the curriculum in 2009/10 at UNIVERSITY OF BEDFORDSHIRE

5.2.1. The analysis based on Kirk et al's components

Analyzing this course with Kirk et al's components, most student teachers took 30.5% for units of professional knowledge, 47.5% for physical activities and 22.0% for discipline knowledge (See table 1).

Table 1. The numbers, times and credits of units of physical education in 2009/10[3]

		All numbers which were opened	Minimum standards*	A (2009/10-2012/13)	B (2009/10-2012/13)
Contents of professional knowledge	The numbers	11	9~10	10	9
	The hours a week	33 (256)			
	credit	135 + 3QTS			
	The Proportions of hours	30.5%			
Contents of discipline knowledge	The numbers	8	6~7	6	7
	The hours a week	31.5 (184.5)			
	credit	135			
	The Proportions of hours	22.0%			
Contents of physical activities	The numbers	11	6	6	6
	The hours a week	45.5 (399)			
	credit	240			
	The Proportions of hours	47.5%			

*Minimum standards in which a student teacher had to join.

[2] There are some more in detail contents in Women First- The Female Tradition in English Physical Education 1880-1980 (Fletcher, 1984), A Proper Spectacle: Women Olympians 1900-1936 ((Daniel & Tedder, 2010) and Big Societies: Bedford Physical Training College during World Wars One and Two (Daniel, 2012).

[3] I made this table based on the official course catalogue and the appendix 1 chapter 5

The PETE curriculum in 2009/10 consisted of 15 weeks in first semester and six weeks in the second semester. There were 30 units in the curriculum with students taking 22 units of the 30 (19 compulsory units, one optional theory and two optional physical activities). Each unit accounts for either 15 or 30 credits. The unit of 30 credits was normally 60 hours of contact time and the unit of 15 credits was 30 hours of contact time. However, there were significant discrepancies from this basis. In this case, I calculated the hours based on the timetable.

Student teachers from 2009/10 ~ 2012/13 took 256 hours (30.5%) for units of professional knowledge, 184.5 hours (22.0%) for discipline knowledge and 399 hours (47.5%) for physical activities. And they completed four placements of 7 weeks in first year, 8 weeks in second, 8 weeks in third year and 9 weeks in fourth year in four schools.

5.2.2. The analysis based on Shulman's components

In the following section I will examine the curriculum utilising Shulman's knowledge bases to frame the analysis.

Table 2. Result of three areas of physical education which were analyzed by Shulman's components[4]

Three areas of physical education	TCK (%)	PRACK (%)	GCK (%)	PCK (%)	CCK (%)	KEC (%)	KLC (%)	KEG (%)
9 units of physical activities	10.6	41.7	2.8	20.6	11.1	5.6	2.8	5
11 units of professional knowledge	8.5	1.9	12.3	26.9	11.8	21.2	9	8.5
8 units of discipline knowledge	45.7	0	2.9	14.3	3.6	22.1	10	1.4

This result in table 2 illustrates the proportions of each of Shulman's components in units based on lecturer's assessments of the unit content. Lecturers who were in charge of units of physical activities taught PCK (20.6%), CCK (11.1%) and TCK (10.6%) based on physical activities (41.7%). For example, student teachers could learn how to teach students in school, how to make a curriculum and learning how

[4] I made this table in my pilot study. Many lecturers had some complaints about dividing it by proportions. Because of these reasons, I asked lecturers in my main study about priorities of Shuman's component.

to develop their physical activities in football. In the units of professional knowledge, lecturers taught various components such as PCK (26.9%), KEC (21.2%) etc based on the theories of professional knowledge. In practice, student teachers implement their learning in episodes such as micro-teaching with their colleagues. In the units of discipline knowledge, student teachers learned TCK (45.7%) such as GCSE PE or A-Level PE, KEC (22.1%) such as theories which are suitable contents in university level, and PCK (14.3%) such as how to teach this theory to students in school. In the next section I will examine each area in more detail.

5.2.2.1. Physical activities

The following table examines in more detail the units of physical activities considering Shulman's components.

Table 3. Result of 9 units of physical activities which were analyzed by Shulman's components

	Title of units	credits	Detailed sport events	Amounts which one student took		CK		GPK (%)	PCK (%)	CCK (%)	KEC (%)	KLC (%)	KDG (%)
				Hours a week	Hours a term	TCK (%)	PRACK (%)						
First year	Area of Learning A: Body Management And Aesthetic	Core 30	Dance	1.5	15	5	60		15	10		5	5
			Gymnastics	1.5	15								
			Swimming	1	10								
			Athletics lectures	2	2								
			Athletics	2	20								
	Area of Learning B: Challenge and Interaction	Core 30	Games	1	10	10	25	10	10	5	5	10	25
			Games	1	10								
			Games	1.5	15								
			OAA	3	20								
Second year	Applied Areas of Learning 1	Core 30	Hockey Rugby Tennis	1.5	18	10	20		50	10	10		
			Netball Volleyball Badminton	2	24								
			Football	1.5	9								
			OAA	3	18								
	Applied Areas of Learning 2	Core 30	Swimming	1.5	16.5		70		15	-	15		
			Athletics	1.5	18								
			Gymnastics	1.5	9								
			Gymnastics	1.5	9								
			Dance	1.5	9								
			Dance	1.5	9								
Third year	Minor Practicals	Core 30	Gymnastics	1.5	16.5		60	5	20	15			
			OAA	3	16.5								
			Dance	1.5	16.5								
			Games	1.5	16.5								

			Athletics	1.5	16.5								
			Swimming	1.5	16.5								
Fourth year	Games	Option 15	-			20	40		20	20			
	Athletics			3	30	10	50		30	10			
	Dance			3	30	25	25		10	15	15	5	5
	Gymnastics												
	Swimming												
	OAA					15	25	10	15	15	5	5	10
	Sum			49.5	415.5	10.6	41.7	2.8	20.6	11.1	5.6	2.8	5

Teaching various components (PCK, CCK, and etc) based on PRACK

There were many sport activities covered in a single unit in this course between the first and third year. For example, there were five activities in Area of Learning A: Body Management and Aesthetic. Based on the timetable one student teacher participated in 415.5 hours of physical activity over four years across 31 activities including 11 games, 4 dance, 4 gymnastics, 3 swimming and 3 athletics practicals for three years and selected two optional units among 5 in fourth year. As we can see table 3, within these practical areas lecturers taught various components. One lecturer who taught Athletics commented:

> The course will give them the knowledge to also teach advanced athletics techniques, but also, not just the content knowledge, but also how to teach those activities, and that is a big, a big focus. So we look at strategies for teaching athletics, as opposed to teacher centred strategies, you know, where they line the children up and everybody throws, we look at alternative, or more pupil centred methods for teaching athletics. And one of their main assignments is designing a curriculum, a secondary school curriculum for athletics, to show what and how they will teach athletics over the secondary school, so for key stage three all the way through to key stage four (Lecturer4 University of Bedfordshire).

This is reflective of the approach to physical activity lecturing at University of Bedfordshire based on the similar opinions expressed by other lecturers. Similarly students commented that they experienced integrated teaching of practical activities in this way:

> I think practical knowledge and PCK we did together. So, in games, we looked at pedagogical models. We could use Teaching Games (Student1 University of Bedfordshire 2010).

This is reflective of responses by many student teachers who mentioned that they learned varied components within units of physical activities.

5.2.2.2. Professional knowledge

There are 9 core units and 2 optional units of professional knowledge including 4 of school based teaching experience. The averages of Shulman's components which lecturers selected were 68.5% of PCK, GPK, CCK, KLC and KDG which are related to professional knowledge and 21.2% of KEC which are related to discipline and professional knowledge. However, the ratio of Shulman's components within each unit is different (see table 4).

Table 4. Shulman's components developed through professional units

Year	Title of units	Credits	Amounts which one student took		CK		GPK (%)	PCK (%)	CCK (%)	KEC (%)	KLC (%)	KDG (%)
			Hours a week	Hours a term	TCK (%)	PRACK (%)						
1-1/2	Learning To Teach And Inclusive Physical Education	Core 30	3/3	60			30	40	10	10	5	5
2-1/2	Teaching For Learning 1	Core 15	3/3	63			30	30	15	5	10	5
2-2	Assessing Learning And Developing Teaching	Core QTS	3	12			30	30	10	30		
3-1/2	Teaching For Learning 2	Core 15	3/1	30			10	70	10	10		
3-1/2	Consumer Culture and Physical Education	Core 15	3/3	32						70	20	10
3-2	Teacher and The Pastoral Curriculum	Core 15	6	36			-	10	20	40	10	20
4-1	Cultural Issues in Physical Education and Sport	Option 15	2/1	30	70			30				
4-2	Philosophical issues in Physical Education	Option 15	2/1	30	10				20	20	20	30
4-1	The Reflective Teacher	Core QTS	2	12			10	25	10	25	25	5
4-2	Final School Experience	Core QTS	0	0	10	20	20	20	10	5	5	
4-1	Entering the Profession	Core 15	3	30				30	20	10		15
Sum (11)			33	256	8.5	1.9	12.3	26.9	11.8	21.2	9	8.5

First year student teachers learned basic teaching skills such as micro-teaching in the unit of Learning to Teach and Inclusive Physical Education. Second year student teachers improved their teaching skills observing and analyzing movement and learned basic CCK such as short and medium term planning in the unit of Teaching for Learning 1. In addition second year student teachers in the unit of Assessing Learning and Developing Teaching learned CCK such as observation, assessment and recording including a six week school based teaching experience. Third year student teachers learned a critical consideration of teaching approaches, particularly in relation to differentiation, active engagement and the effective use of ICT and learned deeper CCK such as making a medium and long term plan in Teaching for Learning 2. Similarly third year student teachers learned critical thinking through learning how school physical education is embedded within society and youth culture with consideration of issues such as gender, sexuality, class, ethnicity, etc. There are three core units and two optional units in fourth year. Students learned how to write articles such as methodology, literature review etc through conducting an action research project during their school experience in the unit of The Reflective Teacher. This resulted in an overlap between professional knowledge and discipline knowledge because they submitted their practical experiences (professional knowledge) through a refined article (discipline knowledge). And they synthesized their learning of four years through the unit of Entering the Profession considering the nature of teaching as a professional activity, formulating personal philosophy or critiquing the NCPE etc themselves. Final School Experience was included a 12 week school based placement. Two optional theoretical units were also offered. For example, student teachers in the unit of Philosophical issues in Physical Education tried to establish their identity as a physical education teacher through philosophical issues such as epistemology. Even if this content is very theoretical, it would be also very practical to make their identity as physical education teacher. So, these two units developed professional knowledge and discipline knowledge.[5]

This summary of the 11 units of professional knowledge acknowledges that many

[5] These contents are a summary of the syllabuses in those units.

theoretical components are embedded within these units making it difficult to judge whether one unit belongs to one area or not. It is clear that the area of professional knowledge had a spiral structure starting to learn basic teaching skills to deepened skills.

5.2.2.3. Discipline knowledge

Table 5. Result of 8 units of discipline knowledge which were analyzed by Shulman's components

Years	Title of units	Credits	Amounts which one student took		CK		GPK (%)	PCK (%)	CCK (%)	KEC (%)	KLC (%)	KDG (%)
			HpW	HpT	TCK (%)	PRACK (%)						
1-1/2	Scientific Foundations	Core 30	9	80	40			30		30		
2-1/2	Physical Education & Sport: Their Place In History	Core 15	6	48	70					30		
2-1	Applied Areas of Learning 1 (Health lectures and seminars)		3	36								
3-1/2	Performance And Psychomotor Learning	Core 15	3	24	30		15	20	10	5	20	
3-1/2	Physiology of Exercise	Core 15	3	37.5	★			★		★(main)		
4-1	Biomechanics of Sport	Option 15	3	30	80					20		
	Sport Psychology	Option 15	3	30	50					25	25	
	Studying Dance	Option 15	3	30	50			10	15	15	5	5
	The Action Research Project	Core 15	0	0			5	40	-	30	20	5
sum			31.5	225.5 ~255.5	45.7	0	2.9	14.3	3.6	22.1	10	1.4

HpW: Hours per week, HpT: Hours per term

There were eight units of discipline knowledge. The unit of Applied Areas of Learning included a subsection with discipline knowledge to inform students understanding of a pedagogical model for Health. Among eight units and one subsection of one unit, students had to take 4 units and the one subsection as core elements. In addition they could select one option depending on their choice. One student teacher could take from 225.5 hours to 255.5 hours for four years. Seeing

the average proportions of Shulman's knowledge, it kept 45.7% in TCK, KEC 22.1%, 14.3% in PCK and 10% in KLC. This means that lecturers taught TCK (45.7%) such as contents of GCSE, A-Level and BTECH to teach students in school to student teachers as a first priority and taught very academic contents (22.1% in KEC) which were suitable contents at a university level to student teachers as a second priority. And they also taught how to teach these contents to students in school (14.3% in PCK and 10% in KLC). As a result, these units were also designed to educate student teachers.

Discipline knowledge centring PETE

PETErs who recognised the importance of basic contents of discipline knowledge within units such as Scientific Foundations and Physical Education & Sport: Their Place in History to first and second year student teachers. One lecturer mentioned as follows:

> We teach the theory, one so that they can teach it to pupils, but so that two they have a theoretical understanding when they're teaching practical subjects. So, you know, they might be teaching athletics, but when they're teaching athletics they need to know about how the muscles move, how the body moves, but then they also need to teach about the bones and muscles in an A level class. …… So we're teaching them about theoretical content knowledge, as you've suggested here. …… A lot of it is to do with preparing them to teach theoretical elements, but a large percentage is to do with helping them to learn how to teach it and specifically my area which is skill acquisition of learning, motor learning, knowledge about how young people learn skills, how people acquire or how people learn skills … (Lecturer4 University of Bedfordshire)

The dual purpose for student teachers was central to this description, both in terms of knowing basic theoretical knowledge such as principles of bio-mechanics of running when they taught students in the unit of athletics in school but also so that they could teach the PE contents in GCSE and how to teach GCSE (PCK) to teach students in school. Based on this basic skill, student teachers learn two more theoretical units of discipline knowledge as a compulsory unit in the third year and could select one more units as an optional one in the fourth year. Lecturers

who taught these fourth year optional units were in general experts in these specific areas and were, where appropriate, based in the Department of Sport and Exercise Sciences in the same university. The Performance and Psychomotor Learning and Sport Psychology lecturer mentioned his unit as follows.

> Knowledge of learners and their ……, we talk about motivation of students …… well, they do some introduction to sport psychology in the first year and then this is a more advanced course. And we also spend quite a bit of time discussing how things apply to their experiences as teachers and by the fourth year they've had some major school experience, so then they have lots of experience to draw upon in terms of the discussion and also to think back, this might apply. And I think it's quite useful as they're just about to go out into schools to know that information at this time is very useful. (Lecturer2 University of Bedfordshire)

In table 6, Lecturer 2 gave more weight to contents of GCSE or A-Level (50% in TCK) than theory (24% in KEC). Moreover, in this interview, he made reference to one lecture in his units where student teachers could discuss their students in terms of sport psychology.

5.2.3. Prioritisation of the knowledge base 2008/09

In considering research question 2, it is clear that the first priority is units of physical activities (47.5%) and units of professional knowledge (30.5%). The lowest priority is discipline knowledge (22%) (See table 1). Second, considering contents in this PETE programme in detail, PCK, CCK and KLC etc based on PRACK were priorities in units of physical activities in company with most unit leaders taught various components in Shuman's framework. Staff highlighted that most components in Shulman's framework were important in units of professional knowledge. Among them, PCK (26.9%) and KEC (21.2%) were the first and second priority (see table 4). Moreover, even if units of discipline knowledge are a very small part in this PETE course, student teachers learned TCK, PCK based on KEC in these units.

5.3. Analysis of the curriculum from 1969 to 2011: based on Kirk et al's components

5.3.1. Introduction: Overview of curriculum from 1969 to 2011

In this section I present an analysis of the curriculum between 1969 and 2011based on Kirk et al's components.

Table 6. The change of hours of five areas in curriculum from 1969 to 2011[6]

	Hours of education studies	Hours of second subjects	Hours of contents of discipline knowledge	Hours of contents of professional knowledge	Hours of contents of physical activities	PE Sum	All Sum	T.E (weeks)	Degree
1969	190	231	131	69	1028	1228	1649	15	3COE
1976	189.5?	189.5?	319	?	1122	1441	1820	14-16	
1982	218	272	464	196	788	1252	1938	14	4BEd
1986	-	239.6	?	517.2	664	1181	1420	24	
1989	-	223	199	545	440	1184	1407	24	
2004	-	-	250	249	415.5	914.5	914.5	32	4BA
2009	-	-	255.5	256	415.5	927	927	32	
2011	-	-	227	273	372	872	872	32	

Table 6 indicates the change of the amounts of hours of units, the amounts of weeks of teaching experiences and the degree classification. First of all, this course was three year Certificate course until 1968 and emerged in mixed forms between three year Certificate course and four year BEd course from 1968 to 1982.[7] Around 30 student teachers chose 4th year among about 150 student teachers in 1976 (See Table 7). 2 years later, the numbers in 1978 increased 67 students and the Certificate course was abolished in 1982 after 5 years. All students had to complete 4 years BEd course from 1983 to 1999. Finally, it changed from the BEd degree course to BA honours degree course in 2000.

Table 7. The change graduate students' choice from 1976 to 1978[8]

Year of entry	1976	1977	1978
Stayed for 4th year	30	26	67
Teaching posts	102	76	63
Other posts	12	7	5
Still seeking post/unknown	16	-	7

[6] See in detail resource in appendix 2 in chapter 5
[7] There is in detail contents in "Proposed for 4 year degree" in 1968-1982.
[8] There is in detail contents in "SUMMARY OF INITIAL B.Ed. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986"

The number of hours in the PETE curriculum from 1969 to 1982 had reduced from about 1800 hours in 1975 to 1420 hours in 1985 (see Table 6). A Previous course leader from 1980 to 1999 recollected the move as follows:

> The government has cut down the money that it will give, it's called the unit costing, the amount of money that they are given per student has been so cut down that we can't afford to teach them for so many weeks, we can't afford to teach them in small groups. …… You have to remember that when I was here (1980-1999), we had four years and we had probably that number of weeks, 42 weeks, and we had something on average of about 18 hours a week. …… the students were probably taught for about 18 hours a week. Now, they probably have something like 24 weeks teaching and probably they have something like 12 hours a week. When I was working we had 42 weeks at 18 hours a week and now they have 24 weeks at 12 hours a week. (Previous course leader University of Bedfordshire)

She had an unsatisfied feeling due to the decreasing hours of the PETE course in the 1980s during this interview. Her memory reflects the curriculum in 1982 as summarised in the following table. In the first year students undertook two hours for the education studies, three hours for Second subject, two hours for professional knowledge, three hours for discipline knowledge and 10 hours for physical activities amounting to 20 hours per week. (See Table 8)

Table 8. Curriculum in University of Bedfordshire in 1982[9]

Curriculum in 1982 (B.ED. course, 4 years, HMS routes, 33 weeks a year)

	Education studies		Second Subject		Contents of professional knowledge		Contents of discipline knowledge		Contents of physical activities		Week all	Year all
	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year		
1	2	54	3	81	2	54	3	81	10	270	20	540
2	2	54	3	81	2	54	4	108	9	243	20	540
3	2	66	3	66	2	66	5	165	6	165	18	528
4	2	44	2	44	1	22	5	110	5	110	15	330
sum		218		272		196		464		788	73	1938

In the next section I examine the change in each of these areas separately.

[9] SUMMARY OF INITIAL B.Ed. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986

5.3.2. Units of education studies and second subjects: Removal of these areas showing rapid reduction of amounts of hours of curriculum from the 1970s to the 2000s

5.3.2.1. The detailed process of removal of educational subjects

Similar to University of Brighton, education studies accounted for a significant proportion of professional knowledge in the 1970~1980s. However, they were officially disappearing from the time table in 1989. In 1986 education studies lost its area and the content was instead included in the area of Human Movement Studies component as professional knowledge. Because of this change, the content of professional knowledge in 1986 increased about 300 hours rather than in 1982 (see table 6). This change was significant in the overall reduction of hours. The debate about this change was highlighted in one document as follows:[10]

> 7.0 The relationship between education studies and practical teaching studies
> 7.1 The relationship between Education and Practical Teaching Studies has proved complex. The component is regarded as a single unit within the overall structure of the Degree, but students and most staff perceive it as two related, but separate, strands. This has not only arisen from the Component design but also from the Course process.
> 7.2 The staffing of Education Studies has been different from that of Practical Teaching Studies, and HMS students have found it difficult not to see these as two separate Elements. In Part I HMS students views Education as a theory Element undertaken jointly with Primary Students, and Practical Teaching Studies as a practical Element supporting school Experience.

Although the disappearance of education studies was not mentioned in this document, later this year education studies would be removed from the curriculum ending this separation between "Education Studies" and "Practical Teaching Studies". Table 11 indicates the change of curriculum which was published in the official curriculum from 1982 to 1986. Curriculum in 1982 (see Table 9) changed to a new curriculum (see Table 10) in 1986 as follows.[11]

[10] P. 9 in same book as above
[11] P. 35 in SUMMARY OF INITIAL B.Ed. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986

Table 9. B.Ed. DEGREE: HMS ROUTE (1982)

	HUMANMOVEMENT STUDIES COMPONENT				EDUCATION/Practical Teaching Studies (PTS)	ELECTIVE	SCHOOL EXPERIENCE
	THEORY	PRACTICAL					
YEAR 1	H.M. THEORY	Games	Gym	Dance	EDUCATION/P.T.S	Art, Eng. etc	Microteaching 4 weeks T.E.

Table 10. The overall hours of student contact per Component

Units	Year 1	Year 2	Year 3	Year 4
Physical Education/Dance	248.4	176	150	89.6
Second Subject	100.8	44	50	44.8
Professional Studies	165.6	132	130	89.6
Teaching Experience (Including Preliminary Visits and Preparation days)	79.2	144	112	46
Total	594	496	442	270

The change in title from Education to Practical Teaching Studies in 1982 and to Professional Studies in 1986 signifies a significant change in approach. For example, the teaching of philosophy for professional knowledge shifted from education studies to physical education.

Table 11. The comparison of the contents of professional knowledge between 1982 and 2004[12]

Years	**Curriculum in 1982**		**Curriculum in 1986**		**Curriculum in 2004**
	Education	Practical Teaching Studies (PTS)	Human Movement Studies Component (Professional Studies Component)		Units of professional knowledge
	Title	Title	Title		Titles (all)
First year	The Present System of Education	Introducing the Teacher at Work Orientation Week	Core Elements	Introductory Module Development & Learning The early Year The Teacher's Role Basic Teaching Skills Micro-teaching The Learning Process Adolescent Development	Learning to Teach & Inclusive Physical Education Teaching for Learning Lecture 1 Assessing Learning and Developing Teaching Teaching for Learning 2 Consumer Culture &
	The Aims of Education	Preparation for Small Scale Teaching			
	Learning		Content, Method and Resources Physical Education/Dance		
	School and Learning	Small Scale Teaching	Core Elements	Group Process Pupil Perspective on School Class	
	Developmental Factors	Preparation for Teaching			

[12] See in detail table in appendix 3 in chapter 5.

		Experience		Management/Discipline & Control Schemes of Work Special Educational Needs Curriculum Access Aims Revisited	Physical Education Teachers and the Pastoral Curriculum The Reflective Teacher Entering the Profession
	Developmental Factors	Appraisal of Teaching Experience			
	Social Factors				
	Issues in Education	Professional ism and the Teacher			

In table 11, there was a clear division between Education studies and Practical Teaching Studies (PTS) in 1982. Four years later these areas had merged and educational studies in University of Bedfordshire officially disappeared from the timetable in 1989.[13] A Previous course leader mentioned the process of disappearance of pure education as follows.

> We would have two people who were education staff, we would probably have one person for the second subject and probably two or three PE because that course, you were introducing them to things like learning theory and also applying learning theory to the teaching of PE. It was in the mid 80s to the mid 90s and it still persists now, that there was a lot of scepticism of the value of pure education theory and this still persists now, which doesn't please me at all. It wasn't seen the done thing to have philosophy and sociology and psychology …… we smuggled our education into the professional studies because if you're studying the profession of how to teach, you must understand how children learn, you must understand how adolescents develop. …… , I just think we thrashed it out together and what happened was as I said to you, that prior to that and I can't remember the dates but the education course was pure education, taught to both primary and secondary and they were very unhappy, the secondary and the primary because they didn't feel that their needs were catered for so when that stopped, we were challenged to deliver the education within a professional studies which was right for us, so what we did was right for us and each institution would have solved that problem in its own way (Previous course leader University of Bedfordshire).

This previous course leader mentioned that education studies had a long history in Bedford College. Before the merger between three institutions in 1976, there were two traditional educators for education studies in Bedford College. She also referred to the process of selecting subjects to reduce them and commented that

[13] There are no specific areas for education studies in Bedford College of higher education, Initial B.Ed. Honours Degree Secondary (P.E./Dance), February 1986, pp. 30-33.

they had to select to retain more practical subjects. Moreover, she mentioned that many lecturers recognized the gap between pure education and practical teaching. As a result, they introduced education studies into Professional Studies, reducing the amounts of pure education subjects. However, the reduction of hours in 1986 was due to the decrease of physical activities because the hours moved from education studies to Professional Studies. In Table 6, the hours of the professional knowledge increased from 196 hours in 1982 to 517.2 in 1986 because the components in education studies put into the professional studies.

As a result, the PETErs in 1986 entered education studies into professional studies to reduce or abolish the amounts of education studies. The reduction of all hours from 1938 hours in 1982 to 1402 hours in 1986 in the curriculum was resulting from the decrease of amounts of hours of physical activities 788 hours in 1982 to 664 hours in 1986 (see table 6) because the units of education studies just were moved into the category of professional studies without reducing the amounts of hours. For example, in Table 6, the hours of the professional knowledge increased from 196 hours in 1982 to 517.2 in 1986 because the units in education studies were put into the professional studies.

5.3.2.2. Removal of second subjects

The mid 1990s saw the disappearance of second subjects from PETE at the University of Bedfordshire. Although the exact year they were removed is not clear, they were still in existence in 1994/5 but had disappeared by 2000. This is broadly in line with their removal in 1996 in University of Brighton. A previous course leader recollected as follows.

> The second subject was dropped mainly because the contact time for the Degree was cut drastically and there was insufficient time to do a good job. Already schools were unhappy with the second subject teaching. They were confused why students were good at PE but not so good at the Second Subject (Previous course leader University of Bedfordshire).

Considering that second subjects had also about 200 hours, this result accounted

for a significant reduction of hours in PETE programmes similar to University of Brighton.[14]

5.3.3. Units of professional knowledge: the development from inappropriate theories to appropriate theories from 1978 to 2008 and the development from theories to practice since 2009

The hours of units of professional knowledge had increased from 0 hours in the 1970s to 550 hours in 1991. This was followed was a reduction of approximately 300 hours in the 1990s~2000s (see table 12).

Table 12. The change of hours in professional knowledge in University of Bedfordshire from 1970s to 2010[15]

Years	1969	1976	1982	1989	1991	2009
hours	0	0	196	545	550	256

Considering the contents of professional knowledge in the 1980s, the purpose of Practical Teaching Studies (professional knowledge in the 1980s) was as follows

> To enable students to assume the role of a teacher and adopt professional attitudes
> To equip students to become capable of making informed and rational choices in all aspects of their teaching
> To develop in students a concern to evaluate the effectiveness of their teaching throughout their professional career (The purpose of practical teaching studies in curriculum in 1981/82, 80p).

Student teachers in the 1980s learned professional knowledge through units of physical education at that time, combining units of educational studies, physical activities, and discipline knowledge in Human Movement Studies. These were unique classes because there were no classes of this style before 1980s. For example, students studies in Micro-teaching classes based on the context of physical education for the first time in 1981.

[14] I explained more in detail the disappearance of second subjects in the part of UNIVERSITY OF BRIGHTON because there were many resources in there.
[15] There are specific titles in appendix 5

> When I was appointed in 1980 I brought in microteaching. So that was something that I brought because I was very passionate about doing what I could to help them to learn how to teach and this was one of the things that I did (Previous course leader University of Bedfordshire).

In appendix 3 in chapter 5, the unit of Micro-Teaching was written in the official curriculum in 1982. After that, there were numerous developments of professional knowledge as discussed in further detail in relation to University of Brighton and witnessed similarly in University of Bedfordshire.[16] The amounts of hours of professional knowledge steadily increased to more than amounts of hours of discipline knowledge in 2009 highlighting the growing importance of this component, to which I will now turn.

5.3.4. Units of discipline knowledge: The increasing importance of units of discipline knowledge from COE in the 1970s to BEd in the 1980s to enter university level and the decreasing importance of units of discipline knowledge from BEd in the 1980s to BA in 2000 because of the academic development of professional knowledge in physical education establishing sport pedagogy

The discipline knowledge in PETE developed inside of the area of Human Movement Study (HMS) from the 1970s to the 1980s in this course in a similar manner to University of Brighton. The purpose of HMS components as outlined in the 1981/2 curriculum was to educate student teachers as follows:

> Human Movement Studies Component: The practical area is essential for students to gain experience, understanding and competence in specific physical activities taught in school. The theory area is necessary to provide a performance in physical activities. Practical Teaching Studies in central in the development of students' sensitivity and competence as teachers and promotes an intelligent awareness of, and commitment to, their professional role and responsibilities (Curriculum in 1981/2 in Bedford College of Higher Education (University of Bedfordshire) in the 1980s).

[16] To do check in detail contents, see chapter 4.3.3 in UNIVERSITY OF BRIGHTON.

In this account, we can confirm that the units within HMS were not just purely theoretical in kinesiology but practical theories for student teachers such as how to analyze students' movement in school. This explanation for HMS was pervasive from the 1970s to 1990s. However, the application had subtle differences over this period.

In the PETE course in 1960, the lecturers concentrated on the practical application of HMS rather than the pure theoretical nature of the disciplines. One student teacher in the 1960s mentioned HMS as follows.

> Yes all of those things were very useful to me in my teaching career all the time. MOST important was Principles of Movement and movement Education- because it is essential to be able to watch children move in order to help them improve. Good movement observation is essential to notice faults and poor technique in children, then you can put it right. Also you needed to know correct and good technique so it was important to understand what was good technique. We had children coming in to college to do gym and we would observe them moving and talk about it, ie how we could improve it. Anatomy and physiology were interesting and important to learn, and useful for when I taught 'A' level studies in PE and for coaching but human movement was much more important in my practical everyday teaching of children and adults (Previous student1, 1969 to 1972 and previous lecturer University of Bedfordshire).

The practical application of HMS units to teaching both practical and theoretical physical education in school was clear. The relatively practical nature of these units for student teachers was evident in the style of the unit and we see clear continuities to the current curriculum. For example, first year student teachers learn how to observe, analyze and teach 7-8 years old children in Learning to Teach and Inclusive PE which is similar to the unit of being mentioned by previous teacher and lecturer. Typically more theoretical discipline knowledge was added in the course of fourth year.

Table 13. The changes of amounts of hours of discipline knowledge from 1970s to 2008[17]

Years	1976	1982	2008
First year – second year	189	189	164
Third year	130	165	61.5
Fourth year	-	110	30
Amounts of hours	319	464	255.5

The change from a 3 year COE to 4 year BEd in 1982, saw the addition of one hundred and ten hours in discipline knowledge in the same year (see table 13). There were different aspects between units in 1-3 year students and units in 4 year.

> The Human Movement Studies component has been designed to provide an integrated study of human movement and those contexts which will be appropriate for a future teacher of physical education. It moved from broad foundations in Part I (of the degree) to selective specialization and depth in Part II. Practical, theoretical and professional areas within it are complementary (p. 53) …… The part II work in the Theory area builds on the multi-disciplinary foundation laid in Part I but in order to avoid superficiality of treatment, and because time constraints prohibit a thorough development of all element introduced in Part I, depth. (Curriculum in 1981/2, p. 257)

According to this new guideline, for the four year, the curriculum of three years (part 1) from first year to third year was similar to the existing previous 3 year Certificate of Education, and final year (part 2) was more depth units of discipline knowledge than part 1. These specializations and in depth units in part 2 was a result of PETErs' endeavour to be suitable at the university level, stressing theoretical and academic knowledge. This trend was similar to the course in 2008. First and second year student teachers learned basic discipline knowledge and third and fourth year student teachers learned more theoretical contents. Because of the academicisation of physical education, the hours of discipline knowledge had increased by about 150 hours from the 1970s to the 1980s. However, since this time we have witness the discipline knowledge reduce from 464 hours in 1982 to 255.5 hours in 2008 with the simultaneous move from BEd to BA. As discussed in the previous chapter the academic development of professional knowledge in physical education was outlined as a justification for this change.

[17] There are specific hours and titles in appendix 2 and 4 in chapter 5.

5.3.5. Physical activities: The reduction of hours of physical activities stressing gradually professional knowledge

Table 14. The amounts of change of units in physical activities in University of Bedfordshire from 1969 to 2009[18]

Years	1969	1973	1982	1986	1989	2009
hours	1028	821	788	664	440	415.5
Duration and Degree	3 years, CEO		4 years, BEd by 2000			4 years, BA

Table 14 highlights that the number of hours of physical activities has gradually reduced from 1028 hours in 1969 to about 415.5 hours in 2009 which is also reflective of the recollections of a student teacher in the 1970s and current lecturer:

> We were all day every day, except for Wednesday afternoons, we were just taught all the time, 9 in the morning till 6 at night every day (Previous student2 from 1973 to 1976 and present course leader University of Bedfordshire)

Table 15. The change of numbers of areas based on the frame of NCPE from 1969 to 2011[19]

	1969 (3 years, COE)		1976 (3 years, COE)		1989 (4 years, BEd)		2011/12 (4 years, BA)	
	units	hours	units	hours	units	hours	units	hours
Athletics	5	106.5	2	54	4	84	4	69.5
Gymnastics	7	135	4	107	3	40	4	43.5
Swimming	5	73	2	54	3	66	4	54.5
OAA	0	0	0	0	2	31	3	63.5
Dance	6	104	6	161	3	69	4	43.5
Games	8	236.5	8	214	7	86	4	37.5
etc	15	259	8	214	3	56	2	60
all	46	914	26	804	25	440	25	372

Additionally the numbers of units were reduced from 46 units in 1969 to 25 units in 2011. The most dramatic reductions were evident in Athletics, Gymnastics, Dance and Games with more parity developing between the practical areas.

Among these gradual reductions of physical activities, I can confirm that there has been a trend of stressing more professional knowledge in physical activities evidenced through an example from one lecturer in University of Bedfordshire for 20 years who was a student from 1973 to 1976.

[18] There are in detail contents in appendix 2
[19] There are in detail titles of units in appendix 5

> I think that when I started teaching, I had a huge amount of content knowledge, I knew a lot about a lot about a lot of things and my knowledge was in-depth, but I don't think I knew as much about pedagogy as our students know so there were things that I didn't know, that our students today go out knowing and I had less opportunity to practice. …… I think ultimately the students that we churn out now are better teachers when they left, than I was when I left because they have more practice in schools and more pedagogy, but there is an issue with the content because I knew everything there was to know about a lot of stuff! I had a massive amount of knowledge about a lot of different sport. (Previous student2 from 1973 to 1976 and present course leader University of Bedfordshire)

The reported increase in professional knowledge is reflected elsewhere. Moreover, as seen in Table 3, all unit leaders in units of physical activities in 2009/10 taught professional knowledge in their unit of physical activities. One teacher who graduated in University of Bedfordshire in 2009/10 mentioned as follows.

> When we had football lectures and swimming lectures you didn't just say right this is a football, this is how you kick it, they would say right, this is how you would teach a student to do these skills and you could set it up in these sort of practices and these games, so it was kind of all really done together. (Teacher1 University of Bedfordshire 2011)

The PCK and CCK taught in units of physical activities were highlighted as particularly worthwhile for her occupation. This highlights that alongside the decrease in hours, the focus on practical knowledge also decreased.

5.4. Conclusion from 1969 to 2011

In examining Research Question 2, I conclude that the situation in the University of Bedfordshire and University of Brighton is remarkably similar. Considering amounts of credits, the first priority has been physical activities for whole period showing that the amounts have been urgently reduced from 1969 to 2009. The second priority has changed from discipline knowledge to professional knowledge in the 1990s and 2000s, the same as University of Brighton (See table 6). Moreover, the abolition period of second subjects was similar. However, education studies were eliminated in 1989 in the University of Bedfordshire showing that the period was slight faster than in 1993 in University of Brighton.

6. SEOUL NATIONAL UNIVERSITY

6.1. Introduction

The Department of Physical Education at Seoul National University was founded in 1946 as part of the College of Education at Seoul National University. It was one of department among many such as Mathematics, Korean, English, Physics, History, Biology etc. As one of many departments, decisions to do with creating or revising curricula, hiring professors and so on within Physical Education are affected by its location within the College of Education. Changes to the physical education curriculum only occurred following the policy of College of Education or of the government. The department started with five professors and six students. There was a first graduation ceremony in 1950. The degree began as Bachelor of Physical Education and there have been some changes of titles over the years such as Bachelor of Science. The duration of course has been four years since 1946. A Master's course (MA) started in 1959 and PhD course began in 1982. The title of department was changed to Department of Physical Education from Department of Kinesiology in 1965. All student teachers who entered before 1987 had to become teachers. This was compulsory. However, all student teachers who entered after 1988 to the present have to take a Teacher Recruitment Examination (TRE) because of a revised law. As a result, many student teachers have found jobs other than teaching since 1991. On the other hand, 304 students who have graduated from this course have become professors in various areas of kinesiology, 354 students have had a job in other fields and 675 students have become teachers in school from 1975 to 2012.[1] It means that even if this course has a title of a PETE course, it has been difficult to concentrate on PETE only.

Staff

There are 16 full-time professors and many part-time lecturers. All professors have a PhD degree. They sit in Department of physical education. There are no Departments of Sport Study or kinesiology.

[1] The status of graduate students' jobs from 1946 to 2012 (Internal resources in Seoul National University)

6.2. Analysis of the curriculum in 2012 at Seoul National University

I will explain the knowledge base of the curriculum in 2012 in detail based on documents, resources of interviews with lecturers, teachers and students.

6.2.1. Introduction: Overview of 2012 curriculum

Student teachers in Seoul National University have to take 130 credits in the topic areas of physical education (contents of discipline, professional and physical activities, 60 credits), liberal arts (36 credits) and education studies (22 credits) for four years. Normally, one credit is one hour but one credit for physical activities is two hours. So, two and three credits are two and three hours in theoretical units. If there is an experiment in the three credit unit of theory such as exercise physiology, three credits were four hours. And one semester was 15 weeks and one year was comprised of two semesters. Education studies were similar to education studies which disappeared in University of Bedfordshire in 1986 because the contents also were related to theories of education and all units were offered by the Department of Education of the College of Education. There are 80 units which were available to physical education students, contents of discipline knowledge (28 units), professional knowledge (five units) and physical activities (48 units) in the curriculum in 2012. Units for one credit were contents for physical activities such as basketball which take place in the gym, the playing field, etc. Units for two or three credits were contents for professional, discipline, liberal arts or educational subjects which were normally took place in the classroom. Although it was a few selective units for student teachers in England, student teachers in Korea could select many kinds of units in the curriculum but the amounts of contents which student teacher had to take were similar. For example, a student teacher who was a student from 2009 to 2013 took 130 credits. It consisted of liberal arts (18 units, 41 credits), education studies (11 units, 20credits), contents of physical activities (30 units, 30 credits), contents of professional knowledge (4 units, 11 credits) and contents of discipline knowledge (13 units, 28 credits) (See Table 1). There were two kinds of teaching experiences. First a student teacher had to complete the Educational Volunteer Program 1 and 2.

This was comprised of 30 hours each. Student teachers could join in institutes which were involved in education such as various schools, the Ministry of Education, etc. Second the student had to complete a Teaching Practicum in school for four weeks.

6.2.2. The analysis based on Kirk et al's framework

Analyzing this course with Kirk et al's components, although students could take various credits in many areas such as liberal arts, education studies, professional units, etc, the patterns which students took were similar because there was a rule of minimum standard which student had to follow (see the part of Minimum standards in table 1). Hence, I calculated the average of credits of five people who were students from 2009 to 2012. As a result, five student teachers took 34.2% for credits of units of liberal arts, 21.9% for credits of discipline knowledge, 20% for credits of physical activities, 15.4% for credits of education studies and 8.5% for credits of physical activities (see table 1). Overall, this proportion could represent all students' selection.

Table 1. The numbers, times and credits of units of professional knowledge, discipline knowledge, physical activities, Liberal arts and Educational studies in 2012[2]

Types		All numbers which were available	Minimum standards*	A (2009-2012)	B (2009-2012)	5 students' % of credits
Contents of professional knowledge	The numbers	4	4	4	4	8.5%
	The hours per week	11	-	11	11	
	credit	11	11	11	11	
Contents of discipline knowledge	The numbers	29	8	13	14	21.9%
	The hours per week	69	-	30	32	
	credit	66	20-21	28	30	
Contents of physical activities	The numbers	47	5	30	35	20%
	The hours per week	94	-	60	70	
	credit	47	5	30	35	
Liberal arts	The numbers	Various	-	18	14	34.2%
	The hours per week		-	47	39	
	credit		36	41	36	
Education studies**	The numbers	Various	-	11	11	15.4%
	The hours per week		-	16	16	
	credit		22	20	20	

*Minimum standards in which a student teacher had to join.
**Education studies: more than 14 credits, educational literacy: more than four credits, educational practice: more than four credits

[2] I made this table based on the official course catalogue and the appendix 1 in chapter 6

We can note in passing that the students looked not to complete minimum credits (22 credits) of educational studies. The document "Teacher Preparation for Student Management" was included in educational studies. In fact, the unit was offered by the Department of Physical Education. So, I put this unit to professional unit of physical education.

6.2.3. The analysis based on Shulman's framework

In this section I examine the curriculum in 2010 using Shulman's components. Using the same interview schedule I had developed for the lecturers in the universities in England, interviews were carried out in 2011 with 17 lecturers who taught 30 units (units of physical activities: 15, units of professional knowledge: 4, units of discipline knowledge: 11) out of 79 units.

Table 2. The units which were analyzed by Shulman's components

Title of units	Content Knowledge		GPK	PCK	CCK	KEC	KLC	KEG	Lecturer's status and major
	TCK	PRACK							
Track and Field 1(Track)		2		1					Full time professor (various discipline except sport pedagogy)
Gymnastics 1 Floor Exercise		1		2					
Track and Field 2 (Field)		2		1					
Gymnastics 2Vaulting Horse and Bar		1		2					
Handball		1							Professor from another univ.
Table Tennis		1							Previous professional player
Rugby		1		2					Present teacher
Health Exercise		1		2	3				PhD student (various discipline except sport pedagogy)
Soccer		1							
Traditional Martial Art		1							
Swimming2		1							
Volleyball		1							
Physical Fitness Training		1		2					
Korean Archery		1							
swimming3		1							
Principles of Physical Education			6	5	4	2	3	1	Full time professor (sport pedagogy)
Sports Pedagogy					1	2		3	
Study of Physical Education Teaching Materials and Method Guidance			5	1	3	4	2		
Seminar in Physical Education									
Teacher Preparation for Student Management	4		2	3	3	1	2	3	Present teacher (sport pedagogy)
Logic and Essay Physical Education						1			Full time professor (various discipline including sport pedagogy)
Sport Management						1			
Motor Learning and Psychology						1			
Sport Sociology						1			
Sport Marketing						1			
Sports Policy						1			
Introduction to Health and Exercise Science						1			Part time lecturer (various discipline except sport pedagogy)
Leisure Recreation						1			
Measurement and Evaluation of Physical Education					1	2			
Physical education for the Disabled						1	1		
Methods of Research in Physical Education						1			

6.2.3.1. Physical activities

Seven lecturers mentioned that they taught PRACK and PCK and eight lecturers mentioned that they just taught PRACK (see table 4). I am going to explain the reason why they taught the way they did through two types of teaching (teaching PRACK and PCK, teaching only PRACK).

There were two reasons why they taught just PRACK. First, lecturers just taught students to experience the sport event or improve the level of physical activities from a perspective of liberal arts.

> When I taught Traditional Martial Art and Korean Archery, I did not consider teaching methods because they had not learnt about those subjects before. Moreover, the teaching periods were just one semester (15 weeks). (Part-time lecturer4 Seoul National University who taught Traditional Martial Art and Korean Archery)

These two sport events (Traditional Martial Art and Korean Archery) were introduced in 2009 revising the curriculum in this course. However, the two units were not solely for teacher education but for students who majored in kinesiology. Moreover, although the lecturer was an expert for Traditional Martial Art and Korean Archery, he had not experienced teaching students in school and was a PhD student studying sport history.

Second, a high level of performance in physical activities is very important in the TRE. A lecturer who taught Handball stressed the importance of their level of performance in handball:

> When I asked student teachers in the introduction session in the unit for handball, they want to improve their handball skill because playing handball is more important than teaching handball in the teacher recruitment examination. So, I focused on enhancing their skills (Part-time lecturer2 Seoul National University who taught handball).

As a professor who taught primary school student teachers in another university, but who also completed a PhD in Sports Biomechanics and is an expert of

handball, he understood student teachers' motivations in his unit. This means that although he could teach PCK in his unit, he selected to teach students how to play handball in his unit because he wanted to help student teachers to prepare the TRE.

6.2.3.2. Professional knowledge

There was a big change of professional knowledge in 2009 to prepare the third assessment of teacher training institute (TATTI) (Ku, 2009) in 2010. This assessment was very important in Department of Physical Education because if the grade is low, they have to reduce students' numbers. Based on the guideline of assessment, Department of Physical Education changed the curriculum to be suitable for the PETE course and hired one more professor who studied sport pedagogy in 2010.

Table 3. Revised professional units in physical education from 2009 to 2012

	Theories and practices					**Teaching experiences**		
	First year	Second year	Third year	Fourth year		Second year		Fourth year
Title	Principles of Physical Education in 2009	Sports Pedagogy in 2009	Teacher Preparation for Student Management in 2010	Study of Physical Education Teaching Materials and Method Guidance in 2009	Seminar in Physical Education in 2012	Educational Volunteer Program 1 in 2009	Educational Volunteer Program 2 in 2009	Teaching Practicum since 1946
first priority*	KEG	CCK	KEC	PCK	-	practice		
	compulsory				optional	compulsory		

* First priority of Shulman's components

In the table 3, all units are compulsory except Seminar in Physical Education. This means that students had to join professional units every year since 2010. Moreover, they joined in three units of teaching experiences. Next, I will explain the five professional units.

Student teachers had to join in Principles of Physical Education in the first year to learn mainly knowledge of Educational goals and the basic of PETE based on many knowledge bases. In the second year, student teachers learned Sport Pedagogy learning mainly curriculum knowledge such as national curriculum,

school curriculum, etc. Third year student teachers had to join in the unit of Teacher Preparation for Student Management learning theories about knowledge of educational context such as school circumstances and observed various aspects in school such as observing teacher's works and teaching, and discussing to teachers and students, etc. This means that it was an effective mixed unit between theories and practice of professions. In the final year, they learned various teaching ways as a theory and practice through Study of Physical Education Teaching Materials and Method Guidance. The priority of this unit was PCK. To maximize learning in PCK, the lecturer used various components of knowledge of learners and their characteristics. Seminar in Physical Education which was opened in 2012 was a unit to synthesize all units which student teachers learnt for four years and student teachers learned the contents of TRE through this unit. Moreover, there were three units for teaching experiences such as Educational Volunteer Program 1, 2 and Teaching Practicum. Student teachers could join in various institutes related to education such as educational office in-local, private academy, school, etc to complete Educational Volunteer Program 1, 2 because the employability rate for student teachers in Korea is low. This unit offers an introduction to alternative approaches. After completing this practice, students have to present their result and submit a small paper. Finally, fourth year student teachers had to join Teaching Practicum for four weeks in school. They take many roles such as a class teacher, PE teacher, observing teaching, etc. I am going to explain the analysis and effects of these units comparing previous ages in section 6.3.

6.2.3.3. Discipline knowledge

In the table 3, all 11 lecturers who taught units of discipline knowledge selected KEC as a first priority. Among them, just two lecturers selected CCK and KLC as a second priority (Measurement and Evaluation of Physical Education and Physical education for the Disabled). Most lecturers taught contents which were related to kinesiology except lecturers who taught Measurement and Evaluation of Physical Education and Physical education for the Disabled. Among 11 lecturers, six lecturers were full-time professors in this PETE course who had Master's and

PhD students who studied the professors' specific research area such as Sport Society, Sport Marketing, etc. Moreover, they did not have a substantive duty to educate student teachers as PETErs.

> This unit (Sport Sociology) does not have a premise for PETE. Even if there is a session to study school circumstances, it is difficult to educate student teachers (Professor3 Seoul National University who taught Sport Sociology).

> When I teach my unit of Sport Management to students, I have a premise that students will study sport management to the future or work in those areas (Professor4 Seoul National University who taught Sport Management).

These interviews represent the attitude of lecturers and the contents in units of discipline knowledge. The professor who taught Sport Sociology mentioned even if his class included some content of school circumstances, the content was not the focus. Moreover, the professor who taught Sport Management just taught the content of sport managements. In addition, the course for Master's degree in Sport Management in this university was very popular. Based on these facts, I could confirm that units of discipline knowledge were the same as units in the department of kinesiology or sport study and did not have a specific focus for PETE.

On the other hand, the lecturer who taught Measurement and Evaluation of Physical Education taught other knowledge (CCK). Even if he was an expert for Sport Statistics, he was a previous physical education teacher. This means that he taught his unit in respect of PETE because of his individual interests rather than based on the policy of the PETE course. Another lecturer who taught Physical education for the Disabled also taught other knowledge (KLC). However, he also mentioned as follows.

> I taught students in terms of delivering the contents about physical education for the disabled rather than the premise that they become a physical education teacher (Part-time lecturer5 Seoul National University who taught Physical education for the Disabled).

As we see their contents in the interview, even if some lecturers taught various components except KEC, it was not the policy of this PETE course or not components for the PETE.

6.2.4. Prioritisation of knowledge base 2010

In considering research question 2, it is clear that the first priority is units of liberal arts (34.2%). Second priorities are units of discipline knowledge (21.9%) and physical activities (20%) as a credit. Third priority is educational units (15.4%). The lowest priority is professional knowledge (8.5%) (See table 1). Considering contents in this PETE programme in detail, in units of physical activities, even if there were some classes teaching both PRACK and PCK, most unit leaders just taught PRACK. In units of discipline knowledge, student teachers learned just KEC (e.g. contents of exercise physiology which were not related to contents in school subjects). In units of professional knowledge, even if student teachers learn PCK, CCK, KLC, KEG, and even PRACK, it was a very small part (6%) in this course.

6.3. Analysis of the curriculum from 1978 to 2011: based on Kirk et al's framework

6.3.1. Introduction: Overview of curriculum from 1978 to 2011

6.3.1.1. The change of curriculum pre-1978 based on secondary resources

Before I present an analysis of the curriculum between 1978 and 2011 based on Kirk et al's components, I briefly describe the periods of development of physical education pre-1978 to the present time. The head office of Seoul National University published "SEOUL NATIONAL UNIVERSITY SINCE 1946" in 2006 and College of Education of Seoul National University published "College of Education at Seoul National University since 1946" in 1996. They divided into

several periods as follows (see table 4). Although the head office divided into the periods as a development of curriculum, it was related to liberal arts because it was very difficult to collect resources in each college. On the other hand, the division of each period in the College of Education occurred comparably to each development of the curriculum. This means that because PE curriculum was subordinate to the College of Education, the change of the curriculum of Department of Physical Education had a similar development.

Table 4. The division of periods of Seoul National University SINCE 1946 (2006) and College of Education at Seoul National University since 1946 (1996)

Seoul National University 1946 – the chapter of curriculum	contents	College of Education at Seoul National University since 1946	contents
1946~1961	The early curriculum	1946~1949	Beginning College of Education and formation of tradition
		1950~1953	College of Education during Korean War
		1954~1963	Development and ordeal of College of Education
1961~1974	The reform of curriculum and installation of course of liberal arts	1963-1974	Reforming of higher education and growth of College of Education
1974~1980	Joining experimental universities and managing units of compulsory liberal arts as a law	1975~1989	Synthesizing Seoul National University and Ensuring internal stability of College of Education
1980~1990	Continuing compulsory units of liberal arts and beginning classes during summer and winter vacation	1990~1996	Leaping based on ordeals
1990~2006	Progressing the liberalization and reinforcing basic education for liberal arts	-	-

In addition, Roh and Kim (1991) divided into the periods of development of physical education such as the periods of introduction (1945-1954), the periods of development (1955-1972), the periods of decline (1972~1988) and the periods and development (1989~). This division was similar to the periods of development of College of Education.

Table 5. The change of the minimum credits from 1955 to 2009[3]

	All credits	Liberal Arts	Education studies	Discipline knowledge	Professional knowledge	Physical activities	Teaching experience
1946~1952	180	30~40	6	80			
1953~1954	160	40~46	24	80			
1955-1973	160	40~46	20	80			
1974-1995	140	42	24	63			
1996~2002	130	36	11	42			5 weeks
2003~2006				52			
2007~2008				52			
2009~	130	36	22	60			4 weeks+ 60 hours

Because it was difficult to find original resources before 1978, I have analyzed these periods using secondary resources.[4] The hours of units in the curriculum has been kept one hour per one credit, two hours per two credits and three hours per three credits for units which done in the classroom since 1978. There are some units of four hours per three credits such as Exercise Physiology which consists of two hours for theories and two hours for practice (experiment). However, units of physical activities have been kept two hours per one credit since 1978. Explaining table 5, it was 180 credits from 1946 to 1952. After that, it was 160 credits reducing 20 credits from 1953 to 1973 for 20 years. In 1974, the credits reduced from 160 to 140 because of joining of the plan of experimental universities.[5] After 20 years later, the credits decreased from 140 to 130 once again. 130 credits have been kept since 1996. However, I could not find the main reason why the credits have reduced from 160 credits in 1946 to 140 credits in 1974.

In this section, I explained the curriculum pre-1978 by using secondary resources. Lee (1983) showed the result of reduction of credits from 160 to 140 in 1974. There was an increase of units of theories and educational studies. On the other hand, units of physical education and physical activities reduced because of the increase of units of the educational studies to strengthen teacher education. His analysis was reasonable compared to the contents of above table 5. For example,

[3] This table was made based on College of Education at Seoul National University since 1946 (1996) and the official law and the bylaw of Department of Physical education.

[4] The resources are SEOUL NATIONAL UNIVERSITY SINCE 1946 (2006), College of Education at Seoul National University since 1946 (1996), A study on the Management of Curriculum In physical education (Lee, 1983) and A study on the Changes of the Curriculums of the Department of Physical Education at Selected Universities in Korea (Rho & Kim, 1991)

[5] The experimental universities: the Ministry of Education implemented the reform to develop the quality of education of universities such as revision of curriculum in 1973 (Encyclopedia of Korean Culture, 1996)

credits of physical education reduced from 80 to 63 in 1974 and units of educational studies increased from 20 to 24. Kim (1991) introduced units of professional knowledge in physical education from 1955 to 1990. There were Teaching Methods in Physical Education and Study of Physical Education Teaching Materials from 1955~1973 and Teaching Methods in Physical Education and Curriculum in Physical Education from 1974 to 1990 as a unit of professional knowledge.

6.3.1.2. The change of curriculum after 1978 based on primary resources: the reasons of three divisions from 1978 to 2009

Next I will examine the curriculum drawing on original resources since 1978. The classification of knowledge for the curriculum is comparable to that completed for the University of Brighton.

Table 6. The change of credits and proportions of credits which student teachers took according to the transition of credits from 1978 to 2009[6]

	Liberal arts	Education studies	Units of Physical education			All credits
			Discipline units	Professional units	Physical activities	
53 students from 1978 to 1995	49.2 (34.3%)	17.6 (15) (12.1%)	41.4(28.6%)	6(4.3%)	29.2(20.7%)	142.5(100%)
			76(53.6%)			
30 students from 1996 to 2008	47.4 (36.5%)	15.4 (12) (11.5%)	32.5(25%)	6(4.6%)	29.1(22.4%)	131.2(100%)
			67.6(52%)			
Five students in 2009	45 (34.2%)	20 (17) (15.4%)	29.2(21.9%)	11(8.5%)	26(20%)	130.7(100%)
			65.5(50.4%)			

*rounding off to the numbers to two decimal places and I selected each 3 people a year from 1978 to 2009.

The reasons why I divided into three areas of periods (1978~1995, 1996~2008, 2009) is that there was a reduction of credits in 1996 and there was a big change of the curriculum to prepare the TATTI in 2009. Although Teaching Practicum (Practice), School Observation and Educational Volunteer Service 1, 2 has been included in educational units, I did not count the hours and credits because it is a

[6] This table is a summary of the resources that I analyzed units which each three student teachers took from 1978 to 2008 and five student teachers in 2009. There is in detail resources in the appendix 1 chapter 6.

practice such as one week or four weeks. So, the numbers in parenthesis in education studies are just credits of theories of education studies except Teaching Practicum (Practice), School Observation and Educational Volunteer Service 1, 2.[7]

I am going to explain table 6. Liberal arts have occupied the biggest credits and proportions (44.5~48 credits and 34.2~36.5%) for the whole period when we regarded units of physical education as three areas. Even if credits of liberal arts have reduced from 49.2 to 45 from 1978 to 2009, the proportions of units have been similar as 34.2 ~ 36.5% for same periods.

The credits of education studies from 1974 to 1995 were 24 in the official document. However, the actual number of credits which student teachers took for those periods was 17.6. This means that, as I mentioned professional units in 2010, some units of physical education units were included in education studies. Therefore, it became very complicated to analyze the curriculum. 53 student teachers from 1978 to 1995 took slightly more credits of education studies (about 1.8 credits) than 30 student teachers from 1996 to 2008. Five students in 2009 took 4.6 more credits in education studies than those taken by 30 student teachers between 1996 and 2008. This was due to the revision of the curriculum in the College of Education in 2009 (e.g. the minimum credits in education studies were increased to double from 11 to 22 in 2009 in table 5).

Units of physical education had occupied 76 credits (53.6%) from 1978 to 1995. 30 student teachers from 1996 to 2008 took less credits of physical education (about 8.4 credits) than 53 students from 1978 to 1995. The main reducing reason was that, seeing table 5, the minimum credits of physical education reduced from 63 credits in 1995 to 42 credits in 1996 decreasing all credits from 140 to 130 as discussed here by one of those involved in the revision of the curriculum in 1996:

> I was in charge of the curriculum in 1996. At that time the compulsory units of physical education were changed from 44 credits to 12 credits

[7] There was a change of curriculum in 1985. At that time, the unit of Curriculum in Physical Education became a compulsory unit because of the direction of the Ministry of Education. However, there were no big changes of other areas in the curriculum. And most students took that unit. So, I did not make the division of 1985.

> because student teachers could not be hired in school the same as previous student teachers who completed 1990. They had to find their jobs for themselves. This was the reason why the compulsory units of physical education were reduced at that time (Part-time lecturer2 Seoul National University).

He mentioned student teachers could select their units more freely because of the teacher recruitment examination introduced in 1991. In other words, the curriculum of physical education was more closed to department of kinesiology because not all student teachers could become a teacher. The trends had been continued up to now because credits which five student teachers in 2009 took were similar to previous periods. Overall, although the credits of physical education have reduced from 1978 to 2009, the amounts of proportions of credits of physical education have been the biggest amounts keeping over 50% in the whole proportions as a main study for the whole period.

Comparing three areas (discipline, professional and physical activities areas) in physical education, units of discipline and physical activities have reduced and professional units have increased for the whole period. The proportion of reduction of credits of discipline units was somewhat large with the reduction of 11 credits (7%). On the other hand, the reduction rates of physical activities have been just 3 credits. However, because the proportions have similarly kept around 20% between 1978 and 2009, the proportions of physical activities had not reduced for the whole period. The units of professional knowledge only increased from six credits to 11 credits. However, the six credits had kept from 1978 to 2008 for 30 years. The five credits have increased just since 2009.

6.3.2. Units of professional knowledge

I will now discuss the growth of units. There had been just two units for professional knowledge from 1978 to 2008 for 30 years. Since 2009, two new units (Principles of Physical Education in 2009 and Teacher Preparation for Student Management in 2010) opened and in 2009 Sports Pedagogy and Study of Physical Education Teaching Materials and Method Guidance were revised from

other two units. Finally, one more unit (Seminar in Physical Education) was introduced in 2012 (See table 7). This means that PETErs have taught professional knowledge for all years since 2009. Before 2009, student teachers only learned professional knowledge in third year and fourth year. And the contents of those units had kept the level of theories before 2008. After that, those units have played a role both theories and practices.

Table 7. The increased of units of professional knowledge from 1978 to 2012

1978~2008	2009	2010	2011	2012
Teaching Methods in Physical Education (compulsory)	Study of Physical Education Teaching Materials and Method Guidance (compulsory)			
Curriculum in Physical Education* (compulsory)	Sports Pedagogy (compulsory)			
-	Principles of Physical Education (compulsory)			
-	-	Teacher Preparation for Student Management (compulsory)		
-	-	-	-	Seminar in Physical Education (optional)

*Curriculum in Physical Education: it was an optional unit before 1985.

Table 8 is more detailed resources for units of professional knowledge compared to table 7. As you see table 8, the units of professional knowledge only increased from six credits to 11 credits. The six credits had kept from 1978 to 2008 for 30 years keeping two units (90 hours for four years). Student teachers from 2009 to 2012 had to join in two more units (five credits) for four years. Also they can choose one more unit (Seminar in Physical Education) as an optional unit.

Table 8. Specific information of units of professional knowledge which student teachers took from 1978 to 2009

	Professional units				
				credits	
	Numbers of units	Hours a week	Hours for 15 weeks	Credits	Proportions compared to all units
53 students from 1978 to 1995 (each three students per year)	2	6	90	6	4.3%
30 students from 1996 to 2008 (each three students per year)	2	6	90	6	4.6%
Five students in 2009*	4	11	165	11	8.5%

* “Principles of Physical Education” was an optional unit from 1978 to 1985. However, all students who I selected randomly took “Principles of Physical Education”. And randomly selected five students did not choose Seminar in Physical Education (optional)

6.3.2.1. Developments of theories as professionalism and a structure of curriculum in terms of sport pedagogy

I will now explain the development from inadequate to adequate theories as professionalism in terms of sport pedagogy. I analyzed the change of contents through class syllabuses, interviews (lecturers, student teachers, and teachers). Units of professional knowledge have been developed as two types.

First, theories for professional knowledge have developed from 1978 to 2008. The purpose of Teaching Methods in Physical Education is as follows.

> Student teachers learn the meaning of instruction of teaching, necessity and theories to teach physical education in school based on a sense of duty of teacher (the purpose of Teaching Methods in Physical Education in the syllabus from 2000 to 2008, see appendix 2 in chapter 6).

This lecture was helpful to prepare teachers. However, checking syllabuses from 2000 to 2008 in this unit, the contents were not reflected the development of study of sport pedagogy such as spectrum of teaching style, Curriculum models etc. this unit contained a part of theories of education such as principles of instruction of learning, teaching ways, etc because the professor who taught this unit did not study sport pedagogy. He was a kind of professor who just taught physical activities. One professor and teacher who joined in this unit in 1982 and 1999 mentioned as follows.

> I think that we learned whole learning method and part learning method in Teaching Methods in Physical Education and we did not learn about teaching theories (in the second interview by e-mail). (Previous student4 Seoul National University from 1979 to 1983 and present Professor1 Inha University who joined in this unit in 1982)

> It was very difficult to remember the content in that unit because there were no contents in there. ……Even if his consideration for student teachers was good, I think that the professor stressed maintenance of order in his unit (Teacher2 Seoul National University who joined in this unit in 1999).

Student teachers' memory who joined in that unit in 1982 and 1999 were similar to each other. They mentioned that they did not learn specific contents for theories or real situations in school because professors at that time did not have specific theories in physical education.

Meanwhile, Principles of Physical Education were different to compare Teaching Methods in Physical Education because the professor who taught this unit and retired in 2008 had completed his PhD studying sport pedagogy in the USA from 1973 to 1977. He was one of the first people to introduce school sports, PETE and sport pedagogy from the USA to Korea. He was a professor in this university from 1979 to 2008. For about 30 years, he had affected many areas in this country. Before explaining his unit, I show the situation in the 1970s and 1980s in Korea because the period was difficult to educate student teachers in Korea. When he was hired in this university, the Korean political situation was so bad. One student at that time mentioned as follows.

> When I was a first year student in 1979 in this university, our president was assassinated. Because of that, it was issued the closing of school. There were too many riot policemen, soldiers on campus. We submitted our assignments by post-mail services and received our scores by assignments because we could not go to school. One professor who taught 'unit of camp' mentioned that we were unique students who received the score by assignments. It was so dark periods in Korea. Next year (1980) was more severe because military government seized power in this country. Many students went on the demo in May. So did I. At that time, if someone joined in the classes in the university, many people blamed then as an anti-nationalist or an egoist. Moreover, many friends got caught by the police and were tortured in there. It was very difficult to study it even if I wanted because of these situations. (Previous student4 Seoul National University from 1979 to 1983 and present professor Inha University)

It was difficult to teach students at that time. However, the professor who taught Principles of Physical Education gradually developed his class. The professor who taught this unit from 1979 to 2008 explained his development of unit as follows.

> At the early of 1980s, I taught my class based on behaviourism. There were related to books such as Siedentop's book. And I considered how

> could I teach the contents which were produced from the result or theories of quantitative researches in my class. For example, how could the result apply the Korean situation? How could the result put to practical situation? How could I organize students in school? How could I increase the compensation effect? In the 1990s, there was a limitation to teach the unit of Principles of Physical Education with perspective of behaviourism. Let's try to change the paradigm. It was a qualitative study. I tried to teach my class based on the result of qualitative studies. For example, I tried to teach student teachers students' personal order or favour in school, the difference between disable students and normal students. This means that the teaching paradigm was changed from teacher-centred learning to student-centred learning. Of course, I taught the contents of behaviourism with new contents in the 1990s. …… However, there was a little insufficient Korean context in my class (Previous course leader and professor from 1979 to 2008 Seoul National University).

He explained the change of his class in this interview. The development of these contents in this unit was similar to the development of sport pedagogy in the USA supplementing some Korean situation. He mentioned that first of all he tried to develop his work based on studies from the USA. It was his first priority because there were no backgrounds for school sports, PETE and contents of sport pedagogy in Korea. Even if there were good studies of education studies in Korea, they were not enough to develop our own physical education. He also admitted that there were limits to develop physical education in his unit. His mention appeared in his book.

> "Searching research trends in sport pedagogy in Korea, the direction of study for sport pedagogy in Korea followed the trend of sport pedagogy in the USA such as JTPE, JOPEDRD and QUEST copying methods, themes of research etc. Checking latest articles and books related to sport pedagogy in Korea, the level of contents has been still in the level of translation of noted foreign scholar's book." (Kang, 2010, p.28, written by Korean language)

This means that, although there have been big developments of sport pedagogy, Korean's have had to make a big effort to develop our own study. Following this trend, his unit was similar to this trend. His unit has mainly introduced the theories of sport pedagogy. But it was a little bit weak delivering practices to students because even if the theories of this unit have been polished as time goes

by, the actual practice for students were slightly weak.

Developments of a structure of curriculum in terms of sport pedagogy

Kirk et al's framework, which I used, was different in the original structure of curriculum in Seoul National University. For example, the Philosophy of Physical Education belonged to an official professional unit as a compulsory unit by 2008. Even if the unit was not directly related to PETE, why did this unit belong to this area? One professor who joined in the meeting where this unit became a compulsory unit in 1985 mentioned as follows.

> In 1985, the Ministry of Education wanted to strength TE programmes. They gave us directions. We had to make at least three units for PETE. First, we adopted Teaching Methods in Physical Education and Curriculum in Physical Education. While discussing the final unit in that meeting, one professor who was teaching philosophy of physical education eagerly asked that his unit was suitable for PETE. Even if it was not directly related to PETE, it was difficult to handle the situation. It was the process. Might be other PETE course in other universities just imitated our wrong decision. As you know, the professor did not teach the unit in terms of sport pedagogy or PETE. He taught his unit same as previous ways (Previous course leader from 1979 to 2008 Seoul National University).

He explained the process that Philosophy of Physical Education belonged to the essential professional units showing that the decision was not views of PETE. Many student teachers who joined in this unit also recollected that this unit was not related to PETE. This is strong evidence showing that units in terms of academic development of sport pedagogy and political powers in that group were inadequate in the 1980s. The title of this unit was changed to Principles of Physical Education in 2009 meaning that this unit became a proper unit for PETE (see table 7). Considering the periods, it took nearly 24 years to become proper units. Although the development and influence were slow, we could confirm that the structure of PETE curriculum has been gradually appropriated in the PETE course in Korea.

6.3.2.2. The inadequate delivery of theories for students as a practice from 1978 to 2008

I am going to discuss the inadequate delivery of theories for students as a practice from 1978 to 2008 based on student teachers' opinions and the professor who taught that unit. One professor in another university who was a student from 1979 to 1983 remembered units of professional knowledge.

Q: Did you learn professional knowledge when you were a student?

> A: There was nearly no. Nearly. Professor 000 (Previous course leader from 1979 to 2008 Seoul National University) taught a little bit to us such as curriculum like that. And there was just one unit for sport pedagogy. At that time, there were nearly no concept to teacher education. …… Moreover, I learned Mosston's style as a theory when I was a graduate student in 1984. The terminology of sport pedagogy was named in Korea I think that it was in 1986 (Previous student4 Seoul National University from 1979 to 1983 and present professor Inha University).

She has been a professor who has taught units in professional knowledge in Inha University for a long time. She is part of the second generation to have learned sport pedagogy in Korea. So, she pointed out insufficient amounts and knowledge for PETE at that time mentioning that there was just one unit for professional knowledge. In addition, one teacher who was a student from 1984 to 1988 mentioned as follows.

> It was a very low level compared to the standard of present. However, it was the best way to teach students at that time (Previous student3 from 1984 to 1988 and teacher12 Seoul National University).

Although he mentioned that the curriculum at that time could not compare to the present one, he also conceded that he mainly learned PETE in his school rather than his learning on campus.

> I have learned my professional knowledge in physical education association which made by PE teachers. I have studied many real one in this association (Previous student3 from 1984 to 1988 and teacher12 Seoul National University).

He mainly learned professional knowledge after graduating his university, units of professional knowledge at that time could not affect to student teachers much. Moreover, as I mentioned before, because of political situations in Korea, the delivery of professional knowledge was more difficult. Nevertheless, the academic development of units was ongoing in the 1990s.

> I think that we did not learn Curriculum models. We learned Curriculum value orientation. At that time, Curriculum models were not introduced in that unit. When I was preparing the teacher recruitment examination in 2002, I learned Curriculum models (Teacher2 Seoul National University who joined in Principles of Physical Education in 1998).

Compared to students in the 1980s, the contents which he learned were more theoretical and developed such as Curriculum value orientation. Compared to students in the 1990s, students in the 2000s learned more various contents such as Curriculum models. However, student teachers from 1980s to 2008 just joined in one unit for professional knowledge. The amounts of delivery of professional knowledge have been not good as much as the theoretical development of this unit because of the insufficient amounts of hours in the unit. One teacher who was a student from 2001 to 2005, mentioned as follows.

> Professor 000 taught a little bit in his class such as curriculum knowledge, curriculum models and general pedagogical knowledge. But it was not much. Looking back my PETE course after becoming a teacher, I remembered it a little bit. If I did not become a teacher, I think that I would not be able to remember those kinds of contents (Teacher5 Seoul National University).

She was nearly the last student teacher who joined in the Principles of Physical Education leading by previous course leader from 1979 to 2008 in Seoul National University. She also mentioned that if she did not become a teacher, she could not remember the contents of that unit. This represented that student teachers have had insufficient amounts of hours in professional units to apply to real school PE situations.

6.3.2.3. The reason of the inadequate delivery of theories for students as a practice from 1978 to 2008

After completing interviews with student teachers, teachers and lecturers who joined in this unit, I had interview with a professor who designed this unit (Principles of Physical Education) in 1980 and was in charge of PETE in this university from 1979 to 2008. He explained the reasons why he could not increase professional units in Seoul National University. He mentioned that there was just one unit for professional knowledge in this course when he was hired in 1979 and there had been a big barrier to increase units of professional knowledge during these periods. There were two reasons for this. First, before 1987, he could not increase units because there were no obvious concepts for PETE among professors.

> Professors at the early of 1980s did not know sport pedagogy. They thought that sport pedagogy was a kind of method of instruction such as Teaching Methods in Physical Education. This means that anybody can make a teaching plan. After becoming a physical education teacher, it was strong that we just taught physical activities in school. Because of these concepts, they did not realize to systematize sport pedagogy as study (Previous course leader and professor from 1979 to 2008 Seoul National University).

He mentioned that there were no clear concepts of sport pedagogy in the 1980s in Korea. Many professors at that time thought that PETE was just teaching physical activities and easy one rather than studying kinesiology. Because of this trend, even if this course was to educate future PE teachers, it was difficult to increase units of professional knowledge and educate student teachers based on learning in the USA. As time goes by, because of development of PETE in Korea, the importance of those kinds of units increased. For example, Principles of Physical Education became a compulsory unit in 1985. However, soon, this development faced big barriers in 1987. As I mentioned before, the Ministry of Education announced new rules to becoming a teacher. Student teachers who entered in 1987 had to take a teacher recruitment examination in 1991. This means that many

student teachers had to find other jobs because even if many student teachers wanted to become a teacher, there were not enough jobs in schools.

Second, as a result, the theories have not been well delivered to student as a practice from 1978 to 2008. The professor who had been in charge of PETE course failed to open one more unit in the 1990s for professional knowledge in these practical reasons. He recollected his failure to extend those units in the 1990s:

> I stressed that we needed at least three units for professional knowledge in the faculty meeting such as Teaching Methods in Physical Education, Principles of Physical Education and Physical Education Teacher Education in the 1990s. However, they refused to make the unit for Physical Education Teacher Education (Previous course leader and professor from 1979 to 2008 Seoul National University).

He mentioned in detail the reason why his proposal failed:

> Gradually, student teachers' interests had reduced because they had to the take teacher recruitment examination to become teachers in the 1990s. Moreover, the test was very competitive. Because of this reason, many students tried to find other jobs and the interests and importance for sport pedagogy declined in the 1990s. Among professors in this course also insisted that we did not need to stress PETE in this situation. They insisted that other areas such as exercise physiology, sport history, etc were more important because our first purpose was to make professors and second aim was to educate student teachers (Previous course leader and professor from 1979 to 2008 Seoul National University).

Because of these reasons and situations, he could not extend units of professional knowledge. And he could not teach both theories of professional knowledge and practices of professional knowledge in respect of deficient hours. Because of that, he concentrated on the theories rather than the practices. It was the main reasons that teachers remembered that they did not receive proper PETE (insufficient units and learning theories not practices) from the 1980s to 2008. Although there had been the big development and change of that unit, there had been the limits to deliver the contents to student teachers. These inadequate parts changed in 2008.

6.3.2.4. The development from theories to practice from 2008

This theoretical development has been changed from only teaching theories of professional knowledge to teaching theories and practicing of professional knowledge since 2008. After retiring two professors who taught units related to PETE, two new professors were hired in 2008 and 2009. Fortunately, there was the TATTI in the same periods. As I said before, it was the most important assessment in each department because if the result of the assessment was not good, they have to reduce the numbers of student teachers or the right of selecting student teachers will be abolished. And the purpose of this assessment was normalization of teacher education because there had been many criticisms for teacher education socially. Because of this assessment, after one new professor was hired in this university in 2008, based on contents of the assessment, he developed units of professional knowledge and hired one more professor who studied sport pedagogy and was a professor in the USA in 2009. Before 2009, there was one professor who completed study of sport pedagogy as a PhD in this course. He mentioned as follows:

> We had a good chance to develop PETE course in respect of sport pedagogy because of contents in the third assessment of teacher training institute. We would be able to open or change some more units for professional knowledge such as Teacher Preparation for Student Management, Principles of Physical Education. Considering the level of development of teacher preparation, we could rearrange units of professional knowledge. Moreover, me and another professor could teach professional knowledge each and every grade giving student teachers continuously to have an educational mind that physical education or sport pedagogy was important (Course leader Seoul National University 2011).

He explained the process of development of professional knowledge in this interview. Because of obtaining three more units for professional knowledge, he made a knowledge base or curriculum to teach many contents in more detail and practically in five units. Another professor who was hired in 2009 explained his unit of Physical Education Teaching Materials and Method Guidance:

> I gave many artificial contexts to student teachers because PCK did not come out itself. For example, one student teacher become an overweight child, he can't jump. But another student teacher had to teach him to hurdle. He had to change the hurdle teaching content to be suitable to him. Like this, we made many KLC such as children who hurt their arm and were not smart but have a good movement, etc. student teachers can learn PCK teaching many various children (Professor1 Seoul National University).

This unit was the revised unit from the title of Teaching Methods in Physical Education in 2009. As I mentioned before, the previous professor in this unit in 2008 did not teach this unit based on sport pedagogy. After she was hired in 2009, this unit was totally changed same as her explanation. Student teachers practiced the theories through peer teaching learning about mainly theories of teaching such as PCK. In fact, there have been these kinds of lectures in units of physical activities since 2000. However, there was no continuity because the lecturers who taught those kinds of units were all par-time lecturers. For example, even if there was such a unit of physical activity in 2003, there was no such a unit in 2010. As a result, if some student teachers have a good luck, they could learn both theories and practices through units of physical activities before 2008. However, all student teachers have been able to join in these kinds of lecture every year since 2009 because these units have been compulsory. This means that student teachers' duty which joined in this unit from 2008 were different to student teachers before 2008. Two student teachers who joined these units in 2009 and 2011 explained as follows.

> During joining in this unit, I observed teaching of other groups and taught my groups. It was very helpful because of doing in practice. Based on this practice, I learned many things in the placement (school experience) (Student2 Seoul National University who joined in Physical Education Teaching Materials and Method Guidance in 2009)

> It was a special lesson. It was a first experience to teach my colleagues and make a curriculum. In other units, I just listened to the lecturer's lecture and discussed with us. It was a normal unit. When I joined in units for physical activities, they were also just units to learn skills of physical activities. However, this class remained in my memory because it was different to other classes (Student8 Seoul National University who joined in Teaching Materials and Method Guidance in 2011)

Two students' opinions were different compared to previous students who joined in that unit from 1978 to 2008. They observed other groups' teaching and taught their group based on theories such as Curriculum models, and the unit of Teacher Preparation for Student Management was developed in 2010. It was a unique unit that students learn theories about KEC such as school circumstances in the classroom of campus and observed various aspects in school such as observing teacher's works and teaching, and talking to teachers and students, etc in school for some days. This means that this unit was mixed unit between theories and practice of professions. Moreover, a present teacher had to be in charge of this unit in 2010 as a regulation. The lecturer (or teacher) in this unit mentioned as follows:

> It was a unit that student teachers could understand the circumstances of school and was interested in the instruction of teaching. They had to visit six times for six weeks to observe PE teachers and talk with them. However, there was a limitation to understand with an observation of once a time per week for six weeks (Part-time lecturer6 Seoul National University who was in charge of this unit in 2010 and present teacher).

He mentioned the positives and negatives of this unit. Although it has a limitation to understand circumstances of school, considering that it was a new different try to teach theories and practices of school in Korea, it was a kind of development. Student teachers from 2009 to 2012 could learn more professional knowledge in detail. Even if student teachers' response was positive, it is difficult to conclude that the increase of units would make a good result because student teachers who received this education have not become teachers in school, yet. The effect about this change will be able to know to the near future.

6.3.3. Units of discipline knowledge

6.3.3.1. Diversifying of units

Even if this PETE course has played an important role in PETE, it has been faithful to develop various studies of kinesiology. For example, about 130 students

who graduated from 1975 to 2012 have become professors who teach various fields such as sport history, sport sociology, exercise physiology, etc in other universities.[8] This means that the units of discipline knowledge have been more important as study rather than units for PETE. As a result, there are many kinds of units (see table 9).

Table 9. The numbers of units of discipline knowledge between 1972 and 2012[9]

Years	1972	1985	1990	1995	1996	2000	2005	2012
The numbers of units of discipline knowledge	30	36	29	27	27	26	25	28

There are 14 full-time professors for units of discipline knowledge among 16 full-time professors in 2012. Based on my resources such as the syllabuses of units of discipline knowledge in 2010, professors who teach these units have been experts researching their fields rather than PETErs. Explaining making new units of discipline knowledge for these periods, Department of Physical Education opened Sport Sociology in 1973, Motor learning in 1995, Physical Education for the Disabled in 1990, Management of Physical Education and Administration of Physical Education in 1995, Introduction to Sports Medicine in 2002 and Sport and Media in 2012. New professors have been hired around being been made new units. For example, a professor who studies motor learning in the USA was hired in the middle of 1990s, a professor who studies sport management in the USA was hired in 2000, a professor who was a medical doctor was hired in 2003 and a professor who studies sport journalism was hired in 2010.

6.3.3.2. Slight reductions of students' choice

Table 10 is more detailed resource for units of discipline knowledge compared to table 9.

[8] The status of graduates' job in this university from 1975 to 2012 (internal resource in this PETE course)
[9] There are all titles of units in appendix 3 chapter 6.

Table 10. Detailed information of units of discipline knowledge that student teachers took from 1978 to 2009

	Units of discipline knowledge				
	Numbers of units	Hours a week for four years	Hours for 15 weeks for four years	Credits	
				Credits	Proportions compared to all units
53 students from 1978 to 1995 (each three students per year)	16.4	46.1	690.6	41.4	28.6%
30 students from 1996 to 2008 (each three students per year)	14.4	36.1	542	32.5	25%
Five students in 2009	13.4	31.8	477	29.2	21.2%

As I explained before, student teachers' proportions of choice of units of discipline knowledge have reduced for about 30 years because there was a reduction of credits in 1996 and there was a reduction of credits of discipline knowledge increasing the credit of education studies. However, in fact, comparing numbers of units, there was reduction of 3 units from 1978 to 2009. Even if the credits have reduced from 41.4 to 29.2, because of just decrease of 3 units, it is difficult to judge that there have been too many reductions of units.

6.3.3.3. No connection between units of discipline knowledge and PETE (school physical education and TRE)

I can confirm that there had been almost no connection between PETE and units of discipline knowledge through my interview with teachers who were students from 1978 to 2012.

It occurred as two types. First, there was no connection between units of discipline knowledge and school physical education.

> When professors taught units of sub-discipline knowledge, they thought that we would become a teacher. However, that was a lecture centring theories without examples of school (Previous student5 from 1980 to 1984 and part-time lecturer6 Seoul National University).

He is both a PETEr and a teacher who first learned sport pedagogy as study in

Korea. He remembered that although all professors who taught units of discipline knowledge knew that we had to become a teacher, they did not teach those units based on school. Teachers who were a student from the 1980s to the present answered same as him.

> Units of discipline knowledge such as exercise physiology were difficult levels except an introduction of the book. The introduction in units of exercise biomechanics also was helpful but other chapters were not useful in school (Teacher6 Seoul National University who was a student from 2000 to 2006).

He also reported that units of discipline knowledge were not so helpful in his teaching in school. One present student teacher's opinion in this university was very similar to the teacher who was a student from 1980 to 1984.

> Frankly, I haven't seen that lecturers who taught units of discipline knowledge mentioned physical education of school. For example, the lecturer in exercise physiology mentioned normal people's diet rather than students in school. The unit was the normal lecture for theory or study (Student10 Seoul National University in 2012)

All student teachers' mentioned that from 1980 to 2009 units of discipline knowledge were the same like this interview. I can confirm this fact with interviews with lecturers.

> I surely considered physical education when I taught physical activities (gymnastics). However, when I taught my unit of Sport Management, I considered student to have an interest for sport management. It was my premise (Professor4 Seoul National University who taught the unit of Sport management in 2010)

As I mentioned before, the study of sport management has been one of the most popular studies in this department. Many student teachers in this unit wanted to be a graduate student who studied sport management rather than a teacher. So, it was a kind of result that the professor followed their requests.

Second, there was no connection between units of discipline knowledge and the Teacher Recruitment Examination. Contents of discipline knowledge are included

in the TRE in Korea. However, it was difficult to be well connected between them in the real situation.

> Question: where did you learn discipline knowledge for the teacher recruitment examination?
> Answer: In fact, I think that I have completed those contents preparing the TRE. …… Experience which I prepared the TRE was the biggest part (Teacher12 Seoul National University who was a student from 2006 to 2010)

> Answer: I learned discipline knowledge through preparing the TRE. Although I learned those contents during units of discipline knowledge in my curriculum, I think that I learned those contents more preparing the TRE. (Teacher8 Seoul National University who was a student from 2000 to 2004)

Teachers who passed the TRE mentioned that units of discipline knowledge in this university were not so helpful in preparing TRE because the level of each unit were much higher than the scope of that exam or the learning areas of units were different to that exam. One teacher summarized this situation like this.

> Actually, when I was hired in school, there was a big gap between school and things which I learned in the university. There was no connection between education in university and the TRE and real school (Teacher4 Seoul National University who was a student from 2004 to 2008)

This means that both units of discipline knowledge and subjects of discipline knowledge in the TRE were not helpful in teaching in his school. For example, he had to study contents of exercise physiology for the TRE because units of exercise physiology were different compared to questions for exercise physiology in the TRE. Moreover, the questions for exercise physiology in the TRE also were not directly connected to his teaching in school.

6.3.3.4. Being weakened of professionalism of educating of discipline knowledge in terms of kinesiology

Based on these three results, I am going to raise one more result. There are 12 fields of discipline knowledge such as exercise physiology, sport history, etc in the

curriculum in 2012. And there are 29 units for this discipline knowledge in 2012. And five student teachers from 2009 to 2012 join in about 13.4 units of discipline knowledge. This means that student teachers joined in units of discipline knowledge at most one or three units in a year. One student teacher preparing a graduate school who was a student from 2004 to 2010 mentioned as follows:

> The merit in this course was that we learned various areas of discipline knowledge. On the other hand, although there are big widths, it was difficult to learn deeply because there was no time and no units to do that. Even if there were many units, there were no connected detailed units (Student1 Seoul National University preparing a graduate school from 2004 to 2010).

He was a student teacher to become a student in the graduate school which was not related to PETE rather than becoming a teacher. He mentioned that he could not fully learn his field through units of discipline knowledge. In fact, even if one student wants to enter the graduate school to study exercise biomechanics, he could not learn many things in this course because there were at most two units for exercise biomechanics in this course. This means that it is insufficient as a professionalism to educate contents of discipline knowledge in this course even if many students enter the graduate school.

As a result, although studies of discipline knowledge have become more various since 1978, the purpose of increasing discipline units has been not only not for PETE but also ambiguous.

6.3.4. Units of physical activities

I am going to show the change of units of physical activities. First, I am going to show the change of units. Second, I am going to describe the change of amounts of hours and show that the learning level of physical activities has been still introductory level since 1970s. Third, there have been some units of physical activities which teachers or PETErs taught student teachers various mixed components such as PCK+CK. However, the effects developing student teachers'

teaching skill were not enough because it was just one or two units among about 50 units of physical activities. I am going to describe these three results in detail.

Table 11. The numbers of units of physical activities from 1972 to 2011[10]

	1972	1980	1987	1993	1997	2003	2006	2007	2009	2011
gymnastics	7	7	5	4	5	5	3	3	3	3
Athletics	6	6	6	4	4	4	2	2	2	2
games	20	11	11	11	12	12	12	12	12	12
dances	16	8	11	9	11	13	7	7	10	10
OAA	1	1	1	1	1	1	1	1	4	3
swims	1	2	3	3	3	3	3	3	3	3
martial arts	5	3	4	2	2	2	2	2	4	4
winter sports	2	1	2	2	2	2	2	2	2	2
weight trainings	-	1	1	1	1	1	1	1	1	1
archeries	-	1	1	1	1	1	1	1	2	2
etc	-	-	8	8	8	8	4	4	5	5
All numbers	57	45	53	46	50	52	38	38	48	47

6.3.4.1. There have been a slight reduction of amounts of units diversifying compositions of units

First, the numbers of units have reduced 13 units from 57 units in 1972 to 47 units in 2011 (see table 11). However, it was difficult to see that amounts of numbers of units reduced because even if numbers of sport events have been diversified during those periods, the numbers of units have been similar between units in 2007 and units in 2009 as about 55 units. For example, although there was just one unit for OAA such as Marine Sports in 2007, it opened three units as a same name. In 2009, they opened as each name such as Camping, Yacht, Wind Surfing, Scuba Diving. So, there have been fluctuations of units according to areas (games, dances, etc) of physical activities. The units of gymnastics have reduced from 7 units in 1972 to 3 units in 2011 and the units of athletics also have reduced from 6 units to 2 units. There were Judo, Taekwondo, Wrestling and Ssirum in the 1970s as martial arts. Wrestling and Ssirum disappeared in the 1990s. Taekyon (Korean specific martial art), Traditional Martial Arts, Korea Archery, Yoga and Dance Sports were opened in 2009. And even if it looked like there were more games in the 1970s than the periods from 1980s to the present, it is not the case because

[10] There are specific titles of units in appendix 4 chapter 6.

Physical Education (1, 2), Sport Activity Lifetime Sports (1, 2), Intramural Sport and Extramural Sport in the part of "etc" included games. For example, all student teachers from first year to fourth year had to join in this unit from 3 pm to 5 pm on Friday. They could join in many sport events such as basketball, soccer, volleyball, swimming, etc. Through this unit, student teachers learned various games being friendly with colleagues. As a result, units of physical activities have been more various than in the previous one. Some games were made up two units in the 1970s. After the middle of 1980s, all games were opened just one unit. Softball tennis in games just disappeared in the 1980s. Golf in the 1980s and Bowling in the 1990s was opened as a new unit. The numbers of units of dance reduced from 16 in 1972 to 10 in 2011. However, many units of dance have been cancelled during semesters since 2002 because the rates of male students' participation were very rare and the numbers of female students who studied dance reduced since 2002. About 10 women students who studied dance entered this PETE course before 2002, after that, just four students who major dance could enter this PETE course as a policy.[11]

Table 12. The change of units of physical activities from 1978 to 2009 in Seoul National University based on eight men students' report card[12]

	1978-82	1983-87	1988-92	1993-97	1998-02	2003-07	2006-10	2009-13
GYM	2	5	4	4	5	5	3	3
ATH	4	5	6	3	4	4	2	2
Swims	3	2	2	2	1	2	1	1
Games	10	6	8	8	6	11	10	10
Dance	-	-	-	-	-	1	3	-
Weight training	-	-	1	-	-	-	1	1
Martial arts	1	1	-	1	2	1	2	1
archery	-	1	-	1	1	-	-	1
OAA	1	1	1	1	-	-	2	-
Winter sports	1	1	1	1	2	1	2	2
ETC	4	5	8	8	7	6	5	6
Numbers	26	27	32	30	28	31	31	27

*In this table, even if three students in 1998, 2003 and 2009 looked not to join in units for OAA, they joined these sessions because of bylaws of this PETE course.

I selected 8 student teachers' report cards from 1978 to 2009 at an interval of five

[11] There are specific titles of units in appendix 4 chapter 6.
[12] There are specific titles of units in which student teachers join in appendix 5 chapter 6.

years in order to know units which they actually selected. It was similar to the numbers of units which student teachers selected for those periods. For example, one student teacher in 1978 selected 26 units and another student teacher in 2009 chose 27 units. Explaining the change of student teachers' selections, the numbers of units of Gymnastics and Athletics which student teachers from 1978 to 2003 had kept about 6~10 units. On the other hand, student teachers could select at most five units for those units since 2006 because there have been just five units which have been opened since 2006. And student teachers have selected one or three units for Swimming because Swimming 1 has been a compulsory unit and other two units have been optional units from 1978 to 2012 and student teachers have selected various games around 6~10 units. Units for dances have been normally for women student teachers. So, two men student teachers who I selected randomly joined in units of dances. Because units of Weight training, Martial arts, Archery have been optional units, some student teachers have selected those units and other student teachers have not. Even if some students in the 2000s did not select OAA and Winter Sports in this table 15, all student teachers have joined in those units because they have been compulsory units as a bylaw in the PETE course. As I explained units of Physical Education (1, 2), Sport Activity Lifetime Sports (1, 2), Intramural Sport and Extramural Sport, those units have been also a compulsory units as the bylaw.

6.3.4.2. Units which student teachers' joining have been similar and there have been not big developments of contents of units of physical activities for about forty years

Second, I analyzed units of physical activities of 88 student teachers (three student teachers each year from 1978 to 2008 and five student teachers in 2009). There was a slight reduction of credits from 29.2 credits to 26 credits and small decrease of proportions from 20.4% to 19.9% (see table 13). However, actual credits and hours in which student teachers joined were not different between them. On the other hand, the teaching ways of units of physical activities have been still in teaching introductory level of physical activities since 1978.

Table 13. The average of credits and amounts of hours of physical activities per person of 53 students from 1978 to 1995, 30 students from 1996 to 2008 and five students in 2009

Numbers of student teachers in each periods	Credits		Average of amounts of hours per person	All credits
	Average of credits per person	Proportions compared to all credits		
53 students from 1978 to 1995	29.2 credits	20.4%	874 hours	142.5
30 students from 1996 to 2008	29.1	22.3%	873	130.7
Five students in 2009	26	19.9%	780	131.2

*I selected each 3 student teachers per year from 1978 to 2008

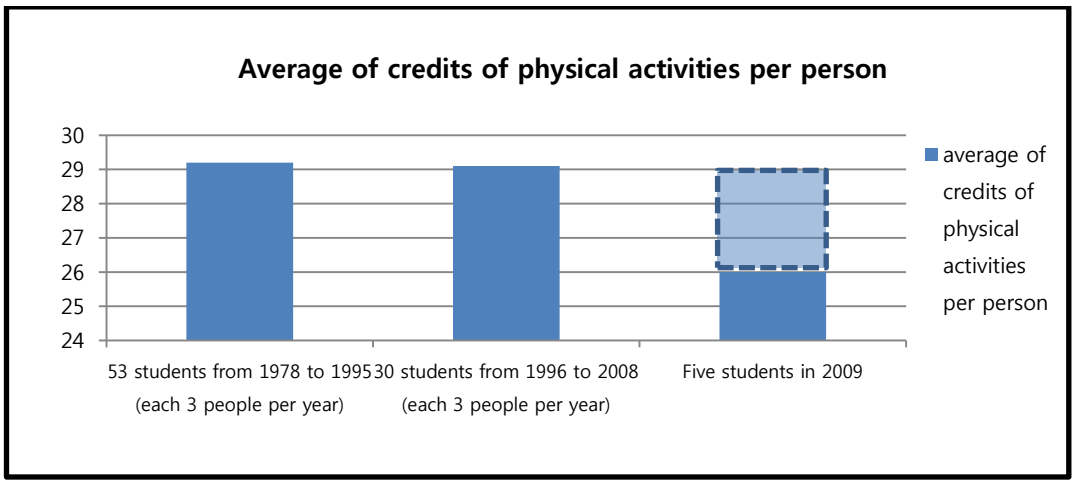


Figure 1. The average of credits and amounts of hours of physical activities per person of 53 students from 1978 to 1995, 30 students from 1996 to 2008 and five students in 2009

There has been a bylaw for units of physical activities in this course. For example, student teachers have to obtain 21 credits since 1998 as this bylaw. In the figure 1, student teachers before 2008 joined in 29 units and student teachers in 2009 joined in 26 units. It looked that the units of physical activities which student teachers selected reduced. However, in fact, as I explained before, it was difficult that the credits were reduced because there was the bylaw in 2011 whereby student teachers had to join in Winter Sports and OAA several times without receiving credits. Student teachers could get just two credits although they had to join in those units four times. As a result, in the above table, I put a rectangle made by a dotted line. However, I can interpret one trend. Even if units of physical activities were very important in the PETE course, it was difficult to increase official credits which they wanted because the College of Education were not favourable to increase units of physical activities. Even if there is a practical

restriction to stress units of physical activities in the official curriculum, there have been not big changes of numbers and hours of units of physical activities from 1978 to 2012. However, there have not been big developments of the contents of units of physical activities from 1972 to the present. I could confirm this with interviews with present teachers (all previous students) and present student teachers.

> Units of physical activities were made progress learning skills of physical activities (Previous student5 from 1980 to 1984)
>
> There was nothing to learn about contents of physical activities in my campus life. I think I learned skills of physical activities. After coming to school as a teacher, I learned many practical ways with my colleague studying for ourselves (Previous student2 Seoul National University from 1986 to 1990)
>
> Frankly, units of physical activities in the 1990s were understood as learning skills of physical activities. It was not to learn teaching skills to teach students in school. I had to improve my skills in that unit (Previous student6 Seoul National University from 1996 to 2002).
>
> Lecturer taught me skills of basketball without teaching how to instruct basketball. I learned a lay-up shot how to do that in terms of a student who learns basketball. I did not have an experience of methods to teach students as a teacher's perspective (Previous student7 Seoul National University from 2000 to 2004).
>
> When I was taught units of physical activities, I did not learn physical activities from the perspective of teachers, but learned those things from the perspective of students (Previous student8 Seoul National University from 2006 to 2011).

Teachers who were students from 1980 to 2011 remembered their units of physical activities similarly. They did not learn about teaching physical activities in their unit. Interviews with present student teachers in 2012 revealed more about physical activities.

> Thinking about the assessment, it was not the level of development of student teachers about the sport events. The student teacher who had a good skill for that sport event obtained a good score. Most lecturers did not considered student teachers' development of skills. As you know, it was difficult to increase my skills with one credit class (Student10 Seoul

National University in 2012).

Student teachers in 2011 who had already a good ability for that sport events before joining in that unit have obtained still good scores the same as the previous periods. Moreover, once a week for 15 weeks is also not enough to develop skills of physical activities. As a result, the problems of units of physical activities have been still kept since 1970s. One PETEr who was hired in this university in 2010 mentioned this situation as follows.

> First, we have to regret our units of physical activities. Considering the reduction of influence of physical activities in PETE course, there was no professionalism in the units of physical activities and those units should have been reorganized teaching PCK which is very important to PETE. However, it has been still made progress teaching physical activities, repeatedly. This means that units of physical activities became an area which was not tasty with the perspective of academic world which was mentioned by Siedentop. …… We have to make clear the reason why we have to teach these physical activities in the university. …… By the way, this trend is same as PETE course in the USA. Units of physical activities have reduced in the PETE course in the USA. So, I asked student teachers where you learn physical activities. They answered that they learned physical activities in YMCA. Now they could not learn physical activities in the university. It is such circumstances that they have to go to YMCA to learn physical activities (Professor1 Seoul National University who was hired in this university in 2010).

She was a PETEr in the USA from 2005 to 2010. Based on her experience of PETE in Korea and the USA, she suggested her opinion about units of physical activities. In summary, simple repetition of learning skills of physical activities which student teachers learned was not suitable in the university considering the purpose of the university. She mentioned that we had to try to find the purpose of the unit of physical activities.

6.3.4.3. Some progresses: slight increasing of connection between RRACK and PCK, but it was a small part in the PETE course

Third, although most units of physical activities were made progress to improve skills of physical activities, some PETErs who was a teacher or studied sport

pedagogy have taught units of physical activities with various ways since 2000s such as teaching PCK and CK. However, there have been just one or two units among about 50 units of physical activities each year. This means that the effects of developing student teachers' teaching skills were not enough because some student teachers could join in this style's unit one time for four years or sometimes there were no chances to join in those units. One teacher mentioned this content as follows.

> I joined in the unit of swimming. I think that he seemed to teach PCK a little bit. He taught how to assess students in school in the swimming class. During that class, I just learned those kinds of knowledge. However, after I became a teacher, I think that I could remember his teaching style. If I were not a teacher now, I think that I could not recognize his teaching ways because most lecturers who taught physical activities did not teach how to teach students in school (Teacher5 Seoul National University who was a student from 2001 to 2005).

She joined this class when she was fourth (final) year student in 2004. This means that she had not experienced this kind of class before becoming fourth year student. After becoming a fourth year student, she received PETE in the unit of physical activities. And the part-time lecturer who taught the unit of swimming completed his PhD degree (Sport pedagogy) in 2003. Because of this background, she could learn practical PETE. However, as she mentioned this interview, because it was very rare class, she admitted that it was very difficult to remember it. Actually, during this interview, it took much time that she remembered the unit of swimming. By the way, considering the result of interview with lecturers who taught physical activities in 2010 (See table 2) they (7 lecturers among 15 units which I had interviewed) taught at least PCK and CK to student teachers in their units. Comparing student teachers' responses, unfortunately, their intention was less effective that student teachers' learning. There are some reasons about this. First, lecturers who taught units of physical activities were not teachers or PETEr in 2010 and even other periods. They were a kind of expert who completed one of major in kinesiology. Even if they taught various components such PCK, CK, there was a limitation because they did not have an experience in school or

teaching with perspective of PETEr.

As a result, the education of physical activities in Seoul National University has been made progress to improve skills of physical activities since the 1970s. However, there was a limitation to develop students' skills in the unit of physical activities because of insufficient time (once a week for 15 weeks). This means that there have been no big differences of units of physical activities from the 1970s to the present. However, there have been small changes since 2000. Some teachers and PETErs have tried to teach physical activities to student teachers with perspective of teaching PCK or CK. But the effects were very rare because of the lack of units (1 or 2 units among 50 units) for student teachers. Compared to this inadequate development of physical activities in Seoul National University, There were big changes of units of physical activities in Inha University in 2009. I am going to explain this in chapter 7.

6.4. Conclusion from 1978 to 2010s

It is an answer to research question 2. I conclude the following.

1. Regarding the amounts of credits of physical education, even if units of discipline knowledge have decreased the proportions of credits from 41.4 credits (28.6%) in 1978 to 29.2 credits (21.9%) in 2010, it has still been a top priority. Units of physical activities have been second priority showing the slight reduction from 29.2 credits (20.7%) in 1978 to 26 credits (20%) in 2010. Even if units of professional knowledge have increased from 6 credits (4.3%) in 1978 to 11 credits (8.5%) in the 2010s, the credits and proportions have been the lowest for the whole period. On the other hand, Liberal arts have occupied the biggest credits and proportions (44.5~48 credits and 34.2~36.5%) among all units. Even if there have been some fluctuations in education studies (e.g. 17.6 credits (12.1%) from 1978 to 1995, 15.4 credits (11.5%) from 1996 to 2008 and 20 credits (15.4%) in 2009), the proportions have been higher than the professional knowledge in physical education and are the fourth priority.

2. Regarding contents in this PETE programmes, in physical activities, even if there have been some increase in teaching both PRACK and PCK together since 2000, many unit leaders have still taught PRACK at present in units of physical activities because some PETErs have been hired to teach student teachers physical activities as part-time lecturers. In discipline knowledge, student teachers learned just KEC (e.g. contents of exercise physiology which were not related to contents in school subjects) for the whole period because lecturers who taught units of discipline knowledge have no a duty to educate student teachers in respect of PETE. Even if there have rapid developments in units of professional knowledge such as advances from basic teaching skills (whole learning method, part learning method) to developed teaching skills or well connected knowledge (models, value orientations), the influence for student teachers have been limited because of the inadequate amounts compared to other units.

As a result, the first priority in terms of amounts of hours for about forty years has been liberal arts. In units of physical education, the discipline knowledge has been first priority showing that physical activities have kept similar amounts. Even if units of professional knowledge have increased amounts of hours and developed the contents, the units have still kept a very small part in this programme.

7. INHA UNIVERSITY

7.1. Introduction

The Department of Physical Education at Inha University was founded in 1978 as part of the College of Education. It was one department amongst others in the College of Education such as Mathematics, Korean, English, Education, and Social Studies Education. As one of many departments, decisions such as making or revising curricula, recruiting new professors and such like within Physical Education have been affected by its location within the College of Education, the same situation as found in Seoul National University. A Master's course in Physical Education started in 1982 and various Master's level subjects in kinesiology in the Department of Physical Education started in 2000. A PhD course began in 2002. Student teachers had to take the Teacher Recruitment Examination (TRE) before 1987 as all student teachers in private institutes, such as this university, were required to take this exam. However, because this course has been famous for PETE since its inception, many student teachers in this university have tried to become physical education teachers. The curriculum in this course was more closely aligned with PETE courses compared to the curriculum in Seoul National University.[1]

Staff

As of 2011, there were six full-time professors and many part-time lecturers. All professors have a PhD. The professors sit in Department of Physical Education. Some additional lecturers in Department of Exercise, Sport and Leisure studies teach units of discipline knowledge such as Sport Sociology.

7.2. Analysis of the curriculum in 2011 at Inha University

I will explain the knowledge base of the curriculum in 2011 based on only documents in this chapter because interviews with lecturers, teachers and students mostly will be used to compare resources with previous ages.

[1] The resources are The 50th Anniversary 1954~2004 Inha University (2006)

7.2.1. Introduction: Overview of 2011 curriculum

Student teachers in Inha University have to take 130 credits such as contents of physical education (contents of discipline, professional and physical activities, 60 credits), liberal Arts (19 credits) and education studies (22 credits) for four years. Normally, one, two and three credits are one, two and three hours in theoretical units. But there were three or four hours per two credits in one unit of physical activity. And one semester was 16 weeks and one year was comprised of two semesters. In particular, the content of education studies was similar to the education studies content which disappeared in University of Bedfordshire. There are 48 units which were available to contents physical education students, (contents of discipline knowledge (22 units), professional knowledge (six units) and physical activities (22 units)) in the curriculum in 2012. Credits of units are various. Units for two credits were contents for physical activities such as Teaching Method of Handball which are done in the gym, the playing ground, and, etc. Units for two or three credits were contents for professional, discipline, liberal arts or education studies which were normally done in the classroom. Although it was a few selective units for student teachers in England, student teachers in Korea could select many kinds of units in the curriculum but the amounts of contents which student teacher had to take were similar. For example, a student teacher who was a student from 2009 to 2013 took 133 credits. It consisted of liberal arts (18 units, 47 credits), educational studies (11 units, 20 credits), contents of physical activities (18 units, 36 credits), contents of professional knowledge (4 units, 11 credits) and contents of discipline knowledge (12 units, 37 credits) (See Table 1). There were two kinds of teaching experiences. First a student teacher had to complete the Educational Volunteer Program 1 and 2. This was comprised of each 30 hours each. Second the student had to complete a Teaching Practicum in school for four weeks.

7.2.2. The analysis based on Kirk's framework

Analyzing this course with Kirk et al's components, the students could take various credits in many areas such as liberal arts, education studies, professional

units, etc the same as students in Seoul National University. Hence, I calculated the average of credits of three people who were students from 2009 to 2012. As a result, three student teachers took 36.7% for credits of units of liberal arts, 30% for credits of discipline knowledge, 15.5% for credits of education studies, 12.3% for credits of physical activities, and 6.6% for credits of professional units (see table 1). Overall, this proportion could represent all students' selection.

Table 1. The numbers, times and credits of units of physical education in 2012[2]

		All numbers which were available	Minimum standards*	A (2009-2012)	B (2009-2012)	Three students' % of credits
Contents of professional knowledge	The numbers	6	3	3	4	6.6%
	The hours per week	16	8	8	11	
	credits	16	8	8	11	
Contents of discipline knowledge	The numbers	20	6	16	12	30%
	The hours per week	56	18	46	37	
	credits	56	18	46	37	
Contents of physical activities	The numbers	22	3	12	18	12.3%
	The hours per week	88	12	48	72	
	credits	44	6	24	36	
Liberal arts	The numbers	Various	5	21	18	36.7%
	The hours per week		10	58	47	
	credits		10	58	47	
Educational studies**	The numbers	Various	-	11	11	15.5%
	The hours per week		-	16	16	
	credits		22	20	20	

*Minimum standards mean that a student teacher had to complete credits to the minimum to graduate.
**Compositions of units: educational theories: more than 14 credits, educational literacy: more than four credits, educational practice: more than four credits

We can note that the students looked not to complete credits of education studies. The reason is same as Seoul National University (see chapter 6.2.2).

Compared to Seoul National University, I was able to find more detailed resources in units of physical education in this PETE course. I analyzed these resources as follows.

Table 2. The analysis which enrolled students took units of physical education from 2009 to 2011

Years	Enrolled students' numbers	All numbers of students of three categories	Proportions and numbers of students of units			Average numbers of units which enrolled students took in the year
			discipline knowledge	professional knowledge	physical activities	
2009	236.5	1933	52.0% (1006)	10.2% (197)	37.8% (730)	8.2
2010	207.5	1584	49.4% (783)	12.1% (191)	38.5% (610)	7.6
2011	189.5	1563	51.9% (811)	12.9% (201)	35.2% (551)	8.2

[2] I made this table based on the official course catalogue, the official curriculum 2009 and appendix 1 in chapter 7

For example, enrolled students in 2011 were 189.5 people. 1563 people joined in 46 units of physical education. This means that one student took about 8.2 units for one year. And I obtained information about students' numbers each unit. Based on these resources, I made three categories the same as table 1 in units of physical education. It kept 51.9% of discipline knowledge, 12.9% of professional knowledge and 35.2% of physical activities in 2011. The result of table 2 was similar to parts of physical education of proportions of credits in table 1. Student teachers took in order as liberal arts, contents of discipline knowledge, contents of educational subjects, contents of physical activities and contents of professional knowledge. Based on this analysis, I could confirm that this result is generally similar to the course at Seoul National University.

7.2.3. The analysis based on Shulman's framework

I analyzed the curriculum through the interviews with lecturers in the same way as I did regarding the English universities. These interviews were conducted in 2011. I interviewed 10 lecturers who taught 17 units (units of physical activities: 4, units of professional knowledge: 5, units of discipline knowledge: 8) among 48 units (see table 3).

Table 3. The units which were analyzed by Shulman's components

Title of units	Content Knowledge		GPK	PCK	CCK	KEC	KLC	KEG	Lecturers' status and major
	TCK	PRACK							
Teaching of Apparatus Gymnastics		★		★	★				Present teacher
New Sports		★		★	★		★		
Teaching Method of Handball		★							
Teaching of Soccer		★		★					
Theory of Physical Education				★	★	★	★	★	Part-time lecturer (Sport pedagogy)
Sport Pedagogy Theory				★	★				
Teaching Materials and Methods in Physical Education				★	★	★	★		
Curriculum in Physical Education				★	★	★			Full time professor (Sport pedagogy)
Teaching and Learning Methods in Physical Education				★					
Introduction to Kinesiology		★				★	★	★	Full time professor (Sport psychology)
Motor Learning						★			
Sport and Exercise Psychology				★		★	★		
Leisure and Recreation						★			Part-time lecturer (various discipline except sport pedagogy)
Statistics in Physical Education						★			
Research Methods for Physical Education						★			
History and Philosophy of Physical Education						★			
Technology in Physical Education				★	★	★			Present teacher (PhD)

Overall, the results of interviews with lecturers regarding Shulman's components were similar to the PETE course in Seoul National University. However, this course was more close to PETE course than Seoul National University. Much more lecturers in the unit of physical activities taught both PCK and CK than Seoul National University because there were many teachers as part-time lecturers (see table 3). Surely, lecturers who taught units of professional knowledge taught various components of PETE. Moreover, some lecturers who taught units of discipline knowledge cared the contents of the teacher recruitment examination and PETE. I will argue these contents compared to previous courses in detail rather than only explaining the knowledge base in 2010.

7.2.4. Prioritisation of knowledge base 2012

In considering research question 2, it is clear that the first priority lies in units of liberal arts (36.7%). Second priority is units of discipline knowledge (15%). Third priority is education units (15.5%). Fourth priority is physical activities (15%). And the lowest priority is professional knowledge (6.6%) (See table1). In units of physical activities, PRACK, PCK and CCK were priorities. In addition, most unit leaders taught various components in Shuman's framework. In units of discipline knowledge, even if most lecturers taught KEC (e.g. contents of exercise physiology which were not related to contents in school subjects), some professors carried PCK, CCK in their unit. Moreover, two professors taught the contents in the TRE in their unit. In units of professional knowledge, even if student teachers learn PCK, CCK, KLC, KEG, and even PRACK, it was a very small part (6.6%) in this course.

7.3. Analysis of the curriculum from 1985 to 2011: based on Kirk et al's framework

7.3.1. Introduction: Overview of curriculum from 1978 to 2011

7.3.1.1. The change of curriculum before 1995 based on secondary resources

There have been changes of curriculum from 1978 to 2011. Head office of Inha University published "The 50th Anniversary 1954~2004 Inha University" in 2004 (see table 4).

Table 4. The division of periods of The 50th Anniversary 1954~2004 Inha University

The 50th Anniversary 1954~2004 Inha University	contents
1954.4~1960.3	Establishment and development
1960.4~1968.8	Inha Engineering college of turbulent era
1968.9~1972.2	Management of new foundation and college
1972.3~1981.2	Growing to university status
1981.3~1994.2	Finding the direction of development
1994.3~2004.2	internationalization of management of University

Even if there was a division of periods in table 4, it was not directly related to the change of curriculum in this PETE course. This means that there were no references for this one. So, I followed the periods of Seoul National University in this course because the policy of government affected this course the same as Seoul National University.

Table 5. The change of the minimum credits from 1978 to 2009[3]

Years	All credits	Liberal Arts	Educational studies	Discipline knowledge	Professional knowledge	Physical activities	Teaching experience
1978-2003	140	?	?	?			4 weeks
2004-2008	140	16	8	54			
2009~	130	19	22	60			4 weeks+ 60 hours

As you see table 5, it was difficult to find original resources and secondary resources before 2004 in this course about minimum credits each areas. So I have analyzed the curriculum before 2004 using students' report cards (See table 6). The hours of units in the curriculum has been kept one hour per one credit, two hours per two credits and three hours per three credits for units which done in the classroom since 1978. However, units of physical activities had been kept two hours per one credit from 1985 to 2008 changing that two credits were three or four hours (twice a week) for physical activities in 2009. Explaining table 5, it

[3] This table was made based on the official law and the bylaw of Department of Physical education.

was 140 credits from 1978 to 2008. After that, it has been 130 credits reducing by 10 credits since 2009.

7.3.1.2.The change of curriculum after 1985 based on primary resources: the reasons of divisions from 1985 to 2009

I will argue the curriculum with original resources from 1985. I selected each two students' report cards from 1985 to 2008 and three cards in 2009. Among them I excluded some cards because they did double major or joined the army during the course. It was difficult to divide the periods of this course because I did not obtain the information of official change of the curriculum before 2000. After 2000, there were several small changes of the curriculum and it there were big changes in 2009, the same as Seoul National University. Because of this deficient information, I divided into each five years except the curriculum in 2009.

Table 6. The change of credits and proportions of credits which student teachers took according to the transition of credits from 1985 to 2009[4]

Years (numbers of students)*	Liberal Arts	Education studies	Units of physical education			sum
			Contents of discipline knowledge	Contents of professional knowledge	Contents of physical activities	
1985~1989 (10)	48.5 (33.4%)	22 (15.2%)	32.6 (22.5%)	4 (2.8%)	38.1 (26.2%)	145.2
			74.7 (51.4%)			
1990~1994 (10)	50.5 (35.1)	20.6 (14.3)	35.8 (24.9)	4 (2.8)	32.8 (22.8)	143.7
			72.6 (50.5)			
1995~1999 (9)	56 (39.9)	18.7 (13.3)	34.2 (24.4)	6.9 (4.9)	24.6 (17.5)	140.4
			65.7 (46.8)			
2000~2004 (8)	66.1 (45.6)	10.3 (7.1)	36.6 (25.3)	10.9 (7.5)	21 (14.5)	144.9
			68.5 (47.3)			
2005~2008 (8)	52.5 (38.3)	10 (7.3)	40 (29.2)	13.3 (9.7)	21.3 (15.5)	137.1
			74.6 (54.4)			
2009 (3)	49.7 (36.6)	21 (15.5)	39.3 (30)	9 (6.6)	16.7 (12.3)	135.7
			65 (47.9)			

*1985 means that one student had completed this course from March 1985 to February 1989 four years. Other years have same meaning.

[4] This table is a summary of the resources that I analyzed units which student teachers took from 1985 to 2009. There is in detail resources in the appendix 1.

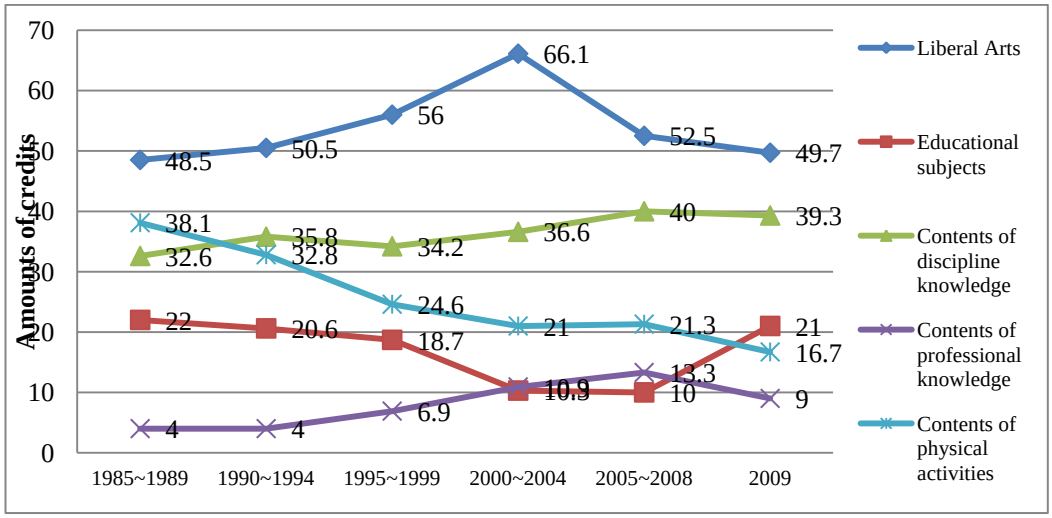


Figure 1. The change of credits which student teachers took according to the transition of credits from 1985 to 2009

I am going to explain table 6 and figure 1.

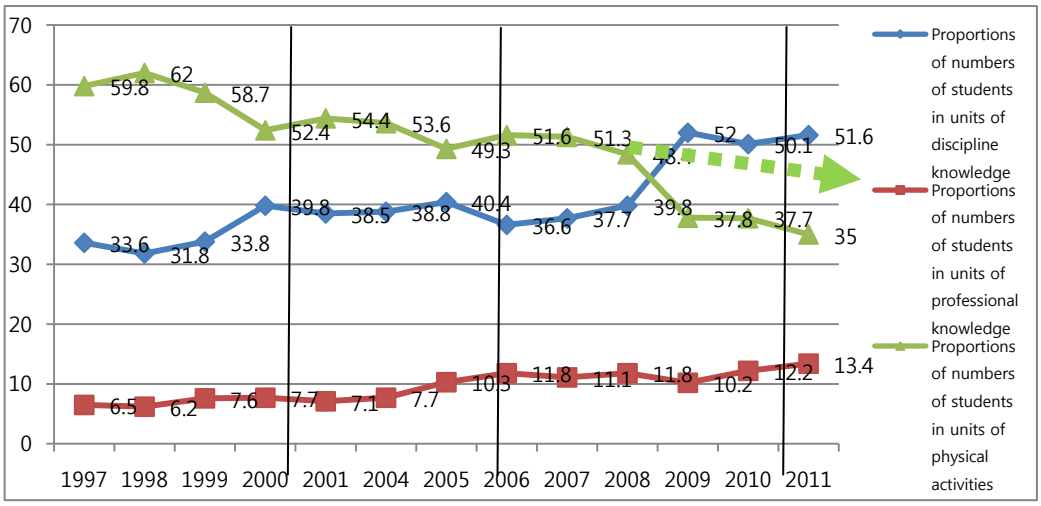
Liberal arts have occupied the biggest credits and proportions (48.5~66.1 credits and 33.4%~45.6%) for the whole period if we regarded units of physical education as three areas. Even if the minimum credits of liberal arts have been 16~19 credits (see table 6), student teachers took about 50 credits.

The credits of education studies which student teachers took for those periods fluctuated from 10 to 21 credits. The credits had reduced from 22 to 10 credits between 1985 and 2008. However, it suddenly increased to 22 credits in 2009 from 10 credits in 2008. This situation was the same as Seoul National University because it was the order from the Ministry of Education.

When analyzing the units of physical education, even if the proportions of credits have reduced from 51.4% in 1985s to 47.9% in 2009, it has been difficult to judge whether the proportions of credits in physical education have reduced or not because there was a fluctuation such as 74.6% in 2005 and the numbers were too small to judge it such as just three students in 2009. Considering the change of amounts of units in physical education, I concluded that student teachers took various credits fitting into minimum credits of that such as 54 credits from 2004 to 2008 or 60 credits in 2009 and the proportions of credits of physical education

have been the largest keeping over 45% as a main study for the whole period.

Comparing three areas (professional, discipline and physical activities areas) in physical education, the units of professional knowledge gradually increased from four credits to nine credits. In fact, there were six units for professional knowledge between 2006 and 2009, among them, three units were optional. In 2009, three student teachers just selected three compulsory units. Because of this, it looks like there is a reduction in the units between 2008 and 2009. However, considering the proportions which students have selected units of professional knowledge were similar from 2005 to 2011 (see figure 2), these three students just took a fewer units than average. The units of discipline knowledge gradually increased from 32.6 credits to 39.3 credits. The proportion of reduction of credits of physical activities has been quite large as the reduction of 21.4 credits (13.9%). By the way, comparing the change of units between 2008 and 2009, because of the increase of education studies from 10 credits to 21 credits, units of discipline and professional knowledge, units of physical activities reduced in 2009. This trend of units of physical education has been confirmed more in detail resources as follows. I analyzed the units which enrolled student teachers took from 1997 to 2011.[5]



*In this graph, there were no the unit of Student teaching which was opened in 201 and no data in 2002 and 2003.

Figure 2. The proportions of units student teachers took of physical education from 1997 to 2011

[5] There were in detail resources in appendix 2 in chapter 7.

Comparing table 6, this figure shows more years from 1997 to 2011. Explaining each category, the proportions of discipline knowledge have had three sections. It had kept about 33% from 1997 to 1999 and kept about 38% from 2000 to 2008 increasing about 5% compared to 1999. The proportions rapidly increased by about 13% in 2009 staying at 51% from 2009 to 2011. The change of proportions of units of physical activities has four sections reducing from 60% to 35%. First, it kept about 60% from 1997 to 1999. Second, it kept about 53% from 2000 to 2004. Third, it kept around 50% from 2005 to 2008. Fourth, it kept about 37% from 2009 to 2011. It decreased about 5% at interval of 5 years from 1997 to 2008. And there was a sharp decrease (about 13%) in 2009. The proportions of units of professional knowledge had increased gradually from 6.5% to 13.4% for 15 years. Especially, the growth has started since 2005 which new units have been opened. In this graph, there were four intervals according to the change of three categories. The point was 2000, 2005 and 2009. This point was overlapped the periods of change of curriculum. There had been small changes of curriculum in 2000, 2005 and there was a big change in 2009. By the way, this graph will be changed a little bit considering the hours of units because the units of physical activities in 2009 were changed as two credits. So, even if student teachers have selected fewer than before 2009, the amounts of hours which student took had been similar or decreased a little bit since 2008 as a dotted line in figure 2. Based on this result, I will argue more in detail the reasons of this change of units of physical education in the next sections.

7.3.2. Units of professional knowledge: the growth of units

The process of the development from inadequate theories to adequate theories from 1978 to 2012 was similar to the result of Seoul National University. However, the speed was more rapid than Seoul National University because this course has concentrated more on PETE courses. The process of increasing units is as follow (see table 7).

Table 7. The overview of change of units of professional knowledge from 1985 to 2012

Years	Proportions of numbers of students in units of professional knowledge	Numbers of unit	Units	Units of professional knowledge which student teachers for four years took (% of them per all)	Periods
1985~1996	No data	2	Theory of Physical Education (compulsory) Teaching Materials and Methods in Physical Education (compulsory)	4 credits (2.8%)	1985~1989 (10)
				4 credits (2.8%)	1990~1994 (10)
1997	6. 5% (186/2853)*	3	Above two units + Curriculum in Physical Education (optional)	6.9 credits (4.9%)	1995~1999 (9)
1998	6.2% (163/2637)				
1999	7.6% (192/2538)				
2000	7.7% (174/2247)			10.9 credits (7.5%)	2000~2004(8)
2001	7.1% (154/2168)				
2002	No data				
2003	No data				
2004	7.7% (205/2679)				
2005	10.3% (288/2801)	4	Above three units + Teaching and Learning Methods in Physical Education (Optional)	13.3 credits (9.7%)	2005~2008 (8)
2006	11.8% (323/2733)	5	Above four units + Sport Pedagogy Theory (Optional)		
2007	11.1% (296/2669)				
2008	11.8% (309/2608)				
2009	10.2% (197/1933)			9 credits (6.6%)	2009 (3)
2010	12.2% (191/1563)	6	Above five units + Student Teaching (compulsory)*	-	-
2011	13.4% (211/1563)			-	-

*students' numbers who joined in units of professional knowledge/All numbers of students of three categories
**there was no count of the unit of Student Teaching in proportions of numbers of students in units of professional knowledge and it was counted in units of professional knowledge which student teachers for four years took in 2009.

There has been the growth of units. They were just two units for professional knowledge from 1985 to 1996 for 11 years. After that, one more units (Curriculum in Physical Education in 1997) opened in 1997. After seven years later, the units have urgently increased. It opened Teaching and Learning Methods in Physical Education in 2005 Sport Pedagogy Theory in 2006 and Student Teaching in 2010. Three new units were opened for 2005 to 2010 for five years. Compared that just one unit increased from 1985 to 2004 for about 20 years, this increase for five years was astonishing. Among four new units, three units were optional. It was a kind of consideration for students who do not want to prepare to become a teacher. However, the proportions which students took those units have gradually increased from 6.5% in 1997 to 13.4% in 2011. The increase of units was faster

than those units of Seoul National University about five years (Units in Seoul National University have increased since 2009 from two units to three units in 2010). This trend was confirmed in report cards of student teachers. Credits which 10 student teachers each period (about 5 years) have increased from 4 credits to 13.3 credits for about 25 years.

The professor who was in charge of professional knowledge explained the background of the reason why they could increase these units:

> There have been many students who want to take the teacher recruitment examination compared to students in Seoul National University. Normally, they want to be a teacher from first year student. Because of this reason, it was easy to make process my classes having the premise that I can educate student teachers in my class (Professor1 Inha University and previous student4 Seoul National University).

She explained the different perspective between students in Seoul National University and students in Inha University. Because of this reason, she has been able to increase units of professional knowledge since 2005. Moreover, there was a passive aspect in the change of the course in Seoul National University in 2009 because they changed their course to prepare the TATTI in 2010. Compared to this change, the change in Seoul National University was more spontaneous in terms of changes of long term (five years from 2005 to 2009) before the third assessment.

7.3.3. Units of discipline knowledge

7.3.3.1. Diversifying of units and increasing students' choice

Although the first priority in this course has been to educate student teachers, there have been the most units of discipline knowledge in this PETE course. Units of discipline knowledge have increased from 15 in 1979 to 23 units in 2009 and the proportions which student teachers took these units increased from 1997 to 2009 (see figure 2 and table 9). Table 8 is the change of units from 1979 to 2009.[6]

[6] There are in detail resources in appendix 5 in chapter 7.

Table 8. The change of units of discipline knowledge from 1979 to 2009

Years	New units	Abolitions	Separations and amalgamations
1980s	-	First aid Special lecture of physical education Instruction of coaching	Sports Physical Education & Human anatomy was divided into two units (Sports Physical Education, Human anatomy).
1992	Sports Introduction	-	-
1997	Instruction of Recreation Exercise Prescription Sports Nutrition	-	-
1999	Sports Injury Treatment I, II	-	-
2005	Motor Learning and Performance	-	-
2006	Introduction to Kinesiology		
2007	Technology in Physical Education		
2009	Logical and Writing in Physical Education Trends in Contemporary Sports Statistics in Sports	Reading for Original Texts of Physical Education	History of Physical Education and Principles of Physical Education merged with one unit (History and Philosophy of Physical Education) Instruction of Recreation and Recreation merged with one unit (Leisure and Recreation) Sports Injury Treatment I, II merged with one unit (Sports Injury Treatment)

There were no big changes from 1979 to 1999. On the other hand, there were several changes from 2005 to 2009 because new professors hired from 2000 tried to change this course to make it more suitable for the PETE course. During this change, there were also many changes in discipline knowledge (see table 8). However, it was difficult to find the reasons why student teachers selected more units of discipline knowledge than in the past based on my interviews and official documents because the minimum credits which student took for discipline knowledge did not increase for the whole period. However, I infer that the reasons for this are based on the change of this course and social situations. Student teachers selected more units of discipline knowledge rather than units of physical activities because the importance of physical activities in the TRE reduced, rather than the importance of discipline knowledge in that exam increasing.

Table 9. The numbers of units of discipline knowledge between 1979 and 2009[7]

Years	1979	1986	1992	1997	2005	2009
The numbers of units of discipline knowledge	15	15	16	19	21	23
The numbers of these units that two students selected	No data	Both 11	12 and 13	13 and 15	Both 14	12,12 and 16*
The proportions of numbers of students in units of discipline knowledge in units of physical education	-	-	-	33.6% (960/1770)	40.4% (1132/1434)	52.0% (1006/1563)

*I selected three students in 2009

7.3.3.2. Increasing but still weak connection between units of discipline knowledge and PETE

The connection between units of discipline knowledge and PETE has increased since 2000 because two professors who majored discipline knowledge as part of their PhDs have directly tried to teach the contents of TRE and PETE. As you see table 10, there are six professors in the course as follows.

Table 10. Professors in Inha University

Staffs	degree	PhD degree from	Major	Year which was hired
Dr 1	PhD	KOR	Exercise physiology	
Dr 2	PhD	KOR	Biomechanics	
Dr 3	PhD (Former teacher)	KOR	Sport pedagogy	2000
Dr 4	PhD	USA	Sport statistics	2002
Dr 5	PhD	USA	Sport Psychology	2003
Dr 6	PhD	USA	Sport management	2009

Most units of discipline knowledge in Inha University are mainly composed of these professors' subject expertise and the subjects TRE such as Exercise physiology, Biomechanics, etc. Although there have been some increases in discipline knowledge, there has been not a big difference of structure of curriculum of discipline knowledge. The change has occurred in the contents inside of units of discipline knowledge since the early 2000s. Two professors who were experts in sport statistics and sport psychology played a leading role in this change. They are traditional scholars in kinesiology who finished their PhDs in the USA. Nevertheless, they started teaching their themes such as sport statistics

[7] There are all titles of units in appendix 3 in chapter 7.

or sport psychology related to sport pedagogy or TRE. They are relatively new professors who were hired in 2002 and 2003. Even if they did not study the content related to sport pedagogy or PETE, after being hired Department of physical education, they tried to make new units to be suitable student teachers. It revealed their class syllabus.

A professor has taught usual contents in school based sport statistics

First, I explain the class syllabus of Measurement and Evaluation in Physical Education.

> I will be able to draw and estimate variables in physical education and study the process to collect data objectively and reliably. And I will study statistical ways about evaluations which is the process to give a value for estimated results. (The outline in class syllabus in 2002 in Measurement and Evaluation in Physical Education)

When he was hired in Inha University in 2002, his syllabus of Measurement and Evaluation in Physical Education looked the same as a typical sport statistical syllabus in the Department of Kinesiology. His lecture had been changed since 2003 mentioning directly school evaluation in there. And the title of "Measurement and Evaluation in Physical Education" changed to "Evaluation Outcomes in Physical Education" from 2005 to 2007. During the periods, the contents were completely changed for student teachers who want to teachers as follows.

> I will obtain theories to carry out proper assessment in secondary school and practice this content to use it in school. There are many contents to develop teacher's professionalism for student's assessment such as making real tools to do technical evaluation, physical strength evaluation, physical activities evaluation, evaluation of affective domain, objective evaluation and performance assessment. (The outline in class syllabus in 2012 in Measurement and Evaluation in Physical Education)

This title has changed to the original title as Measurement and Evaluation in Physical Education since 2008. The contents of syllabus and directions of the class were the same as in 2007. After he was hired in PETE course, he has tried to

change the class to be more aligned to a PETE course than a normal statistical class. This professor tried to make student teachers develop their ability of actual evaluation and assessment in school including teaching TRE.

A professor has taught contents in the TRE based on sport psychology

Moreover, another professor who study sport psychology had a slightly different direction to develop student teachers' ability in his class. The main contents of his units of Motor Learning and Psychology have been not for student teachers but for students who study kinesiology since 2003 when he was hired. This means that even if KLC such as students in school was just a small part in that unit, because sport psychology and motor learning is very important part in the TRE in Korea, he has taught many contents related to that exam for student teachers.

> 2) Practice for the teacher recruitment examination: student teachers have to practice making questions and answers for themselves to prepare questions for multiple choices and essay tests in the teacher recruitment examination. The assignment will be evaluated every week and student teachers have to have his file for that and submit the file at the end of term. (One content in the middle of class syllabus in 2009 Motor Learning and Psychology)

His above teaching content in 2007 was not the same as his first year in 2004. He also taught normal contents of sport psychology in his units from 2004 to 2007. His care for TRE occurred in the unit of Motor Learning and Performance in 2008 as follow:

> Assignments for main teaching material chapter 2: questions and explanations of teacher recruitment examination during these five years. (Class syllabus of Motor Learning and Performance in 2008)

This content was a very small part in his unit overview. Based on this experience, he put previous contents in 2009 in his unit as a main purpose. It was a very helpful unit for student teachers who have to have TRE because this exam is very difficult and complex. He mentioned his change as follows:

> I think that if student teachers learn the contents of teacher recruitment examination it would be better to them because it is helpful for student

> teachers who prepare that exam. And we belong to the faculty of education. For example, when I taught leadership to student teachers, before starting class, I showed material from the last exams. It made students have interesting for my units. Although that unit was for second year students, when they become fourth year students, they have to take that exam, it was helpful. And I had them make questions of the exam because they could understand the intentions of making questions (Course leader Inha University who taught units related to sport psychology).

This interview shows that his development of units was own endeavour during his teaching experience for four years. Considering that discipline knowledge in Korea just came to the curriculum of PETE without critique following the curriculum of developed countries, these two cases of professors are meaningful because it contributed to change and development in Korea. Although these trends originated from professors who were interested in sport pedagogy majoring in kinesiology rather than sport pedagogists, as it is an official policy that a lecturer who teaches a unit related to TRE in Inha University have to teach with this style, it is a special event in Korea to develop discipline knowledge in PETE. However, there is a limitation because there is still professors' own discretion for teaching contents and methods.

Weak connection between units of discipline knowledge and PETE

Does this method works in the education of student teachers? I could confirm this effect through interview with student teachers who studied from the 1990s to the 2000s in Inha University.

> I learned much scholarly knowledge rather than the way to teachers. First of all, the level of units for discipline knowledge was too much high in terms of study. I was wondering whether I was able to use the discipline knowledge in school or not. It was my big agony because I could not understand it (Teacher1 Inha University who was a student from 2002 to 2008)

> I was deeply impressed the professor who taught sport psychology because I could remember his teaching content during the preparation of the teacher recruitment examination. It is so helpful for my exam (Student1 Inha University studying teacher recruitment examination from 2006 to 2011)

In these interviews, teachers who were students in the 1990s and early 2000s had never experienced proper units of discipline knowledge to become teachers. On the other hand, many student teachers and present teachers who have been a student since the middle of the 2000s mentioned that the above two professors were helpful when they prepared the TRE or were to become teachers. This means that their new curriculum had an influence on present student teachers. However, there was still a gap between contents of discipline knowledge in TRE and contents of discipline knowledge in units in Inha University.

> What professors taught were more scholarly and had their values. It was a little bit difficult to view objectively. And then, I had to summarize and rearrange relevant contents (in broad areas in discipline knowledge to prepare the contents of the teacher recruitment examination) because they intensively taught things which they learned (Student1 Inha University in 2011)

This fourth year student teacher was preparing for the exam in 2011. Even if some professors help these contents for that exam, she mentioned that there was a gap between the contents which they taught and the contents of that exam, because of this problem, most students who prepare this exam joined in the private academy to learn additional contents. She had to also join in that private academy the same as them. This means that even if some professors have tried to teach the contents of prepare the TRE, there was still a gap between them.

7.3.3.3. Trying to teach other areas except PETE

Meanwhile, one professor who majors sport management was hired in 2009. He was a senior lecturer in the department of physical education or sport study rather than PETEr from English PETE perspective because units of sport managements are not directly related to PETE and are not included in TRE. However, there is a particular situation in Korea. One professor mentioned his appointment as follows.

> The reason why we hired the professor was that there were many students who wanted to study sport management in our graduate school. We need to those kinds of professors for graduate students. And we can give another education for student teachers who want to get another job except a teacher through his management classes. (Professor1 Inha University

who joined in the committee of professor recruit)

I could confirm that his appointment was not directly related to PETE. However, it was a reasonable choice in Korea because they need training of other types of sport areas careers considering the less than 10 % employment rates of teaching jobs in school.

7.3.4. Units of physical activities

7.3.4.1. Systematization of units of physical activities

When there was a small curriculum change in 2005, there was a reduction of credits in gymnastics (8->5), athletics (6->5) and an increase of credits in dance (4->6). As can be seen in table 11, there were 15 units of games from 1997 to 2008. Compared to the unit of physical activities in Seoul National University, most games opened twice. For example, in 2008, there was Football 1 in the first semester and Football 2 in the second semester. However, there was a big change in 2009. The purpose of this change is to allow more practical education to be suitable for PETE. For example, there were two swimming units (two hours a week) in each semester in 2008. Those separate two unit combined into one unit (four hours (twice) a week). Many teachers in school were hired as a part-time lecturer to teach student teachers these units.

Table 11. The change of amounts of units of physical activities from 1997 to 2012[8]

	1997-2004		2005-2008		2009-2012	
	Credits	Numbers of units	credits	Numbers of units	credits	Numbers of units
GYM	8	8	5	5	4	2
ATH	6	6	5	5	6	3
Swims	2	2	2	2	4	2
Games	15	15	15	15	12	6
Dance	4	4	6	6	4	2
Weight training	-	-	-	-	-	-
Martial arts	3	3	3	3	2	1
archery	-	-	-	-	-	-
OAA	1	1	2	2	4	2
Winter sports	1	1	1	1	2	1
ETC					6	3
Numbers	40	40	39	39	44	22

[8] There are all titles of units in this table 13 in appendix 4 in chapter 7.

As shown in appendix 4 in chapter 7, most units were changed from two hour unit (once a week) to four hour units (twice a week). The professors who were in charge of the change of curriculum judged there were not big differences between Swimming1 and Swimming2 because many student teachers mentioned a repetition of similar contents and there were no connections between the two units due to different unit leaders being in charge every year. Because of these reasons, they designed this new style's units:

> Unit leader should include making teaching plans and practicing teaching rehearsal (micro-teaching) for student teachers.
> We ask you to teach contents in teacher recruitment examination for student teachers. Many student teachers in this university prepare it in many regions. Please put making teaching plans and practicing teaching rehearsal (micro-teaching) for student teachers into your lecture. As are frequently pointed out, these components are very important to teacher recruitment examination (Guidebook for part-time lecturers in Inha University, 2009).

This was a guidebook for part-time lecturers to teach units for physical activities. The connection between PRACK and PCK and CCK was emphasized by this document for student teachers. It was a very special change in Korea. One professor who was a chair during the change mentioned that:

> There were some important works while I was a chair in this department. There was an opportunity to change our curriculum in 2009. It was a time of big reform. We revised the curriculum and summary of units to be suitable for our big frame such as purposes or philosophy. For example, we asked a part-time lecturer for history of physical education to teach the content of teacher recruitment examination and a part-time lecturer for physical activities to teach making teaching plans and practicing teaching rehearsal (micro-teaching) for student teachers. Student teachers can learn contents of teacher recruitment examination and real contents for school through these lecturers. To realise this purpose, we hired many physical education teachers as a part-time lecturer. Moreover, units of physical activities in the past were one time (two hours) per week. It was wrong concept in terms of exercise principles. At least, we need to do three times per week to develop physical abilities. As a result, we made units of physical activities as two times (all four hours) per week. I think there were no classes in Korea like our classes of physical activities such as four hours a week (Course leader Inha University).

He explained the revision of the curriculum in 2009 in Inha University in detail. Even if there were some similar units of physical activities in Seoul National University, it was a single lecturers' belief for student teacher education rather than a university level strategy. However, this change was a first official attempt to make a proper PETE course in Korea. He stressed that it was not an improvised revision rather they had prepared for several years for this revision. For example, they have put PhD students or physical education teachers into many lectures because they followed their purpose and ethos. And units of sport pedagogy as theory have increased since 2003. I have confirmed this change through my interviews. Many teachers who graduated in the middle of 2000s nearly did not mention these styles' units.

> I learned high level of physical activities in my units of physical activities. It was difficult to teach students in school (Teacher8 Inha University who was a student from 1999 to 2004, sixth year teacher).

> Many unit leaders taught me such as just students in school. I did not learn about PCK. They focused on the development of ability of physical activities (Teacher4 Inha University who was a student from 2000 to 2005, sixth year teacher).

Teachers who were students from 1999 to 2005 remembered their units as just learning physical activities because the policy which lecturers have to teach all kinds' of components in the unit of physical activities had only started officially in 2009. So, student teachers who were a student from 2008 had different opinions as follows:

> My unit title in first year was Gymnastics in 2008. When I was a second year, it was changed to Teaching of Gymnastics. We have learned teaching plan, micro-teaching and role play in units of physical activities (Student1 Inha University from 2008 to 2012, preparing TRE).

> Q: Have you learned PRACK and PCK together in physical activities' class?
> A: I have mostly learned like that. We formed a group. And I had to teach the group such as shoot and pass something like that and make a teaching plan. Sometimes I became a teacher to teach my colleague.
> Q: were all units of physical activities like that?

A: Yes. (Student1 Inha University from 2009 to 2013, preparing TRE)

These two current student teachers explained that they were taught in most units of physical activity about making teaching plans, doing micro-teaching and role play learning. As a result, the students studying from around 2009 onwards, learned more integrated units of physical activities than previous cohorts. This result was different compared to the result of Seoul National University. I mentioned that their access for physical activities in Seoul National University were not effective until recently. Compared to their ways, I confirmed that this style of units were more effective to develop student teachers' teaching skills and learning physical activities, itself.

7.3.4.2. The unexpected reduction which student teachers took units of physical activities

I collected student teachers' report cards from 1987 to 2009. I calculated the amounts of credit and the proportions of credits in the units of physical activities in intervals of five years. The results are shown in table 12. According to table 12, the proportions of physical activities student teachers took have reduced from 26.2% in 1985 to 12.3% in 2009. This result was confirmed by another result displayed in more detail in table 13.

Table 12. The reduction which student teacher took units of physical activities among all units from 1985 to 2009

Years (numbers of students)*	The credits of Units of physical activities and proportions of it
1985~1989 (10)	38.1 credits (26.2%)
1990~1994 (10)	32.8 (22.8%)
1995~1999 (9)	24.6 (17.5%)
2000~2004 (8)	21 (14.5%)
2005~2008 (8)	21.3 (15.5%)
2009 (3)	16.7 (12.3%)

*1985 means that one student had completed this course from March 1985 to February 1989 from four years. Other years have same meaning.

I counted the numbers of students who joined in units of physical activities and all units in each year from 1997 to 2011 and is displayed in table 13 below. In table

13, the reduction rates that student teachers selected units of physical activities were rapid from 48.4% in 2008 to 37.8% in 2009 as about 10% difference. Compared to the fact that there had been a gradual reduction from 59.8% in 1997 to 48.4% in 2008 as about 11.4% for 10 years, the rates of decrease in 2009 looked very rapid. However, the actual reduction rates seem to be lower than 11.4%. Even if student teachers selected fewer units of physical activities in 2009 compared to previous years, because the credit of physical activities increased from 1 credit to 2 credits in 2009, reduction proportions of units of physical activities that student teachers took seemed to be less than 11.4%. This means that student teachers' joining rates for units of physical activities have gradually reduced from 2008 to 2011 the same as previous time from 1997 to 2008.

Table 13. The reduction which student teacher took units of physical activities among units of physical activities from 1997 to 20011

years	Fixed numbers	Enrolled students	Proportions of students' numbers in units of physical activities	Numbers of units	All credits	The hours of units
1997	240	No data	59.8% (1707/2853)*	44	44	88
1998			62% (1636/2637)	42	42	84
1999			58.7% (1489/2538)	42	42	84
2000			52.4% (1177/2247)	39	39	78
2001			54.4% (1179/2168)	39	39	78
2004		239	53.6% (1435/2679)	38	38	76
2005		253	49.3% (1381/2801)	34	34	68
2006		252	51.6% (1410/2733)	35	35	70
2007	230	244.5	51.3% (1368/2669)	38	38	76
2008	220	237.5	48.4% (1262/2608)	34	34	68
2009	210	236.5	37.8% (730/1933)	22	44	88
2010	200	207.5	37.7% (610/1563)	22	44	88
2011	200	189.5	35.0% (551/1573)	22	44	88

*(Students' numbers who joined in units of physical activities/All numbers of students of three categories)

This reduction had unexpected consequences for the professors who made this plan. One professor explained the reason as follows.

> The biggest problem is that there were less than 10 student teachers in the unit of physical activities because education studies (22 credits) became compulsory in 2009. There were no students in optional units in physical activities. It was a big problem in Korea. They increased educational units too much. It was common situations in other subject such as math, English, etc (Professor1 Inha University)

She explained the unexpected consequences which meant that student teachers could not join in units of physical activities. Seeing table 13, even if student teachers' numbers have been reducing in one unit in physical activities because the fixed numbers of students reduced from 244.5 people in 2007 to 189.5 people in 2011 increasing units of physical activities from 34 credits in 2008 to 44 credits in 2009, the decreasing proportions were too big from 48.4% in 2008 to 37.7% in 2009. This means that the increases of education studies as compulsory units have affected the reduction of physical activities in this PETE course. I can confirm the increase of education studies which the professor mentioned as follows.

Table 14. The change of credits of education studies from 1985 to 2009[9]

One student	A student in 1985-1989	B student in 1995~1999	C student in 1999~2003	D student in 2005~2009	E student in 2008-2012	F student in 2009-2013
credits	22 credits	19 credits	13 credits	8 credits	10 credits	20 credits

I selected one student who selected the minimum credit each year. The credits of education studies had decreased gradually from 22 credits in 1985 to 10 credits in 2008, a period of 23 years. However, in 2009 it returned to the 1985 number of credits – student teacher 'F' in 2009 had to take 20 credits similar to student 'A' in 1985. Student teachers had to decrease their credits in other area because the 20 credits for education studies were compulsory. Based on this result, I concluded that student teachers normally selected fewer units of physical activities in order to take units education studies. In addition, there was another reason as one student mentioned as follows.

> It was a kind of an obstacle to make a time table because there were four hours per two credits. Other theoretical units were two hours per two credits. When it was two hours per one credit, it was relatively easy to make a time table. After taking four hours per week (twice a week), it was uncomfortable to arrange other units. Moreover, it took more times while I was moving from lecture classes to places for physical activities (Student1 Inha University who was a student from 2008 to 2011).

[9] There is in detail resources in appendix 1

After the unit of physical activities changed from two to four hours, student teachers felt that it was a little bit burdensome even if it was two credits as it was for four hours a week. This was one of the reasons why student teachers took units of physical activities less than in the past. Moreover, comparing units of discipline and professional knowledge were two hours per two credits or three hours per three credits, as I mentioned similar contents in Seoul National University, the status of units of physical activities in this PETE course was also less than theoretical contents in Korea.[10]

7.4. Conclusion from 1978 to 2012

It is an answer to research question 2. I could conclude based on two options such as amounts of credits and contents the as Seoul National University.
First, considering amounts of credits, the first priority changed in the 1990s from physical activities to discipline knowledge. For example, units of discipline knowledge have become a first priority increasing the proportions of credits from 22.5% in 1985 to 30% in 2009 and units of physical activities has become second priority reducing from 26.2% in 1985 to 16.7% in the 2009. And even if units of professional knowledge have been increased from 2.8% in 1985 to 6.6% in 2009, the proportions were the lowest for whole period (see table 6).

Second, considering contents in this PETE programme in detail, although mainly PRACK had been a first priority from 1985 to 2008, PCK and CCK based on PRACK have been priorities in units of physical activities since 2009 because of the change of the official curriculum in 2009. For this reason, most unit leaders taught various components in Shuman's framework. In units of discipline knowledge, before the 2000s, most lecturers taught just KEC in units of discipline knowledge, (e.g. contents of exercise physiology which were not related to contents in school subjects). After the 2000s, some professors taught CCK related to school and contents in the teacher recruitment exam based on KEC, and

[10] There is more in detail contents in chapter 8.5.6.

even if there have been faster developments in units of professional knowledge since the early of 2000s rather than the development since 2009 in Seoul National University, as I mentioned before, the influence on student teachers have been limited because of the inadequate amounts of units of professional knowledge compared to other units same as Seoul National University.

As a result, the first priority in terms of amounts of hours 1970s to 2010s has changed from physical activities to discipline knowledge developing these units based on PETE. And even if units of professional knowledge have increased and developed in terms of number of hours and content, the units have still been a small proportion in this programme.

7.5. Conclusion of four PETE programmes

I have researched the change of knowledge base in four PETE programmes in England and Korea and the priorities (RQ1) among various knowledge bases based on Kirk et al and Shulman's frameworks (RQ2). I confirm specific features in terms of each PETE programme and in each country. This means that there have been various elements between four PETE programmes. Based on these results, in the next chapter, I will explain common and different characteristics comparing the two countries (RQ3) and argue the reasons of those features (RQ4) and elucidate the interrelationship in detail between knowledge base Kirk et al and Shulman's framework (RQ5).

8. Discussion: Comparison of four PETE courses

8.1. Introduction

In the literature review chapter, I firstly considered the perspectives of Goodson (1993) and Kirk (2006) on social constructionism. While Goodson (1993) highlighted the historical changes of curricula in school showing various components of these changes, Kirk (2006) discussed that academicisation was an important component in the historical development of PETE curricula. Their studies reflect that the curriculum had undergone many contestations. Secondly, I discussed the perspective of comparison concluding that comparison itself was meaningful. In this chapter which has a focus on comparison, I examine how these four PETE programmes have developed and why these changes happened based on these two perspectives.

Although the PETE courses in the two countries have developed based on very different backgrounds, there have been very strong similar trends. However, there have also been specifically different contexts. In other words, I will debate local similarities and differences in terms of big trends of PETE in two countries. For example, while professional knowledge in both countries has developed, there has been an explosive increase in units related to professional knowledge in England where, on the other hand, there have been very slow increases of such units in Korea.

Next I consider why these programmes have changed in this way. This is the perspective of social constructionism. I will examine the impact of academicisation on the reasons and momentum of such changes. For example, what were the reasons for the increase in professional knowledge in two countries? Why did it change in England faster than in Korea?

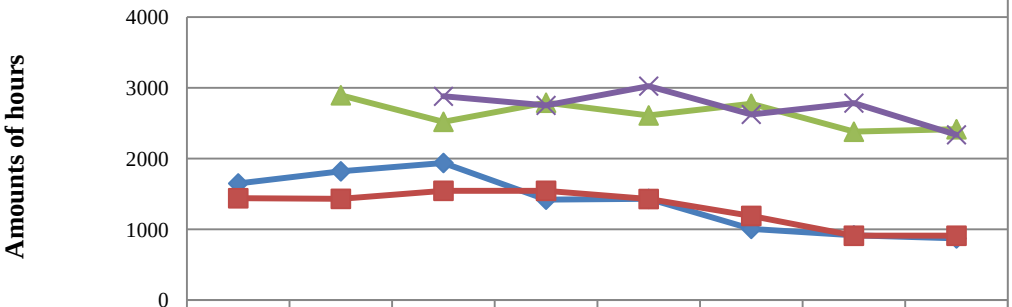
Based mainly on these two perspectives, I formed 14 sections such as comparison of professional knowledge, discipline knowledge and physical activities, etc. Moreover, this chapter responds to research question 3, 4, and 5.

8.2. Comparison of changes in four PETE courses

8.2.1. The change of amounts of hours for the whole period

As you see table 1, the amounts of hours of the curriculum reduced in all four PETE course from 1970s to 2010s.

Table 1. The change of the hours of all subjects from 1970s to 2010s[1]



	1970s	1975s	1980s	1985s	1990s	1995s	2005s	2010s
Bedfordshire	1649	1820	1938	1420	1431	1007	915	872
Brighton	1440	1431	1545	1545	1429	1190	910	910
Seoul		2895	2520	2790	2610	2775	2380	2415
Inha			2880	2752	3024	2624	2784	2336

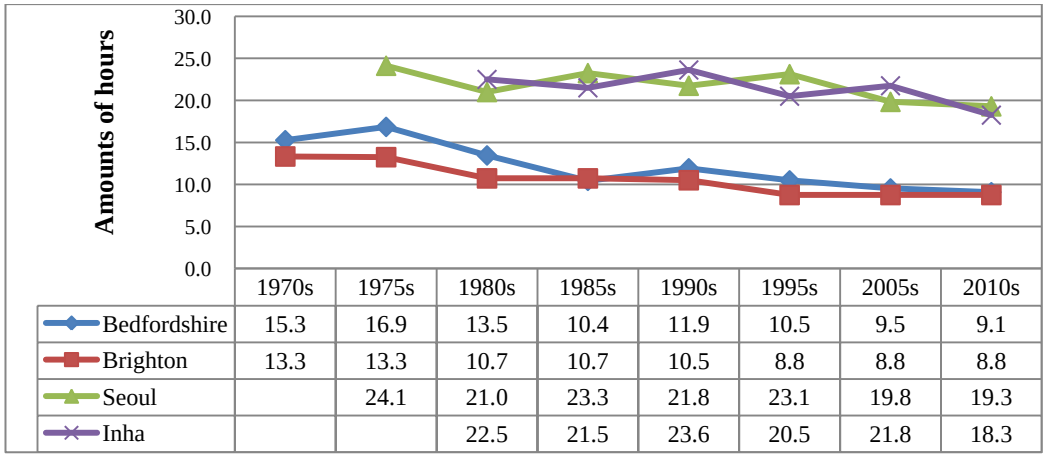
In England, the amount of hours in University of Bedfordshire from 1969 to 1982 had reduced from about 1800 hours in 1975 to 1420 hours in 1985. After that time, the reduction has continued from 1420 hours in 1985 to 910 hours in the 2000s (See Table 1). Similarly, the amount of hours in University of Brighton had increased by about 100 hours from 1440 hours in 1972 to 1545 hours in 1983 but remained as 1500~1600 hours from1983 to 1989. After that, the amounts of hours have gradually reduced from 1598 in 1989 to 910 hours in 2011.

In Korea, the amounts of hours in Seoul National University remained at around 2500~2800 hours from 1975s to 1995s. Because of the reduction of credits from 140 to 130 in 1996, the amounts of hours have reduced from 2775 hours in 1995 to 2415 hours in the 2010s. The amounts of hours in Inha University had kept the 2600~3000 hours from the 1980s to 2008. After that, there was a reduction of

[1] These amounts of hours of units of discipline knowledge in England are in table 6 in chapter 5 and table 6 in chapter 4. And these resources in Korea were adopted from one student teacher's report card based on the result in table 9 in chapter 6 and in table 8 in chapter 7. The personal report cards in Korea are in each appendix 1 in chapter 6 and appendix 1 in chapter 7.

credits from 140 credits to 130 credits in 2009. Because of this reduction, the amounts of hours have reduced from 2784 hours in 2008 to 2336 hours in 2009.[2]

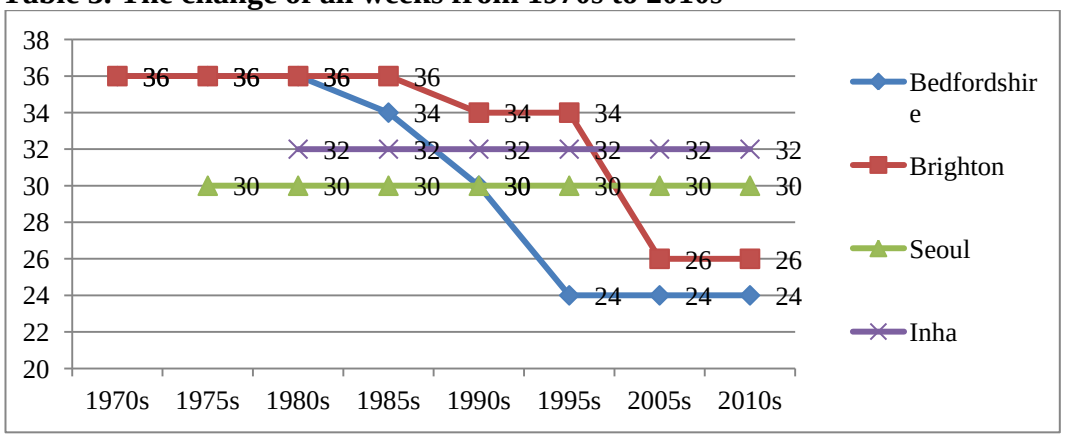
Table 2. The change of hours a week from 1970s to 2010s[3]



	1970s	1975s	1980s	1985s	1990s	1995s	2005s	2010s
Bedfordshire	15.3	16.9	13.5	10.4	11.9	10.5	9.5	9.1
Brighton	13.3	13.3	10.7	10.7	10.5	8.8	8.8	8.8
Seoul		24.1	21.0	23.3	21.8	23.1	19.8	19.3
Inha			22.5	21.5	23.6	20.5	21.8	18.3

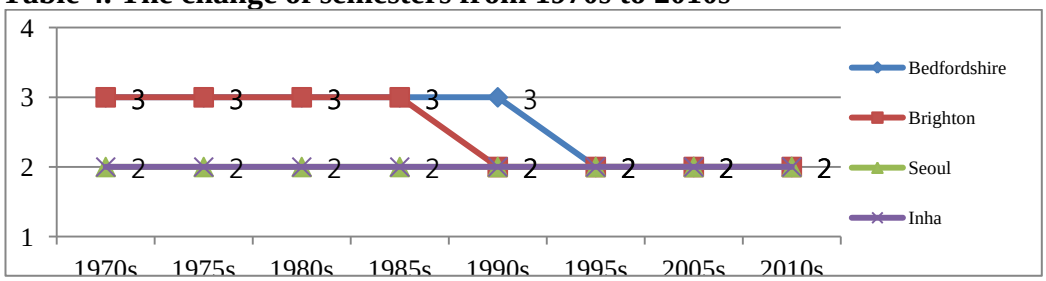
In table 2, we see the hours per week in University of Bedfordshire has gradually reduced from 15.3 hours in the 1970s to 9.1 hours in the 2010s and hours a week in University of Brighton has also gradually reduced from 13.3 hours in the 1970s to 8.8 hours in the 2010s. This average is impacted by the school experiences in England and therefore actual amounts of hours while at university were marginally higher. On the other hand, in Korea, the hours per week in Seoul National University reduced from 23.1 hours in 1995 to 19.8 hours in 2005 because of the decrease of credits from 140 to 130. At the same time we saw the decrease from 21.8 hours in 2005 to 18.3 hours in the 2010s in Inha University.

Table 3. The change of all weeks from 1970s to 2010s



[2] There were in detail reasons of that each PETE part.
[3] The process of making of this table 3 is same as table 1.

Table 4. The change of semesters from 1970s to 2010s



As you see table 3 and 4, the weeks a year in University of Bedfordshire and University of Brighton have decreased in similar pattern from 36 weeks in the 1970s to 24-26 weeks in the 2010s. Simultaneously we witness a move from 3 semesters until the early of 1990s in the BEd degree to a two term structure. On the other hand, there were no changes of weeks or semesters in Korea. Both universities in Korea had a broadly similar semester structure with 15 weeks in Seoul National University and 16 weeks in Inha University.

This analysis highlights the decreasing trend in both countries, albeit more marked in the UK, and the overall lower contact time for students in the UK.

8.2.2. The change of numbers of staff and students

In the two PETE courses in England, the numbers of lecturers and students in the official curriculum have dramatically reduced. On the other hand, in two PETE courses in Korea, the numbers of professors have gradually increased, but the numbers of students have gradually reduced.

Table 5. The change of the numbers of lecturers and the amounts of hours in England and Korea[4]

	England								Korea							
	University of Bedfordshire				University of Brighton				Seoul National University				Inha University			
Years	1969	1985	1992	2012	1958	1975	1997	2012	1963	1989	1996	2012	1978	1984	1997	2012
The numbers of staff	-	30	30	14	21	50	25	9	6	14	16	16	2	6	6	6
The numbers of students	418	325	-	201	225	550	350	216	-	226	208	157	30	-	240	190

[4] See appendix 1 in the appendix of chapter 8

As shown in table 5, in England especially, because of necessity of physical education teachers at the end of 1960s, the amounts of lecturers and student teachers in the 1970s increased.[5] After that, the numbers in both PETE courses in England have gradually reduced. This result is very similar to the history of PETE in England which I showed in literature review. One lecturer in University of Brighton recollected this change as follows:

> When I was a trainee, it was more than 300 but now there are probably nearly 1000 students and significantly less staff and that's a national picture.[6] (Previous student1 University of Brighton 1979-1983 and present lecturer1 University of Brighton)

During this period, the numbers of staff were nearly at the highest point (See table 5). As a senior lecturer in University of Brighton, she directly perceives the decreasing ratio of staff to students.

Compared to England, in Korea, the numbers of staff have gradually increased, but student teachers have gradually reduced from the 1960s to the present because these two universities in Korea have tried to reduce numbers of students per professor in the PETE courses following the government recommendation (e.g. University Structural reform, 2004).

As I already mentioned in the literature review, in England, Saunders (1988) mentioned that because of the economic crisis in the 1980s the amounts of hours in university dramatically reduced. A previous course leader in University of Bedfordshire, told me in an interview, that in 1980s the head office in the university consistently asked her to reduce the amounts of hours in the PETE course from 1980s to 1990s because of economic problems. Moreover, the different atmosphere in university such as smaller classes and studying independently compared to many classes in diploma level is one of reasons. In

[5] We can see relative contents in pages 118~119 in Women First (Fletcher, 1984).
[6] 1000 students at present mean all students including other studies such as Sport Coaching, Sport and Exercise Science, Sport Journalism etc. Student teachers in 2012 were 212 people. By the way, even if lecturers in PETE course in 1980s were 25~50 people for about 350 student teachers, now there are just 9 lecturers in the PETE course for 212 student teachers.

Korea, there was also reduction of amounts of hours in Seoul National University in 1996 and in Inha University in 2009. While the explanation for this was not evident from the documentation, one course leader in Inha University mentioned that it was an order from the head office in the university. In Korea, the ministry of education have tried to reduce the numbers of part time lecturers because there have been too many part time lecturers in university through TATTI (Ja-Eok Ku, 2009). The government judged that this situation was a barrier to developing the quality of education in university (e.g. see table 3 in chapter 6 (Inha University)).

8.3. Impact on student teachers' satisfaction

8.3.1. England

We witness high levels of student satisfaction across all periods of time as student teachers describe below:

> All of those things were very useful to me in my teaching career all the time. …… We had children coming in to college to do gym and we would observe them moving and talk about it, ie how we could improve it (Previous student3 University of Bedfordshire from 1969 to 1972).

> I liked the feel of the place and it had come with really good credentials from members of staff that I knew, the PE department, there's another lady that had been there so when I was looking for somewhere to go, they really influenced me as well (Previous student2 University of Brighton from 1987 to 1991).

> With all the lecturers, you have a nice relationship with them so they know you by name, they know you as a person, I think that's really nice. I love being by the sea, I've never lived by the sea so it's quite nice! (Student2 University of Brighton from 2007 to 2011)

> I think the course here is really good to become a PE teacher, I think it gives you everything that you need, like practical experience, like theoretical, um I think overall I'm really pleased that I changed to come to this university (Student5 University of Bedfordshire from 2006 to 2010).

Most student teachers had a confidence that after completing their course, they would be confident enough to be able to teach students in school. However it is

clear that current students reflect negatively on the impact of the significant reduction of amounts of hours in England on their course. As one student recounts:

> It's changed and also the amount of hours has changed, they used to do 9 till 5 every day and now we do 12 hours a week. I think if you did 9 till 5, it consolidates a lot more of what you're doing whereas we're left to be independent learners, where the education system we were brought up in hasn't made us independent learners. Some people are but we're not so much! …… They just scratch the surface in our lectures and then we have to find out more about it so I think yes, it would be more beneficial to have more hours' input, however that's not possible with the government (Student4 University of Brighton in 2011).
>
> We don't do many hours, we're paying £3750 to be here …… but I'm only at university on a Monday, for two hours on a Friday and that's it, that's my week done. I think they need to increase the hours so we can learn more because I still don't know, if I hadn't have done outside coaching courses, I wouldn't know anything about football or cricket because I was at an all girls school when I was teaching on placement, so I would never have taught those (Student5 University of Brighton in 2011).[7]

The students were very aware that previous students had a higher number of contact hours. There was some awareness of the expectation for independent study, however they were concerned that the amount of hours were not enough to them to get sufficient content knowledge. Despite these concerns, as I have already shown student teachers were generally satisfied with their PETE course. Similarly the lecturers also highlighted the importance of independent study:

> The nature of the study was much more prescribed in the first two years, we had many more lectures so we might have as many as 20 hours of lectures in a week, so there was much more formal tuition where lecturers would be teaching us and we'd be in lecture theatres, so much more of a knowledge transfer from the lecturer to the student.…… With the BA, we went to 12 hours lectures, six modules per semester, much less contact time with lecturers and the responsibility shifted much more onto the student, to read around the subject, to identify their own strengths and weaknesses and to choose modules which developed their

[7] Tuition fees in England were 3375 pounds in2011/12, 9000 pounds in 2012/13 in UNIVERSITY OF BEDFORDSHIRE and 3375 pounds in 2011/12, 9000 pounds in 2012/13 in UNIVERSITY OF BRIGHTON. In Korea there are 3535 pounds for first year PE student teachers in SEOUL NATIONAL UNIVERSITY in 2013, 4973 pounds for first year PE student teachers in INHA UNIVERSITY.

> own education. So it was much less about prescription and more about choice. …… So which did I prefer at the time? I was disappointed to not be doing a BEd but looking back, I think there were many things that the BA gave us, that the BEd probably wouldn't have done (Lecturer3 University of Brighton who was a student teacher from 1992 (BEd) to 1996 (BA) in University of Brighton).
>
> I think it's more of an emphasis on students studying and finding out more or being more independent and that's not necessarily a bad thing because there needs to be time for them to consolidate what they've learned in seminars or lectures (Previous student2 University of Brighton from 1987 to 1991 and present lecturer1 University of Bedfordshire)

Between lecturers, there have been various opinions about amounts of hours in the PETE course. However in experiencing the changes as students and lecturers there is a clear recognition of the increased independence expected of students and this is not viewed negatively. Despite the positive view of the increasing independence given to students, the overall impact of the reduced hours was not universally welcomed and indeed that some lecturers felt constrained by the restrictions of the institutions in which they worked:

> I actually think that there should be more hours given to students, that's my own personal opinion but I have to work within the confines of the university, I would like to have more hours to get better quality but it's impossible, it's economic (Previous student2 from 1973 to 1976 and present course leader University of Bedfordshire).

8.3.2. Korea

Student teachers' level of satisfactions has been very low in Korea. One professor who was a student teacher at the early 1960s mentioned the climate of his PETE course as follows:

> I remembered the early of 1960s that we spent much time making a teaching plan in the unit of Teaching Methods in Physical Education. However, at that time, there was an atmosphere that physical education teachers had to teach physical activities well in school. There were not many contents in our curriculum. …… After I was hired in 1979 at Seoul National University, other professors did not know sport pedagogy because student teachers could be hired in school without any examinations. They taught sport pedagogy was a kind of just teaching

> method. The awareness of teaching method in the 1980s was obvious. For example, anybody can teach physical education in school. Anybody can make a teaching plan. Based on this cognition, student teachers after graduation have to just teach physical activities. Nobody in the PETE course though sport pedagogy to have to systematize in the 1980s. After I had come to here in 1979, the awareness was increased to communicate with older professors or publish articles (Previous student teacher7 from 1962 to 1966 and previous professor from 1979 to 2008 Seoul National University).

This is a simple summary of the awareness of PETE in Seoul National University from the 1960s to the 1980s. He mentioned that the status of teacher training in the 1960s were very low even in the PETE course in Seoul National University. The education for student teachers was just about increasing their level of physical activities from the 1960s to the 1980s. These opinions have been ongoing to the 2000s. One present teacher mentioned as follows.

> Many professors just taught examples in foreign books in the PETE class without learning examples in Korean context. It was just Sport Education Model or styles. It was already introduced in another country. This means that they just learned in advance rather than us and taught it to us (Teacher6 Inha University who was a student teacher from 1999 to 2003).

Many teachers mentioned that most professors just taught very theoretical contents, even in terms of sport pedagogy, which were not related to real school situations. In fact, his response was better than student teachers (e.g. chapter 6.3.2.3) who were in the 1980s because there was no education such as models or styles in undergraduate level and as I mentioned before they just learned physical activities in Korea. Even if there have been gradual developments of curricula, student teachers have been dissatisfied with their PETE course.

An entrance quota in two PETE course in Korea has gradually reduced while reducing the amounts of hours in the curriculum. For example, an entrance quota in Inha University became from 50 people to 40 people in 2007 with the numbers of professors remaining at six members since 1984. Moreover, there were no reductions of units even if the credits which student teachers take have reduced from 140 to 130 in 2009 (see table 4). This means that qualities of class have been

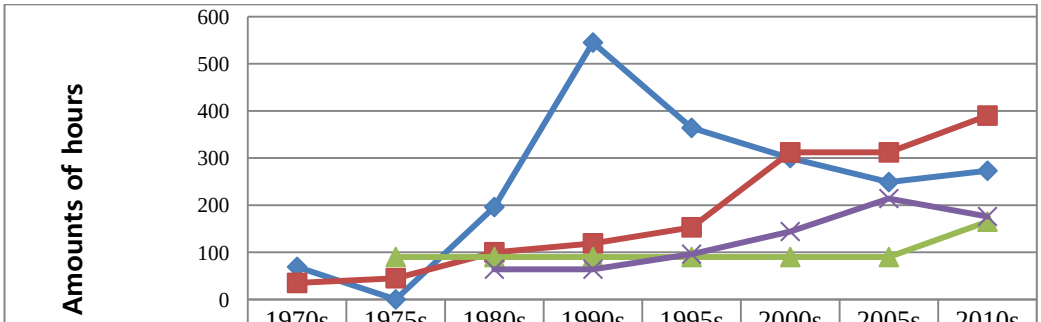
better than in the past. The number of students per professor has not changed significantly. Although, overall, the condition of PETE course in Korea has been gradually developing along with the development of economic in Korea, we have not witnessed significant changes in student satisfaction.

The present condition surrounding the PETE course has been not good in respect of employability. Compared that student teachers in England who achieved 90% employability in 2009 and in the current economic climate achieve 70%, student teachers in Korea just become a physical education teacher as 5-10% resulting in significant competition for jobs. This situation has been occurring since the 2000s. The Ministry of Education implemented the TATTI (Ku, Ja-eok, 2009) in 2010 to solve these kinds of problems. But there have been still problems which have inevitably impacted on student satisfaction.

8.4. Comparison of professional knowledge

First, as you see Table 6, there has been a gradually increase in the amounts of professional knowledge in PETE curriculum in England and Korea since 1970s. However, the increase of hours in England (at the early of 1990s) has been faster than in Korea (in the middle of 2000s).

Table 6. The change of the hours of professional knowledge in four PETE courses from 1970s to 2010s[8]



	1970s	1975s	1980s	1990s	1995s	2000s	2005s	2010s
Bedfordshire	69	0	196	545	364	300	249	273
Brighton	35	45	100	119	153	312	312	390
Seoul		90	90	90	90	90	90	165
Inha			64	64	96	144	214	176

[8] The process of making of this table 6 is same as table 1.

Although there was a different pattern to the increase of professional knowledge between two PETE courses in England, the amounts of hours has increased overall since 1970s. However, the amounts of hours in Korea remained relatively unchanged until 2005 in Seoul National University and since 1995 in Inha University where two compulsory units and one optional unit were offered by 2004. The numbers of units have increased from 3 in 2004 to 6 in 2011 in Inha University. In Seoul National University the numbers of units of professional knowledge had kept two units from 1978 to 2008 and rose from 3 in 2009 to 5 in 2012. This means that the increase of units of professional knowledge in Korea happened very recently and less dramatically than in the UK.

Furthermore the proportion of student teachers who took units of professional knowledge in the 2010s was the bottom at 8.5% in Seoul National University and 9% in Inha University.

8.4.1. Differences and similarities for professional knowledge based on interrelationships of Shulman's components

The common feature about learning professional knowledge between two countries was that student teachers mainly learn PCK, CCK, KEC and KLC. However, there was a difference between in England and Korea in respect of connection between PCK and KLC and KEC in PETE curriculum.

In University of Bedfordshire I highlighted that most unit leaders mentioned these three components (PCK, KLC, and KEC) in their units. Student teachers in University of Bedfordshire have systemically learned these three components through many units in a scaffolded curriculum. For example, when they were in their first year, they joined in "Learning to Teach and Inclusive Physical Education" to learn the foundation of these three components. The unit leader explained this unit as follows.

> Yes that's the first year unit, the foundations, so we're giving them those foundations, that basic teaching skills which they then try out on these little people that come in. So it's again quite a nice balance of theory and then putting it into practice so straight from the fourth week they're here,

> they're starting to apply what they're learning theoretically into a practically based context and even within the seminars within this unit, the theory is then backed up by them planning and applying and working in learning groups, to try out those ideas (Lecturer1 University of Bedfordshire)

As this unit leader explains, student teachers had learned theories such in the classroom and based on that knowledge they taught 5-6 years old children in the gym using their own teaching plan. After that they go into the school during first year, for seven weeks. In the second and third year, there is Teaching for Learning 1 and 2 to improve their pedagogy. It is one of part that student teachers are very good at when they start teaching in school as a Newly Qualified Teacher.

In Korea, although unit leaders who were in charge of units for professional knowledge in Seoul National University taught various Shuman's components, the application was less well developed in relation to the interrelationship between PCK and KLC. Some similarities to "Learning to Teach and Inclusive Physical Education" were notable, particularly, the mixed classes with peer teaching. One unit leader explained about this.

> I gave many artificial contexts to student teachers because PCK did not come out itself. For example, one student teacher become an overweight child, he can't jump. But another student teacher has to teach him to hurdle. He had to change the hurdle teaching content to be suitable to him. Like this, we made many KLC such as children who hurt their arm and were not smart but have a good movement, etc. student teachers can learn PCK teaching many various children (Professor1 Seoul National University who teach Study of Physical Education Teaching Materials and Method Guidance).

After student teachers learned the relevant knowledge in the class room, they practiced in the gym. However, student teachers learned through only peer teaching rather than working with school pupils. Moreover, they learned using this format only two or three times in four years. The unit leader above was a PETEr in the USA for six years before coming back to Korea. She already knew about the insufficient learning in Korea. However, she stressed that it was unavoidable situation because, as I said before, there were limitations to improve student

teachers' learning for learners with four weeks teaching experience. She tried to teach many components to student teachers in the given situation. Many teachers pointed out these insufficient components as follows.

> I don't think that I learned much KEC and KLC in University. Classes in University did not think that KEC and KLC were important. There are various learners. We should make different classes for learners. We didn't learn about that. We learned normal teaching methods for general students. We did not learn learners step by step (Teacher1 Inha University who was a student from 2002 to 2008).

This teacher felt the lack of learning of KEC and KLC during his PETE course. Although he learned PCK in his PETE course, because he did not learn sufficient amounts of KEC and KLC and therefore had some difficulty when he taught various students in school. This is evidence to show that learning for professional knowledge (especially connection KED and KLC) had still been at a theoretical level and insufficient in Korea.

8.4.2. The reasons for these different and common changes between two countries

In terms of amounts of hours, professional knowledge based on sport pedagogy or school PE have increased in both of four PETE courses in two countries, even if the development and amounts of that in PETE course in England has been much faster than in the PETE course in Korea. As a result, the construction of curricula in England has been more developed in this respect compared to the composition of professors in Korea. However, change is evident in Korea where, based on the TATTI in 2010, one more professor who majored sport pedagogy and who was a PETEr in the USA was hired in Seoul National University.

In terms of Shulman's components, KLC in England has developed significantly more than in Korea. Increased teaching experience in England, which has increased from 15 weeks in the 1970s to 32 weeks currently, has exacerbated this difference. In contrast, there have been just four or five weeks in teaching experience in Korea and discipline knowledge, unrelated to PETE. This means

that there has been a culture to emphasize content knowledge such as PRACK, PCK, CCK or KEC as a theoretical aspect. For example, even if PETErs teach KLC, they taught it based on theories or peer teaching rather than with students or children.

These were the reasons why professional knowledge in England was more developed than Korea in term of amounts of hours and contents.

8.5. Comparison of discipline knowledge

8.5.1. Differences for discipline knowledge based on amounts of hours

Even if the change of discipline knowledge looked very different, the trends were very similar in each country. Whitehead & Henry (1976) compared amounts of hours in curricula in 9 PETE courses in England in 1975 showing that each PETE course had its own characteristic in terms of their curriculum. For instance, A PETE course had more hours for physical activities than other PETE courses. Meanwhile, B PETE course had more hours for theoretical units than other PETE courses. Based on this fact, University of Bedfordshire had more units of physical activities and University of Brighton had more units of discipline knowledge in 1970s as their characteristics. However, it was difficult to find the reasons why there was a difference in amounts of those units between University of Bedfordshire and University of Brighton in 1970s. I now examine the reason of differences of development of discipline knowledge from 1970s in the University of Bedfordshire and the University of Brighton. In table 4, discipline knowledge in the University of Bedfordshire reduced from the early of 1980s. Meanwhile, discipline knowledge in the University of Brighton decreased from the middle of 1990s. In addition, the University of Bedfordshire urgently increased professional knowledge from the middle of 1980s. Meanwhile, the University of Brighton urgently started increasing professional knowledge from the middle of 1990s.[9] This means that the development of the University of Bedfordshire in terms of

[9] Even if professional knowledge gradually increased from 1970s, the urgent development was started from the early of 1980s in England.

curriculum was faster than the University of Brighton before the middle of the 1990s (e.g. adoption of micro-teaching and the abolition of education studies in 1989 in the University of Bedfordshire and 1993 in the University of Brighton). Even if there was a time difference regarding the reduction of discipline knowledge between the University of Bedfordshire and the University of Brighton, both courses decreased discipline knowledge to receive the development of professional knowledge. This means that the big frame for the development of the curriculum between two PETE courses in England was similar and active showing to a time lag of the development between two PETE courses.

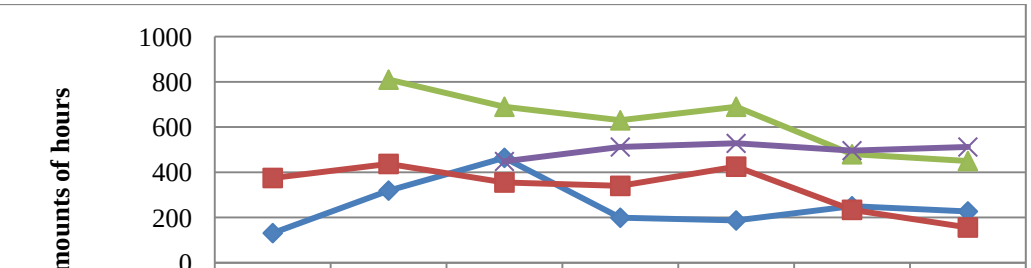
On the other hand, although the change of discipline knowledge in Seoul National University and Inha University looked different, it was also a similar context.[10] There were two reasons. First, each professor wanted to increase his/her units or decrease other units in terms of hegemony rather than educating student teachers in terms of PETE. Second, it was the change of priorities in terms of kinesiology, which as time goes by, units of sport management emerge regardless of PETE. The important points here were that most units of discipline knowledge were optional units. Seeing the selections from student teachers in each PETE course, present student teachers in Seoul National University chose discipline knowledge less than in the past and student teachers in Inha University selected discipline knowledge more than in the past.[11] The reason of slight reduction of student teachers' selection in Seoul National University was mainly the reduction of credits in 1996 (see chapter 6.3.3.2). Meanwhile, the reason of increase in Inha University was the increase of importance of discipline knowledge in the TRE (see chapter 7.3.3.1). However, this proportion in two PETE courses was very small when we think about real credits and units. This means that if we think of this one as units, present student teachers select two or three units more than in the past in Inha University or vice versa in Seoul National University. This means that there were no big changes of discipline knowledge from 1970s to the present especially in terms of PETE in Korea.

[10] E.g. the maintenance of units between 30 units in 1972 and 28 units in 2012 in SEOUL NATIONAL UNIVERSITY and the increase of units from 15 units in 1979 to 23 units in 2009 in INHA UNIVERSITY

[11] E.g. 28.6% from 1978 to 1995 and 21.2% in 2009 among all units in SEOUL NATIONAL UNIVERSITY and 33.6% in 1997 and 52% in 2009 among all units in INHA UNIVERSITY

As a result, the change of discipline units in England has been very active in contrast to Korea where the change of discipline units has been relatively less active even if occurring aspects were different in each PETE course. Based on this information, I explain the change of discipline knowledge in detail.

Table 7. A change of the hours of discipline knowledge in four PETE courses from 1970s to 2010s[12]



	1970s	1975s	1980s	1990s	1995s	2005s	2010s
Bedfordshire	131	319	464	199	187	250	227
Brighton	375	437	355	340	425	234	156
Seoul		810	690	630	690	480	450
Inha			448	512	528	496	512

Even if discipline knowledge in England had been important in the PETE course from the 1970s to the 1990s in respect of PETE, the importance in England reduced since the 1980s because of the importance and development of professional knowledge. As I already explained before in chapter 4.3.4.1, in England, the discipline knowledge in PETE had developed inside of the area of Human Movement Study from the 1970s to the 1980s. Units of discipline knowledge at those times were a big part of PETE. However, this axis has been handed over to the professional knowledge since 1990s reducing the amounts of hours of units of discipline knowledge (see table 7). In detail, it was the emphatic trends of units of discipline knowledge from COE in the 1970s to BEd in the 1980s to enter university level. And it was the decrease of importance of units of discipline knowledge from BEd in the 1980s to BA in the 1990s because of the academic development of professional knowledge of physical education by establishing sport pedagogy. This means that the PETErs were central to developing discipline knowledge in PETE courses and the aim of the development of that was student teachers' teaching and learning such as how to teach well in

[12] The process of making of this table 4 is same as table 1.

school using by discipline knowledge.

In Korea, despite the hours of discipline knowledge developing differently in each PETE programme (e.g. gradual reduction of amounts in Seoul National University and gradual increase in Inha University), the amount has been higher than that of PETE courses in England. Moreover, contents of discipline knowledge were not related to PETE for the whole period. By the way, in the middle of 2000s, some professors who teach discipline knowledge have tried to be cognisant of the applicability of the teaching approach for student teachers in Inha University. However, this remains a small part of the PETE course with the character of the discipline knowledge in Korea generally being suitable units for students in department of kinesiology or sport study.

8.5.2. Differences for discipline knowledge based on interrelationships of Shulman's components

There has been a spiral curriculum of physical activities in England and Korea. For example, student teachers in University of Brighton learn practical content knowledge such as gymnastics in the first year. After that, they learn PCK based on their PRACK of gymnastics. This means that they broaden their knowledge as they promote to the next grade. This tendency showed similar and different aspects in each country.

8.5.2.1. England

In this section I will specifically focus on TCK which is content that students in school learn for their theoretical examinations such as GCSE PE and A-Level PE. In Korea, there is no onus on physical education teachers to teach these theoretical contents of physical education in school because TCK is a relatively small part in school. In comparison, in England, many physical education teachers have to teach theoretical contents of physical education because there are official theoretical tests such as GCSE PE and A-Level PE in England since 1990s which include theoretical contents such as exercise physiology, sport history etc. These

tests are very important to students to gain entrance to university. Examinations in PE developed since in the middle of 1990s (Green, 2008, p. 82) and there remain some different opinions between unit leaders and student teachers compared to the agreement about the other Shulman's components with not all lecturers prioritising examination physical education:

> ….the danger is that we only do physical education because it's an academic subject, when really physical education is much more than just about GCSE and A Level, it's about children learning to move and moving to learn and developing themselves as individuals and I wouldn't want physical education to just be about GCSE and A Level because that's all about specific knowledge, there's other stuff which we need to do (Lecturer6 University of Brighton).

However, despite some lecturers wishing to de-prioritise the examination in physical education, there was still awareness that students were unprepared for this area:

> Yes I think they are. Our students, when they go into school, are a bit nervous about teaching GCSE and A Level because it's quite advanced in terms of the subject knowledge, but I think what we have to do is remember that our students are on a journey about developing themselves as teachers and when they leave us to start teaching, they've not finished the journey, they're still at the middle bit so teaching all these other things (Lecturer6 University of Brighton).

Similarly one teacher highlighted her anxieties about teaching this area of the curriculum:

> …I started last September and I had my own GCSE class and I taught some A-Level, and it was probably the scariest thing I've ever done, because you're responsible for their results (Teacher1 University of Bedfordshire who was a student teacher from 2006 to 2010)

Furthermore, many student teachers in University of Bedfordshire and in University of Brighton think that they received insufficient preparation to teach GCSE PE or A-level PE and that their learning from university was also incomplete.

> I think what we could do more on is the examined sport, so the GCSE, BTEC, A level. Because we do one lecture on it maybe, but if we were to

> do more on that, they're so, like every school has that now, I think that would be more beneficial. So that would be the more negative side of it that we could do more on. (Student5 University of Bedfordshire in 2009)

> Definitely I think we need to have a level of competency across a broad range to be able to teach it. (Student1 University of Bedfordshire in 2009)

> I would say it hasn't helped me at all at university because we don't study it, I could have been the best or the worst but it wouldn't have affected it but I do think that when I get into a school, it will help me because just even though I've forgotten a lot of it, there'll be bits that I remember and other people who never studied it won't have that so ... I think it will be helpful for teaching but not university, no! (Student1 University of Brighton in 2011)

Many student teachers pointed out the insufficient hours to learn TCK in the PETE course. Teachers also agreed with student teachers' opinion. One teacher who taught A-Level PE gave me unique opinions as follows.

> The only thing I'd say about that was there's some staff who, not the PE staff, the ones on the PE course they were fantastic, but there were other staff who taught things like the exercise physiology, like the sports science stuff, kind of, sometimes it felt like they looked down on us and thought that we were the stupid ones because we were doing a teaching course and we weren't doing sport science. So sometimes the lectures were aimed a little bit high, and we felt we were stupid because we didn't understand, and it wasn't relevant.. exactly.. and so I think that's the only thing that I would say is that some of the staff who weren't directly PE staff were a bit like.. so.. (Teacher1 University of Bedfordshire 2011)

Interestingly these comments highlight, not insufficient knowledge but knowledge of too high a level, thus being somewhat irrelevant to the teaching of school examination physical education. As a result, she could not use that knowledge for students in school. This means that units of discipline knowledge did not take account of TCK for student teachers. This was also recognised by some lecturers who identified TCK as 'very theoretical':

> I don't know a lot about the method of delivery for these areas, in some aspects I think it is very theoretical and that's consequently why some of

> our students struggle with it (Lecturer1 University of Bedfordshire)

In addition, student teachers and teachers mentioned that they did not learn how to deliver TCK to students in their PETE course.

> I think there should be more work done for A Level work and GCSE work, there's no course for being able to know how to teach it, like I don't know what's in GCSE, I don't know what you teach, I don't know what you teach for A Level so I think that needs to be improved a lot (Student2 University of Brighton 2011).

> Um.. not so much with the, with this discipline knowledge, we weren't taught as much how to teach it, it was more this is the knowledge, this is what you need to know. It was very different to how to teach the practical, the practical was, this is how you teach it, the discipline knowledge was this is what you need to know (Teacher1 University of Bedfordshire 2011).

They mentioned that they did not learn how to teach units of discipline knowledge. However, actually, some staff who taught these units of discipline knowledge mentioned that they taught how to teach their unit of discipline knowledge (see table 5 in the part of University of Bedfordshire). One another lecturer in University of Brighton mentioned some real reasons such as insufficient hours as follows.

> It's very difficult and that is what I mean by students having to use their own time because we can't give them lectures on the content of A Level. That's where the student is their best resource is themselves. I don't have the answer to that one, it's a very tricky one other than giving them experience (Lecturer3 University of Brighton).

As you see, most English student teachers thought that they learned very well about professional knowledge such as PCK and CCK in order to teach physical activities in school (see chapter 4.3.5). On the other hand, as a result, I could conclude this phenomenon that PCK for discipline knowledge was not working because of insufficient units rather than the difficult contents. However an interesting point in relation to this is that student teachers continue to select physical activities rather than theoretical contents as optional units which put into questions their concerns about inadequate TCK.

8.5.2.2. Korea

On the other hand, as examination PE in Korea plays a less significant role, the units of discipline knowledge KEC (kinesiology) are regarded as more important than TCK. When we see Table 2 in the part of Seoul National University, unit leaders in discipline knowledge taught just KEC. They did not mention TCK in their unit at all because they did not need to care for TCK in university. Even if there are some contents in physical education textbooks such as exercise physiology, sport history etc, theoretical contents of physical education in Korea do not affect students in school. Many physical education teachers teach little discipline knowledge to students in school. Student teachers also mentioned that they did not learn TCK or how to teach TCK in university.

> Q: Have you learned how to teach sports biomechanics to students?
>
> A: I have not learned about that at all. When professors taught us, they just delivered discipline knowledge. They did not teach the way of delivery (Teacher3 Seoul National University who was a student from 2004 to 2009).

> Q: Have you learned how to teach exercise physiology to students?
>
> A: No. No. I have not learned it connected with school (Student4 Seoul National University 2011)

These teacher and student teacher showed the concepts for TCK (KEC) and the connection between TCK (KEC) and PCK. They did not learn discipline knowledge which was connected to knowledge to teach student in school. Moreover, when asked about teaching theoretical contents to students in school, it was normally rules of games, rules of referee that were mentioned:

> Q: Do you teach theories in your class?
> A: Yes, I teach it. However, it is a little bit different contents compared to the teacher recruitment examination. While I teach students in school, I do not need to teach discipline knowledge to students because it is too broad areas to teach it. And we have to make questions related to sport events. So, I had to study sport event, again. However, as you know, the contents related to sport events were not related to teacher recruitment examination. But now it (rules, umpiring etc) is very important. I study it again after finishing the teacher recruitment examination (Teacher2 Inha University, graduated in 2006)

As he mentioned, teachers in Korea normally teach PRACK such as rules even in the classroom. Even if he could teach KEC, he did not select KEC because it was not important in school. Moreover, there is a contradiction between the teacher recruitment examination (TRE) and real the situation in school. For example, even if there were very theoretical questions about discipline knowledge in the TRE, student teachers after passing that exam, would not teach those contents to students in school. Inevitably this has impacted on the teaching of TCK and the integration of TCK and PCK in Korea.

8.5.3. The reasons for these different changes between two countries

While we see the reduction of discipline knowledge in England, this is not seen in Korea. In England, this may have resulted from the limitation of human movement studies and the development of sport pedagogy with those making the decisions predominantly coming from a pedagogical background as former teachers. For example, many teachers did not use human movement theories when they taught their students in school because it was difficult to integrate physical activities and theories into real teaching situations (Kirk et al, 1997). And there were so much more emphasis for techniques rather than skills in games because of teaching of a segmented technique based on biomechanics (Kirk, 2010). Thus replacing discipline knowledge with professional knowledge was relatively easy. This means that the direction of development of discipline knowledge has been the reduction of hours and influence in PETE in England.

However, before developing professional knowledge as sports pedagogy, discipline knowledge such as human movement studies and exercise physiology, biomechanics was in charge of professional knowledge, the same as education studies in the 1970s and the 1980s. By the way, even if GCSE PE and A-Level PE (TCK) has not seriously affected to the PETE course up to now, possibilities which would affect to near future have come to the fore. Because TCK took a very theoretical form, we have to look carefully into its influence whether it would be positive or not in the PETE course.

In contrast, as I explained before, discipline knowledge came to Korean PETE courses without consideration for how PETE was affected by kinesiology in the USA. Despite discipline knowledge not being a component in school PE, because it has included as a significant element in TRE since 1991, the emphasis of discipline knowledge has been maintained. Moreover, although entries for teacher jobs have been dramatically reduced, contrary to this, student teachers who enter the PETE courses have increased. As a result, PETErs in Korea have not been able to increase units of sport pedagogy. In addition, professors with major in kinesiology account for over 80% of staff in the two PETE courses (see table 8), inevitably influencing the development of the curriculum in Korea.

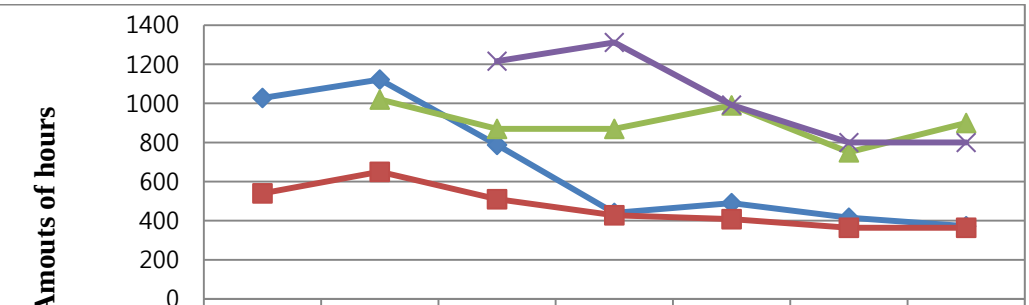
Table 8. Professors' majors in two PETE course in Korea

Seoul National University		Inha University	
Professors who studied Sport Pedagogy	Professors who studies other areas	Professors who studied Sport Pedagogy	Professors who studies other areas
2 (12.5%)	14 (87.5%)	1 (17%)	5 (83%)
All Professors have PhD degree			

8.6. Comparison of physical activities

In the following section I discuss the change in physical activity content knowledge over the 40 year period. As it is evident in the graph below, we see a decline in the hours of physical activity in both PETE courses in England and one PETE course in Korea. Amounts of hours which student teacher took in Seoul National University in Korea have remained relatively unchanged from the 1970s to 2010s. Through this time period University of Bedfordshire in England and Inha University in Korea have seen the most dramatic declines while University of Brighton in England has seen a gradual reduction.

Table 9. The change of the hours of units of physical activities in four PETE courses from 1970s to 2010s[13]



	1970s	1975s	1980s	1990s	1995s	2005s	2010s
Bedfordshire	1028	1122	788	440	490	415.5	372
Brighton	540	650	510	428	408	364	364
Seoul		1020	870	870	990	750	900
Inha			1216	1312	992	800	800

In detail, the amounts of hours of physical activities have gradually reduced from 1028 hours in 1969 to about 415.5 hours in 2009 for about 40 years regardless of the change of degree at the University of Bedfordshire. In the University of Brighton, the amounts of hours of physical activities have gradually reduced from 600 hours in the 1970s to about 350 hours in the 2010s for about 40 years. There has been similar situation in Inha University reducing from 1216 hours in the 1980s to 800 hours in the 2010s. On the other hand, although the graph suggests the amounts of hours have reduced from 1020 hours in 1975s to 900 hours in the 2010s, as I highlighted in figure 1 in the part of Seoul National University, the amounts have kept similar throughout the years.

8.6.1. Differences and similarities for the system of spiral curriculum

There has been spiral curriculum of physical activities in both countries. For example, student teachers in University of Brighton learn practical content knowledge (PRACK) such as gymnastics in the first year. After that, they learn PCK based on their PRACK of gymnastics. This means that they broaden their knowledge as they promote to the next grade. However this pattern is less marked than previously in both countries confirming that it did not worked in terms of

[13] The process of making of this table 7 is same as table 1.

improving the level of physical activities at present in both countries.

The numbers of units such gymnastics, swimming, athletics, etc has reduced since 1970s because of many reasons in each country. Nevertheless at least two units for each gymnastics, swimming and athletics in both countries remain. In England, currently student teachers repeat gymnastics, swimming, OAA, athletics and one of games at least twice. Previously, for example, they had to join in the unit of gymnastics at least four times (43.5 hours) in University of Bedfordshire and twice (52 hours) in University of Brighton for four years in the 2000s. In Korea, student teachers had to join in minimum two or maximum six times such as gymnastics, swimming etc in the 1970s or 80s. The trends have reduced since 1990s to make way for various units such new sports, golf, and so on. Although there have been still a bylaw in Seoul National University that student teachers have to take gymnastics and athletics at least twice, the trend has been removed in Inha University since 2009. For example, many student teachers in Inha University joined in one time (about 64 hours=four hours a week) in each sport event such as basketball, gymnastics, athletics, etc. This means that even if there has been system of spiral curriculum in physical activities, the trend has been gradually weakened since the 1970s.[14] I will explain in detail in the next part.

Even if the amounts of units of spiral curriculum in physical education in England have reduced, the tradition has kept in the PETE course to teach PRACK, PCK, CCK, etc. However, student teachers' completion level of improving physical activities is not considered sufficient because of insufficient number of units. Moreover, some students had complaints about these units where, for example, they reported that the same contents or level of physical activities was repeated for four years.

> I'd say a demerit is the fact that we don't have enough hours (in physical activities), I'd say there's some lectures you come out and you just go "that was a waste of my time, that's not relevant", or it's been repeated

[14] There are relevant contents in table 15 in University of Bedfordshire, table 9 in University of Brighton, table 11 in Seoul National University, and table 11 in Inha University

(Student4 University of Brighton in 2011).

Q: How do you think about the education of PRACK in this university?
A: I think they do it too much to an extent where they sort of repeat themselves, like this year it's sort of come back round and it's almost like it's being repeated again (Student6 University of Bedfordshire in 2010).

Concerns about insufficient knowledge was more marked in the games activities because although there were many sport events, they felt that they learned inadequate amounts. Meanwhile, lecturers reported that even if there are possibilities of repeating contents and insufficient sport events in games because of limitation of time, perhaps some student teachers could not easily catch the subtle differences to the spiralled curriculum. One lecturer mentioned as follows:

> Sometimes students don't understand the differences in what they're doing and I think particularly with weaker students, they don't understand what is different about doing gym in Year 1 and gym in Year 2 or swimming in Year 1 and swimming in Year 2, they can't pick up the nuances of how it's changed, what's being added, it's a spiral curriculum so it gets harder and harder, that's what I think about that (Course leader University of Bedfordshire).

Even if this lecturer's explanation looked reasonable about the spiral curriculum, because there were still insufficient amounts of hours in physical activities and student teachers felt the repetition of same level in physical activities in real units, I argue that student teachers cannot easily improve their abilities of physical activities through this PETE course.[15]

On the other hand, the spiral curriculum in Seoul National University was more similar to the English PETE courses showing that the situation was more severe than English case. Because 70% lecturers in the unit of physical activities in the 2010s were visiting part-time lecturers in Seoul National University, considering that they did not join in regular meeting with full-time professors to make plan for the curriculum, spiral curriculum was not functioning effectively. For example, the lecturer in gymnastics1 and track & field1 was different to the lecturer in

[15] This paragraph is a summary of the part of physical activities in England.

gymnastics2 and track & field2. Moreover, they do not meet to discuss the direction of class for those units. Meanwhile, the system in Inha University was the same as Seoul National University by 2008. Rather than Seoul National University, the spiral curriculum in Inha University was more in detail by 2008. For example, although there was no spiral curriculum of games (there was just one football unit) in Seoul National University in 2008, there were two units for games such as football I II, basketball I II, etc in Inha University in 2008. Many student teachers complained that it was not working because of the same reasons as in Seoul National University. Student teachers mentioned that they learned the same level of football in football I and II even if learning PCK or CCK. Moreover, 100% of lecturers who taught units of physical activities were part-time lecturers in Inha University. Because of these issues, they abandoned the spiral curriculum in 2009 (see chapter 7.3.4.1). Instead, they increased the credits and amounts of hours in one unit. For example, student teachers learn 64 hours (two hours twice a week for 16 weeks) rather than 32 hours (two hours one time a week for 16 weeks) in football. This means that they integrated football I and II as one unit. Moreover, they hired present PE teachers as a part-time lecturer to stress PETE to student teachers through units of physical activities such as teaching both PRACK and PCK. It has been nearly four year since the plan started since 2009. Many student teachers and lecturers were satisfied with this style of unit.[16]

As a result, even if student teachers learn various components such as PCK, CCK etc in the spiral curriculum, the spiral system was not working well in units of physical activities in terms of improving their level of physical activities in two countries. Considering that some student teachers mentioned that they learned repeatedly the same contents in physical activities for four years, there was surely an inadequate aspect of the course. Moreover, two student teachers in two countries showed other negative aspects as follows.

> When you get into third year, you are assessed on your ability so it limits, well people choose the stuff they are already good at because they want to

[16] This paragraph is a summary of chapter 6.2.3.1 and 6.3.4.

> get a good mark, which I feel limits what people choose. For example, I chose dance for my Year 3 module which is my weak subject, because I wanted to learn and I wanted to get better but I got a very bad mark for it because it's practically assessed and I'm not a good dancer. Because of that, I've changed my modules and I've only picked the rest of the modules the stuff I'm good at, so I feel like this improving ability, I'm not sure how much university does do that (Student1 University of Brighton in 2011).
>
> Thinking about the assessment, it was not the level of development of student teachers about the sport events. The student teacher who had a good skill for that sport event obtained a good score. Most lecturers did not considered student teachers' development of skills. As you know, it was difficult to increase my skills with one credit class (Student10 Seoul National University in 2012).

Hence, despite the intention for a spiralled curriculum with an increased focus on professional knowledge, it is clear that PRACK emerged as key assessment criteria. Based on this evidence, there are indications that the spiral system in physical activities was not working well in England. The situation in Seoul National University in Korea was comparable with one student in Seoul National University also mentioning that just good sporty students received a good mark regardless of improving of individual level of the sport events. As an alternative, I could also confirm that the intensive physical activity course during one semester was more useful to educate student teachers through Inha University in Korea. However, because this system started in 2009, we have to see more results whether or not this system could overcome this inadequate spiral system in the future.

8.6.2. Similarities of physical activities in terms of developments and limitations

8.6.2.1. Development: interrelationships of Shulman's components

First of all, many lecturers who were student teachers in the 1980s in both England and Korea recollected that they learned more about physical activity than

PCK and mentioned that present student teachers have received a more balanced education between them.

> I think historically, this is a generalisation, I think generally the physical ability of PE students in the past was higher than the physical ability of students now. I think the reasons were in the past, access to university and doing a teaching degree was quite heavily focused on your own practical ability to do activities, whereas now I think there's been a shift towards your ability to teach the activities rather than do them …… (Lecturer6 University of Brighton).

The lecturer in England mentioned that student teachers in the 1980s in England had better physical abilities than student teachers now. Although student teachers at present are somewhat inadequate in their physical abilities than student teachers in the 1980s, they have more teaching abilities such PCK than them in the 1980s. This means that the balance has been changing. Meanwhile, one professor in Seoul National University mentioned the demerit of physical activity lectures in chapter 6.3.4.2 explaining the repetition of meaningless introductory level of physical activities. This has been the present situation in the education of physical activities in the PETE course in Korea. Even if there have been many changes in England, the style of lesson of physical activities in Korea still have many problems. However, the changes in units of physical activities in Korea began very recently in 2009 in Inha University. One student teacher in 2009 mentioned as follows:

> Q: Have you learned PRACK and PCK together in physical activities' class?
> A: I have mostly learned like that. We formed a group. And I had to teach the group such as shoot and pass something like that and make a teaching plan. Sometimes I became a teacher to teach my colleague.
> Q: were all units of physical activities like that?
> A: Yes. (Student1 Inha University from 2009 to 2013, preparing TRE)

This student teacher in Korea mentioned that there were integrations between PRACK and PCK in his unit of physical activities course in the 2010s. Moreover, as I mentioned in chapter 7.3.4.1, it was part of an official reform in

Inha University in 2009. As a result, both England and Korea have been stressing more how to teach students in school rather than learning or improving abilities of just physical activities in the PETE course. While the consideration of harmony between PRACK and PRACK+PCK+CCK in England commenced in PETE in the 1980s, in Korea this has only started recently. Even if PCK in England and Korea theoretically existed, the application in England was much faster than it was in Korea.

8.6.2.2. Limitation: marginal status

In England, I can confirm physical activities had marginal status and it was a hard problem to solve.

Student teachers in University of Brighton had each six units in first and second year and they could select two or four units in third and fourth year. The amounts of hours were at least 364 hours for physical activities. As I explained before, it looked like a systematized system. However, many student teachers mentioned there were inadequate amounts of physical activities even if they learned very well about physical activities during their course.

> I haven't learned much practically since coming to university, I chose to do modules in Year 3, basketball, rugby, dance and alternative, which I've had to then learn new skills but I haven't necessarily struggled with them, if that makes sense, to an okay standard, not to like elite, just adequate (Student4 University of Brighton 2011).

Many student teachers gave similar opinions with these interviews because when they joined in school as a school experience, they had to teach unfamiliar sport events which they did not learn in PETE course. Lecturers also knew about this insufficiency. However, they explained there were no solutions to teach all sport events because of there were fixed amounts of hours in this course. Because of these deficient hours, they concentrated on six areas of pre 2008 NCPE in the first and second year, teaching various components.

Moreover, many student teachers mentioned the problem of games because there

were many games to teach in school.

> In games it's been too sporadic, it's been let's do a bit of this and a bit of that, but we're not really going into enough detail with enough things. I don't know if we've gone into enough depth, but we've got a lot of breadth (Student2 University of Bedfordshire 2010).

> We haven't covered, like within games, we haven't covered a lot of sports, so I've covered maybe four games activities whereas I need to know a lot more. …. we don't get taught the actual skills and techniques, we get taught the strategies to deliver those skills and techniques. And we have to go off ourselves and learn them, and I think we don't develop an actual ability in terms of practical because we don't get enough time to practice stuff (Student3 University of Bedfordshire 2010).

This problem is difficult to solve because there are too many sport events in games. Even if games in this course are the most sport events in the field of physical activities, it was very hard to improve their skills because they may only encounter a sport twice over the four years. For example, if one student who has not experienced hockey in his life learnt to play hockey in the second year (8 hours, six weeks) and then again in the fourth year (30 hours, 10 weeks), it is impossible for him to reach an intermediate level except through his own endeavour. Because of the insufficient amounts of hours, lecturers who are normally an expert in that sport event concentrate on how to teach this sport event or make a from curriculum it even if they also taught other sport events.

In Korea, there were two limitations in physical activities. Firstly, there was a limitation in terms of a vague purpose in units of physical activities. There were two types in the units teaching both PRACK and CK in Korea. Firstly, there is a type that emphasised more coaching the general public than teaching students in school.

> Even if student teachers do not become a teacher, students who study physical education or kinesiology will be able to coach normal people weight training in their life. …… They will be able to answer like these questions: Could you give me the way to exercise? Or which foods are helpful to make a muscle? This is one of the purposes in my units (Part-time lecturer3 Seoul National University who taught Physical Fitness Training 2010).

He stressed coaching for normal people (the general public) rather than teaching students in school because he knew that a few student teachers wanted to become a teacher in his class. Moreover, he mentioned that weight training was not suitable for students in school.

Secondly, lecturers who taught athletics and gymnastics stressed more PETE rather than coaching.

> I taught student teachers to become a teacher in my unit. And I tried to care of training ways for professional players (Professor2 Seoul National University who taught Athletics 2010).

> I tried to teach how to demonstrate free gymnastics in the class in school and how to teach students in school teaching also skills of free gymnastics (Part-time lecturer1 Seoul National University who taught Health Exercise 2010).

These two lecturers taught their units students to become teachers because those subjects were a basic in PETE course. Actually, one lecturer who taught Health exercise was a PhD student studying Sport Management. Even if he had not experienced teaching as a teacher in school, he stressed PETE:

> Why did I teach student teachers in terms of PETE? I think that our curriculum is PETE course to educate student teachers. I have those kinds of premises. (Even if student teachers can't become all teachers) we do not need to deny our identity as PETE course. As a result, I teach student teachers having the premise that they will become teachers (Part-time lecturer1 Seoul National University who taught Health Exercise 2010).

He mentioned that we have a duty to follow our purpose because our department belonged to College of Education and had to educate student teachers. This was his first teaching purpose. Although his studying area was Sport Management, he was an expert in gymnastics. Gymnastics was very difficult to teach student teachers because it was a very dangerous sport event. So he had been in charge of many units of gymnastics in various PETE courses since he was an undergraduate student as an assistant. This means that although he was not a teacher, he tried to teach student teachers as PETEr and had a long experience in educating student teachers.

In fact, there were some lecturers who were teachers or sport pedagogists in previous years. Uniquely, in 2010 there were no such lecturers who taught student teachers based on his school experience in Seoul National University. So, student teachers had an inadequate education to be taught physical activities in terms of PETE in 2010 in Seoul National University. On the other hand, there were some lecturers who were a teacher or taught PRACK in respect of PETE in Inha University. In summary, I have confirmed that there was a different teaching way of physical activities between lecturers who studied sub-discipline and lecturers who was a teacher or sport pedagogist in Korea.

Second, there was a limitation in terms of proportions of hours and credits between theories and physical activities. I am going to analyse credits which students A and B took in respect of proportions of hours and credits because there were some important differences between hours and credits in Seoul National University and Inha University.[17]

Table 10. The ranking comparison between hours and credits in five categories in the curriculum in which "A" student in Seoul National University and "B" student in Inha University (2009-2012) participated[18]

Ranking	A student in Seoul National University				B student in Inha University			
	Hours		Credits		Hours		Credits	
	Units	%	Units	%	Units	%	units	%
1	Physical activities	38	Liberal arts	31	Liberal arts	32	Liberal arts	35
2	Liberal arts	28	Physical activities	23	Physical activities	25	Discipline knowledge	28
3	Discipline knowledge	18	Discipline knowledge	22	Discipline knowledge	25	Educational units	15
4	Educational units	10	Educational units	15	Educational units	11	Physical activities	14
5	Professional knowledge	6	Professional knowledge	9	Professional knowledge	7	Professional knowledge	8

As I already explained the ranking order of each unit in chapter 6.2.1, I shall skip the explanation here about that and concentrate on the differences between

[17] There are detailed contents in the appendix 2 in Seoul National University and in the appendix 2 in Inha University.
[18] These two students' proportions in each area are similar to the result of each proportion in each PETE programme. This means that these proportions represent most students' proportions.

physical activities and other theoretical contents in terms of hours and credits. In table 8, when we consider the difference of proportions between hours and credits of physical activities, physical activities were first priority (38%) in Seoul National University and second priority (25%) in Inha University in terms of hours. On the other hand, when I change the proportions from hours to credits, the proportions of physical activities in Seoul National University reduced 15% from 38% (hours) to 23% (credits) and became second priority in credits from first priority in hours. Moreover, the proportions of physical activities in Inha University reduced 11% from 25% (hours) to 14% (credits) in Inha University and became fourth priority in credits from second priority in hours.

Based on this basic description the analysis of units of physical activities in detail, although physical activities were in charge of a big role as a first or second priority in terms of hours in Korea, considering inferior credits compared to theoretical units, units of physical activities could not receive as a same treatment as theoretical units could. This example shows the marginal academic status of units of physical activities. Furthermore we (e.g. PETErs) have also admitted the marginal role in Korea. Even if we have tried to increase professional units in respect of PETE (see chapter 6.3.2), seeing marginal credits of physical activities for 40 years, impacts on the status of physical activities in academia. However if the contents in units of physical activities have been still not reached comparable status, this means that there would be many possibilities to develop new types of units for physical activities to achieve a proper status.. This phenomenon is not as marked in England where credits and hours in physical activities were comparable to units of theoretical knowledge.

8.6.3. The reasons for consequences of these different and common changes between two countries

In this section, I explain the reasons and results of different and common changes of physical activities in two countries.

Firstly, professional knowledge gradually was emphasised in the units of physical activities in both two countries because PETErs adopted the development of professional knowledge in units of physical activities. For example, present PETErs in units of physical activities have taught more various professional knowledge such as PCK, CCK, KLC. Previous PETErs taught mainly only PRACK (e.g. the chapter 8.6.2). In England, this became a double-edged sword because present student teachers had to learn more various components in fewer units of physical activities learning inadequate PRACK. Meanwhile, in Korea, considering that even previous student teachers before the 2000s normally achieved introductory level in the curriculum without learning PCK or CCK, the structure of units developed more than in the past because present student teachers could learn various professional knowledge based on PRACK in units of physical activities.

Secondly, student teachers learned their PRACK outside of the official curriculum in two countries because units of physical activities in the PETE course at present were not in charge of student teachers' level of PRACK. For example, even though there were the big differences in amounts of physical activities in two countries (e.g. 900 hours in Seoul National University and 800 hours in Inha University in the 2010s, 372 hours in the University of Bedfordshire and 364 hours in the University of Brighton in the 2010s), student teachers in both countries mentioned that they learned introductory level of physical activities through units of physical activities even if they had a confidence for their level of physical activities.

Thirdly, in Korea, even if the reductions of hours of physical activities were less than England, the status of the credits of physical activities was less than the credit of theoretical units (e.g. theories: two hours in two credits, physical activities: two hours in one credit or four hours in two credits) showing that there were no differences between hours and credits in England.

In summary, overall, a shift from practical to theoretical knowledge (Sidentop, 1989) has been ongoing and physical activities have not received proper

treatments and have been played a marginal role in the PETE course and university in two countries. Meanwhile, considering the progress of sport pedagogy and high level of present PETErs, it is a time to develop a special unit of physical activities. I will argue for a new unit in chapter 9.

8.7. Comparison of Knowledge of Educational Goal: Raising and stressing teaching philosophy in physical education

Knowledge of Educational Goals was not clearly evident in either the programmes in England or Korea. Indeed it was clear that this area was previously problematic in being separate from the 'real situation':

> Although raising technique, broadening knowledge etc are very important, the perspective of teaching profession is also very important. We need student teachers to think about real lectures, teachers, children and students etc. However, it is difficult to get these kinds of concepts with Educational philosophy which was opened in the Department of Education. We have to teach not educational philosophy but teaching philosophy. We have to teach philosophical issues inside of real situation (Course leader Seoul National University in 2011).

The course leader indicated the problematic aspects of educational studies such as teaching philosophy in physical education suggesting that embedding these issues within sport pedagogy was central. He embodied Humanities-Oriented Physical Education (HOPE) in 2001 for whole-person education as a special philosophy for physical education. Moreover, he designed Hanaro Teaching Model to realise HOPE (Choi, 2001). Although there were many reasons to design this model, realising teaching philosophy in PETE was one of the reasons. Previous PETEr in England had a similar opinion as follows.

> the education course was pure education, taught to both primary and secondary and they were very unhappy, the secondary and the primary because they didn't feel that their needs were catered for so when that stopped, we were challenged to deliver the education within a professional studies which was right for us, so what we did was right for us and each institution would have solved that problem in its own way (Previous course leader University of Bedfordshire from 1980 to 1999).

She also mentioned inadequate components of educational studies such as

excessive pure theory in the 1980s.

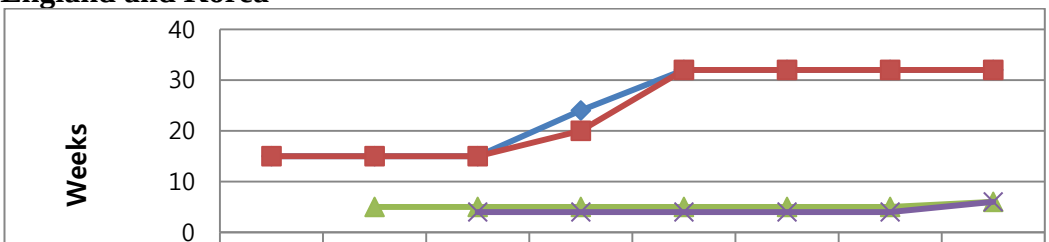
Indeed at University of Bedfordshire the previous course leader's work on the development of a philosophy for Physical education, which emerged as Physical Literacy, was adopted in official components of the curriculum in the University of Bedfordshire in 2010. Such a realisation highlights the important impact of an individual focus on philosophy similar to HOPE in Korea, and Physical Literacy in University of Bedfordshire. I can confirm similar endeavours to establish KGD such as own teaching philosophical issues between two PETERs in England and Korea.

8.8. Comparison of Teaching Experiences

8.8.1. there is a huge gap of amounts of days between two countries

There are big differences between teaching experiences in both countries. As we see in Table 11, the periods between 1970 and 1980 kept about 15 weeks, and the periods from 1980 to 1990 increased by nearly double in England and this level has been maintained at 32 weeks since then. In Korea students have, and continue to participate in only 4-6 weeks of teaching experience. In comparison, less than one fifth of that experienced in England.

Table 11. The change of teaching experience from 1970s to the present in England and Korea[19]



	1970s	1975s	1980s	1985s	1990s	1995s	2005s	2010s
Bedfordshire	15	15	15	24	32	32	32	32
Brighton	15	15	15	20	32	32	32	32
Seoul		5	5	5	5	5	5	6
Inha			4	4	4	4	4	6

[19] The process of making of this table 8 is same as table 4.

One course leader in University of Bedfordshire compared her periods with the present periods about teaching experiences as follows.

> I think that when I started teaching, I had a huge amount of content knowledge, I knew a lot about a lot about a lot of things and my knowledge was in-depth, but I don't think I knew as much about pedagogy as our students know so there were things that I didn't know, that our students today go out knowing and I had less opportunity to practice……. I think ultimately the students that we churn out now are better teachers when they left, than I was when I left because they have more practice in schools and more pedagogy, but there is an issue with the content because I knew everything there was to know about a lot of stuff! I had a massive amount of knowledge about a lot of different sport (Previous student2 from 1973 to 1976 and present course leader University of Bedfordshire).

Although she mentioned that her professional knowledge seemed to be less well developed than current, her experience of 15 weeks in the 1970s is still almost three times higher than that in Korea in the 1970s. Evidently teaching experiences have been very important legacy in England. On the other hand, many professors and teachers in Korea recognised insufficient teaching experienced as follows.

> Some student teachers mentioned that teaching experiences were not helpful because of insufficient periods. As you know, there was inadequate periods same as my one. It has been very long story in Korea (Professor1 Seoul National University).

> The PETE curriculum in my undergraduate focused on too much content knowledge. We need more teaching periods to cover real sufficient things. It also needs to very practical teaching experiences. Student teachers have to run against a stump (Teacher3 Inha University).

Due to insufficient teaching experience, student teachers do not practice in full in school and thus it is difficult to gain knowledge about various scenes in school. Many Korean researchers already insisted that more teaching experience is necessary (Park, Un-Hae, 1996; Kim, Young-Jo, 1997; Park, Sang-Wan, 2001; Son, Cheon-Taik, 2002). However, it is also difficult to increase teaching experiences because only about 5% of student teachers become teachers every

year.[20] In comparison, student teachers and teachers who experienced 32 weeks in England commented that such experience gave them a realistic view of the profession:

> I think university prepares you for an idealistic setting of what school is going to be like whereas when you're actually in your placement, in your school, you're not an established part of the department, you're coming in for a set amount of time, you have to abide these other rules which you may or may not agree on and therefore, you can't always practice everything you've learned in university, in your placement, you have to adapt but that's not a bad thing, you should be able to adapt but you shouldn't lose sight of what is good practice (Student4 University of Brighton 2011).

> Placements, definitely the placements. I think they took everything you knew, and made you actually prove yourself. People can either teach or they can't and you, it's something you develop, but it's not something you learn, from my opinion anyway, after our first placement loads of people dropped off the course. Whenever somebody dropped off the course it wasn't because they didn't enjoy the lectures it was because they weren't enjoying the teaching, which was obviously the whole point of it. Um, and I always used to be really sad when my placements were over and I had to come back to uni, because I was always, you've let me go out and do what I wanted to do, and now you're making me come back. So I'd say that was definitely the most important bit was the, the practice (Teacher1 AOE 2011).

Student teachers and teachers who had experienced placements for 32 weeks had a positive perception of teaching experiences and recognised that some student teachers left their PETE course after their first placement experience because they realised that it was not a suitable course or career for them.

Recently, there was a small change of teaching experiences in Korea. Educational Volunteer Program I and II opened in 2009. Student teachers could join in various institutes related to education such as educational office in-local, private academy, school, etc. They receive a certificate to prove they completed 30 hours in that institute. This means that student teachers are able to explore a

[20] As i mentioned before, 4.6% student teachers become a teacher among people who complete a course in teacher education or 24% student teachers become a teacher among people who graduated Faculty of Education between 2007 and 2009 in http://www.pressian.com/article/article.asp?article_num=30101122191432 (an article in a newspaper, 23/11/2010)

variety of alternative jobs through those units. However, although many are critical of the amount of teaching experience in Korea, one unit leader in England worried about their excessive school experiences.

> I think there's a strong link between what they do here and what they do in schools. We try and make sure that everything we do on the course, in some way or other, prepares them for being in schools so I think there's a very strong link …… However at the same time, we're always mindful that they are studying for a degree as well, …… the students often see what goes on in the university as distinct from what happens in schools and what the students will say is that "the real learning goes on in schools" and to an extent that's true, …… they have to understand the context of physical education and education and in my teachers as educators module, I keep saying to them, "you can't just teach PE and not think about what activities you're teaching, why are you teaching gym, dance, games, swimming and not tiddlywinks, shark fishing and sky diving?", "why are you trying to focus on these aims to do with developing skill, developing tactics, why are you focusing on those issues more than you're focusing on say self esteem or confidence or developing the person's spirituality?" (Course leader University of Bedfordshire 2011)

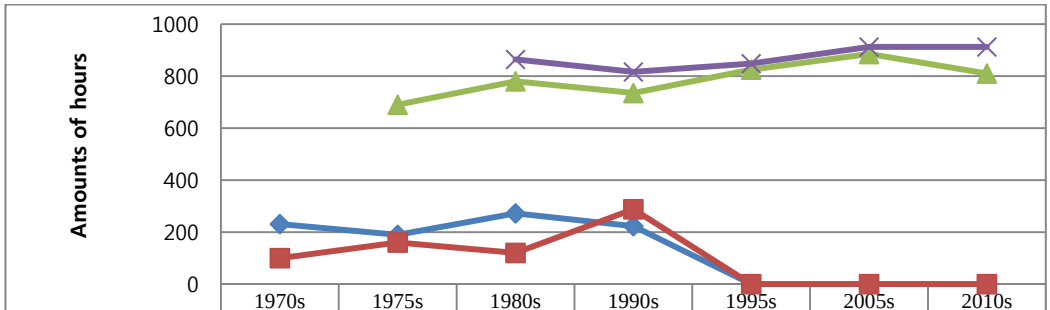
The distinct nature of the long school experience could be 32 weeks. He insisted that student teachers have to have a balance between professional aspects of physical education and context of physical education because he was cautious about student teachers' automatic learning and teaching without thinking various components in physical education. He though that lectures in university can block student teachers to be satisfied with just their outstanding teaching skill.

As lecturer5 at University of Brighton mentioned that, there was social agreement in the 1980s that practical components were more important than theoretical components.

8.9. Comparison of second subjects and liberal arts

Before the early 1990s student teachers in England taught an additional subject as well as physical education. In Korea, the target of liberal arts was not only student teachers in the PETE course but also students in all departments in the university. The classes of liberal arts helped students in Korea understand their new culture. Thus the English and Korean context for this discussion is significantly different.

Table 12. The change of the hours of second subjects in England and liberal arts in Korea from 1970s to 2010s[21]



	1970s	1975s	1980s	1990s	1995s	2005s	2010s
Bedfordshire	231	189.5	272	223	0	0	0
Brighton	100	160	120	288	0	0	0
Seoul		690	780	735	825	885	810
Inha			864	816	848	912	912

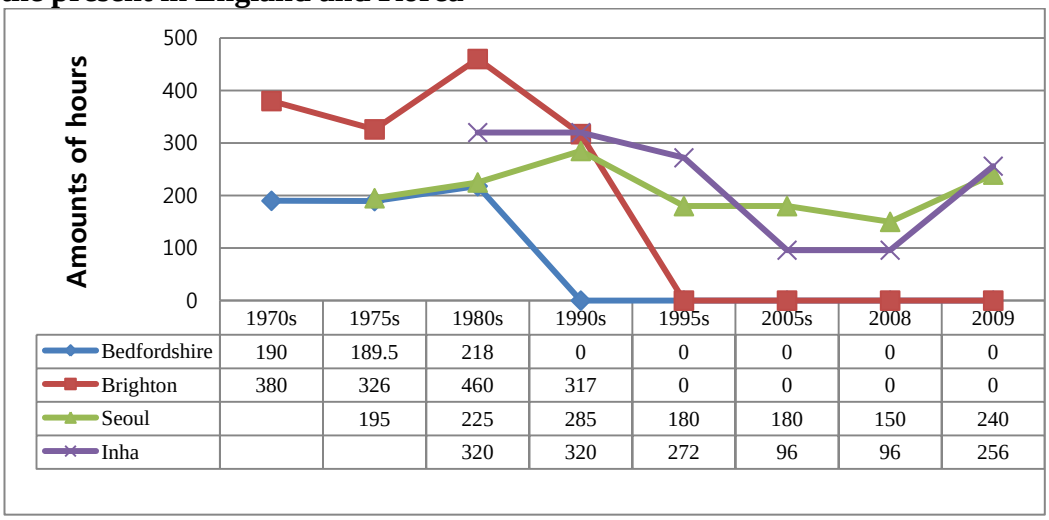
In England, second subjects in 1996 disappeared (see table 12). However, after abolishing the second subject, the hours did not transfer to other areas. In Korea, although there were some fluctuations in the amount of proportions of hours of liberal arts, they have remained the dominant units at over 30% of the whole curriculum for 40 years.

8.10. Comparison of education studies

In England, education studies in the University of Bedfordshire officially disappeared from the timetable in 1989 and the same situation occurred in the University of Brighton in 1993 even if there were many units of education (about 200~400 hours) studies in the 1970s and 80s. In Korea, education studies in Seoul National University had increased from 195 hours in 1975s to 285 hours in the 1990s. After that the units gradually decreased from 285 hours in the 1990s to 150 hours in 2008. However, the units urgently increased from 150 in 2008 to 240 hours in 2009. Compared to Seoul National University, educational units in Inha University had gradually reduced from 320 hours in the 1980s to 96 hours in 2008. However, there was a sudden rise from 96 hours in 2008 to 256 hours in 2009 same as Seoul National University. The rapid growth in 2009 was caused by the order from government (see table 13).

[21] The process of making of this table 12 is same as table 1.

Table 13. The change of amounts of hours of education studies from 1970s to the present in England and Korea[22]



	1970s	1975s	1980s	1990s	1995s	2005s	2008	2009
Bedfordshire	190	189.5	218	0	0	0	0	0
Brighton	380	326	460	317	0	0	0	0
Seoul		195	225	285	180	180	150	240
Inha			320	320	272	96	96	256

As previously outlined education studies in England were more theoretical than practical in University of Brighton covering content such as:

> I remember I did lots of work about Piaget and learning theories, all of those things (Lecturer1 and previous studnt1 from 1979 to 1983 University of Brighton).

She explained that though she learned theory about education studies, the application was insufficient. One Korean present teacher who was a student at the early of 1980s described the situation similarly:

> I just learned pure education. Even if it was helpful to understand the trend of education, the contents were not related to school circumstances (Previous student5 from 1980 to 1984 and part-time lecturer6 Seoul National University)

This teacher is a part-time lecturer to educate student teachers. He also showed me similar opinions with Lecturer1 in University of Brighton which means that education studies were not helpful to practical contents.

Similarly, one professor in Korea explained why his teaching was better to student teachers in the PETE course than units of pure education with respective of

[22] The process of making of this table 9 is same as table 4.

professional aspects as follows.

> When I teach student teachers in my class, I adopted theories or models in pure education. And I reinterpreted the pure contents to be suitable in the context of physical education and delivered the contents to my student teachers. Because of this reinterpretation, they could understand relatively easier the contents. However, when student teachers joined in the units which were opened from Department of Education, it was very vague contents to them. It was very difficult to understand for them (Previous course leader Seoul National University from 1979 to 2008).

He mentioned that, even if he could teach pure education to student teachers to be suitable physical education, there were too few professional units which he taught in his periods. He was sorry not to have many professional units in the PETE course.

In Korea there were some units of education studies which were in reality closely related to professional units such as Guidance and Counselling, Understanding Multicultural Education, Studies on School & class management. Some student mentioned as follows.

> There was a class which I learned the circumstances in school such as system of school, teachers and how are children etc. It was Studies on School & class management etc in educational studies (Student1 Inha University 2012).

She reported that she learned about the overall environment in school through this unit highlighting the professional nature of units in education studies in Korea. Although we witnessed education studies in England disappearing in the early of 1990s, education studies in Korea at present is stronger than in the past even if there were periods of reduction and a distortion of the focus of education studies.

8.10.1. The reason of this change: the political decisions of government and university of those days

Although there has been a different result in regard of survival of educational units between the two countries, the same biggest cause stems from the political

decision of government and university of those days. I already mentioned Lecturer 5's comments as follows in the part of University of Brighton.

> When Margaret Thatcher became our prime minister, she wanted to get rid of theory from students and everything had to be practical, (Lecturer5 University of Brighton)

He explained the situation where practical knowledge was stressed in the 1980s. This was a perspective of government in England as a significant factor. Moreover, at that time, the course leader in the PETE course had more final discretion than lecturers who taught education studies in the 1980s. This means that the course leader could abolish education studies in the PETE course. One previous course leader explained the situation as follows.

> It was in the mid 80s to the mid 90s and it still persists now, that there was a lot of scepticism of the value of pure education theory and this still persists now, which doesn't please me at all. …… So we smuggled our education into the professional studies because you were studying you know the professional how to teach you must understand how to children learn you must learn you know how at least to develop (Previous course leader University of Bedfordshire).

Given that in the 1980s most lecturers who taught student teachers in the PETE course were previous PE teachers or studied the PETE course, it is perhaps unsurprising that the 'scepticism' that lead to the removal of education studies existing and inevitability it was the PETE faculty who took this decision.[23]

Even if education studies in Korea still exist in the PETE course, the reason of survival is very similar to the English case in terms of same political situations. One previous professor mentioned like this.

> Historically, people who graduated in Department of Education in College of Education at Seoul National University have become the Minister of Education. They have stressed units of educational studies in Korea (Previous course leader Seoul National University).

[23] There are in detail contents in chapter 5.3.2.

Because graduates in Department of Education have a political power in the government, pure educational units have existed still in the PETE course which is affected by the policy of government. Moreover, there have been long political fights to keep or reduce education studies between each subject department such as Department of Physical Education, Mathematics, English, Science and the Department of Education.

> The department of Education asked that professors in each subject department just teach content knowledge. They insisted that professors in the department of Education would teach PCK to student teachers. They have insisted like that. Moreover, the deans of College of Education were turned out in many departments in Seoul National University. Because of these problems, there were conflicts between them in chair meeting in College of Education. For example, in the 1980s, one professor who belonged to Department of OO (not education) became a dean in College of Education. He insisted that student teachers in our department did not join in educational studies. Why? We taught all contents in educational studies such as curriculum, sociology, psychology which was connected to our subject. So, we do not need to join in Sociology of Education because we have Sociology of (e.g. Mathematics, physical or English) Education. Because of this, student teachers could just join in six credits in educational units reducing the credits. It was big issues at that time. However, educational units have been recently stressed in the PETE course in College of Education because the minister in the Ministry of Education increased educational studies as a national policy. It was their (Ministry of Education) dogmatic decision without listening opinions from other departments. Because of their peremptory decision, there have been still big conflicts (Previous course leader Seoul National University).

He explained the real conflicts between them. Because the Department of Education has had power over theeducational area, they have ensured that educational studies have been compulsory units for student teachers to graduate from their university in Korea. However, as he mentioned the strife between them, because the influence of each department was stronger than Department of Education, the amounts of units had reduced from 1980s to 2008 (see table 6). However, because of the order from the government in 2009, the credits increased

from the minimum 10 credits in 2008 to the minimum 20 credits in 2009.[24] This change was common in two PETE courses in Korea.

Although the disposition of PETE lecturers in each country towards education studies appears similar, the political contexts in each have led to very different approaches to the inclusion of education studies within the curriculum. In the context of the political decisions of government and university, the situation in England was good for practical education in the PETE course. On the other hand, the situation in Korea has been good for Department of Education rather than each subject department.

8.11. Student Perceptions of the Knowledge Base

Student teachers' thinking about Shulman's components in each country were discussed during interviews with 10 fourth year student teachers to examine their thinking for this curriculum in 2009/10 in England. I interviewed 9 fourth year student teachers (four students who were not preparing for the teacher recruitment examination and five students who were) in Korea. I asked them that which the first component that you learned in PETE course was (see table 14 and 15).

Table 14. Shuman's components which fourth year student teachers learned for four years from 2006 to 2010 in University of Bedfordshire in England

	Most student teachers become PE teachers.									
name	A	B	C	D	E	F	G	H	I	J
First priority	PCK	PCK	PCK	PCK	PCK	PRACK	PCK	GPK	CCK	TCK
Second priority	CCK	KEG	TCK	CCK	CCK	TCK	PRACK	CCK	PCK	PRACK
Third priority	There were various components.									

In England, the first priority which students learned in this course was PCK (six students selected, see table 14). As you see this table 14, all students selected contents which were related to PETE as a first or second priority such as PCK,

[24] There were in detail change of education studies in appendix 1 in chapter 6.

PRACK, CCK, GPK etc.

Table 15. Shuman's components which fourth year student teachers learned for four years from 2008 to 2011 in Seoul National University in Korea

	Preparing other jobs				Preparing the TRE				
Name	1	2	3	4	5	6	7	8	9
First priority*	PRACK	KEC	KEC	PRACK KEC	PRACK KEC	KEC	KEC PRACK	PRACK KEC	PRACK KEC
Second priority	GPK	PRACK	PRACK			PRACK			
Third priority	There were various components.								

*I allowed them to select two components as a first priority.

On the other hand, in Korea, the first priority which students selected was KEC (eight students selected), which was related to units of discipline knowledge and not related to TCK, and PRACK (6 students selected, see table 15). And it was a similar result between students who were not preparing the teacher recruitment examination (KEC: 3, PRACK: 2) and students who are preparing the teacher recruitment examination (KEC: 5, PRACK: 4).

It is clear that students' perceptions of the current curriculum are broadly in line with the findings of this thesis.

8.12. Comparison of the outside components affecting PETE curriculum

After establishing NCPE in 1992, there were three revisions of NCPE in 1995, 2000 and 2008. Six areas of physical activities in 1993 were introduced as an official field in NCPE. After revision in 1995, team games were stressed among sport and performance in sport and games in schools. For example, games were kept 50~70% in Key Stage 3 PE after 1995. After revision in 2000, there were two efforts to reduce the stress of sport performance. First games were changed as an optional unit in Key Stage 3 and 4 PE and second there was a gradual strength of the health-related exercise (HRE) such as reducing obesity (Green, 2008, pp. 34~37). The revision in 2008 focused on reducing the influence of performance, stressing becoming leaders and officials (QCA, 2007a). After all, although there were changes of emphatic content knowledge during these revisions, sport events stressed except the revision of 2008. These establishments and changes of NCPE

affected this PETE course. After establishing NCPE, there were at least four changes (1993, 1996, 2000 and 2003) of this curriculum in this PETE course to catch up with new changes of NCPE.[25] First of all, there was the change of physical activities to be suitable the area of NCPE in 1993. However, even if the content of physical activities (performance) were stressed in school PE, the amounts of hours of physical activities have reduced in this PETE course from 1993 to 2011. Instead of increasing the units of physical activities for the same periods, they increased the units of professional knowledge becoming more systemized than in the past. For example, student teachers mainly had learned physical activities in the first year and learned the teaching way of physical activities in the second year through the revision in 1993. One lecturer mentioned these changes explaining the influence of OFSTED.

> I think those things would be better, I'd rather spend more time on those things because I think the OFSTED requirements and particularly when we get OFSTED, most of it seems to be about producing teachers who are good practitioners in the classroom so in a sense, it's changed from the study of physical education for an academic degree, almost to a craft. …… What OFSTED seem to be concerned about is that they're good at doing, they're good at teaching. …… We're trying to develop a far more generic approach because I think with the shift in emphasis in our national curriculum, they're looking for breadth of experience and it's this idea of developing somebody who's physically literate, rather than producing the next national football team for example (Course leader University of Brighton).

He showed that they followed the order from OFSTED such as the stress of how to teach contents in school. It also means that the curriculum in this course has developed the way to increase the units of professional knowledge. For example, a new unit in 1996 was developed such as Examination in Physical Education and dance (present: Examinations in Physical Education 14-16) because of the need to prepare student teachers to teach GCSE and A-Level PE in school. The numbers of units of dissertation (units of discipline knowledge) were decreased from four

[25] Curriculum in 1993 and 1996: BA (HONS) QTS PHYSICAL EDUCATION DEFINITIVE COURSE DOCUMENT Revised September 1996.
Curriculum in 2000: BA (Hons) Physical Education with QTS, Proposal for Revalidation, May 2000, p. 14.
Curriculum in 2003 BA (Hons) Physical Education with QTS, Definitive Document September 2000, Revised September 2003, FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL, P. 3.

units in 2003 to two units in 2009.[26] And the hours and levels of the units of education studies in 2009 increased a little bit more than in 2003. Moreover, there were big changes in school sports in the 1990s~2000s. One lecturer explained a situation between this change and the application to PETE as follows.

> The PE curriculum in England, between 2000 and 2009/10, there were lots of things put in place by the Labour government, sports colleges were one, then you had something called the PESSCL Strategy, PE School Sport Community Links, which later became the PEYSP Strategy, PE, Young People & School Sport and during that time, they set up the school sports colleges and then you also had the whole partnership arrangements that were around sports colleges, with school sport coordinators, links to primary schools and this whole idea of PE and school sport partnerships and because that was a very important part of the government policy at the time, we felt it was important for our students to know about the nature of school sports partnerships and community links. So we validated a module which was based around that whole element of school sports partnerships and what sports colleges were doing, what partnerships were happening within PE and school sport, so with the sports colleges, also partnerships and links with governing bodies, different sports councils and all the Lottery funding, that was a really big part of PE and school sport at the time and that's what that module was about (Course leader University of Brighton).

According to his explanation, there were many changes such as emerging the PESSL strategy, sport colleges and the PEYSP strategy. Because of these changes, they thought that student teachers have to catch up with the policy of government or these urgent changes of circumstances of physical education. As a result, they made two new units such as Partnerships: School and Community Links, Partnership: Strategic Management and change in 1996. This is evidence that PETE course was affected so much from the policy of government. He added one more opinions as follows.

> But I think that change has come about because of the government regulation, when OFSTED come, every time they always have a focus, subject knowledge was a focus 10 years ago, so we developed our course to focus a lot on subject knowledge. Then it changed to do with say issues of inclusion, I know that the next OFSTED inspection is to focus on

[26] See appendix 3 chapter 4.

> issues to do with SEN, Special Educational Needs, behaviour management and diversity and so we've had to change our course to reflect those things (Course leader University of Brighton).

He explained the reason why they concentrated on teaching content knowledge and the teaching ways of content knowledge was because OFSTED wanted that based on the revision of NCPE. Moreover, he predicted the future assessment from OFSTED such as Special Education Needs (SEN), behaviour management etc. These contents of assessment have the same way of the revision of NCPE in 2008 which reducing the influence of performance. It means that the reason of increasing units of professional knowledge were the results following the policy of government.

In Korea there were four outside components affecting PETE based on analysis of two PETE curricula. First, it was Physical Educational Curriculum Revisions (PECR) which was similar to NCPE in England from 1955 to 2007. Second, it was the strength of TE programmes from the Ministry of Education in 1985. Third, it was the beginning of the Teacher Recruitment Examination (TRE) in 1991. Fourth, it was the Third Assessment of Teacher Training Institute (TATTI) in 2010. Among these four components, PECR directly did not affect the PETE curriculum revisions. Meanwhile, other three facts affected the PETE curriculum revisions.

First, there were several PECRs from 1955 to 2007 based on state-dominant educational system (You, Jeong-Ae, 2009). Considering my first resources from 1978 in PETE in Korea, I could compare the contents between PECRs from 1981 to 2007 and PETE curriculum revisions from 1978 to 2012. Even if there seemed to be small changes of two PETE programmes based on PECRs, it was difficult to find special changes of PETE curriculum. For example, there were five changes of PECR in 1981, 1987, 1992, 1997 and 2007. Meanwhile, there were four times of change of PETE programmes of Seoul National University in 1985, 1996, 2005, and 2009 and there were several times of change of PETE programmes of Inha University from 2000s. However, I could not find special connections between the

changes such as the time and contents because, compared that the aim of these changes of PECRs could establish purposes of physical education to be suitable educations for students in school (Kang, Shin-Bok, 2009), the aim of changes of PETE curriculum mainly happened in terms of changes of units of kinesiology (e.g. chapter 6.3.3.3). Jeong & Kim (1999) also reported that Seventh PECR did not affect to PETE curriculum, at that time. However, as I mentioned chapter 6.3.2.5, even if the units of professional knowledge were just two before 2009, those units reflected these changes of PECRs in their contents. This means that the changes of PECRs were taught in just two units of professional knowledge showing that the changes of PECRs did not influence to the change of PETE curriculum.

Second, even if the Ministry of Education ordered to strengthen PETE programmes in 1985 giving a chance to increase units of professional knowledge, one unit (philosophy of physical education or kinesiology) which were not related to PETE included in professional knowledge because of political and academic situations in the PETE course in Seoul National University (see chapter 6.3.3.2). This means that the influence of outside did not affect to the PETE course.

Third, the beginning of TRE in 1991 affected to the PETE curriculum. All student teachers had to take this exam from 1991. It influenced to the various aspects of TE (Lee, Jong-Jae et al, 2009). In terms of PETE in Seoul National University, there were negative effects. As I mentioned in chapter 6.3.1.2, there was a revision of PETE curriculum in 1996 to catch up with this beginning of TRE reducing compulsory units of physical education that student teacher could get other units such as liberal arts because all student teachers could not become teachers in school. This means that they could not help diversifying their curriculum including PETE from 1996. About six years ago before starting TRE, the Ministry of Education gave orders to promote PETE in 1986. These two policies appeared opposed to each other. Even if there were very complicated situations in 1990, these confused policies reflected Korean undeveloped TE policies.

Fourth, TATTI was introduced in 2009. As I mentioned that in chapter 6.3.2.5, because of the introduction of TATTI in 2009, the curriculum in the PETE course in Seoul National University became more suitable structure to the PETE increasing units of professional knowledge. The important part of this change in 2009 was that one professor who carried out this preparation for TATTI had more political and academic powers than previous professors who could not succeed in increasing units of professional knowledge in 1985. This means that sport pedagogy could respond more properly than in the past and had gradually promoted their status academically and politically during about 25 years from 1985 to 2009.

As a result, the changes of PETE curriculum were not active especially in terms of PETE curriculum because these PETE courses in Korea were not directly related to school physical education and more inclined to kinesiology. Moreover, compared to the PETE courses in England, although PETErs in England tried to make more actively social changes related to school physical education such as making new units, changing the title of units, etc, we could confirm that the changes of the PETE curriculum in Korea were very slow and the changes normally happened to the inside of contents of units of professional knowledge. However, considering that there were fairly big changes because of TATTI such as increasing units of professional knowledge and numbers of professors, the speed receiving outside of components would be faster than the present.

8.13. Comparison of academic balance in terms of lecturers' degree in two countries

8.13.1. England

In England, during the development through COE, BEd and BA, PETErs, academic status also has gradually developed. First, PETErs have long careers as teachers, even if some of them have short or no experiences as a teacher, they have been very few in the PETE course. Although teachers who have a long career

as a PE teacher without a MA degree could apply for jobs for PETErs, the same as in the past, at present without a MA degree, it has been not easy to become PETErs. And many PETErs who have a MA degree have been studying for a PhD as a part-time student or already have a PhD degree before applying for the job. This means that the qualities of PETErs have been gradually higher than in the past in respect of academic field. Second, however, academic aspects in PETE inside academia have been still inadequate in terms of graduate school. Many PETErs in both PETE courses received their MA or PhD degree from other departments such as Department of Education, Department of Sport Science, or other universities, because PhD courses related to Sport Pedagogy were rare in England. In terms of diversification, studying in other area looks positive. However, the reason of inadequate accessibilities to study Sport Pedagogy as PhD degree is a different story. Seeing PETErs' degree in two PETE courses in detail in table 16, except some lecturers who have PhD degree, most lecturers obtained their PhD degree from 2000 to 2009 during their teaching in the PETE course or shortly before becoming a PETEr.

Table 16. PETErs' degree in two PETE courses in England in 2012

University of Bedfordshire					University of Brighton				
Professors	Full time lecturers				Professor	Full time lecturers			
PhD	PhD	Part-time PhD student	MA	BA (BEd, COE)	-	PhD	Part-time PhD student	MA	BA (BEd, COE)
1	5	3	2	3	0	3	1	3	2

In the University of Brighton, one lecturer mentioned that the university had urged lecturers to obtain PhD degrees after they were hired since the 2000s. Because of that, two PETErs obtained their PhD degree in the middle of 2000s. On the other hand, all lecturers who had a PhD degree were hired in 2009 while one professor who could teach PhD students was invited to join the University of Bedfordshire in 2009. And three lecturers who have been studying for a PhD as a part-time student have started their PhD course since 2009 because of that professor. Before 2009, there were no lecturers who had PhD degree who were directly involved in the PETE programme leadership in University of Bedfordshire. This means that,

even if there are more academic lecturers in the University of Bedfordshire than the University of Brighton at present, the academic development at the University of Bedfordshire has occurred very recently compared to the University of Brighton. As a result, although academic qualities in University of Brighton have been longer than in University of Bedfordshire, after creating a PhD course in 2009 in the University of Bedfordshire, the academic qualities in the University of Bedfordshire have been developing rapidly compared to the University of Brighton where there has still been no PhD course in respect of Sport Pedagogy. That is, the academic development in these two PETE course looks an early stage.

8.13.2. Korea

In Korea, although the PETE course started from the university level, the awareness of PETE research was very low even in the PETE course because most professors majored in discipline knowledge such as exercise physiology, sport psychology etc showing that they did not show much consideration for the of contents in PETE (see table 17).

Table 17. Professors' majors in two PETE courses in Korea in 2012

Seoul National University		Inha University	
Sport Pedagogy	other areas	Sport Pedagogy	other areas
2	14	1	5
All Professors have PhD degree.			

This means that their teaching of discipline knowledge was more suitable to academic contents in academia. Moreover, they thought anybody could teach physical education in school (e.g. chapter 8.2.6.2). It was difficult to judge this PETE course as a sound PETE course even if this course looked academic. Moreover, there were no professors in Seoul National University who studied PETE in the 1970s before the previous course leader who completed his PhD course majoring sport pedagogy at the end of 1970s in the USA. After he was hired in Seoul National University in 1979, the academic development in PETE started. However, as I mentioned chapter 6.3.2.4, the development in the level and

amounts of hours were very faint by 2008 because of many barriers in this course. Meanwhile, the situation was more severe in Inha University because one professor who studied sport pedagogy was hired in 2000. Before 2000, nobody taught professional knowledge in respect of PETE. By the way, in respect of professors' degree, because applicants had to have PhD degree applying for this job from the 1980s, there were no big changes about professors' degree in Korea. Before 1980s, although some professors had only BA or MA, they also obtained their PhD working this course in Seoul National University. However, their areas were in all discipline knowledge.

As a result, even if there were some developments such as hiring PETErs in PETE courses, given that still about 80% of professors studied discipline knowledge as their main areas, there was a limit in the academic balance in PETE in Korea.

8.14. Conclusion

I have discussed the similarities and differences of physical activities, discipline knowledge, professional knowledge, education studies, second subjects and liberal arts and the reasons for those things based on amounts of hours in the PETE courses and Shulman's components answering mainly RQ3, RQ4, and RQ5.

The amounts of hours in four courses in two countries have reduced even if there have been differences of amounts of hours and periods. The main reason is the demand to reduce costs from the central administration of the university. In England, they abolished education studies and second subjects and reduced the amount of hours of physical activities. In Korea, they reduced credits from 140 to 130. Amounts of physical activities in Inha University have reduced in particular showing most amounts of units have decreased. However, education studies in Korea have increased since 2009. Professional knowledge in terms of sport pedagogy has increased in four PETE courses even if there have been intervals to adopt the units in two countries. Moreover, discipline knowledge in England has developed based on PETE and in Korea developed based on kinesiology. Teaching

experience has increased from 15 week to 32 weeks in England and kept at 4 or 5 weeks in Korea.

The main reason for these differences is that in England there has been more concentration on PETE than Korea. For example, the employability rates are significantly different between two countries (e.g. over 80% in England and 5-10% in Korea). Moreover, the composition of professors between two countries has been an important factor (e.g. nearly all full-time lecturers were previously teachers in England and most full-time professors in Korea studied various parts in kinesiology). Moreover, student teachers in England learned mainly contents related to PETE. Meanwhile, student teachers in Korea learned various contents in kinesiology showing that contents of PETE were one of the parts in this course.

As a result, I have been able to confirm that the two PETE courses in England have been well developed. And even if there has been development in terms of PETE in the courses in Korea, there have been more components of kinesiology rather than knowledge more directly related to PETE.

9. Conclusion: The futures of PETE in England and Korea

9.1. Introduction

I examined changes of knowledge bases of four PETE courses in England and Korea between the 1960s and 2010s concentrating on mainly curriculum by using two perspectives (Kirk et al's knowledge (1997) and Shulman's knowledge (1987)) in terms of social constructionism. To do this, I created six research questions based on a review of the literature. To answer these research questions, I developed my methodology and methods. Through this work, I completed my results over seven chapters. Drawing on my findings in relation to research questions 1 to 5, I will consider the futures of PETE.

9.2. Summaries of main findings and implications of those findings to future PETE programmes

I noted that Kirk et al (1997) examined the changes of knowledge from the 1970s to the 1990s in the PETE courses in Australia in my literature review. Based on their study, I expanded the time by the 2010s and the regions to England and Korea.

In this section, I overview the implications in PETE based on roughly changes of amounts of units. First, I summarised the knowledge base in the 2010s. In terms of Kirk et al's knowledge, the first priorities in England were units of professional knowledge and physical activities. The lowest priority was discipline knowledge. Meanwhile, even if the first priority in Korea was physical activities, there were not big differences with the second priority (discipline knowledge) in Inha University. The lowest priority was professional knowledge. In terms of Shulman's knowledge, the interrelationship between PRACK and PCK and KLC was good in England. Meanwhile, even if there was a connection between PRACK and PCK, the application to KLC was very weak in Korea. Moreover, student teachers' satisfaction in England was higher than them in Korea to their

PETE course (see chapter 8.3 and 8.11). Even if the amounts of hours in England were less than them in Korea (e.g. 910 hours in England and 1621 hours in Korea in units of physical education), thinking about these various components, the PETE course in England was more developed than in Korea.

Second, I roughly summarised the knowledge base in respect of Kirk et al's components from the 1960s to the present. In England, considering the amounts of hours, the first priority has been physical activities for the whole period even if amounts of professional knowledge has been similar to amounts of physical activities since the 2000s showing that the amounts of physical activities have dramatically reduced since the early 1980s. The second priority has changed from discipline knowledge in the 1990s to professional knowledge in the 2000s. This means that the amounts of discipline knowledge have been the lowest since the early of 2000s and amounts of professional knowledge have soared since the early of 1980s, affected by the beginning of developments and necessity of sport pedagogy. In Korea, considering the amounts of hours, first, units of physical activities have been first priority showing no reductions in Seoul National University for the whole period and urgent reduction in Inha University from 2009. Second, even if discipline knowledge in Seoul National University has decreased but the case in Inha University has increased, discipline knowledge has been the second priority for the whole period. Third, even if units of professional knowledge have increased, the amounts of hours have been very small (less than 10%) and the lowest amounts for the whole time.

Third, predicting PETEs future based on these changes of amounts, even if the balance in England would be better than in the past (e.g. chapter 8.4.1), because of reducing amounts of hours and numbers, it is difficult to judge whether or not the big frame of curriculum has been better than in the past. Moreover, considering the future based on these continuing dramatic reductions of hours, the future would not be bright. On the other hand, because the PETE course in Korea has kept many amounts of hours in the curriculum (e.g. 2415 hours in 2010s in Seoul

National University, 910 hours in 2010s in University of Brighton), there would be a possibility to upgrade the PETE course to the future through increasing teaching experiences and revising the curriculum.

Next I examine implications in PETE based on mainly changes of curriculum. First, the units in education studies in England disappeared in the 1980s and 1990s because the then PETErs and student teachers were not satisfied with those subjects. However, there were no alternatives such as units and the hours instead of education studies which disappeared in the PETE courses. Even if education studies were not professional but very theoretical at that time, there was a possibility to revise other units or transfer the hours to units in physical education. However, because of the economic situation, it did not happen. Meanwhile, education studies in Korea have still existed even if those units have been very theoretical, the same as England, showing that student teachers' satisfaction was also low for a long time. Even if the satisfaction for education studies from student teachers were very low in both countries, the result was very different. As I mentioned before, the subjects in England disappeared, on the other hand, the subjects in Korea increased. Given that education studies revealed little applicability in terms of PETE (see chapter 8.10.1), decision makers in Korea have to discuss the future of education studies such as revision or abolition.

Second, professional knowledge in England accepted the development of sport pedagogy in terms of frames and contents of curriculum from the early 1980s. Moreover, the teaching experiences increased from 15 weeks to 32 weeks. The important thing was that even if the curriculum of HMS (discipline knowledge) was strong in the 1970s, without troubles, they received the development of sport pedagogy. Meanwhile, the development of professional knowledge in the PETE course in Korea was applicable nearly inside of the units of professional knowledge showing that the increase of units started from the middle of 2000s. Moreover, even if the delivery of professional knowledge gets better, because of insufficient care for KLC such as four weeks teaching experience, the effects of

delivery for student teachers were still very weak. Because of different decision makers and structure of the curricula in two countries, these differences occurred (see chapter 8.5.4). Considering the development of professional knowledge in England, even if the current balance seems good, there are some concerns about the political situation and pressure to move PETE from universities which could undermine this balance. Although there were also developments of professional knowledge in Korea, the current situation in Korea does not look hopeful because the correspondence from development of sport pedagogy in terms of frame of curriculum was very late and inactive. However, because there has been some increase of units in professional knowledge, there would be still possibilities to develop this area.

Third, the development of discipline knowledge in England was for PETE such as the endeavour to enter degree from diploma (Kirk, 1992). At present the influence of this knowledge is reduced compared to in the 1970s because of the development and adoption of professional knowledge. Moreover, although the influence of TCK such as A-Level PE at present was significantly bigger than in the past, decision makers in England did not consider TCK as a main CK in PETE course up to now. This is a very good sign considering the future of PETE because at least PETErs would not increase the units of discipline knowledge for the present. However, because there were many orders of TCK from student teachers and teachers in PETE course, we should keep an eye on the change of TCK in the curriculum. Meanwhile, there were no big changes in discipline knowledge in terms of learning insufficient contents in kinesiology in Korea for the whole period. Even if new subjects such as sport management emerged and some unit leaders taught discipline knowledge in terms of PETE, the changes were very weak. Moreover, the position of discipline knowledge between PETE and kinesiology were very ambiguous. This is a time to make a precise direction for discipline knowledge. However, in context of Korean situation, the units for discipline knowledge as kinesiology will continue to the future in the PETE course because many student teachers still try to find other jobs instead of

teachers. If we just follow the existing contents, the future for discipline knowledge will be very bleak and tremendous criticism will be also appear in the future.

Fourth, Kirk (2006; 2010) already described the reduction of physical activities several times in England. In my research, I examined the substantial reduction of hours and sport events in two PETE courses over forty years including the cases in Korea. The reduction in Korea occurred mainly in Inha University showing that there was no reduction of physical activities in Seoul National University. The common aspect in two countries was that the spiral system dominated for a long time. In England, even if the system did work well in the 1970s and 1980s to upgrade the level of physical activities, at present, it is not working well in terms of developing level of physical activities because of the reductions of hours, teaching various components (e.g. PCK, CCK and models) in limited hours, repetitions of same level of contents and the problems of assessment. I confirmed that this situation occurred in Korea as well as in England. Macdonald, Kirk and Braiuka (1999) showed the process that first year student teachers' recognition for physical education underwent improvements through curriculum in PETE course in Australia. Considering whether student teachers' recognition improved toward physical activities through units of physical activities or not, thinking about the dramatic reduction of hours of physical activities in England and the marginal status of the credits of physical activities in Korea and recognitions which student teachers thought units of physical activities were just easy in both countries, we also deemed physical activities were marginal units. This means that even if there were some development of units of physical activities such as teaching PCK based on PRACK, the abolition of the spiral system and the invention of intensive units for physical activities, the development of physical activities was less than the development of professional and discipline knowledge. We have to receive this situation seriously because physical activities in the PETE are an objective reality. Based on these facts, I concluded that the development of units of physical activities was not satisfactory in both countries. This means that, even if the

amounts of hours in physical activities decreased, concentrating too much on the professional aspect in units of physical activities, we did not consider the improvement of awareness of physical activity itself. One can be very sceptical about the future of PETE in this respect. In this context, the situation which Kirk (1992; 2010) predicted might occur in the near future.

> "The physical education teacher may be permitted a minor role in teaching games and sports, but will find his or her time consumed by teaching and assessing the new academicized physical education subject." (Kirk, 1992, p. 164)

> "The consequent reduction and marginalisation of the experience of practical physical activity has produced teachers better suited to teaching senior high school examination versions of physical education than the core programmes for younger pupils." (Kirk, 2010, p. 137)

I could confirm this is mentioned in both countries even if there were some contextual differences in my results (e.g. chapter 8.4 and 8.5). To prevent these problematic futures, I introduce some noteworthy points in physical activities to the future. As you know, it would be very difficult to increase the amounts of hours in the PETE courses because of various negative circumstances such as following university regulations, funding problems, economic issues, and so on. Moreover, by just increasing of amounts of physical activities in the same way as in the previous COE or BEd periods is not development, but regression. Units only for upgrades of students' physicality is also not suitable at present PETE because it is true that physical education teachers' roles have become very diverse in school rather than in the past. Because of that, student teachers have to learn various integral parts to the future teacher life in their PETE course. However, physical activities have to be a centre of the PETE course and be surely suitable in university level to exist as PETE. When we consider new units for physical activities, those units must not be difficult and boring theoretical classes but lectures which student teachers will be proud of and satisfied in terms of learning PETE based on the upgrading of the level of physical activities. Moreover, the units have to be self-confident compared to units in other departments in academia.

9.3. Suggestions to develop units of physical activities in academia

First, in chapter 7.3.4 (units of physical activities in Inha University), the new unit (two times (four hours) per week for 16 weeks) for physical activities were introduced in 2009 to develop both levels of physical activities and professional knowledge discarding the spiral system which did not worked in that PETE course very well. Given that these four courses in my research were not in charge of level of physical activities, this attempt was easy. This means that, through adding only more two hours a week in units of physical activities, we will be able to obtain a new possibility to develop units of physical activities in various aspects such as levelling up various components in knowledge, changing of our consciousness for a marginal role in physical activities and so on. Even if it is a very latest attempt in Korea, thinking about the potential such as the high student teachers' satisfaction in Inha University, this style of unit could be a good example to the future in physical activities. However as this unit develops in Inha University further research is needed to ascertain whether long units of practical activities rather than the repetition of shorter physical activity units are more beneficial for the development of PETE students.

Second, considering the progress of sport pedagogy and high level of present PETErs (e.g. there are many lecturers who have PhD degree and have also a good physicality in various sport events), it is now a time to develop unique units of physical activities for student teachers. For example, many PETErs have taught various contents through models in their unit of physical activity in two countries. However, these kinds of units have been normally done by units of physical activities or professional knowledge, in isolation. This means that it is difficult to upgrade student teachers' development level of physical activities, professional knowledge and even discipline knowledge in one unit, together. Based on models such as Sport Education or TGfU etc, if we make special units that student teachers could learn about the teaching philosophy, PCK, football (PRACK), sociology (KEC), and even exercise bio-mechanics (TCK or KEC), it would be

one possibility to combine practical and theoretical contents showing that this unit is definitely competitive and robust in academia. As you know, many scholars already recommended various models to the school (e.g. Siedentop et al, 2011; Kirk, 2010; Choi, 2003). Moreover, it has revealed that the models are very useful in various aspects (e.g. O'Donovan et al, 2008). Because of these reasons, using models are very good educational means to make a good unit in the PETE course.

The above suggestions might look impractical in some countries or some PETErs might be already implementing a similar curriculum. If it is, we should spread these kinds of units in the PETE courses. There would be many possibilities that we could create our unique and special units for PETE compared to other TE parts. Through a lot of trials and errors, we have developed sport pedagogy as scholars in higher education. During these processes, I confirmed that physical activities were alienated even in our PETE areas. This is a right time to take care of our objective reality (physical activities) based on sport pedagogy, which we inherited in the PETE course.

9.4. The implication for future PETE research

In this section, I will discuss my main implication for future research. First, I examined the PETE courses in terms of academicisation in England and Korea for about forty years showing many merits and demerits. Albeit my study will be also a literature review in PETE as a case study and comparative study, I propose that we need to study these issues in other institutions to develop a better understanding of these initial results. For example, in England, PGCE course (One year postgraduate course) is more popular than QTS course (four year undergraduate course) and school based routes are recognised as an area of growth. If we study PGCE courses in terms of socio-historical perspective comparing to the knowledge base between PGCE course and QTS course, we could expand our knowledge base.

Second, I showed the outside components affecting the PETE curriculum in two countries (chapter 8.12). The outside components in England actively affected the PETE course and decision makers in the PETE course also earnestly received the changes of the outside components. Meanwhile, the interaction in Korea was inactive showing that the latest outside components affected more than previous ones (see chapter 8.12). It would good to research these interactions between outside components and PETE courses in terms of comparison or case study. However, I did not study the interrelationships or impacts between PETE courses and school physical education. Given that students in school have to receive these influences, I suggest the need to study these themes.

Third, I found that PETErs concentrated on professional knowledge and discipline knowledge rather than physical activities for a long time. This means that there were many historical resources about processes of change of professional and discipline knowledge. However, it was difficult to find historical documents in physical activities in PETE courses. Moreover, this tendency was similar to finding associated articles (see chapter 2). I examined in detail such as amounts of hours, the reasons of changes, etc in terms of physical activities in PETE course including other knowledge. Considering that objective reality in physical education should be started from physical activities in terms of physical education teacher knowledge, my study has significant meaning. Based on my study, I hope to see many studies for physical activities in PETE with various perspectives to the future.

References

-English-

Amade-Escot, C. (2000) The contribution of two research programs on teaching content: "pedagogical content knowledge" and "didactics of physical education". *Journal of Teaching in Physical Education*, 20, 78-101.

Armour, K. (2011) What is 'sport pedagogy' and why study it? In Armour. K. (Eds.) Sport Pedagogy: An Introduction for Teaching and Coaching. 11-23. London: Pearson Education.

Andrews, T. (2012) What is Social Constructionsim? *The Grounded Theory Review*, 11(1), 39~46.

Bain, L. (1990) Physical education teacher education. W.R. Houston, M. Haberman and J. Sikula (Eds.), Handbook of Research on Teaching Education. (pp. 758-782) New York: Macmillan.

Bennett, B. L. (1970) A Historian Looks at Comparative Physical Education. Gymnasion, VII, p. 11.

Bennet, B. L., M. L. Howell and U. Simiri., (1975) Comparative Physical Education and Sport. Philadelphia: Lea and Febiger.

Bereday, G. (1964) *Comparative Method in Education*. New York: Holt, Rinehart and Winston, INC.

Berger, P. L. and Luckmann, T. (1966*) The Social Construction of Reality*. New York: Doubleday & Company.

Bernstein, B. (1990) The Structuring of Pedagogic Discourse: Volume IV, Class, Codes and Control. London: Routledge.

Bloom, B.S. (Ed.), Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook 1: Cognitive domain. New York: David McKay.

Bray, M. (2007) Scholarly Enquiry and the Field of Comparative Education In Bray, M., Adamson, B., & Mason, M. *Comparative Education Research*. 341-361. Hong Kong: Comparative Education Research Centre.

Bray, M., Adamson, B. & Morris, P. (2007) *Comparative Education Research: Approaches and Methods* (Cerc Studies in Comparative Education). Hong Kong: Comparative Education Research Centre.

Byra, M. (2006) *Teaching styles and inclusive pedagogies* In D. Kirk, D. Macdonald and M. O'Sullivan (eds) The Handbook of Physical Education, 449-466, London: Sage.

Capel, S. (2007) Moving beyond physical education subject knowledge to develop knowledge teachers of the subject, *The curriculum Journal*, 18(4), 493~507.

Capel, S., Hayes, S., Katene, W. & Velija, P., (2009) The development of knowledge for teaching physical education in secondary schools over the course of a PGCE year, *European Journal of Teacher Education* 32(18), 51- 62.

Capel, S. & Katene, W. (2000) Secondary PGCE physical education students' perception of their subject knowledge, *European Physical Education Review*, 6(1), 46-70.

Carroll, R. (1986) Examinations in Physical Education: An Analysis of Trends and Developments, in Trends and Developments in Physical Education. Proceedings of the VIII Commonwealth and International Conference on Sport, Physical Education, Dance, Recreation and Health, 233-239. London:E.and F.N. Spon.

Cohen, L., Manoin, L., Morrison, K. (2007) *Research Methods in Education* (sixth edition), Abingdon: Routledge.

Collier, C. (2006) Models and curricula of physical education teacher education. In D. Kirk, D. Macdonald and M. O'Sullivan (eds) The Handbook of Physical Education, 386-406, London: Sage.

Corbin, J. & Strauss, A. L. (2008) Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. California: Sage.

Devine, B. (1986) Comparative Physical Education ad Sport: A Discipline? In Krotee, M., & Jaeger, E. (Ed.) Comparative Physical Education and Sport Volume 3. 19-24. Champaign Illinois: Human Kinetics Publishers.

Dimmock, C. (2007) Comparing Educational Organisations. In Bray, M., Adamson, B. & Morris, P. *Comparative Education Research: Approaches and Methods* (Cerc Studies in Comparative Education). 263-282, Hong Kong: Comparative Education Research Centre.

Doyle, W. (1990) Themes in teacher education research. In W.R. Houston (Eds.). In *Handbook of Research on Teacher Education. (pp. 3-24).* New York: Macmillan.

Evans, J. (2004) 'Making a difference? Education and "ability" in physical education'. *European Physical Eudcation Review*, 19, 95-108.

Feiman-Nemser, S. (1990) Teacher preparation: Structural and conceptual alternatives. In *Handbook of Research on Teacher Education (Eds.).* W.R. Houston, M. Haberman and J. Sikula. New York: Macmillan, 212-233.

Fernandez-Balboa, J. M. (1997) Knowledge Base in Physical Education Teacher Education: a Proposal for a New Era. Quest, 49, 161-186.

Fitzclarence, L. & Tinning, R. (1990) Challenging Hegemonic Physical Education: Contextualizing Physical Education as an Examinable Subject, In David Kirk & Richard Tinning. *Physical Education, Curriculum and Culture: Critical Issues in the Contemporary Crisis* (pp. 169-191). London: The Falmer Press.

Fletcher, S. (1984) *Women First: The Female Tradition in English Physical Education*

1880~1980. The Athlone Press: London.

Further and Higher Education Act 1992 (for England and Wales).

Goodson I.F. (1983) *School Subjects and Curriculum Change*. The Falmer Press: London first edition.

Goodson I.F. (1988) *The Making of Curriculum: Collected Essays.* Lewes: Falmer Press.

Goodson I.F. (1993) *School Subjects and Curriculum Change*. The Falmer Press: London second edition.

Gower, C. & Capel, S. (2004) Newly qualified physical education teachers' experiences of developing subject knowledge prior to, during and after a Postgraduate Certificate in Education course. *Physical Education & Sport Pedagogy*, 9(2), 165-183.

Green, K. (2001) Examinations in Physical Education: a sociological perspective on a 'new orthodoxy', *British Journal of Sociology of Education*, 22(1), 51-73.

Green, K. (2008) *Understanding Physical education*. Sage: London.

Grossman, P. (1990) The making of a teacher: Teacher knowledge and teacher education. New York: Teachers College Press.

Haag, H. (1986) Comparative Sport Pedagogy: A Basic Intrarelationship within Educational Sciences. In Krotee, M., & Jaeger, E. (Ed.) Comparative Physical Education and Sport Volume 3. 33-48 Champaign Illinois: Human Kinetics Publishers.

Haag, H. (1989) Research in 'sport pedagogy': One field of theoretical study in the science of sport, *International Review of Education*, 35(1), 5-16.

Hardman, K. (2001) *International Journal of Physical Education, volume XXXVIII*, 3(3), 96-103.

Hardman, K. (2002) *Council of Europe: Committee for the Development of Sport (CDDS) European Physical Education Sport Survey.* MSL-IM 16 (2002). Strasbourg, Council of Europe.

Hardman, K. & Marshall, J.J., (2000) *World-wide Survey of the State and Status of School Physical Education. Final Report.* Manchester University of Manchester.

Hardman, K. & Marshall, J.J., (2006) Update on Current Situation of Physical Education in Schools. ICSSPE *Bulletin*, 47, May 2006.

Hardman, K. (2009) *Comparative Physical Education and Sport*, In E. Zeigler (eds) International and Comparative Physical Education and Sport, 107-126, Victoria: Trafford.

Hargreaves, D.H. (1982) Ten Proposals for the Future of Physical Education. *Bulletin of Physical Education* 18(3), 5-10.

Hayes, S., Capel, S., Katene, W. and Cook, P. (2008) An examination of knowledge prioritisation in secondary physical education teacher education courses, Teaching and

Teacher Education, 24, 330-342.

Henry, F.M. (1964) Physical Education-An Academic Discipline. Proceedings [of the] Sixty Seventh Annual Meeting [of the] National College Physical Education Association for Men. 14-17.

Henry, F (1978) The Academic Discipline of Physical Educatiomn. *Quest*, 29, 13-29.

Herold, F. & Waring M. (2009) Pre-service physical education teachers' perceptions of subject knowledge: Augmenting learning to teach, *European Physical Education Review*, 15(3), 337-364.

Hill, J. E. & Kerber, A. (1967) *Models, Methods and Analytical Procedures in Educational Research*. Detroit, MI: Wayne State University Press.

Housner, L.D., & Griffey, D.G. (1985). Teaching cognition: Differences in planning and interactive decision making between experienced and inexperienced teachers. *Research Quarterly for Exercise and Sport*, 56, 45-53.

Howell, R., Howell, M., Margaret, D. and Toohey, D. (1979) Methodology in Comparative Physical Education and Sport. Champaign, IL:

Inglis, F. & Aers, L. (2008) *Key Concepts in Education*. London: Sage.

Kang, S. (2003) *Beyond the challenges of physical education teacher education (PETE): Research and development of PETE.* The New Challenges and Possibilities for Physical Education in the 21st Century, Seoul, Korea, Seoul National University.

Karl M. Newell (1990) Physical Education in Higher Education: Chaos Out of Order. Quest 42, 227-242.

Jenkins, J.M. & Veal, M.L. (2002) Pre-service teachers PCK development during peer coaching. Journal of Teaching in Physical Education, 24, 2-23.

Jobert Annette (1996) comparing education, training and employment in Germany, the United Kingdom and Italy in Hantrais, L. & Mangen, S. (1996) Cross-mational research methods in the social science. p. 76 London: Pinter.

Kirk, D. (1986a) A Critical Pedagogy for teacher Education: Toward an Inquiry-Oriented Approach. *Journal of Teaching in Physical Education*, 5, 230-246.

Kirk, D. (1986b) Beyond the limits of theoretical discourse in teacher education: Towards a critical pedagogy. Teaching & Teacher Education, 2(2), 155-167.

Kirk, D. (1988) *Physical education and curriculum study: A critical introduction.* New York: Croom Helm.

Krik, D. (1989) The Orthodoxy in RT-PE and the Research/Practice Gap: A Critique and an Alternative View. *Journal of Teaching in Physical Education*, 8, 123-130.

Kirk, D. (1998) *Schooling Bodies: School Practice and Public Discourse 1880-1950*. London and Washington: Leicester University Press.

Kirk, D. (1990) Knowledge science and the rise and rise of human movement studies. The ACHPER *National Journal*, March, 8-11.

Kirk, D. (1992) *Defining Physical Education*. London: The Falmer Press.

Kirk, D. (1993) Curriculum Work in Physical Education: Beyond the Objective Approach? *Journal of Teaching in Physical Education*, 12, 244-265.

Kirk, D. (2000) The reconfiguration of the physical activity field in Australian higher education, 1970-1986. *Sporting traditions: Journal of Australian Society for Sports History*, 16, 17-38.

Kirk, D. (2006) Education Sport and Exercise Professionals: Current Approaches and Future Tasks. Keynote Address KAHPERD International Congress Yongin University, Korea.

Kirk, D. (2010) *Physical Education Futures*. London: Routledge.

Kirk, D., Macdonald, D. (2001a) Teacher voice and ownership of curriculum change. Journal of Curriculum Studies. 33(5), 551-567.

Kirk, D., Macdonald, D. (2001b) The Social Construction of PETE in Higher Education: Toward a Research Agenda. Quest, 53, 440-456.

Kirk, D., Macdonald, D. & O'Sullivan, M. (2006) (eds) *The Handbook of Physical Education*, London: Sage.

Kirk, D., Macdonald, D., & Tinning, R. (1997) The social construction of pedagogic discourse in physical education teacher education in Australia. *The Curriculum Journal.* 8, 271-298.

Kirk, D. & O'Donovan, T.M (2008) Contesting and constructing the Carnegie physical education curriculum, 1934-1980: Never a dispassionate affair. Unpublished paper.

Kirk, D. & Tinning, R. (1990) (eds) PHYSICAL EDUCATION, CURRICULUM AND CULTURE: CRITICAL ISSUES IN THE CONTEMPORARY CRISIS. Lewes: Falmer Press, 169-192.

Kneller, F. (1960) Comparative Education. In Chester. H. (Ed.) Encyclopedia of Educational Research. 3rd Edition, New York: The Macmillan Company.

Kudlorz, P. (1989) Comparative Physical Education: An International Scientific Approach. *International Review of Education*. 35(1), 65-72.

McKay, J., Gore, J., & Kirk, D. (1990) Beyond the Limits of Technocratic Physical Education. *Quest,* 40, 52-76.

Morrison, D., (1967) A Rationale for the Development of Comparative Physical Education. Unpublished master's thesis, University of Alberta.

Mosston & Ashworth. (2001) *Teaching Physical Education*. San Francisco: Bednjamin

Cummings.

Mutimer, B. (2009) *In Retrospect #1: A review of Comparative Physical Education*, In E. Zeigler (eds) International and Comparative Physical Education and Sport, 47-87, Victoria: Trafford.

Lawson, H. (1991) Specialization and Fragmentation Among Faculty as Endemic Features of Academic Life. *Quest*, 43, 280-295.

Lawson, H., & Placek, J. (1981) *Physical Education in the secondary schools: Curriculum alternatives.* Boston: Allyn & Bacon.

Locke, L. (1984) Research on teaching teachers: Where are we now? *Journal of Teaching in Physical Education.* Monograph 2, 1-86.

Louis, V., & Louis, L. (1964) *Sport in the Soviet Union.* London: Pergamon Press.

Macdonald, D. (1997) Researching PETE: An account of explicit representations and covert knowledges. J. Wright (Ed.), *Researching in physical and health education*, 23-29. Wollongong: Faculty of Education, University of Wollonggong

Macdonald, D., Kirk, D. & Braiuka, S. (1999) The Social Construction of the Physical Activity Field at the School/University Interface. European Physical Education Review, 5(1), 31-51.

McCaughtry, N. (2004) The emotional dimensions of a teacher's pedagogical content knowledge: influences on content, curriculum, and pedagogy. Journal of Teaching in Physical Education, 23(1), 30-48

McNamee, M. (2009) The Nature and Values of Physical Education, In Ken Green & Ken Hardman (Eds.). *Physical Education Essential Issues* (pp. 1-20). London: Sage.

Metzler, M. (2000) Instructional models for physical education. Arizona: Holcomb Hathaway.

Morgan, W. J. (2006) Philosophy and Physical education, In Kirk, D., Macdonald, D. & O'Sullivan, M. (Eds.). *Handbook of Physical Education (*pp. 99-108). London: Sage.

Newell, K. M. (1990) Physical education in higher education: chaos out of order. Quest, 42, 227-242.

Nixon, J. E. (1970) Comparative, International and Development Studies in Physical Education. *ICHPER Journal*, 8(1), 4-9.

Noah. H. & Eckstein. M. (1969) Toward a Science of Comparative Education. London: Collier Macmillan.

O'Donovan, T.M, and Kirk, D. (2008) Reconceptualizing student motivation in physical education: An examination of what resources are valued by pre-adolescent girls in contemporary society. *European Physical Education Review.* 14(1), 71-91.

O'Sullivan, M. (1996) What do we know about the professional preparation of teachers?

S. Silverman and C. Ennis (Eds.), In *student learning in physical education: Applying research to enhance instruction* (pp. 315-339) Champaign, IL, Human Kinetics.

O'Sullivan, M. and P. Doutis (1994) Research on expertise: Guideposts for expertise and teacher education in physical education. *Quest*, 46(2), 176-185.

Payne, G & Payne, J (2004) *Key Concepts in Social Research*. London: Sage

Peck, R. and J. Tucker (1973) Research on teacher education. R. Travers (Eds.), *Second handbook of research on Teaching* (pp. 940-978). Chicago, IL: Rand McNally.

Penney, D., & Evans, J. (1999) *Politics, policy and practice in physical education.* London: E, & F. Spon.

Peters, R.S. (1966) *Ethics and Education*. London: Allen and Unwin.

Piaget, J. (1971) *Psychology and epistemology* (A. Rosin, Trans.). New York: Grossman.

Pooley, C., J. (1988) President's Address: The Use and Abuse of Comparative Physical Education and Sport. In Broom, F, E., Clumpner, R., Pendleton, B., and Pooley, A, C. *International Society on Comparative Physical Education and Sport: Comparative Physical Education and Sport Volume 5*, 3-16. Champaign Illinois: Human kinetics Books.

Rink, J.E. (1993) Teacher Education: A focus on action. *Quest*, 45 pp. 308-320.

Rovegno, I. (1992) Learning to teach in a field-based methods course: The development of pedagogical content knowledge. *Teaching and Teacher Education*, 89(1), 69-82.

Rovegno, I. (1993) Content-knowledge Acquisition During Undergraduate Teacher Education: Overcoming Cultural Temlates and Learning Through Practice, *American Educational Research Journal*, 30(3), 611-642.

Rovegno, I. (1995) Theoretical Perspectives on Knowledge and Learning and a Student Teacher's Pedagogical Content Knowledge of Dividing and Sequencing Subject Matter. *Journal of Teaching in Physical Education*, 14, 284-304.

Rovegno, I. (2003) Teachers' knowledge construction. In S. Silverman and C. Ennis (Eds.), (2nd ed), *Student learning in physical education: Applying research to enhance instruction* (pp. 295~310). Chamaign, IL: Human Kinetics.

Rovegno, I., Chen W., Todorovich J. (2003) Accomplished Teachers' Pedagogical Content Knowledge of Teaching Dribbling to Third Grade Children. Journal of Teaching in Physical Education, 22, 426-449.

Rovegno, I. And Dolly, P. (2006) Constructivist perspectives on learning. In Kirk, D., Macdonald, D. & O'Sullivan, M. (Eds.). *Handbook of Physical Education (*pp. 242-261). London: Sage.

Rust, C., Soumare, A., Pescador, O., and Shibuya, M. (1999) Research Strategies in Comparative Education. Comparative Education Review, 16(1), 53-67.

Ryle, G. (1949) *The Concept of Mind.* London: Hutechinson and Company.

Saunders, D, E. (1988) *The Development, Evaluation, and Validation of Undergraduate and Graduate Curricula in Physical Education, Sport, and Leisure in the 1960s and the 1980s in Great Britain.* In Broom, F, E., Clumpner, R., Pendleton, B., and Pooley, A, C. (Eds.) International Society on Comparative Physical Education and Sport: Comparative Physical Education and Sport Volume 5, pp. 169-175. Champaign Illinois: Human kinetics Books.

Schempp, P.G., Manross, D., Tan, S.K.S., & Fincher, M.D (1998) Subject Expertise and Teachers' knowledge. *Journal of Teaching in Physical Education*, 17, 342-356.

Schwab, J. J. (1964) The structure of disciplines: Meaning and significance. In G. W. Ford & L., Pugno (Eds.), *The structure of knowledge and the curriculum*. Chicago: Rand McNally.

Scott, J. (1990) *A matter of Record.* London: Polity Press.

Scott, J. & Marshall, G. (2009) Oxford Dictionary of Sociology. London: Oxford University Press.

Shulman, L. (1986) Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15, 4-14.

Shulman, L. (1987) Knowledge and Teaching: Foundations of the New Reform. *Harvard Education Review*, 57(1), 1-22.

Siedentop. D. (1980) *Physical education: Introductory analysis.* Dubuque. IA: W. C. Brown.

Siedentop, D. (1990) *Introduction to physical education, fitness, and sport.* Mountain View, CA: Mayfield.

Siedentop, D. (2002) Content Knowledge for Physical Education. *Journal of Teaching in Physical Education*, 21, 368-377 (1989) Address to the C and I Academy Conference on the
Implications of the Knowledge for Teaching for Teacher Education, Boston, AAHPERD

Siedentop, D., Hastie, P., & Mars, H. (2011) *Complete Guide to Sport Education*. Leeds: Human Kinetics.

Swanson, G. (1971) Framework for comparative research: Structural anthropology and the theory of action. In L.Valier (Ed.), *Comparative methods in sociology: Essays on trends and applications* (pp. 141-202). Berkeley: University of California Press.

Theisen, G & Adams, D. (1990) Comparative Education Research: What are the methods and uses of comparative education research? In Thomas, M., R. (1990) *International Comparative Educattion*, pp. 277-300. London: Pergamon.

Tinning, R. (2002) Engaging Siedentopian Perspectives on Content Knowledge for Physical Education, *Journal of Teaching in Physical Education,* 21, 378-391.

Tinning, R. (2006) *Theoretical orientations in physical education teacher education*, In D. Kirk, D. Macdonald and M. O'Sullivan (eds) The Handbook of Physical Education, pp. 502-515, London: Sage.

Tinning, R. (2008) Pedagogy, sport pedagogy, and field of kinesiology, Quest, 60(3), 405-424.

Tinning, R. (2010) *Pedagogy and Human Movement Theory, practice, research*, London and New York: Routledge.

Tsangaridou, N. (2006) *'Teacher's knowledge'*, In D. Kirk, D. Macdonald and M. O'Sullivan (eds) The Handbook of Physical Education, pp. 502-515, London: Sage.

Wilson, E. O. (2003) Consilience. London: Abacus.

Vygotsky, L. (1986) *Thought and Language* (Revised and edited by A. Kozulin). Cambridge, MA: MIT Press. (Original work published in 1962).

Walkwitz, E., & Lee, A. (1992) The role of teacher knowledge in elementary physical education instruction: An exploratory study. Research Quarterly for Exercise and Sport, 63(2), 179-185.

Wallace, S. (2009) *Oxford Dictionary of Education.* Oxford: OXFORD UNIVERSITY PRESS.

Webb, M, I. (1999) *The Challenge of Chang in Physical Education: Chelsea College of Physical Education – Chelsea School, University of Brighton 1898-1998*, London: Falmer Press.

Whitehead, N, J. & Hendry, L, B. (1976) *Teaching Physical Education in England – description and analysis*, London: Lepus Books.

Whitehead, M. (2001) The Concept of Physical Literacy, *British Journal of Teaching Physical Education*, 1-15.

You, J. (2011) Portraying Physical Education-Pedagogical Content Knowledge for the Professional Learning of Physical Educators. *The Physical Educator*, 68(2), 98-112.

Zeichner, K. (1983) Alternative paradigms of teacher education. *Journal of Teacher Education 34(3)*, 3-9.

Zeigler, E. (1986) A Comparative Analysis of Undergraduate Professional Preparation in Physical Education in the United States and Canada (1960-1985) In Broom, Clumpner, Pendleton and Pooley (Ed.) Comparative Physical Education and Sport Volume 5. Illinois: Human Kinetics Books.

-Korean-

Ku, Ja-eok et al (2009) the evaluation handbook of third assessment of teacher training institute. Korean Educational Environment Institute.

구자억 외, (2009) 3주기 교원양성기관 평가편람 (연구자료 RRM 2009-33). 한국교육개발원.

Kang, Dong Won & Kwak, Eun Chang (1995) Student Teachers' Fundamental Learning Experience in PETE Programs. *Journal of Korean Association of Sport Pedagogy*, 2(1), 13-26.
강동원 & 곽은창 (1995) 예비교사의 교수학습 경험 분석을 통한 대학 체육교사 교육프로그램의 질적 제고. **한국스포츠교육학회지**, 2(1), 13-26.

Kang, Sin-Bok, Lee, Seung-Bae, Kim, Won-Jung, Park, Yeoun-Hyuk & Lee, Young-Kuk (2007) International Comparative Study on Physical Education Curriculum at Junior-High Schools. *Korean Journal of Sport Science*, 18(3), 134-147.
강신복, 이승배, 김원정, 박윤혁 & 이영국 (2007) 중학교 체육과 교육과정 국제비교 연구. **체육과학연구**, 18(3), 134-147.

Kang, Sin-Bok & Choi, Eui-Chang (1991) The Disciplinary Movement and The Subject Matter of School Physical Education. *Institute of Physical Education at Seoul National University*, 12(2), 1-11.
강신복 & 최의창 (1991) 체육학문화 운동과 체육교과의 성격: 학문성 강조 체육교육 모형의 탐색. **서울대학교 체육연구소논집**, 12(2), 1-11.

Kang, Shin-Bok (2003) A trend and question of research of Korea sport education. *Korea Association for Sport Pedagogy)*, 10(3), 1-28.
강신복 (2003) 한국스포츠교육학 연구의 동향과 향후 과제. **한국스포츠교육학회** 10(3), 1-28.

Kang, Shin-Bok (2009) *Understanding of present sport pedagogy.* Seoul: Rainbow Books.
강신복 (2009) **현대 스포츠교육학의 이해** 서울: 무지개사.

Ministry of Education & Human Resources Development (2004) University Structural reform. Korean government data.
교육인적자원부 (2004) 경쟁력 강화를 위한 대학 구조개혁 방안 –대학이 살아야 나라가 산다-.

Kim, Young-Joe (1997) A Study on The Enhancing Profession of Teacher Education. The Journal of Education Research, 18, 123-153.
김영조 (1997) 교사교육의 전문성 신장에 관한 연구. **교육학논총**, 18, 123-153.

Kim, Jin-Ho (1994) A Study for the purpose of Improving the Selection of Subjects for the Practical Skills Test of the University Entrance Examination (Focusing on Departments of Physical Education in Seoul 1992~1994). *The Korean Journal of Physical Education*, 33(1), 39-48.
김진호 (1994) 대학입시 실기고사 종목선정에 대한 동향과 방안 - 서울특별시 3년간 체육계학과 중심으로 -, **한국체육학회지**, 33(1), 39-48.

Roh, Hui-Deok and Kim, Bang-Chool (1991) A Study on the Changes of the Curriculums of the Department of Physical Education at Selected Universities in Korea. *JOURNAL OF THE RESEARCH INSTITUTE OF PHYSICAL EDUCATION*, 12(1), 19-28
노희덕 & 김방출 (1991) 한국 대학의 체육계 학과 전문 교육과정 변천에 관한 연구. **서울대학교체육연구소논집**, 12(1), 19-28

Ryu Tae-Ho (1991) The Suggestion about Composition of Curriculum in the Department of Physical Education –Centring professional units- 1991 International Sport Science Congress
류태호 (1991) 사범대학 체육교육과 전공교육과정 구성에 관한 제안 –체육과 교육학을 중심으로- 국제 스포츠과학 학술대회.

Park, Sang-Wan (2001) A Study on the External Entities that have an Influence on Secondary Teacher Education. *Korean Journal of Educational Research*, 39(4), 183-206.
박상완 (2001) 중등 교사교육에 영향을 미치는 외부 요인의 특성. **교육학연구**, 39(4), 183-206.

Park, Seong-Jin & Kim, Yong-Soo (2001) A Study on the performance Exam to enter the Department of Physical Education of University. *Korea Sport Research*, 9(3), 151-164.
박성진 & 김용수(1998) 체육계열학과의 실기 입시전형에 관한 고찰. **한국스포츠리서치**, 9(3), 151-164.

Park Eun-Hye (1996) Reflecting Thinking In Early Childhood Teacher Education. *Research of Early Childhood Education*, 16(1), 175-192.
박은혜 (1996) 반성적 사고와 유아 교사교육. **유아교육연구**, 16(1), 175-192.

The Compilation Committee of SEOUL NATIONAL UNIVERSITY SINCE 1946 (2006) *SEOUL NATIONAL UNIVERSITY SINCE 1946*. Seoul: Seoul National University.
서울대학교 60년사 편찬위원회 (2006) **서울대학교 60년사**. 서울: 서울대학교.

College of Education at Seoul National University (1996) *College of Education at Seoul National University since 1946*. Seoul: Seoul National University.
서울대학교 사범대학 (1996) **서울대학교 사범대학 오십년사**. 서울: 서울대학교 사범대학.

Son, Cheon-Taik (2002) Present Situations and Improving Plans for Physical Education Teacher Education. *Korean Journal of Sport Pedagogy*, 9(2), 27-43.
손천택 (2002) 체육교사교육의 현황과 개선방안. **한국스포츠교육학회지**, 9(2), 27-43.

Ahn, Yang-Ok (1995) Implication of Research of Teacher's Subject Knowledge and Research of Professional Knowledge of physical education. *Workshop Presentation File in The Korean Journal of Physical Education*, 33, 346-349.
안양옥 (1995) 교사의 교과내용지식 연구와 체육교육학 연구에의 시사점. **한국체육학회 학술발표논문집**, 33, 346-349.

You Jeong-Ae (2005) Assessing and Improving National Physical Education Curriculum. *Korean Journal of Sport Pedagogy*, 12(3), 1-31.
유정애 (2005) 국가수준 체육과 교육과정의 역사적 반성과 발전 방향, **한국스포츠교육학회지**, 12(3), 1-31.

You Jeong-Ae (2008) Introduction of Curriculum of Physical Education. Seoul: Daehan Media.
유정애 (2008) **체육과 교육과정 총론**. 서울: 대한미디어.

Lee, Hak-Jun (2008) Consilience: The future of Kinesiology. *Korean Alliance for Health, Physical Education, Recreation and Dance Newsletter*, 92, 34-39.
이학준 (2008) 통섭, 체육학의 미래이다. **한국체육학회보**, 92, 34-39.

Lee, Jong-Jae et al (2009) Sixty Years of Korean Education -Accomplishments and Tasks- (Research Report PRP 2009-8-1) Seoul: Korea Institute for Curriculum and Evaluation.
이종재 외 (2009) 한국교육 60년 -성취와 과제-. (연구보고 PRP 2009-8-1) 서울: 한국교육과정평가원.

The Compilation Committee of The 50th Anniversary 1954~2004 *Inha University (2004) The 50th Anniversary 1954~2004 Inha University* In-Cheon: Inha University.
인하50년사편찬위원회 (2004) **인하50년사**. 인천: 인하대학교.

Jeong, Do-Snag & Kim, Sin-Kyeom (1999) The Development of a Model Curriculum for Physical Education in Teacher Training Institutions. *The Korean Journal of Physical Education***,** 38(3), 345-358.
정도상 & 김신겸 (1999) 제7차 교육과정에 따른 교원양성기관의 체육교육과정 프로그램 모형 개발. **한국체육학회지, 38(3),** 345-358.

Cho, Mi-Hye & Park, Yeon-Hee (2010) A Comparative Study on Physical Education Teacher Education Programs in Korea and America. *Journal of Korean Physical Education Association for Girls and Woman* 24(2), 179-192.
조미혜 & 박연희 (2010) 체육교사교육 프로그램 한미 비교 연구. **한국여성체육학회지, 24(2),** 179-192.

Cho, Mi-Hye, Yoon, Myung-Hee & Lee, Myung-Ah (1997) A Study on the Physical Education in the British National Curriculum, *The Korean Journal of Physical Education* 36(2), 334-348.
조미혜, 윤명희 & 이명아 (1997) 영국 체육교육과정의 탐색 A Study on the Physical Education in the British National Curriculum, **한국체육학회지**, 36(2), 334-348.

Cho, Jung-Hwan (2009) The Light and Shade of Revised Secondary Teacher Certification Examination. *Physical Education in Korean Journal of Sport Pedagogy,* 3, 18-24.
조정환 (2009) 개편 중등교사 임용시험 제도의 명암. **우리체육**, 3, 18-24.

Jin, Suk-Un, Kwak, Duck-Joo and Jo, Duck-Joo (2007) A Study on Field-based Teacher Education Programs: Reflective Practices at Oxford University, U.K. and Queens University, Canada. *Korean Journal of Comparative Education*, 17(3), 241-268.
진석언, 곽덕주 & 조덕주 (2007) 현장 중심 교사교육 연구: 영국 옥스퍼드 대학교와 캐나다 퀸즈 대학교의 사례를 중심으로, **비교교육연구**, 17(3), 241-268.

Choi, Eui-Chang (2001) Humanities-Oriented Physical Education and Hanaro Teaching – An Approach to University Physical Education-. *Korean Journal of Sport Pedagogy*, 8(2), 45-64.
최의창 (2001) 인문적 체육과 하나로 수업: 대학에서의 체육지도를 위한 한 가지 접근, **한국스포츠교육학회지**, 8(2), 45-64.

Choi, Eui-Chang (2003) *Sport Pedagogy.* Seoul: Rainbow Books.
최의창 (2003) **스포츠 교육학** 서울: 도서출판 무지개사.

Choi, Eui-Chang (2005) The Part of Kinesiology in *Policy Research Report in National*

Research Foundation of Korea: Study on Policy for Facilitating Research Improvement of Human and Social Science, 201-238, Seoul: National Research Foundation of Korea.
최의창 (2005), **한국학술진흥재단 정책연구보고서**: **인문사회분야 연구진흥을 위한 정책과제** - 체육학 파트-, 201-238, 서울: 한국학술진흥재단.

Han, Myung-Woo (2010) Discussion Speech: Plan of future development of kinesiology through Fusion and Consilience. The conference of Korean Alliance for Health, Physical Education, Recreation, and Dance.
한명우 (2010) 발제강연: 융합과 통섭을 통한 체육학의 미래 발전 구상. 2010 한국 스포츠과학자 통합 학술대회.

-Unpublished Korean Theses-

An, Hee-Suk (2003) A Study on Physical Education Teachers Training and Employment Systems. Korea National University of Education PhD.
안희숙 (2003) 체육교사 양성 및 임용 제도 연구, 한국교원대학교 박사학위 논문.

Rhee, Ou-Ill (1992) A Study on Pre-service Education Institutes for the Secondary School Teachers in Korea. Seoul National University MA.
이우일 (1992) 중등교원양성정책에 관한 연구, 서울대학교 행정대학원 석사학위논문.

Choi, Ji-Yong (2003) A Study on the Changes of the Training Process for Secondary Physical Education Teachers Korea National University of Education PhD.
최지용 (2003) 중등 체육교사 양성 과정 변천에 관한 연구, 한국교원대학교 교육대학원 박사학위논문.

Hong, Ae-Ryung (2008) An International Comparative Study on the Dance Education Curriculum. Seoul National University MA.
홍애령 (2008) 무용교육과정 국제비교연구 서울대학교 석사학위논문.

-Archival documents-

<UNIVERSITY OF BEDFORDSHIRE>
TIMETABLE SUBJECT TIME ALLOCATION IN BEDFORD PHYSICAL EDUCATION (curriculum 1969)

TIMETABLE SUBJECT TIME ALLOCATION in 1973 (curriculum 1973)

BEDFORD COLLEGE OF HIGHER EDUCATION B.E.D. (HONS) DEGREE – SECONDARY REVIEW MARCH 1991 VOLUME I THE CONTEXT OF THE PROPOSAL (curriculum 1982)

BEDFORD COLLEGE of higher education INITIAL B.E.d. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986 (curriculum 1986)

ONUTLINE OF EDUCATION AND PRACTICAL TEACHING STUDIES

INCLUDING SCHOOL EXPERIENCE in 1989 (curriculum 1989)

BEDFORD COLLEGE OF HIGHER EDUCATION Secondary B.Ed. Honours Degree Application for Temporary Approval for September 1994 (curriculum 1994)

Course Information Form (CIF) in 2004 (Curriculum 2004)

Course Information Form (CIF) in 2008 (Curriculum 2008)

Course Information Form (CIF) in 2009 (Curriculum 2009)

Course Information Form (CIF) in 2010 (Curriculum 2010)

Course Information Form (CIF) in 2011 (Curriculum 2011)

The Bedford Physical Training College Old Students' Association (1951-1963)

The Bedford College of Physical Education Old Students' Association (1964-1971)

The Bedford Physical Education Old Students' Association (1979)

<UNIVERSITY OF BRIGHTON>
CHELSEA COLLEGE OF PHYSICAL EDUCATION 1972 HANDBOOK, (curriculum 1972)

1975-1979 Personal Record, (curriculum 1975)

JRH/SMG/7.7.77 Cert.Ed./B.Ed. Course (Human Movement at Advanced level) for specialist teachers of physical education, (curriculum 1977)

B.Ed. Honours Degree Specialist Physical Education Programme Student Handbook 1983/84 Course structure, assessment and organisation (curriculum 1983)

B.ED.HONS. PHYSICAL EDUCATION COURSE 1989-93 STUDENT HANDBOOK 1989-93 (curriculum 1989)
1994-1998 Personal Record (curriculum 1993)

BA (HONS) QTS PHYSICAL EDUCATION DEFINITIVE COURSE DOCUMENT Revised September 1996 (curriculum 1996)

BA (Hons) Physical Education with QTS, Proposal for Revalidation, May 2000 (curriculum 2000)

BA (Hons) Physical Education with QTS, Definitive Document September 2002, Revised September 2003,

FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL (curriculum 2003)

PS BA PE 2010b FINAL 08-9 09-10 cohorts (curriculum 2011)

<SEOUL NATIONAL UNIVERSITY>
Report cards of 93 student teachers from 1978 to the 2009

The course catalogue from 1972~2012

Brochure 1963~1964 in College of Education at Seoul National University

<INHA UNIVERSITY>
Report cards of 49 student teachers from 1985 to the 2009

The course catalogue from 1979 to 2012

-Government papers-

<England>
Further and Higher Education Act (1992) London: Her Majesty's Stationery Office 1992

James Report (1972) *Teacher Education and Training.* London: Her Majesty's Stationery Office 1972

National Curriculum 2007 p. 204.

Robbins Report (1963) *Higher Education.* London: Her Majesty's Stationery Office 1963

Teaching and Higher Education Act (1998) (The Education Act) London: Her Majesty's Stationery Office 1998

QCA. (2007a) *National Curriculum,* QCA Qualifications and Curriculum Development Agency (QCDA).

<Korean>
Ku, Ja-eok et al (2009) the evaluation handbook of third assessment of teacher training institute. Korean Educational Environment Institute.

Ministry of Education & Human Resources Development (2004) University Structural reform. Korean government data.

Lee, Jong-Jae et al (2009) Sixty Years of Korean Education -Accomplishments and Tasks- (Research Report PRP 2009-8-1) Seoul: Korea Institute for Curriculum and Evaluation.

Choi, Eui-Chang (2005) The Part of Kinesiology in *Policy Research Report in National Research Foundation of Korea: Study on Policy for Facilitating Research Improvement of Human and Social Science*, 201-238, Seoul: National Research Foundation of Korea.

Appendices

Appendices of Chapter 3: Methodology

Appendix 1 in Chapter 3 <Questionnaires for lecturers in England>

Dear Senior Lecturer

My name is Chang-Hyun Lee. I am a postgraduate student who majors in Sport Pedagogy at the University of Bedfordshire, under the supervision of Professor David Kirk. The title of my project is "the knowledge base for Physical Education Teacher Education (PETE): A comparative study of university programmes in England and Korea".

I am interested to learn about developments in PETE following four decades of growth in the physical activity field in higher education. I am interested to know how the academicisation of the field generally has impacted on preparation for teaching physical education. As you may know, there are now less than ten undergraduate PETE programmes in England as universities have shifted to the PGCE. The study seeks to understand the ways in which this trend may be affecting the knowledge base for physical education teaching.

To progress my research, I read about Shulman's theory of teacher's knowledge. Based on this understanding, I have already analysed your unit according to Shulman's categories of teacher's knowledge. However, this process was not enough to complete the analysis. I would like to interview you in your role as a unit leader to supplement my document analysis. I have created a list of questions with my supervisor. This interview is most important to clarify Shulman's categories of your unit. The questions are in the final part in this letter. I think that it will take approximately 30 minutes for this interview. If you read my questions in advance, we can economize time. I would appreciate if you meet me at your convenience.

This interview will be recorded on a voice recorder. However, Information about you will be kept confidential and anonymous by using a pseudonym instead of your name. In addition, recor dings will be kept securely, and used solely for research purposes. I will of course be very happy to share the outcomes of my research with you when my thesis is completed.

Finally, if you have any questions about this research please contact me on +44 (0)7540163590 or Chang-Hyun.Lee@beds.ac.uk. Alternatively, you can contact Professor Kirk at 01234 793080 or David.Kirk@beds.ac.uk

I greatly appreciate you spending the time to read my e-mail.

Sincerely,

Chang-Hyun Lee

<Questionnaire for an interviewee about Outdoor and Adventurous Activities>

1. Which elements of the knowledge base are found out in your unit?

	Theoretical Content Knowledge	Practical Content Knowledge	General Pedagogical Knowledge	Pedagogical Content Knowledge	Curriculum Knowledge	Knowledge of Educational contexts	Knowledge of learners and their characteristics	Knowledge of educational goals

1-1. Which elements currently are given priority?

1-2. What in your opinion are the interrelationships between the elements? For example, how did you learn these elements? Separately in each class or together in each class? If you learn these elements interrelatedly in one session, could you give me some examples?

<In a case of unit for physical activities or professional knowledge >

2. What was the balance between these three elements of your unit of physical activities? Do you prioritise one over the others? Could you give me your rationale for this?

	Contents of physical activities	Contents of professional knowledge	Contents of discipline knowledge
ex	Contents to improve abilities of football, basketball, cricket etc. eg PraCK	Teaching students, making a curriculum etc. eg PCK, CCK	Exercise physiology, bio-mechanics, sport psychology, motor development, etc. eg TCK

<Questionnaire for an interviewee about Learning and Teaching through Outdoor and Adventurous Activities>

1. Which elements of the knowledge base are found out in your unit?

	Theoretical Content Knowledge	Practical Content Knowledge	General Pedagogical Knowledge	Pedagogical Content Knowledge	Curriculum Knowledge	Knowledge of Educational contexts	Knowledge of learners and their characteristics	Knowledge of educational goals

1-3. Which elements currently are given priority?

1-4. What in your opinion are the interrelationships between the elements? For example, how did you learn these elements? Separately in each class or together in each class? If you learn these elements interrelatedly in one session, could you give me some examples?

<In a case of unit for physical activities or professional knowledge >

2. What was the balance between these three elements of your unit of physical activities? Do you prioritise one over the others? Could you give me your rationale for this?

	Contents of physical activities	Contents of professional knowledge	Contents of discipline knowledge
ex	Contents to improve abilities of football, basketball, cricket etc. e.g PRACK	Teaching students, making a curriculum etc. e.g PCK, CCK	Exercise physiology, bio-mechanics, sport psychology, motor development, etc. e.g TCK

2-1. When you taught the professional knowledge elements with contents of physical activities, what was the location of these classes (e.g. a classroom or a gymnasium or a swimming pool)?

2-2. I learned from my study so far that there are often many sessions where physical activities and the professional knowledge elements are taught together in England. When you were a student teacher, was it normal sessions? And did you learn professional knowledge (e.g. PCK, CCK) when you were a student teacher?

3. When you taught this sport event for student teachers, how much did you request students about the level of an accomplishment? (introductory, intermediate, upper level) And could I know the reason?

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4. Do you think your students will be prepared to teach this theoretical subject at GCSE or A-Level?
5. Do you think teaching a theoretical subject requires different teaching skills from teaching practical activities?
6. Compared to previous decades the amount of time in QTS programmes seems to have reduced. Is this the case at the University of Brighton? What might be the reasons for this?
7. At the same time, the amount of time given to school experiences appears to have increased compared to previous decades. Do you think this is the case at the University of Brighton?
8. Could you give your opinions about a table as a follow?

The change from diploma level to degree level in PETE in 1970s		A Level physical education has been a valid qualification for entry to university since the 1980s	
Positive aspects	Negative aspects	Positive aspects	Negative aspects

(E.g. The system in England, where A Level physical education counts towards university entrance, is among the few in the world. So, physical education teachers now teach theoretical physical education subjects in a school. On the one hand, a scholar noted that after developing theoretical versions of physical education in schools, the status of physical education teachers was better than in the past. On the other hand, another scholar noted that students in a school lost their right for physical activities in a school. What is your view?)

9. I think that you were a student teacher in University of Sussex, teachers in a school, and lecturer at University of Brighton. Could you explain the common and different aspects (e.g. curriculum, amounts of physical activities' units and theoretical units, rate of

<Supplement resources to help understanding about Shulman's categories>

Shulman's Categories	Content knowledge		General content knowledge	Pedagogical content knowledge	Curriculum content knowledge	Knowledge of educational contexts	Knowledge of learners and their characteristics	Knowledge of educational goals
	Theoretical content knowledge	Practical content knowledge						
Shulman's definition of categories	knowledge about the subject matter to be taught		knowledge about teaching methods that pertain to all subjects and situations	knowledge about how to teach a subject or topic to specific groups of students in a specific context	knowledge about developmentally appropriate content and programs at each grade level	knowledge about the impact of context on instruction	Knowledge about human learning as it applies to teaching	knowledge about the goals, purposes, and structure of our educational system
Units in University of Bedfordshire that provide examples of Shulman's categories	Physiology of Exercise	Area of Learning A	Learning to Teach and Inclusive Physical Education	Learning to Teach and Inclusive Physical Education	Applied Areas of Learning 2	Physical Education & Sport: Their Place in History Learning To Teach And Inclusive Physical Education		Philosophical issues in Physical Education
The sentences in the units of University of Bedfordshire that provide evidence of the categorisation	Develop ideas on how these topics may be covered in the A level syllabus.	The experience of athletics, dance, gymnastics, and swimming.	know a practical way to include all pupils	Activities include teaching small groups, whole classes and observation of good practice.	This unit will further develop your understanding of the National Curriculum.	The history of physical culture. address the Every Child Matters Agenda		Your own perspective on the educational value of physical education
Knowledge which teachers need to teach physical education in schools	Subjects of GCSE & A-level	Football, Cricket, Basketball, Baseball	a clear voice, wearing tidy clothes, a method for coping with students' misbehaviour	How to design and use modified games and using a reciprocal teaching style that pupils learn the rules, skills and tactics of games.	How to make decision students' subjects in key stages.	These are essential subjects to teach students in a secondary school such as philosophy, history, sociology for sport, though these subjects are not taught directly in a secondary school.	Information about teacher's students, their prior experiences, their levels of interest and ability, and so on.	such as knowing that Sport Education Model aims to produce competent, literate and enthusiastic sportspersons

<Questionnaire for a student teacher in 000>

1. Which elements of the knowledge base have you studied in classes you attended in this university?

	Theoretical Content Knowledge	Practical Content Knowledge	General Pedagogical Knowledge	Pedagogical Content Knowledge	Curriculum Knowledge	Knowledge of Educational contexts	Knowledge of learners and their characteristics	Knowledge of educational goals

1-5. Which elements present are given priority?

1-6. What in your opinion are the interrelationships between the elements? For example, how did you learn these elements? Separately in each class or together in each class? If you learn these elements interrelatedly in one session, could you give me some examples?

2. Where did you mainly learn about Pedagogical Content Knowledge (PCK)? Did you only learn PCK in university classes or did you learn in other contexts (e.g. coaching course)?

3. What was the balance between these three elements of your programme of PETE? Was one prioritised over the others? If so, why do you think this is?

	Contents of physical activities	Contents of professional knowledge	Contents of discipline knowledge
ex	Contents to improve abilities of football, basketball, cricket etc. eg PraCK	Teaching students, making a curriculum etc. eg PCK, CCK	Exercise physiology, bio-mechanics, sport psychology, motor development, etc. eg TCK

3-1. When you studied the professional knowledge elements, what was the location of these classes (e.g. a classroom or a gymnasium or a swimming pool)?
3-2. I learned from my study so far that there are often many sessions where physical activities and the professional knowledge elements are taught together. For you, which were the most helpful sessions, where different kinds of knowledge were mixed together, or kept separate? Which are more helpful? Why do you think this is?
3-3. I learned from my study so far that the interrelationship between studying in University and teaching in placements (teaching experiences) were seen as important by student teachers. How much do you think your classes at university prepared you for your school experiences? Were some parts of the course more relevant than others?

4. How important is practical content knowledge for you as a student teacher of physical education? Do you think you have enough practical content knowledge to teach physical education effectively? Do you think you learnt enough practical content knowledge to prepare you to be a physical education teacher? Why do you think this?
5. Which is your best sport event? When did you learn it? Before coming to University or after coming to University?
6. What level of practical physical performance of school pupils (e.g. introductory, intermediate, advanced) does your course prepare you to teach at?
7. When you teach physical activities to students in a school, how important is it for you that they will improve their ability? (introductory, intermediate, advanced) Why do you think so?
8. When you start work in a school, you may teach A-level Physical Education. Have you learned about that in this university? (enough or not enough)
9. Did you do A Level physical education yourself? Was it useful in studying physical education at university?
10. When you consider your future job as a physical education teacher, which is the most important part of your education in this university? Why do you think so?
11. In addition to your course, what other sources of knowledge are there to help you develop as a teacher (e.g. coaching courses? Volunteering?)

<Questionnaire for a teacher who graduate in 000>

1. When you were a student teacher in this university, which elements of the knowledge base did you study?

	Theoretical Content Knowledge	Practical Content Knowledge	General Pedagogical Knowledge	Pedagogical Content Knowledge	Curriculum Knowledge	Knowledge of Educational contexts	Knowledge of learners and their characteristics	Knowledge of educational goals

1.2. Which elements present were given priority?

1.3. What in your opinion are the interrelationships between the elements? For example, how did you learn these elements? Separately in each class or together in each class? If you learn these elements interrelatedly in one session, could you give me some examples?

2. Where did you mainly learn about PCK? Did you only learn PCK in university classes or did you learn in other contexts (e.g. coaching courses)?

3. What was the balance between these three elements of the curriculum?

	Contents of physical activities	Contents of professional knowledge	Contents of discipline knowledge
ex	Contents to improve abilities of football, basketball, cricket etc. eg PraCK	Teaching students, making a curriculum etc. eg PCK, CCK	Exercise physiology, bio-mechanics, sport psychology, motor development, etc. eg TCK

3-1. When you studied the professional knowledge element, what was the location of these classes (e.g. a classroom or a gymnasium or a swimming pool)?

3-2. I learned from my study so far that there are often many sessions where physical activities and the professional knowledge element are taught together. For you, which were the most helpful sessions, where different kinds of knowledge were mixed together, or kept separate? Which are more helpful? Can explain the reasons for your answers?

3-3. How did these sessions influence your work on school placement?

4. Can you recall classes where you learned practical content knowledge in this university when you were a student teacher? Did you learn enough about practical physical activities to teach in a school? And, please explain the reason.
5. When you think about your role as a teacher in a school, what was the most influential and important aspect of your university teacher education course? Why do you think so?
6. Could you explain merits and demerits in your university when you were a student teacher?
7. The system in England, where the subject is taught at A level, is one of only a few such systems in the world. I heard that some physical education teachers only teach theoretical physical education subjects in school. Do you have some positive or negative opinions about this? For example, a scholar noted that after developing theoretical versions of physical education in schools, the status of physical education teachers was better than in the past. On the other hand, another scholar noted that students in a school lost their right for physical activities in a school.
8. Based on your experience, have you felt some gaps between an education in your university and real teaching in a school?
9. Will you teach people who get intermediate level of physical activities from the content which you learned in the official curriculum?
10. When you teach physical activities to students in a school, how much do you want that students would be improved their ability of physical activities? (Introductory, intermediate, upper level) Why do you think so?
11. When you teach students, do you teach students with a difference of level between Key Stage 3 (11-14) and Key Stage 4(14-16)?

(The purpose of 10th and 11th question is that teachers in Korea are difficult to make a level difference between Key stage 3 and Key Stage 4. Because students move another school between Key Stage 3 and Key Stage 4, their levels of physical activities are various in Key Stage 4. So, teachers in Korea told me that they normally want to improve students' level in the middle of introductory level. And then, they try that students play sports after school or students play sports in their life. Compared to a situation in Korea, I am wonder English situation.)

12. Do you use a model such as Sport Education Model in your class?
13. How was a ratio between teaching (i.e. teaching in the official curriculum) and working (i.e. the teacher in charge of a class, coaching after finishing a school, etc) in a school? I listen that there is an assistant teacher or PE assistant in a school for a teacher. Were they helpful?
14. When you consider PETE future, what is the most aspect of teacher education in this university? Why do you think so?
15. If a student in your class is very smart as he/she can go to a medical or law faculty, but instead he selects physical education, what is your recommendation? The reason why I ask you is that normal Korean teachers or parents recommend the medical or law faculty.

Appendix 2 in Chapter 3

Institute for Sport and Physical Activity Research, University of Bedfordshire
Polhill Avenue, Bedford, MK41 9EA

INFORMED CONSENT

Project Title: The Knowledge base for Physical Education Teacher Education (PETE): a Comparative study of University Programmes in England and Korea.
Researchers: Chang-Hyun Lee, David Kirk, Toni O'Donovan

The purpose of this study has been clearly explained to me and all my questions about it have been satisfactorily answered. In addition, I agree that

1. The information I give will only be used for completion of a dissertation at the Institute for Sport and Physical Activity Research, University of Bedfordshire.
2. The data collected in this study is anonymous and I will not be identifiable in any way.
3. All data will be stored in a safe place. Therefore, only the dissertation supervisor and the researcher will have access to them.
4. I have the right to request to see the dissertation.

I agree to take part in this project.

.....
(Signature of participant) (Date)

Appendices of Chapter 4: UNIVERSITY OF BRIGHTON

Appendix 1 in Chapter 4 <Analysis of Curriculum of UNIVERSITY OF BRIGHTON in 2011/12 >

Semester	Contents of professional knowledge				Contents of discipline knowledge				Contents of physical activities			
	title	levels	HaW*	TH**	title	levels	HaW	TH**	title	levels	HaW	TH**
1-1	-	-	-	-	Qualitative Analysis of Human Movement (including contents of professional knowledge)	10	2	26	Dance	10	2	26
	-	-	-	-	-	-	-	-	Track and Field Athletics	10	2	26
	-	-	-	-	-	-	-	-	Outdoor and Adventurous Activities	10	2	26
	-	-	-	-	-	-	-	-	Foundation Games	10	2	26
	-	-	-	-	-	-	-	-	Gymnastic Activities	10	2	26
	-	-	-	-	-	-	-	-	Swimming and Water Safety	10	2	26
1-2	Teachers as Educators	20	4	52	Select one in the middle of Foundations of Sport and Exercise Psychology	10	2	26	Gymnastic Activities	Students can select in the first or second semester.		
	Education Studies 1	20	4	52	-	-	-	-	Track and Field Athletics			
	-	-	-	-	-	-	-	-	Swimming and Water Safety			
	-	-	-	-	-	-	-	-	Foundation Games			
	-	-	-	-	-	-	-	-	-	-	-	-
2-1	Education Studies 2	10	2	26	-	-	-	-	Learning and Teaching Through Outdoor and Adventurous Activities	10	2	26
	Independent Professional Development	10	2	26	-	-	-	-	Learning and Teaching Through Games Activities	10	2	26
	Initial placement	10	2	12	10 days for two weeks	-	-	-	Learning and Teaching Through Swimming and Water Safety	10	2	26
	-	-	-	-	-	-	-	-	Learning and Teaching Through Athletics	10	2	26
2-2	Education Studies 3	10	2	26	-	-	-	-	Learning and Teaching Through Games Activities	-	-	-
	Exams in PE 14-16	10	2	26	-	-	-	-	Learning and Teaching Through Athletics	-	-	-
	Creating a Positive Teaching and Learning Environment	10	2	26	-	-	-	-	Learning and Teaching Through Gymnastics activities	10	2	26
	-	-	-	-	-	-	-	-	Learning and Teaching Through Dance	10	2	26
	-	-	-	-	-	-	-	-	Learning and Teaching Through Swimming and Water Safety	-	-	-
3-1	Partnerships: School and Community Links	10	2	26	Independent Study Module (two hours in third year and two hours in fourth year)	10	2	26	Selected Practical Activity	10	2	26
	Education Studies 4	20	4	52	Choice	10	2	26	-	-	-	-
3-2	Intermediate School Placement	60	12		15 weeks in a school	-	-	-	-	-	-	-
4-1	PE in the 14 - 19 Curriculum	20	4	52	Independent Study Module (two hours in third year and two hours in fourth year)	10	2	26	Selected Practical Activity	10	2	26
	Personal, Social, Citizenship and Health Education	10	2	26	Choice	10	2	26	-	-	-	-
4-2	Final Professional Placement	60	12		15 weeks in a school	-	-	-	-	-	-	-

*HaW: Hours a week ** TH: Term Hours

Appendix 2 in Chapter 4 **<The change in the curriculum at UNIVERSITY OF BRIGHTON from 1972 to 2011>**

Years	Education Course		Related (Second) Subject		Contents of professional knowledge		Contents of discipline knowledge		Contents of physical activities		sum	PE SUM (hours)	Teaching Experience (weeks)	Periods	Developments	Title of Institute	Male and Female	Remark
	one week	All (hours)	one week	all	one week	all	one week	All	one week	all								
2011/12	-	-	-	-	30	390	12	156	28	364	910	910	32(2+15+15)	13weeks 2 semester	From 2006	University of Brighton from 1992	M & F	BA
2003/04	-	-	-	-	24	312	18	234	28	364	910	910	32(2+15+15)		From 1999		M & F	
1996/97	-	-	It disappeared	-	18	234	36	438	18	234	910	910	32(2+15+15)		From 1996		M & F	
1993-7 (one student)	-	It disappeared -	12	204	9	153	25	425	24	408	1190	986	34(4+15+15)	17 weeks 2 semester	From 1993		M & F	
1990/91	-	317	-	288	-	119	-	340	-	428	1492	887	30(6+10+2+12)	About 10 weeks 3 semester	From 1987	Brighton Polytechnic from 1979	M & F	BEd 4 (Hon) year
1989/90	-	356	-	295	-	134	-	421	-	392	1598	947	20(4+8+0+8)				M & F	
1983/84	-	460	-	120	-	0	-	355	-	510	1445	865	15(3+6+6)		From 1980/81		M & F	
1977/78	-	248	-	160	-	45	-	410	-	590	1453	1045	15(5+5+5)		-	East Sussex College of Higher Education	Female	BEd 3 years
1975-8(one student)	-	326	-	160	-	-	-	437	-	650	1413	1087	15(5+5+5)		-		Female	
1972/73	-	380	-	100	-	35	-	375 + 150	-	540	1440	950 + 150	15(5+5+5)		-		Female	COE 3 years

Appendix 3 in Chapter 4 **<The change of units in discipline knowledge in UNIVERSITY OF BRIGHTON from the 1970s to the 2010s[1]>**

	First year	Second year	Third year	Fourth year
1972	Principles of human Movement 1, 2 Principles of Human Movement Related to Games Movement Study Motif Writing Principal's Period Movement Observation Movement of Sound The Teaching of Athletic and Swimming Movement Study in Dance Movement Study in Gymnastics Art Course Environmental Studies Science kinesiology - structure related to movement Science physiology of exercise – chronic and immediate effects of exercise Other Courses History of Physical Education	Skills and Learning Science and Movement School Remedials Movement and the Arts Liberal Studies Minimum Technical Studies First Aid in Schools Music for Dance 1, 2	Workshop in Movement Study Movement in Question and psychomotor skill contexts Revision Seminars Liberal Studies Minimum	-
1975 one student	Classification of human Movement Inventiveness in human movement Introduction to dance Scientific basis of human movement Development of perceptual motor skill Nature and development of skilled performance in sport	Kinesiology Exercise physiology Remidials Social perspective of PE and sport Movement and the Arts	Human Movement Studies Issues and Administration in physical education Science Teaching Student Lecture Further Study : Movement and the Arts	-
1977	Classification of movement Inventiveness in human movement Introduction to dance Scientific basis of human movement Development of perceptual motor skill The nature and development of skilled performance	Physiology Kinesiology Remedials Sociology of physical education Movement and the arts	General unit with student lectures Option unit Physical Education Curriculum/B.Ed. (Hon.) Preparation	-

[1] PS BA PE 2010b FiNAL 08-9 09-10 cohorts (curriculum 2011)

BA (Hons) Physical Education with QTS, Definitive Document September 2020, Revised September 2003, FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL, p.3 (curriculum 2003)
BA (Hons) Physical Education with QTS, Definitive Document September 2020, Revised September 2003, Appendix 1 Programme Specification, FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL, pp. 8-10 (curriculum 2003)
BA (Hons) Physical Education with QTS, Proposal for Revalidation, May 2000, p. 14 (curriculum 2000)
BA (HONS) QTS PHYSICAL EDUCATION DEFINITIVE COURSE DOCUMENT Revised September 1996, pp. 10-12 (curriculum 1996)
1994-1998 Personal Record SDC13162-13169 (curriculum 1993)
B.ED.HONS. PHYSICAL EDUCATION COURSE 1989-93 STUDENT HANDBOOK 1989-93, pp. 3-10 (curriculum 1989)
B.Ed. Honours Degree Specialist Physical Education Programme Student Handbook 1983/84 Course structure, assessment and organisation, pp. 3-8 (curriculum 1983)
JRH/SMG/7.7.77 Cert.Ed./B.Ed. Course (Human Movement at Advanced level) for specialist teachers of physical education (curriculum 1977)
1975-1979 Personal Record (curriculum 1975)
CHELSEA COLLEGE OF PHYSICAL EDUCATION 1972,pp10-13 HANDBOOK (curriculum 1972)

	in sport			
1983	Biological Basic of Motor Performance 1, 2, 4 Development of Motor Competence Cultural Experience Development of PE Pioneer Motor Competence Aesthetic and Cultural Forms	Perceptual Motor Learning 1, 2, 3 Culture Exp. of Dance1, 2 Socio & CUl. Studies 1, 2 Aesthetics 1, 2 Cultural Movements Movement Concepts	Related Theory: 3	Physical Education Options 1 , 2
1989	Movement Observation and Analysis 1, 2, 3 Perceptual Motor Learning 1, 2 Physiology of Physical Activity 1, 2 Physical Education Culture and Society 1, 2	Movement Observation and Analysis 1, 2 Physiology of Physical Activity Physical education, culture and Society Perceptual Motor Learning	Movement analysis project with Year 1 Perceptual Motor Development Option Route Module 1, 2 , 3 Option Route Supplementary Module Option Route Independent learning assignment	Option Route Module 5 Option Route Supplementary Module Option Route Summary
1993 One student	Foundation of Natural Science Social Perspective on Physical Culture Approaches to Study Introduction to Research Methods Skilled Behaviour in Sport	Disability in Sport and Recreation	Perpetual Motor Development & Children's Sport	Dissertation Issues in Sport and Physical Culture Gender Issues and Physical Culture Applied Studies – PE
1996	Introduction to Biomechanics or Anatomy for Sport & Exercise Fundamental Physiology of Sport & Exercise or Foundations of Natural Science or Dance Appreciation Social Perspectives on Physical Culture	-	Child Development and Learning (previous Perceptual Motor Development) Permitted Module: 4	Permitted Module: 4 Discretionary Module: 2 Dissertation: 2
2000	Biom/Anatomy Physiology Sp & Ex Psy Soc Pers	Dissertation Preparation FREE L2	Dissertation Exam L3 Dissertation	Dissertation L3 L3
2003	Physiology Qualitative Movement Analysis in Physical Education Foundation of Sport and Exercise Psychology Exercise, Fitness and Health	Dissertation Preparation	Dissertation Dissertation	Dissertation Choice
2011	Qualitative Analysis of Human Movement Select one in the middle of three Foundations	-	Independent Study Module Choice	Independent Study Module Choice

<The change of numbers and hours of units in discipline knowledge in UNIVERSITY OF BRIGHTON from 1970s to 2010s>

	First year numbers (hours)	Second year numbers (hours)	Third year numbers (hours)	Fourth year numbers (hours)	All numbers (hours)
1972	15 (250)	9 (85)	4 (40)	-	28 (375)
1975	6 (120)	5 (132)	5 (185)	-	16 (437)
1977	6 (120)	5 (115)	3 (75)	-	14 (410)
1983	9 (150)	11 (90)	3 (80)	2 (80)	25 (355)
1989	9 (134)	5 (67)	7 (148)	3 (72)	24 (421)
1993	5 (170)	1 (34)	1 (34)	4 (136)	11 (425)
1996	3 (78)	-	5 (130)	9 (234)	17 (442)
2000	4 (104)	2 (52)	4 (104)	3 (78)	15 (338)
2003	4 (104)	1 (26)	2 (52)	2 (52)	9 (234)
2011	2 (52)	-	2 (52)	2 (52)	6 (156)

Appendix 4 in Chapter 4 **<The comparison between discipline knowledge (DK) and professional knowledge (PK) from 1996 to 2011>**

Years	Areas	First year	Second year	Third year	Fourth year	numbers	hours
1996	DK	Introduction to Biomechanics or Anatomy for Sport & Exercise Fundamental Physiology of Sport & Exercise or Foundations of Natural Science or Dance Appreciation Social Perspectives on Physical Culture		Child Development and Learning (previous Perceptual Motor Development) Permitted Module: 4	Permitted Module: 4 Discretionary Module: 2 Dissertation: 2	17	442
	PK	Skilled Behaviour in Sport and Dance Teacher as a professional	-	Examinations in Physical education and Dance Teacher as a professional Personal and Social Education Partnerships: School-Community Links Partnerships: Strategic Management & Change	Teacher as a professional	9	234
2003	DK	Physiology Qualitative Movement Analysis in Physical Education Foundation of Sport and Exercise Psychology Exercise, Fitness and Health	Dissertation Preparation	Dissertation Dissertation	Dissertation Choice	9	234
	PK	School Perspective Education Studies	Education Studies 2 Creating and Positive Teaching and Learning Environment Examination at 11-16 Education Studies3	Personal, Social and Health Education Education Studies 4 Partnership	Education Studies 5 Examinations in Physical Education and Dance	12	312
2011	DK	Qualitative Analysis of Human Movement (including contents of professional knowledge) Select one in the middle of three units		Independent Study Module Choice	Independent Study Module Choice	6	156
	PK	Teachers as Educators Education Studies 1	Education Studies 2 Independent Professional Development Education Studies 3 Exams in PE 14-16 Creating a Positive Teaching and Learning Environment Initial placement	Partnerships: School and Community Links Education Studies 4	PE in the 14 - 19 Curriculum Personal, Social, Citizenship and Health Education	13	390

Appendix 5 in Chapter 4 **<The comparison between education studies and professional knowledge in UNIVERSITY OF BRIGHTON from the 1970s to the 2010s>**

Year		First year	Second year	Third year	Fourth year	No.	Hrs	Degree
1972/73	Education studies (ES)	Education E1(Human Development), E2(Intellectual Development, concept formation, social environment of children), E3(Study of adolescence continued), including observation and work with children in school	Education e4(Psychology of Learning), e5(Personality development), e6(The integration of personality) Teaching Practice Group work in schools	Education E7 (Philosophical aspects of Education) E8 (Philosophical aspects of teaching) E9	-	10	380	3COE
	Professional knowledge in physical education (PK)	-	-	The Physical Education Teacher in School and Society Workshop in Physical Education Modern Trends in Physical Education The physical Education Teacher in School Society Tutorial Revision-	-	5	35	
1977/78	ES	Human Development Psychology of Adolescence Psychology of Learning Development of the Education System	Social Psychology of Teaching Education Option Course Value in Education Child Study Group Study Special Exercise Education	Education studies	-		326	3COE
	PK	-	-	Physical Education Curriculum/B.Ed. (Hon.) Preparation	-	1	10	
1980/81	ES	Child Development Psychology of Learning Development of the Education Service	Option Course Social Psychology of Teaching	The Secondary School Curriculum, Option Course Continued from Year 2	-	-	-	3COE or 4BEd
	PK	-	-	PE and the School (evaluation and curriculum)	-	1	10	
1983/84	ES	Child and Adolescence Context for Learning Teaching Skills Computer and Their Applications	Context for Learning Computers and Their Applications Child and Adolescence Teaching Skills	Options Curriculum Perspectives Enquiry Methods Language Across The Curriculum Computers and Their Application	Options Teacher as Professional	14 (27: repetition)	460	4BEd
	PK			Teaching and Professional Studies	Teaching and	2	100	

					Professional Studies			
1989/93	ES	Education	Education	Education	Education	14	356	4BEd
	PK	Teaching and Professional Studies Pedagogy	Teaching and Professional Studies Pedagogy Teaching	Teaching and Professional Studies	Teaching and Professional Studies	5	134	
1990/91	ES	Children and Adolescence Teaching Skills Computers and Their Applications	Contexts For Learning Teaching	Education Core Studies Education Options	Education Core Studies Education Options	9(15)	317	4BEd
	PK	Teaching And Professional Studies Pedagogy Physical Education Culture & Society	Physical Education Culture & Society Teaching & Professional Studies Teaching	Teaching and Professional Studies	Teaching and professional studies	7	119	
1996	ES	-	-	-		-	-	4BA
	PK	Skilled Behaviour in Sport and Dance Teacher as a professional	-	Examinations in Physical education and Dance Teacher as a professional Personal and Social Education Partnerships: School-Community Links Partnerships: Strategic Management & Change	Teacher as a professional	8(9)	234	
2003/4	ES	-	-	-	-	-	-	4BA
	PK	School Perspective Education Studies	Education Studies 2 Creating and Positive Teaching and Learning Environment Examination at 11-16 Education Studies3	Personal, Social and Health Education Education Studies 4 Partnership	Education Studies 5 Examinations in Physical Education and Dance	12	312	
2011/12	ES	-	-	-	-	-	-	4BA
	PK	Teachers as Educators Education Studies 1	Education Studies 2 Independent Professional Development Education Studies 3 Exams in PE 14-16 Creating a Positive Teaching and Learning Environment Initial placement	Partnerships: School and Community Links Education Studies 4	PE in the 14 - 19 Curriculum Personal, Social, Citizenship and Health Education	13	390	

Appendix 6 in Chapter 4 **<The change of units in physical activities in UNIVERSITY OF BRIGHTON from 1972 to 2010[2]>**

Years	First year	Second year	Third year	Fourth year	All hours
1972	Activity Course Dance MED 1 Gymnastics G1	Activity Course Dance MED1 to complete MED 2 Gymnastics G2 Optional Courses from S4 TS 1-12, Gymnastics G4	Activity Courses Selected Options Dance MED 2 Gymnastics G3 Optional Courses from S4 TS 1-12 Gymnastics G4	-	540
1975	Modern dance/ National dance, Education Gymnastics, Gymnastics option, Athletics, Basketball, Cricket, Hockey, Lacrosse, Minor Games, Netball, Swimming, Tennis			-	650
1977	Physical Education Practical Work Gymnastics 2 hours a week Dance 2 hours a week Activities 4 hours a week	Physical Education Practical Work	Physical Education Practical Work	-	590
1983	Athletics 1, 2 Swimming 1, 2, 3 Gymnastics 1, 2, 3 Games 1, 2, 3 Modern Dance 1, 2	Athletics + Swimming or Outdoor Pursuits 1, 2, 3 Gymnastics 1, 2, 3 Games 1, 2, 3 Morden dance 1, 2, 3 Fork dance Athletics	Practical Activities	-	510
1989	Dance 1, 2 Games 1, 2, 3 Gymnastics 1, 2	Games 1, 2, 3 Gymnastics 1, 2 Athletics	Dance, games, gymnastics (for younger children) Dance 1, 2	0	392

[2] PS BA PE 2010b FINAL 08-9 09-10 cohorts (curriculum 2011)

BA (Hons) Physical Education with QTS, Definitive Document September 2020, Revised September 2003, FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL, p.3 (curriculum 2003)
BA (Hons) Physical Education with QTS, Definitive Document September 2020, Revised September 2003, Appendix 1 Programme Specification, FACULTY OF EDUCATION AND SPORT CHELSEA SCHOOL, pp. 8-10 (curriculum 2003)
BA (HONS) QTS PHYSICAL EDUCATION DEFINITIVE COURSE DOCUMENT Revised September 1996, pp. 10-12 (curriculum 1996)
1994-1998 Personal Record (curriculum 1993)
B.ED.HONS. PHYSICAL EDUCATION COURSE 1990-94 STUDENT HANDBOOK, pp. 3-9 (curriculum 1990)
B.ED.HONS. PHYSICAL EDUCATION COURSE 1989-93 STUDENT HANDBOOK 1989-93, pp. 3-10 (curriculum 1989)
B.Ed. Honours Degree Specialist Physical Education Programme Student Handbook 1983/84 Course structure, assessment and organisation, pp. 3-8 (curriculum 1983)
JRH/SMG/7.7.77 Cert.Ed./B.Ed. Course (Human Movement at Advanced level) for specialist teachers of physical education, (curriculum 1977)
1975-1979 Personal Record, (curriculum 1975)
CHELSEA COLLEGE OF PHYSICAL EDUCATION 1972,pp10-13 HANDBOOK, (curriculum 1972)

	Athletics Swimming Outdoor Pursuit camp	Swimming Dance 1, 2 Outdoor Pursuit camp	Games 1, 2 Gymnastics 1, 2		
1990	Dance 1, 2, 3 Games 1, 2, 3 Gymnastics 1, 2 Gym/Games/Dance 11-14 age group Athletics Swimming Outdoor Pursuits	Games 1, 2, 3 Gymnastics 1, 2 Athletics Swimming Dance 1, 2 Outdoor Pursuits	Dance Games Gym for Younger Children Dance, Gymnastics, Games 1, 2	0	428
1993	Gymnastic/Dance Activities Games/Athletics Activities Swimming/Outdoor Activities	Curriculum Dance Invasion Games Curriculum Gymnastics	Dance Performance Skills Net Games Hockey Netball Tennis	Athletics	408
2003	Gymnastics Introduction to Dance Games Outdoor and Adventurous Actives Swimming and Water Safety Athletics	Curriculum Dance Activities Curriculum Gymnastics Activities Curriculum Games Activities Curriculum Athletics Activities Curriculum Swimming Activities and Water Safety Curriculum Outdoor and Adventurous Activities	Selected Practical Activities	Selected Practical Activities	364
2011	Dane Track and Field Athletics OAA Foundation games Gymnastics activities Swimming and Water Safety	Learning and Teaching Through Outdoor and Adventurous Activities Learning and Teaching Through Games Activities Learning and Teaching Through Swimming and Water Safety Learning and Teaching Through Athletics Learning and Teaching Through Gymnastics activities Learning and Teaching Through Dance	Selected Practical Activity	Selected Practical Activity	364

Appendices of Chapter 5: UNIVERSITY OF BEDFORDSHIRE

Appendix 1 in Chapter 5 <Analysis of Curriculum of University of Bedfordshire in 2009/10>

Years	**Contents of professional knowledge**			**Contents of discipline knowledge**			**Content of physical activities**		
	Title	Hours a week	Term hours	Title	Hours a week	Term hours	Title	Hours a week	Term hours
1-1	Learning to Teach & Inc PE	1	10	Scientific Foundations Psychomotor Lecture	1	10	AOL: B Games Group 1	1	10
	Learning to Teach & Inclusive PE Seminar Groups 1& 2	2	20	Scientific Foundations Anatomy and Physiology Lecture	1	10	AOL:A Dance 1	1.5	15
	-	-	-	Psych Seminar group 1 (Even weeks)	1	10	AOL: B Outdoor and Adventurous Activities	3	20
	-	-	-	A & P Group 1	1	10	AOL:A Gym 1	1.5	15
	-	-	-	A & P Group 2	1	10	AOL: B Games Group 1	1	10
	-	-	-	Scientific Foundations Anatomy and Physiology Lecture	1	10	-	-	-
	-	-	-	AOL: A Sustained Running Group 1 and ½ group 2	1.5	4.5	-	-	-
1-2	Learning to Teach & Inclusive PE Lecture	1	10	Scientific Foundations Psychology Lecture	1	10	AOL: A Swim	1	10
	Learning to Teach & Inclusive PE Group 1 Seminar	2	20	Psychology	1	10	AOL:B Gp 1	1.5	15
	-	-	-	Scientific Foundations Psychology Lecture	1	10	AOL: A ATH Lecture (First Week Only)	2	2
	-	-	-	-	-	-	AOL: A Group 1 ATHLETICS	2	20
2-1	Teaching for Learning Lecture	1	12	Applied AOL 1 Health Lecture	1	12	Applied AOL 2 Swimming	1.5	16.5
	Teaching for Learning workshops	2	24	PE & Sport: Their Place in History Lecture	2	20	Applied AOL 1 Rugby	1.5	9
	-	-	-	History	1	9	Applied AOL 1 Basketball PS *far* Hockey SB Netball	2	24
	-	-	-	Apply AOL 1 Health Seminar	2	24	Applied AOL 1 Football	1.5	9
	-	-	-	-	-	-	Applied AOL 1 Volleyball	1.5	9
	-	-	-	-	-	-	Applied AOL 2 Athletics	1.5	18

2-2	Assessing Learning and Developing Teaching Lecture	1	6	PE & Sport: Their Place in History Lecture	2	6	Applied AOL 2 Gymnastics	1.5	9
	Assessing Learning and Developing Teaching Seminars	2	6	History	1	3	Applied AOL 2 Gymnastics	1.5	9
	-	-	-	-	-	-	Applied AOL 2 Dance	1.5	9
	-	-	-	-	-	-	Applied AOL 1 OAA	3	18
	-	-	-	-	-	-	Applied AOL 2 Dance	1.5	9
3-1	Teaching for Learning 2 Lecture	1	9	Physiology of Exercise Lecture	1.5	13.5	Minor Practical Gym Gp1	1.5	16.5
	Teaching for Learning Workshops	2	18	Physiology of Exercise Lab	1.5	13.5	Minor Practical OAA	3	16.5
	Consumer Culture & PE Lecture	2	12	Performance & Psych Learning Lab G 1	1	9	Minor Practical Dance	1.5	16.5
	CC&PE Seminar Group 1	1	6	Performance & Psych Learning Seminar	1	9	Minor Practical Games	1.5	16.5
	-	-	-	-	-	-	Minor Practical Athletics	1.5	16.5
	-	-	-	-	-	-	Minor Practical Swimming	1.5	16.5
3-2	Pastoral Curriculum Lecture	1	6	Physiology of Exercise Lecture	2	6	-	-	-
	Teachers and the Pastoral Curriculum Seminars	1	6	Physiology of Exercise Seminar Group 2	1.5	4.5	-	-	-
	Teaching for Learning Lecture	1	3	Performance & Psychomotor Learning Seminar	1	3	-	-	-
	The Reflective Teacher Lecture	1	6	Performance & Psychomotor Learning Seminar KR	1	3	-	-	-
	The Reflective Teacher Seminars	1	6	-	-	-	-	-	-
	Teachers and the Pastoral Curriculum Lecture	1	6	-	-	-	-	-	-
	Teachers and the Pastoral Curriculum Seminars	1	6	-	-	-	-	-	-
4-1	Entering the Profession Lecture or seminars	2	30	Sport Psychology lecture	2	30	Major OAA	3	30
	Entering the Profession Lecture	1		Sport Psych Seminar Group 1	1		Major Games Theory	3	30
-	-	-	256	-	-	184.5	-	45.5	415.5

<Analysis of Curriculum in University of Bedfordshire in 2009/10 (summary)>

	Contents of professional knowledge			Contents of discipline knowledge			Content of physical activities		
	Title	(week) Hours	Term hours	Title	(week) Hours	Term hours	Title	(week) Hours	Term hours
1-1	Learning to Teach and Inclusive PE	3	30	Scientific Foundations	6	50	Areas of Learning A: Body Management and Aesthetic	4.5	49.5
	-	-	-	-	-	-	Areas of Learning B: Challenge and Interaction	3	30
1-2	Learning to Teach and Inclusive	3	30	Scientific Foundations	3	30	Areas of Learning A: Body Management and Aesthetic	5	32
	-	-	-	-	-	-	Areas of Learning B: Challenge and Interaction	1.5	15
2-1	Teaching for Learning 1	3	36	Physical Education and Sport: Their place in History	3	39	Applied Areas of Learning 1	6.5	51
	-	-	-	Applied Areas of Learning 1	3	36	Applied Areas of Learning 2	3	24.5
2-2	Assessing Learning and Developing Teaching	3	12	Physical Education and Sport: Their place in History	3	9	Applied Areas of Learning 1	3	18
	-	-	-	-	-	-	Applied Areas of Learning 2	4.5	18
3-1	Teaching for Learning 2	3	27	Performance and Psychomotor Learning	2	18	Minor Practical (6 subjects)	9	99
	Consumer Culture and Physical Education	3	18	Physiology of Exercise	3	27	-	-	-
3-2	Teachers and the Pastoral Curriculum	6	36	Performance and Psychomotor Learning	2	6	-	-	-
	Teaching for Learning 2	1	3	Physiology of Exercise	3.5	10.5	-	-	-
	Consumer Culture and Physical Education	3	15	-	-	-	-	-	-
	The Reflective Teacher	2	12	-	-	-	-	-	-
4-1	Entering the Profession	3	30	Sport Psychology	3	30	Major Practical Games	3	30
	-	-	-	-	-	-	Major Practical Athletics	3	30
4-2	Final School Experience	0	0	-	-	-	-	-	-
	-	-	-	The Action Research Project	0	0	-	-	-
839.5	12	33	256	11	31.5	255.5	11	45.5	415.5

Appendix 2 in Chapter 5

<The change of hours of five areas in curriculum in University of Bedfordshire from 1969 to 2011[3]>

	Educational subjects		Second subjects		Contents of discipline knowledge		Contents of professional knowledge		Contents of physical activities		PE Sum	All Sum	T.E (WK)	degree
	The numbers of units	The amounts of hours	The numbers of units	The amounts of hours	The numbers of units	The amounts of hours	The numbers of units	The amounts of hours	The numbers of units	The amounts of hours				
1969	8	190	15	231	18	131	12	69	40	1028	1228	1649	15	3COE
1976	4	189.5	33	189.5	7	319	?	?	25	1122	1441	1820	14-16	
1982	4	218	20	272	4	464	16	196	10	788	1252	1938	14	4BED
1986	-	-	?	239.6	?	?	11	517.2	?	664	1181	1420	24	
1989	-	-	?	223	13	199	5	545	24	440	1184	1407		
2004	-	-	-	-	26	250	27	249	29	415.5	914.5	914.5	32	4BA
2009	-	-	-	-	24	255.5	28	256	32	415.5	927	927		
2011	-	-	-	-	25	227	31	273	26	372	872	872		

[3] TIMETABLE SUBJECT TIME ALLOCATION IN BEDFORD PHYSICAL EDUCATION ARCHIVE ACC. NO. 188 (curriculum 1969)
TIMETABLE SUBJECT TIME ALLOCATION in 1976 (curriculum 1976)
BEDFORD COLLEGE OF HIGHER EDUCATION B.E.D. (HONS) DEGREE – SECONDARY REVIEW MARCH 1991 VOLUME I THE CONTEXT OF THE PROPOSAL p. 2 (curriculum 1982)
BEDFORD COLLEGE of higher education INITIAL B.E.d. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986 p. 5 (curriculum 1986)
ONUTLINE OF EDUCATION AND PRACTICAL TEACHING STUDIES INCLUDING SCHOOL EXPERIENCE in 1989 (curriculum 1989)
Course Information Form (CIF) in 2004 (Curriculum 2004)
Course Information Form (CIF) in 2008 (Curriculum 2008)
Course Information Form (CIF) in 2010 (Curriculum 2010)

Appendix 3 in Chapter 5 <The comparison of units of professional knowledge between 1982 and 1986>

years	Curriculum in 1982								Curriculum in 1986				
	Education				Practical Teaching Studies (PTS)				Human Movement Studies Component (Professional Studies Component)				
	title	HaW	Contact	Total	title	HaW	Contact	Total	title		HaW	Contact	Total
1	The Present System of Education	2	11	54	Introducing the Teacher at Work Orientation Week	2	11	54	Core Element	Introductory Module Development & Learning The early Year	6	1-6 weeks	165.6
	The Aims of Education		-		Preparation for Small Scale Teaching				Core Elements	The Teacher's Role Basic Teaching Skills Micro-teaching The Learning Process Adolescent Development	5	7-12 weeks	
	Learning		-		-		-		Content, Method and Resources Physical Education/Dance		1	7-12 weeks	
	School and Learning		11		Small Scale Teaching		11		Core Elements	Group Process	3	-	
	Developmental Factors		-		Preparation for Teaching Experience					Pupil Perspective on School Class Management/Discipline &	-	-	
	Developmental Factors		5		Appraisal of Teaching Experience		5		Core Elements	Control Schemes of Work Special Educational Needs	3	-	
	Social Factors		-		-	-	-			Curriculum Access Aims Revisited	-	-	
2	Group Processes	2	11	54	Micro-Teaching	2	11	54	Content, Method and Resources Physical Education/Dance		2	27	130
	Special Needs		-		-		-		Content, Method and Resources Physical Education/Dance		1	-	
	Implications		-		-		-		Content, Method and Resources Physical Education/Dance		2	-	
	The School as an Institution		6		Preparation for Teaching		6		Content, Method and Resources Physical Education/Dance		1	-	
	The School as an Institution		10		Appraisal of Teaching Practice		10		-	-	-	-	
	The aims of education		-		Relationship of Theory and Practice		-		-	-	-	-	
3	The Teacher's Aims	2	11	66	Application of theory to particular areas of teaching	2	11	66	Professional studies	-	5	-	130
	Teaching Strategies		-		-		-		-	-	-	-	
	Assessment		-		-				-	-	-	-	
	Option course		11		Assessment and Evaluation		11		-	-	-	-	
	-		-		Teaching Strategies related to serial practice				-	-	-	-	
	Option course		11		Assessment and Evaluation	-	-	-	-	-	-	-	
	-	-	-		Teaching Strategies related to serial practice	-							
4	Issues in Education	2	11	44	Professional ism and the Teacher	1	11	22	Professional studies	-	4	-	89.6
	Issues in Education		11		Professional ism and the Teacher		11			-			

<Units of professional knowledge in University of Bedfordshire in 2004>

Curriculum in 2004		
Contents of professional knowledge		
Title	Week Hours	Term hours
Learning to Teach & Inc PE	1	10
Learning to Teach & Inclusive PE Seminar Groups 1	2	20
Learning to Teach & Inclusive PE Lecture	1	10
Learning to Teach & Inclusive PE Group 1 Seminar	2	20
Teaching for Learning Lecture	1	12
Teaching for Learning workshops	2	24
Assessing Learning and Developing Teaching Lecture	1	6
Assessing Learning and Developing Teaching Seminars	2	6
Teaching for Learning 2 Lecture	1	9
Teaching for Learning Workshops	2	18
Consumer Culture & PE Lecture	2	12
Consumer Culture & PE Seminar Group 1	1	6
Pastoral Curriculum Lecture	1	6
Teachers and the Pastoral Curriculum Seminars	1	6
Teaching for Learning Lecture	1	3
The Reflective Teacher Lecture	1	6
The Reflective Teacher Seminars	1	6
Teachers and the Pastoral Curriculum Lecture	1	6
Teachers and the Pastoral Curriculum Seminars	1	6
Teachers and the Pastoral Curriculum Lecture	1	6
Teachers and the Pastoral Curriculum Seminars	1	6
Consumer Culture & PE Lecture	1	3
Consumer Culture &PE Seminar Group 1	1	6
Consumer Culture &PE Seminar Group 1	1	6
Entering the Profession Lecture	2	30
Entering the Profession Lectures or Seminars	1	
		249

Appendix 4 in Chapter 5 **<The change of units in discipline knowledge in University of Bedfordshire from 1969 to 2009>**

1969	1976	1982	1989	1994	2009/10
131	319	464	?	?	184.5
Human Biology/Kinesiology	Science in physical education	Kinesiology	-	Anatomy and Kinesiology	-
Principles of Movement	Historical and contemporary studies	Exercise physiology	Physiology	Physiology	Anatomy and Physiology
Human Biology/Kinesiology	Principle of physical education	Exercise Physiology	Physiology	Physiology of exercise	Physiology of Exercise
Principles of Movement	Science in physical education	-	Exercise Physiology	-	-
Human Biology/Kinesiology	Philosophical and Psychomatic studies	Biomechanics	Biomechanics	Mechanics	Biomechanics of Sport
Principles of Movement	Principle of physical education	Biomechanics	Biomechanics	Sport biomechanics	-
-	Module (choice) courses	-	Sports Biomechanics	-	-
-	-	Psychology	Psychology	Psychology	Psychology
-	-	Psychological Studies	Social Psychology	Psychology	Psychomotor
-	-	-	Psychology	Social Psychology	Performance & Psychomotor Learning
-	-	-	Social Psychology	Motor development and impairment	Sport Psychology
-	-	-	Children in sport, Motor	Psychological studies	-
-	-	-	Psychology Studies	-	-
-	-	Sociology applied to physical education	Sociology	Sociology and culture	-
-	-	Sociology applied to Physical Education,	Sociology	-	-
-	-	History of physical education	-	History of PE + sport	History
-	-	Historical and Comparative Studies	-	-	Their Place in History Lecture
-	-	Movement observation	Nature & Cultural	-	-
-	-	Philosophy and physical education	Philosophical Aspects	Philosophy	Philosophical Issues in Education and Sport
-	-	Philosophy and Physical Education	-	-	-
-	-	Dance Studies	Dance Studies	Dance studies	Studying Dance
-	-	Aesthetic aspects of human movement	Aesthetics	Community context of physical education and dance	-
-	-	-	Aesthetics	Science for physical education	-
-	-	-	-	Values & meaning in physical education	-
-	-	-	Science for P.E. & Dance	-	-
-	-	Human movement studies	Nature & Cultural	Youth Culture	Cultural Issues in Education and Sport
-	-	-	Youth Cultures, P.E. Dance & Sport	Children in sport,	-
-	-	-	Cultural Studies	Social and cultural studies	-
-	-	-	P.E. Dance & Sport	Well being	Applied AOL 1: Health Lecture
-	-	-	Development & Impairment	-	-

Appendix 5 in Chapter 5 <The change of units in physical activities in University of Bedfordshire from 1969 to 2009[4]>

Years	First year	Second year	Third year	Fourth year	All hours	Title of Degree
1969	Dance, Gymnastics, Games/Athletics Team Practice/Games/Swimming Swimming, Dance, Gymnastics, Games/Athletics Team Practice/Games/Swimming, Swimming, Dance Gymnastics, Games/Athletics Team Practice/Games/Swimming	Gymnastics/Movement Ed., Optional Dance Courses Games/Athletics, Team Practice/Games/Swim Gymnastics/Movement Ed., Optional Dance Courses Games/Athletics, Team Practice/Games/Swim Swimming, Gymnastics/Movement Ed. Optional Dance Courses, Games/Athletics Team Practice/Games/Swim	Games, Activity Courses, Team Practice/Games/Swim Swimming, Gymnastics/Movement Ed. Games, Activity Courses, Team Practice/Games/Swim Swimming, Minor Games, Activity Courses Team Practice/Games/Swim		1028	COE
1973	Gymnastics, Dance Games/Athletics/Swimming/Activities	Gymnastics, Dance Games/Athletics/Swimming/Activities	Gymnastics, Dance Games/Athletics/Swimming/Activities		821	COE
1982	Games, Gym, dance	Games, Gym, dance	Practical Options, Games, Gym	Practical Options	788	BEd
1986	Body management Practical Exemplars Health & Wellbeing Practical Exemplars Adventure & Challenge Interactive Activities Practical Exemplars Aesthetic & Artistic Aspects Practical exemplars	Body management Practical Exemplars Health & Wellbeing Practical Exemplars Adventure & Challenge Interactive Activities Practical Exemplars Aesthetic & Artistic Aspects Practical exemplars	Physical activities	Physical education/dance	664	BEd
1989	Gymnastics, Dance, Swimming, Athletics Rugby for man (Netball for woman) Soccer for man(Hockey for woman) Tennis, Cricket, Outdoor Pursuits (+ 3days) Health & Well Being	Gymnastics, Rhythmic Gymnastics, Dance Swimming, Athletics Rugby for man (Netball for woman) Soccer for man(Hockey for woman) Basketball, Urban adventure Health & Well Being	Gymnastics Dance Swimming Athletics	One options	450	BEd
1994	Games, Gym, Dance, Swimming, Athletics Games	Games, Gym, Dance Games, Gym, Athletics	Health, Swimming, Dance or Gym, O.E or Athletics, Practical Options	Major practical option Major practical option	?	BEd
2008	Games, Dance, Outdoor and Adventurous Activities, Gym, Swim, Games, Athletics	Swimming, Rugby, Basketball, Football, Volleyball Athletics, Gymnastics, Dance, OAA, Dance	Gymnastics, OAA, Dance, Games Athletics, Swimming	Two options	415.5	BA
2010	Invasion games, Dance, OAA, Sustained running, Gymnastics, Swimming, Athletics Striking Field Games	Swimming, Athletics, Net Wall games Dance, Gymnastics, OAA, Dance, Gymnastics	Dance, Games, Athletics, OAA, Gymnastics Swimming	Two options	372	

[4] TIMETABLE SUBJECT TIME ALLOCATION IN BEDFORD PHYSICAL EDUCATION ARCHIVE ACC. NO. 188 (curriculum 1969)
TIMETABLE SUBJECT TIME ALLOCATION in 1973 (curriculum 1973)
BEDFORD COLLEGE OF HIGHER EDUCATION B.E.D. (HONS) DEGREE – SECONDARY REVIEW MARCH 1991 VOLUME I THE CONTEXT OF THE PROPOSAL p. 2 (curriculum 1982)
BEDFORD COLLEGE of higher education INITIAL B.E.d. HONOURS DEGREE SECONDARY (P.E./DANCE) FEBRUARY 1986 p. 5 (curriculum 1986)
ONUTLINE OF EDUCATION AND PRACTICAL TEACHING STUDIES INCLUDING SCHOOL EXPERIENCE in 1989 (curriculum 1989)
BEDFORD COLLEGE OF HIGHER EDUCATION Secondary B.Ed. Honours Degree Application for Temporary Approval for September 1994 pp.1-8 (curriculum 1994)
Course Information Form (CIF) in 2008 (Curriculum 2008)
Course Information Form (CIF) in 2010 (Curriculum 2010)

Appendices of Chapter 6: SEOUL NATIONAL UNIVERSITY

Appendix 1 in Chapter 6 <Analysis of report cards of 93 student teachers in Seoul National University from 1978 to the 2009 >

Years	Credits (NOH)	Name	Theory																		All Sum	PE Sum
			Liberal Arts				Education studies				Contents of discipline knowledge				Contents of professional knowledge				Contents of physical activities					
			NOH*	HAP*	15 W	credits	NOH	HAP	15 W	credits	NOH	HAP	15 W	credits	NOH	HAP	15 W	credits	NOH	HAP	15 W	credits		
1978	147(71)		23	58	870	51	6	13	195	16	14	48	720	40	2	6	90	6	26	68	1020	34	2895	1830
	141(69)		18	46	690	40	6	13	195	16	17	54	810	45	2	6	90	6	26	68	1020	34	2805	1920
	141(69)		21	52	780	45	6	13	195	16	14	47	705	40	2	6	90	6	26	68	1020	34	2790	1815
1979	143(63)		27	74	1110	69	6	13	195	16	11	36	540	33	1	3	45	3	18	44	660	22	2550	1245
	140(67)		23	58	870	51	6	13	195	16	16	48	720	44	1	3	45	3	21	52	780	26	2610	1545
	141(68)		18	47	705	42	6	13	195	16	18	54	810	48	2	6	90	6	24	58	870	29	2670	1770
1980	143(74)		22	57	855	51	6	13	195	16	17	53	795	45	1	3	45	3	28	56	840	28	2740	1680
	147(82)		22	57	855	50	10	22	330	24	19	57	855	50	2	6	90	6	29	60	900	30	3025	1855
	142(68)		20	55	825	54	8	17	255	19	14	47	705	41	1	3	45	3	25	50	750	25	2580	1500
1981	142(67)		17	45	675	44	6	13	195	16	18	56	840	52	2	6	90	6	24	48	720	24	2520	1650
	141(72)		23	57	855	49	6	13	195	16	17	52	780	47	2	6	90	6	24	48	720	24	2640	1590
	144(74)		25	60	900	51	6	13	195	16	17	52	780	47	2	6	90	6	24	48	720	24	2685	1590
1982	144(75)		27	66	990	57	7	15	225	17	14	44	660	41	1	3	45	3	26	52	780	26	2700	1485
	141(74)		25	62	930	55	7	15	225	17	12	38	570	35	1	3	45	3	30	60	900	30	2670	1515
	141(74)		21	52	780	45	7	15	225	17	17	52	780	48	1	3	45	3	28	56	840	28	2670	1665
1983	140(70)		25	64	960	57	8	16	240	18	16	45	675	42	1	3	45	3	20	40	600	20	2520	1320
	140(71)		24	61	915	54	8	16	240	18	15	43	645	40	2	6	90	6	22	44	660	22	2550	1395
	141(77)		24	58	870	50	8	16	240	18	15	42	630	39	2	6	90	6	28	56	840	28	2670	1560
1984	140(78)		25	60	900	51	8	15	225	17	14	40	600	37	2	6	90	6	29	58	870	29	2685	1560
	140(76)		15	40	600	42	8	15	225	17	17	48	720	43	1	3	45	3	35	70	1050	35	2640	1815
	140(80)		22	55	825	48	8	15	225	17	16	43	645	38	1	3	45	3	34	68	1020	34	2760	1710
1985	140(76)		21	52	780	45	8	15	225	17	16	46	690	43	2	6	90	6	29	58	870	29	2655	1650
	141(75)		23	58	870	51	8	15	225	17	15	43	645	40	2	6	90	6	27	54	810	27	2640	1545
	140(73)		16	43	645	42	8	15	225	17	18	50	750	46	2	6	90	6	29	58	870	29	2580	1710
1986	141(70)		21	57	855	56	8	15	255	17	15	43	645	40	1	3	45	3	25	50	750	25	2520	1440
	144(79)		21	52	780	45	8	15	225	17	17	43	645	45	2	6	90	6	31	62	930	31	2670	1665
	141(79)		24	57	855	48	8	15	255	17	15	43	645	40	2	6	90	6	30	60	900	30	2715	1635
1987	145(82)		21	52	780	45	8	15	225	17	16	47	690	42	2	6	90	6	35	70	1050	35	2835	1830
	144(81)		21	52	780	45	8	15	225	17	17	47	705	43	2	6	90	6	33	66	990	33	2790	1785
	142(78)		26	63	945	54	8	15	225	17	15	42	630	38	2	6	90	6	27	54	810	27	2700	1530
1988	143(81)		18	46	690	42	8	15	225	17	16	46	690	41	2	6	90	6	37	74	1100	37	2795	1880
	144(77)		23	57	855	51	9	18	270	20	15	43	645	39	2	6	90	6	28	56	840	28	2700	1575
	145(78)		20	52	780	48	8	15	225	17	15	45	675	41	2	6	90	6	33	66	990	33	2760	1755
1989	143(74)		23	61	915	58	8	15	225	17	14	39	585	34	2	6	90	6	27	54	810	27	2625	1485
	145(72)		21	58	870	57	8	19	285	21	16	42	630	36	2	6	90	6	25	50	750	25	2625	1470
	142(71)		17	49	735	49	8	19	285	21	15	42	630	37	2	6	90	6	29	58	870	29	2610	1590
1990	142(71)		17	49	735	49	8	19	285	21	15	42	630	37	2	6	90	6	29	58	870	29	2610	1590
	142(70)		17	49	780	49	9	20	300	22	15	40	600	37	2	6	90	6	27	54	810	27	2590	1500
	143(73)		16	47	705	47	8	17	255	19	16	44	660	40	2	6	90	6	31	62	930	31	2640	1680
1991	143(77)		14	41	615	41	7	15	225	17	20	50	750	45	2	6	90	6	34	68	1020	34	2700	1860
	145(75)		14	41	615	41	8	18	270	20	19	50	750	46	2	6	90	6	32	64	960	32	2685	1800

	140(70)		17	49	735	49	6	14	210	16	19	46	690	43	2	6	90	6	26	52	780	26	2505	1560
	140(74)		19	55	825	55	7	15	225	17	13	34	510	29	2	6	90	6	33	66	990	33	2640	1590
1992	142(71)		18	51	765	51	7	17	255	19	17	43	645	39	2	6	90	6	27	54	810	27	2565	1545
	140(70)		19	52	780	52	6	14	210	16	18	45	675	39	2	6	90	6	27	54	810	27	2565	1575
	143(77)		15	44	660	44	7	15	225	18	16	43	645	38	2	6	90	6	37	74	1110	37	2730	1845
1993	145(75)		18	49	735	49	8	17	255	20	19	48	720	42	2	6	90	6	28	56	840	28	2640	1650
	141(75)		17	46	690	46	7	15	225	18	19	48	720	41	2	6	90	6	30	60	900	30	2625	1710
	150(77)		17	50	750	49	8	17	255	20	20	50	750	45	2	6	90	6	30	60	900	30	2745	1740
1994	130(73)		11	31	465	31	10	19	285	22	18	46	690	39	2	6	90	6	32	64	960	32	2490	1740
	150(78)		18	53	795	53	5	9	135	12	22	54	810	48	2	6	90	6	31	62	930	31	2760	1830
	145(66)		27	80	1200	80	5	14	210	17	8	20	300	18	2	6	90	6	24	48	720	24	2520	1110
1995	150(78)		20	55	825	55	5	12	180	15	18	46	690	41	2	6	90	6	33	66	990	33	2775	1770
	150(75)		19	56	840	56	6	12	180	15	21	52	780	46	2	6	90	6	27	54	810	27	2700	1680
	131(71)		15	40	600	40	6	10	150	13	19	48	720	43	2	6	90	6	29	58	870	29	2430	1680
1996	131(69)		15	42	630	42	7	12	180	15	18	46	690	41	2	6	90	6	27	54	810	27	2400	1590
	130(69)		14	40	600	40	8	15	270	18	18	42	630	39	2	6	90	6	27	54	810	27	2400	1530
	130(70)		17	45	675	45	8	14	210	17	15	38	570	33	2	6	90	6	28	56	840	28	2385	1500
1997	130(74)		17	43	645	43	6	9	135	12	16	42	630	36	2	6	90	6	33	66	990	33	2490	1710
	130(70)		15	44	660	44	7	11	165	14	16	40	600	35	2	6	90	6	31	62	930	31	2445	1620
	131(74)		16	42	630	42	7	11	165	14	16	42	630	36	2	6	90	6	33	66	990	33	2505	1710
1998	132(78)		15	40	600	39	5	8	120	11	15	36	540	32	2	6	90	6	36	72	1080	36	2430	1710
	130(74)		17	46	690	45	7	11	165	14	13	33	495	30	2	6	90	6	35	70	1050	35	2490	1635
	130(70)		20	56	840	54	6	12	180	15	9	24	360	22	2	6	90	6	33	66	990	33	2460	1440
2000	130(68)		23	60	900	57	4	9	135	12	11	32	480	27	2	6	90	6	28	56	840	28	2445	1410
	130(71)		19	48	720	45	8	18	270	21	12	32	480	28	2	6	90	6	30	60	900	30	2460	1470
	132(70)		17	51	765	47	6	12	180	15	14	38	570	33	2	6	90	6	31	62	930	31	2535	1590
2003	131(65)		18	54	810	51	7	15	225	18	15	36	540	33	2	6	90	6	23	46	690	23	2355	1320
	130(65)		16	55	825	54	6	12	180	15	11	29	435	25	2	6	90	6	30	60	900	30	2530	1425
	130(65)		15	45	675	42	8	18	270	21	16	41	615	37	2	6	90	6	25	50	750	25	2400	1455
2004	130(67)		20	59	885	55	6	12	180	15	12	28	420	27	2	6	90	6	27	54	810	27	2385	1320
	131(66)		25	69	1035	65	6	12	180	15	11	24	360	23	2	6	90	6	22	44	660	22	2325	1110
	130(67)		21	59	885	55	6	12	180	15	13	32	480	29	2	6	90	6	25	50	750	25	2385	1320
2005	130(70)		15	44	660	40	6	12	180	15	18	44	660	40	2	6	90	6	29	58	870	29	2460	1620
	134(66)		22	63	945	58	6	12	180	15	13	36	540	32	2	6	90	6	23	46	690	23	2445	1320
	130(68)		15	43	645	40	8	18	270	21	15	40	600	35	2	6	90	6	28	56	840	28	2545	1630
2006	130(71)		15	44	660	41	6	12	180	15	15	38	570	35	2	6	90	6	33	66	990	33	2490	1650
	133(70)		24	65	975	60	6	12	180	15	10	26	390	24	2	6	90	6	28	56	840	28	2475	1320
	131(76)		20	56	840	49	6	10	150	13	14	31	465	29	2	6	90	6	34	68	1020	34	2430	1575
2007	131(70)		16	47	705	42	7	14	210	17	17	40	600	38	2	6	90	6	28	56	840	28	2445	1530
	130(71)		15	44	660	40	9	21	315	24	13	30	450	28	2	6	90	6	32	64	960	32	2475	1500
	134(68)		17	50	750	46	6	10	150	13	20	48	720	44	2	6	90	6	25	50	750	25	2460	1560
2008	130(72)		18	54	810	51	5	7	105	10	13	34	510	30	2	6	90	6	30	60	900	30	2460	1545
	130(69)		18	51	765	51	6	10	150	13	13	34	510	30	2	6	90	6	30	60	900	30	2415	1500
	130(69)		18	47	705	41	11	16	240	20	13	30	450	28	4	11	165	11	30	60	900	30	2460	1515
	130(76)		14	39	585	34	11	16	240	20	14	32	480	30	4	11	165	11	35	70	1050	35	2520	1695
2009	132(71)		16	47	705	45	11	16	240	20	14	33	495	30	4	11	165	11	26	52	780	26	2385	1440
	134(69)		20	54	810	51	11	16	240	20	15	36	540	33	4	11	165	11	19	38	570	19	2325	1275
	130(66)		20	58	870	54	11	16	240	20	11	28	420	25	4	11	165	11	20	40	600	20	2295	1185

NOH: Numbers of Hours, HOW: Hours a weeks

Appendix 2 in Chapter 6

<The syllabus of Teaching Methods in Physical Education>

First Semester in 2004

Number	Number of unit	Title	Credits	Lecture room	Professor	
722.401	001/002	**Teaching Methods in Physical Education**	3			
Assessment	Attendances (20%) Presentations (20%) Assignments (20%) Tests (40%)					
Summary	Students will be able to get the ability to instruct pupils in PE class in school studying various learning based on teachers' role.					
weeks						
1	Principles of learning					
2	Motivation of learning					
3	Methods of learning and circumstances of learning					
4	Teachers' qualifications and roles					
5	Teachers' psychological roles					
6	Physical education teachers					
7	Watching videos					
8	Processes of class					
9	Development of class					
10	Learning guidance plan and methods of instructions					
11	Methods of instruction in specific situations 1					
12	Methods of instruction in specific situations 1					
13	Assessment of learning of physical education					
14	Making of learning guidance plan					
15	Practice of order exercises					
16	Final tests					

Appendix 3 in Chapter 6

<The change of units of discipline knowledge in Seoul National University from 1972 to 2012>

1972	1985	1990	1995	1996	2000	2005	2012
Principle of physical education	Principle of physical education	Principle of physical education	Principle of physical education	Principle of physical education	Principle of physical education	Principle of physical education	History and Philosophy of Physical Education
Exercise Physiology	Exercise Physiology	Exercise Physiology	Exercise Physiology	Exercise Physiology	Exercise Physiology	Exercise Physiology	Exercise Physiology
Functional Anatomy	Functional Anatomy	Functional Anatomy	Functional Anatomy	Functional Anatomy	Functional Anatomy	Functional Anatomy	Functional Anatomy
-	Methods of Training	Methods of Training	Methods of Training	Methods of Training	Methods of Training	Methods of Training	Methods of Training
Nutrition	Exercise Nutrition	Exercise Nutrition	Exercise Nutrition	Exercise Nutrition	Exercise Nutrition	Exercise Nutrition	Exercise Biochemistry and Nutrition
Biochemistry	-	-	Exercise Testing and Prescription	Exercise Testing and Prescription	Exercise Testing and Prescription	Exercise Testing and Prescription	Exercise Testing and Prescription
-	-	-	-	-	-	Introduction to Sports Medicine	Introduction to Sports Medicine
-	-	-	-	-	-	-	Health and Exercise Science with Laboratory
Reading of Health Education 1, 2 Health Education	Health Education	Health Education	Health Education	Health Education	Health Education	Health Education	Health Education
History of Physical Education of the ancient west History of Physical Education of the modern west History of Physical Education of the present west History of Physical Education in Korea	History of Physical Education History of Physical Education of the west History of Physical Education in Korea	History of Physical Education	History of Physical Education	History of Physical Education	History of Physical Education	History of Physical Education	History of Physical Education in Korea
-	Theories in Recreation	Recreation 1	Recreation 1	Recreation 1	Recreation 1	-	-
-	-	Recreation 2	Recreation 2	Recreation 2	Theories in Recreation	Theories in Recreation	-
-	Sport Psychology	Sport Psychology	Sport Psychology & Motor Learning	Sport Psychology & Motor Learning	Sport Psychology & Motor Learning	Sport Psychology & Motor Learning	Motor Learning and Psychology
-	Motor Learning	Motor Learning	Biomechanical Basis of Human Movement	Biomechanical Basis of Human Movement	Biomechanical Basis of Human Movement	Biomechanical Basis of Human Movement	Biomechanical Basis of Human Movement
-	-	-	-	-	-	-	Motor Development
-	Physical Education Sociology	Physical Education Sociology	Sport Sociology	Sport Sociology	Sport Sociology	Sport Sociology	Sport Sociology
-	-	-	Introduction to Sport for All	Introduction to Sport for All	Introduction to Sport for All	Introduction to Sport for All	Sports Policy

-	Exercise Biomechanics	Exercise Biomechanics	Sport Biomechanics	Sport Biomechanics	Sport Biomechanics	Sport Biomechanics	Sport Biomechanics
-	-	-	Issues in Physical Education	Issues in Physical Education	-	Issues in Physical Education	
Methods of Research in Physical Education	Methods of Research in Physical Education	Methods of Research in Physical Education	Methods of Research in Physical Education	Methods of Research in Physical Education	Methods of Research in Physical Education	Methods of Research in Physical Education	Methods of Research in Physical Education
Measurement of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	-	Measurement and Evaluation of Physical Education
Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	-	-
-	-	-	Sport Management	Sport Management	Sport Management	Sport Management	Sport Management
-	-	-	Administration of Physical Education	Administration of Physical Education	Administration of Physical Education	Sport Marketing	Sport Marketing
-	-	-	-	-	-	-	Sport and Media
-	-	Physical Education for the Handicapped	Physical Education for the Handicapped	Physical Education for the Handicapped	Physical education for the Disabled	Physical education for the Disabled	Physical education for the Disabled
Management of Physical Education (Compulsory)	Management of Physical Education Principles of Coaching Principles of Physical Activities	Management of Physical Education	-	-	-	-	Introduction to Health and Exercise Science
		-	-	-	-	-	Physical Education
Reading of Physical Education Reading of Specific Physical Education	Reading of Physical Education	-	-	-	-	-	-
Principles of Physical Activities Principles of Track & Field	Principles of Sports Principles of Kinesiology	-	-	-	-	-	-
-	-	-	History of Dance	History of Dance	History of Dance	History of Dance	History of Dance
-	Principles of Dance	-	Principles of Dance	Principles of Dance	Principles of Dance	Principles of Dance	-
-	Theory of Creative Dancing	Theory of Creative Dancing	Theory of Creative Dancing	Theory of Creative Dancing	Theory of Creative Dancing	Theory of Creative Dancing	Theory of Creative Dancing
-	-	-	Artistic Theory of Dance	Artistic Theory of Dance	Artistic Theory of Dance	Artistic Theory of Dance	Artistic Theory of Dance
-	First Aid	First Aid	First Aid	First Aid	Water Safety & First Aid	Water Safety & First Aid	Water Safety & First Aid
30	36	29	27	27	26	25	28

Appendix 4 in Chapter 6

<Titles and numbers of units of physical activities in Seoul National University from 1972 to 2011>

	1972	1980	1987	1993	1997	2003	2006	2007	2009	2011
Games	Basketball1	Game of ball I (six hours)	Basketball	Basketball	Basketball1	Basketball1	Basketball1	Basketball1	Basketball	Basketball
	Baseball	Soccer II	Soccer (man)	Soccer (man)	Table Tennis	Table Tennis1	Table Tennis1	Table Tennis1	Table Tennis	Table Tennis
	Hockey	Rugby	Table Tennis	Table Tennis	Handball	Handball	Handball	Handball	Handball	Handball
	Volley ball (first semester)	Hockey (man)	Rugby (Man)	Rugby (Man)	Rugby	Rugby	Rugby	Rugby	Rugby	Rugby
	Football (first semester)	Soccer I (Man)	Handball	Handball	Bowling	Bowling1	Bowling1	Bowling1	Soccer	Bowling
	Table Tennis 2	Racket (Tennis)	Tennis	Tennis	Soccer1	Soccer1	Volleyball1	Soccer1	Bowling	Soccer1
	Handball (first semester)	Racket (Badminton)	Volleyball	Volleyball	Tennis	Volleyball1	Soccer1	Volleyball1	Volleyball	Volleyball
	Softball tennis	Game of ball II (Basketball)	Badminton	Badminton	Volleyball1	Tennis1	Tennis1	Tennis1	Tennis	Tennis
	Play	Game of ball II (Volleyball)	Hockey	Baseball	Hockey	Hockey	Hockey	Hockey	Baseball	Baseball
	Softball tennis1	Game of ball II (Basketball)	Baseball	Golf	Badminton	Badminton 1	Badminton 1	Badminton 1	Hockey	Hockey
	Handball1	Baseball (Man)	Golf	Bowling (man)	Golf	Baseball	Baseball	Baseball	Badminton	Badminton
	Basketball				Baseball	Golf 1	Golf 1	Golf 1	Golf	Golf
	Table Tennis Hockey Volleyball (first semester) Football (first semester) Rugby Handball (first semester) Tennis Soft tennis2									
Dance	Korean Dance	Dance I (woman) (six hours)	Korean Dance1	Korean Dance1	Educational Dance1	Introduction to Modern Dance	Korean Dance	Introduction to Modern Dance	Introduction to Modern Dance	Introduction to Korean Dance
	Ballet (first semester)	Dance III (woman) (modern Dance)	Ballet (Woman)	Ballet (Woman)	Rhythm of Dance	Educational Dance1	Educational Dance	Educational Dance	Rhythm of Dance	Introduction to Modern Dance
	Educational Dance (first semester)	Dance III (woman) (Korean Dance)	Folk Dance (Woman)	Folk Dance (Woman)	Korean Dance3	Rhythm of Dance	Rhythm of Dance	Educational Dance	Korean Dance	Rhythm of Dance
	Modern Dance 1(First semester)	Dance III (Woman) (Folk Dance)	Modern Dance2 (woman)	Modern Dance2 (woman)	Folk Dance	Ballet	Modern Dance	Modern Dance	Educational Dance	Korean Dance
	Dance 1	Dance II (woman) (four hours)	Educational Dance1 (Woman)	Educational Dance1 (Woman)	Modern Dance3	Korean Dance 3	Ballet	Ballet	Ballet	Educational Dance
	Folk Dance 1		Rhythm	Aerobics	Korean Dance1	Folk Dance	Korean Dance	Korean Dance	Modern Dance	Ballet
	Modern Dance3		Korean Dance 2 (Woman)	Korean Dance 2 (Woman)	Rhythmic Exercise	Modern Dance3	Modern Dance	Modern Dance	Korean Dance	Korean Dance

	Korean Dance (First Dance)		Modern Dance 1(woman)	Modern Dance 1(woman)	Modern Dance1	Korean Dance1			Educational Dance	Educational Dance
	Ballet (second semester)		Educational Dance2 (Woman)	Educational Dance2 (woman)	Korean Dance2	Rhythmic Exercise			Modern Dance	Modern Dance
	Educational Dance (second semester)		Volume Dance		Modern Dance2	Modern Dance1			Dance Sports	Dance Sports
	Modern Dance (Second Semester)		Modern Dance3		Korean Dance4	Korean Dance2				
	Korean Dance (second semester)					Modern Dance2				
	Educational Dance					Korean Dance4				
	Fork Dance 2									
	Dance 2									
	Modern Dance 4									
OAA	Camping III	Camping I	Camping	Camping	Yacht	Marine Sports	Marine Sports	Marine Sports	Camping	Camping
									Yacht	Yacht
									Wind Surfing	Wind Surfing
									Scuba Diving	
Gym	Apparatus Gymnastic (first semester)	Gymnastics 1	Gymnastics 1	Gymnastics 1	Gymnastics 1	Gymnastics 1	Floor Exercise	Floor Exercise	Free Exercise	Health Exercise
	Free Exercise1	Gymnastics III (Mat)	Gymnastics 3	Gymnastics 3	Gymnastics 3	Gymnastics 3	Free Exercise	Free Exercise	Apparatus Gymnastic (Vaulting Horse and Bar)	Apparatus Gymnastic 2 (Vaulting Horse and Bar)
	Apparatus Gymnastic5	Gymnastics III (Bar)	Free Exercise	Free Exercise	Free Exercise	Free Exercise	Apparatus Gymnastic	Apparatus Gymnastic	Floor Exercise	Apparatus Gymnastic (Floor Exercise)
	Apparatus Gymnastic2	Gymnastics IV (Vaulting) (3hours)	Gymnastics4	Gymnastics2	Gymnastics2	Gymnastics2	-	-	-	-
	Apparatus Gymnastic	Gymnastics IV Free Exercise) (3hours)	Gymnastics6		Gymnastics4	Gymnastics4	-	-	-	-
	Free Exercise	Gymnastics II (4hours)	-	-	-	-	-	-	-	-
	Apparatus Gymnastic (second semester)	-	-	-	-	-	-	-	-	-
Swimming	Swimming 2	Aquatic Sports I	Swimming1	Swimming1	Swimming1	Swimming1	Swimming1	Swimming1	Swimming1	Swimming1
		Aquatic Sports II	Swimming2	Swimming2	Swimming2	Swimming2	Swimming2	Swimming2	Swimming2	Swimming2
			Swimming3	Swimming3	Swimming3	Swimming3	Swimming3	Swimming3	Swimming3	Swimming3
Athletics	Track & Field3	Track & Field I	Track & Field1	Track & Field1	Track & Field1	Track & Field1	Track & Field1 (Track)	Track & Field1 (Track)	Track & Field1 (Track)	Track & Field1 (Track)
	Track & Field	Track & Field II (four hours)	Track & Field4	Track & Field4	Track & Field4	Track & Field4	Track & Field2 (Field)	Track & Field2 (Field)	Track & Field2 (Field)	Track & Field2 (Field)
	Athletic Sports7 (3 hours)	Track & Field III (Track)	Track & Field5	Track & Field2	Track & Field2	Track & Field2	-	-	-	-
	Track & Field2	Track & Field III(Field)	Track & Field3	Track & Field3	Track & Field3	Track & Field3	-	-	-	-

	Track & Field (first semester)	Track & Field IV	Track & Field 2	-	-	-	-	-	-	-
	Track & Field (second semester)	Track & Field V	Track & Field6	-	-	-	-	-	-	-
martial arts	Judo (first Semester)	Martial arts (man) (four hours)	Taekwondo (Man)	Taekwondo (Man)	Taekwondo	Judo	Judo	Judo	Traditional Martial Arts	Traditional Martial Arts
	Taekwondo		Judo	) Judo (Man)	Judo	Taekwondo	Taekwondo	Taekwondo	Judo	Judo
	Wrestling	Wrestling	Wrestling (Man)	-	-	-	-	-	Taekyon	Taekyon
	Judo (Second semester)	-	Ssirum (man)	-	-	-	-	-	Taekwondo	Taekwondo
	Fencing	-	-	-	-	-	-	-	-	-
winter sports	Skating1	Skating	Skating	Skating	Skating	Skating	Skating	Skating	Skating	Skating
	Skating	-	Ski	Ski	Ski	Ski1	Ski1	Ski1	Ski	Ski
weight trainings	-	weight trainings	weight trainings (Man)	weight trainings (Man)	weight trainings	weight trainings1	weight trainings1	weight trainings1	weight trainings	weight trainings
archery	-	Archery	Archery	Archery	Archery	Archery	Archery	Archery	Archery	Archery
	-	-	-	-	-	-	-	-	Korean Archery	Korean Archery
etc	-	-	Physical education	Physical education 1	Physical education 1	Physical education 1	Physical education 1	Physical education 1	Physical education 1	Physical education 1
	-	-	Physical education	Physical education 2	Physical education 2	Physical education 2	Physical education 2	Physical education 2	Physical education 2	Physical education 2
	-	-	Sport Activity1	1 Sport Activity1	Sport Activity1	Sport Activity1	Sport Activity	Sport Activity	Lifetime Sports	Lifetime Sports
	-	-	Lifetime Sports1	Lifetime Sports1	Lifetime Sports1	Lifetime Sports1	Lifetime Sports	Lifetime Sports	Sport Activity	Sport Activity
	-	-	Intramural Sport	Intramural Sport	Intramural Sport	Intramural Sport	-	-	Yoga	Yoga
	-	-	Sport Activity2	Sport Activity2	Sport Activity2	Sport Activity2	-	-	-	-
	-	-	Lifetime Sports2	Lifetime Sports2	Lifetime Sports2	Lifetime Sports2	-	-	-	-
	-	-	Extramural Sport	Extramural Sport	Extramural Sport	Extramural Sport	-	-	-	-
All numbers	57	36 (45)	53	46	50	52	38	38	48	47

Appendix 5 in Chapter 6

<Changes of units of physical activities in Seoul National University from 1978 to 2009 based on eight male students' choices>

	1978 A	1983 B	1988 C	1993 D	1998 E	2003 F	2006 G	2009 H
Games	Football (man) 1 Football (man) 2 Football II Racket Ball games2 Ball games I Ball games1 Ball games2 Ball games3 Hockey (man) Golf	Basketball Football (man) Volleyball Handball Badminton Hockey	Football (man) Table tennis Basketball Tennis Handball Volleyball Badminton Baseball Golf	Basketball Table tennis Volleyball 1 Football 1 Handball Rugby Badminton Baseball	Basketball 1 Football 1 Table tennis Volleyball 1 Badminton1 Golf 1	Basketball 1 Volleyball 1 Football 1 Hockey Baseball Table tennis1 Tennis 1 Handball Rugby Badminton1 Baseball	Basketball 1 Football 1 Table tennis Rugby Volleyball Golf Baseball Intermediate Table tennis Handball Bowling	Basketball Volleyball Hockey Handball Tennis Badminton Table tennis Bowling Baseball Golf
Dance	-	-	-	-	-	Korean Dance 1	Educational Dance Modern Dance Korean Dance	-
OAA	Camping 1	Camping	Camping	Camping	-	-	Wind Surfing Yacht	-
GYM	Gymnastics I Gymnastics II	Gymnastics 1 Gymnastics 2 Gymnastics 3 Gymnastics 5 Free Exercise	Gymnastics 1 Gymnastics 2 Gymnastics 3 Free Exercise	Gymnastics 1 Gymnastics 2 Gymnastics 3 Free Exercise	Gymnastics 1 Gymnastics 2 Gymnastics 3 Gymnastics 4 Free Exercise	Gymnastics 1 Gymnastics 2 Gymnastics 3 Gymnastics 4 Free Exercise	Floor Exercise Apparatus Gymnastic (Vaulting Horse and Bar) Health Gymnastics	Health Gymnastics Floor Exercise Apparatus Gymnastic (Floor Exercise) Apparatus Gymnastic 2 (Vaulting Horse and Bar)
Swims	Aquatic Sports Aquatic Sports1 Aquatic Sports	Swimming 1 Swimming 2	Swimming 1 Swimming 2	Swimming 1 Swimming 2 Swimming 3	Swimming 1	Swimming 1 Swimming 3	Swimming 1	Swimming 1
ATH	Track & Field I Track & Field II Track & Field 3	Track & Field 1 Track & Field 2 Track & Field 4 Track & Field 6 Track & Field 3	Track & Field 1 Track & Field 2 Track & Field 4 Track & Field 5 Track & Field 6 Track & Field 3	Track & Field 1 Track & Field 2 Track & Field 3	Track & Field 1 Track & Field 2 Track & Field 4 Track & Field 3	Track & Field 1 Track & Field 4 Track & Field 2 Track & Field 3	Track & Field 1(Track) Track & Field 2(Field)	Track & Field 1(Track) Track & Field 2(Field)
Martial arts	Martial Arts (Man) 1	Judo	-	Judo	Taekwondo Judo	Taekwondo	Taekyon Judo	Taekwondo
Winter sports	Skating1	Skating	Skating	Skating	Skating Ski	Ski	Snowboard Ski	Skating Ski
Weight training	-	-	Weight training (Man)	-	-	Weight training 1	Weight training	Weight training
archery		Archery	-	Archery	Archery	-	-	Archery
ETC	Physical education Physical education Physical education Physical education	Physical education Physical education Lifetime Sports1 Lifetime Sports2 Intramural Sport	Physical education Physical education Sport Activity1 Sport Activity2 Lifetime Sports1 Lifetime Sports2 Intramural Sport Extramural Sport	Physical education 1 Physical education 2 Sport Activity1 Sport Activity2 Lifetime Sports1 Lifetime Sports2 Intramural Sport Extramural Sport	Physical education 1 Physical education 2 Sport Activity1 Sport Activity2 Lifetime Sports1 Intramural Sport Extramural Sport	Physical education 1 Physical education 2 Sport Activity1 Lifetime Sports1 Lifetime Sports	Physical education 1 Physical education 2 Lifetime Sports Lifetime Sports	Physical education 1 Sport Activity Physical education 2 Lifetime Sports
Numbers	26	27	32	30	28	31	31	27

Appendices of Chapter 7: INHA UNIVERSITY

Appendix 1 in Chapter 7 <Analysis of 49 student teachers' report cards in Inha University from 1985 to 2009 >

Years	Names	Credits	Theory																				All Sum	PE Sum
			Liberal Arts				Educational subjects				Contents of discipline knowledge				Contents of professional knowledge				Contents of physical activities					
			NOU*	HAW*	16 W	credits	NOU	HAW	16 W	credits	NOU	HAW	16 W	credits	NOU	HAW	16 W	credits	NOU	HAW	16 W	credits		
1985		147	24	54	864	46	9	20	320	22	13	37	592	37	2	4	64	4	17	76	1216	38	3056	1872
		140	17	38	608	36	9	20	320	22	13	38	608	38	2	4	64	4	20	80	1280	40	2880	1952
1986		142	19	51	816	49	9	20	320	22	11	33	528	33	2	4	64	4	15	68	1088	34	2816	1680
		146	25	55	880	55	9	20	320	22	11	33	528	33	2	4	64	4	14	64	1024	32	2816	1616
1987		149	23	58	928	50	9	20	320	22	13	33	528	33	2	4	64	4	18	80	1280	40	3120	1872
		146	19	50	800	50	9	20	320	22	13	33	528	33	2	4	64	4	17	74	1184	37	2896	1776
1988		143	21	57	912	55	9	20	320	22	13	33	528	33	2	4	64	4	14	58	928	29	2752	1520
		148	22	52	832	52	9	20	320	22	11	28	448	28	2	4	64	4	20	84	1344	42	3008	1805
1989		146	18	48	768	46	9	20	320	22	12	28	448	28	2	4	64	4	24	92	1472	46	3072	1984
		145	18	46	736	46	9	20	320	22	13	30	480	30	2	4	64	4	22	86	1376	43	2976	1920
1990		148	19	51	816	49	9	20	320	22	11	32	512	32	2	4	64	4	22	82	1312	41	3024	1888
		142	18	46	736	46	9	20	320	22	12	32	512	32	2	4	64	4	22	76	1264	38	2896	1840
1991		142	20	54	864	52	9	19	304	21	14	38	608	38	2	4	64	4	16	54	864	27	2704	1536
		146	23	55	880	55	9	19	304	21	13	36	576	36	2	4	64	4	19	60	960	30	2784	1600
1992		141	17	45	720	43	9	18	288	20	13	37	592	37	2	4	64	4	27	74	1184	37	2848	1840
		146	24	58	928	58	9	18	288	20	12	35	560	35	2	4	164	4	20	58	928	29	2868	1652
1993		140	16	42	672	40	9	17	272	19	15	42	672	42	2	4	64	4	26	70	1120	35	2800	1856
1994		146	26	64	1024	61	10	19	304	21	12	32	512	32	2	4	64	4	21	56	896	28	2800	1472
1995		140	20	53	848	51	9	17	272	19	12	33	528	33	2	6	96	6	27	62	992	31	2624	1616
		140	18	46	736	46	9	17	272	19	17	42	672	42	2	6	96	6	25	54	864	27	2640	1632
1996		140	15	41	656	40	9	17	272	19	16	38	608	38	4	13	208	13	30	60	960	30	2704	1776
		140	19	50	800	50	10	19	304	21	12	31	496	31	3	8	128	8	29	60	960	30	2688	1584
1997		140	21	57	912	57	9	16	256	18	13	32	512	31	2	5	80	5	29	58	928	29	2688	1520
		140	18	47	752	47	10	19	304	21	15	37	592	37	2	5	80	5	30	60	960	30	2688	1632
1998		140	25	67	1072	67	10	18	288	20	11	28	446	29	3	7	112	7	17	34	544	17	2462	1102
		141	21	58	928	58	10	18	288	20	16	38	608	38	3	7	112	7	18	36	576	18	2512	1296
1999		141	26	70	1120	70	8	15	240	17	11	29	464	28	3	9	144	9	17	34	544	17	2512	1152
		141	23	58	928	58	6	11	176	13	16	39	624	39	3	9	144	9	22	44	704	22	2576	1472

2000		140	22	59	944	58	8	13	208	15	11	27	432	27	6	17	272	17	23	46	736	23	2592	1440
		143	20	52	832	51	15	38	608	40	11	28	448	28	3	9	144	9	15	30	480	15	2512	1072
2001		142	27	75	1200	74	5	8	128	10	14	33	528	33	4	12	192	12	13	26	338	13	2386	1058
2002		142	17	45	720	44	5	8	128	10	21	47	752	47	4	12	192	12	31	62	992	31	2784	1936
		163	33	92	1472	92	5	8	128	10	14	30	480	30	4	12	192	12	19	38	608	19	2880	1280
2003		145	20	51	816	50	6	10	160	12	19	42	672	42	6	17	272	17	27	54	864	27	2784	1808
		140	24	65	1040	65	5	8	128	10	16	31	496	31	4	12	192	12	22	44	704	22	2560	1392
2004		140	25	64	1024	63	6	10	160	12	13	32	512	31	6	17	272	17	20	40	640	20	2560	1376
		140	26	67	1072	67	4	6	96	8	11	28	448	28	5	14	224	14	23	46	736	23	2576	1408
2005		140	21	57	912	56	4	6	96	8	12	31	496	31	7	20	320	20	25	50	800	25	2624	1616
		142	22	58	928	58	7	12	192	14	14	34	544	34	6	17	272	17	19	38	608	19	2544	1424
2006		140	22	59	944	58	6	10	160	12	14	38	608	38	6	17	272	17	15	30	480	15	2464	1360
		135	15	39	624	39	5	8	128	10	16	41	656	41	7	20	320	20	24	50	800	25	2528	1776
2007		130	19	51	816	50	5	8	128	10	14	41	656	41	5	15	240	15	12	29	464	14	2304	1360
		137	22	57	912	57	5	8	128	10	12	32	512	32	5	15	240	15	19	48	768	24	2560	1520
2008		134	21	57	912	56	4	6	96	8	11	32	512	32	5	15	240	15	11	39	624	23	2393	1376
		138	18	46	736	46	4	6	96	8	15	42	672	42	6	17	272	17	14	50	800	25	2576	1744
2009		144	21	58	928	58	10	16	256	19	16	46	828	46	3	8	128	8	6	24	384	12	2572	1340
		133	18	47	752	47	11	16	256	20	12	37	592	37	4	11	176	11	9	36	576	18	2352	1344
		130	17	44	704	44	12	19	304	23	12	35	560	35	3	8	128	8	10	40	640	20	2336	1328

Appendix 2 in Chapter 7

<The analysis which enrolled students took units of physical education in Inha University from 1997 to 2011>

years	Fixed numbers	Enrolled students	Numbers of students in units of discipline knowledge	Numbers of students in units of professional knowledge	Numbers of students in units of physical activities	All numbers of students of three categories	Proportions of numbers of students in units of discipline knowledge	Proportions of numbers of students in units of professional knowledge	Proportions of numbers of students in units of physical activities	Average numbers of units which enrolled students took
1997	240	No data	960	186	1707	2853	33.6	6. 5	59.8	-
1998	240	No data	838	163	1636	2637	31.8	6.2	62.0	-
1999	240	No data	857	192	1489	2538	33.8	7.6	58.7	-
2000	240	No data	896	174	1177	2247	39.8	7.7	52.4	-
2001	240	No data	835	154	1179	2168	38.5	7.1	54.4	-
2004	240	239	1039	205	1435	2679	38.8	7.7	53.6	11.2
2005	240	253	1132	288	1381	2801	40.4	10.3	49.3	11.1
2006	240	252	1000	323	1410	2733	36.6	11.8	51.6	10.8
2007	230	244.5	1005	296	1368	2669	37.7	11.1	51.3	10.9
2008	220	237.5	1037	309	1262	2608	39.8	11.8	48.4	11.0
2009	210	236.5	1006	197	730	1933	52.0	10.2	37.8	8.2
2010	200	207.5	783	191	610	1563	50.1	12.2	37.7	7.5
2011	200	189.5	811	211	551	1573	51.6	13.4	35.0	8.3

<The numbers in three areas that student teachers took for one year in Inha University from 2004 to 2011>

years	Fixed numbers	Enrolled students	All numbers of students of three categories	Average numbers of units which enrolled students took	The numbers of units in discipline knowledge	The numbers of units in professional knowledge	The numbers of units in physical activities
2004	240	239	2679	11.21	4.35	0.86	6.01
2005	240	253	2801	11.07	4.47	1.14	5.46
2006	240	252	2733	10.85	3.97	1.28	5.6
2007	230	244.5	2669	10.92	4.12	1.21	5.6
2008	220	237.5	2608	10.98	4.37	1.3	5.31
2009	210	236.5	1933	8.17	4.25	0.83	3.09
2010	200	207.5	1584	7.63	3.82	0.93	2.88
2011	200	189.5	1563	8.25	4.26	1.11	2.89

*there was no data of enrolled students from 1997 to 2001.

Appendix 3 in Chapter 7 **<Changes of titles of units of discipline knowledge in Inha University from 1979 to 2009>**

1979	1986	1992	1997	2005	2009
Principles of Physical Education	Principles of Physical Education	Principles of Physical Education	Principles of Physical Education	Principles of Physical Education	History and Philosophy of Physical Education
-	Sports Physical Education	Sports Physical Education	Sports Physical Education	Sports Physical Education	Exercise Physiology
Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education	Statistics in Physical Education
Sports Physical Education & Human anatomy	Human anatomy	Human anatomy	Human anatomy	Human anatomy	Human anatomy
Reading for Original Texts of Physical Education	Reading for Original Texts of Physical Education	Reading for Original Texts of Physical Education	Reading for Original Texts of Physical Education	Reading for Original Texts of Physical Education	-
Sport Psychology	Sport Psychology	Sport Psychology	Sport Psychology	Sport Psychology	Sport Psychology
History of Physical Education	History of Physical Education	History of Physical Education	History of Physical Education	History of Physical Education	-
-	-	-	Instruction of Recreation	Instruction of Recreation	Instruction of Recreation
Recreation	Recreation	Recreation	Recreation	Recreation	-
Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation of Physical Education	Measurement and Evaluation in Physical Education
-	-	Sports Introduction	Sports Introduction	Sports Introduction	Sports Introduction
First aid	-	-	-	Sports Injury Treatment I. II	Sports Injury Treatment
-	Principles of training	Principles of training	Growing of Physical Fitness	Growing of Physical Fitness	Fitness Training
Biomechanics	Biomechanics	Biomechanics	Biomechanics	Biomechanics	Biomechanics
Health Education	Health Education	Health Education	Health Education	Health Education	Health Education
-	-	-	Exercise Prescription	Exercise Prescription	Exercise Prescription
Methodology of Physical Study	Methodology of Physical Study	Methodology of Physical Study	Methodology of Physical Study	Methodology of Physical Study	Methodology of Physical Study
-	Physical Education Sociology	Physical Education Sociology	Physical Education Sociology	Sports Sociology	Sports Sociology
-	-	-	Sports Nutrition	Sports Nutrition	Sports Nutrition
Physical Education Management	Physical Education Management	Physical Education Management	Physical Education Management	Sports Management	Sports Management
Special Lecture of Physical Education	-	-	-	Motor Learning and Performance	Motor Learning and Psychology
Principle of Coaching	-	-	-	-	Logical and Writing in Physical Education
-	-	-	-	-	Introduction to Kinesiology
-	-	-	-	-	Trends in Contemporary Sports
-	-	-	-	-	Statistics of Sports
-	-	-	-	-	Technology in Physical Education
15	**15**	**16**	**19**	**21**	**23**

Appendix 4 in Chapter 7 **<The changes of units of physical activities in Inha University from 1979 to 2009>**

1997-2004	Credits	HPW	2005-2008	Credits	HPW	2009	credits	HPW
Swimming 1	1	2	Swimming 1	1	2	Teaching of Swimming (compulsory)	2	4
Swimming 2	1	2	Swimming 2	1	2			
Track and Field 1	1	2	Track and Field 1	1	2	Teaching of Track (compulsory)	2	4
Track and Field 2	1	2	Track and Field 2	1	2			
Track and Field 3	1	2	Track and Field 3	1	2	Teaching of Field	2	4
Track and Field 4	1	2	-	-	-	-	-	-
Integrated Track and Field 1	1	2	Integrated Track and Field 1	1	2	Teaching of Track and Field	2	4
Integrated Track and Field 1	1	2	Integrated Track and Field 1	1	2			
Gymnastics 1	1	2	Gymnastics 1	1	2	Teaching of Apparatus Gymnastics (Compulsory)	2	4
Gymnastic 2	1	2	Gymnastic 2	1	2			
Gymnastic 3	1	2	Gymnastic 3	1	2			
Gymnastic 4	1	2	-	-	-	-	-	-
Integrated Gymnastic 1	1	2	Integrated Gymnastic 1	1	2	Teaching of Gymnastics	2	4
Integrated Gymnastic 2	1	2	Integrated Gymnastic 2	1	2			
Rhythm Gymnastics	1	2	-	-	-	-	-	-
Free Gymnastics	1	2	-	-	-	-	-	-
Football 1	1	2	Football 1	1	2	Teaching of Soccer	2	4
Football 2	1	2	Football 2	1	2			
Handball 1	1	2	Handball 2	1	2	Teaching of Handball	2	4
Handball 2	1	2	Handball 2	1	2			
Volleyball 1	1	2	Volleyball 1	1	2	Teaching of Volleyball	2	4
Volleyball 2	1	2	Volleyball 2	1	2			
Tennis 1	1	2	Tennis 1	1	2	Teaching of Racket Sports	2	4
Tennis 2	1	2	Tennis 2	1	2			

Badminton	1	2	Badminton	1	2			
Basketball 1	1	2	Basketball 1	1	2	Teaching of Basketball	2	4
Basketball 2	1	2	Basketball 2	1	2			
Judo	1	2	Judo	1	2	Teaching of Martial Arts	2	4
SSireum	1	2	SSireum	1	2			
Korea Dance 1	1	2	Korea Dance 1	1	2	Teaching of expressions and activities	2	4
Korea Dance 2	1	2	-	-	-			
Modern Dance 1	1	2	Modern Dance 1	1	2			
Modern Dance 2	1	2	-	-	-			
-	-	-	Fork Dance	1	2			
Camping Training	1	2	Camping Training	1	2	Camping Training	2	3
-	-	-	Marine Sports	1	2	Marine Sports	2	3
Hockey	1	2	Hockey	1	2	Teaching of Ball Sports	2	4
Ski	1	2	Table Tennis	1	2			
Taekwando	1	2	Dance Sports 1	1	2	Dance Sports	2	4
Golf	1	2	Dance Sports 2	1	2			
Baseball	1	2	Educational Dance 2	1	2	Educational Dance	2	4
Bowling	1	2	Ski	1	2	Winter Sports	2	3
-	-	-	Taekwando	1	2	Leisure Sports	2	4
-	-	-	Bowling	1	2	Water Safety	2	4
-	-	-	Golf	1	2	New Sports	2	3
40	**40**	**80**	**39**	**39**	**78**	**22**	**44**	**84**

Appendices of Chapter 8: Results and Discussions: Comparison of four PETE courses

Appendix 1 in Chapter 8

UNIVERSITY OF BEDFORDSHIRE (lecturers and students)
1985 lecturers in UNIVERSITY OF BEDFORDSHIRE: B.ED.+ B.A. COMBINED STUDIES, in appendix 2-1 3.3 COURSE COMMUTTEES MEMBERSHIP, BEDFORD COLLEGE OF HIGHER EDUCATION INSTITUTIOAL REVIEW PROGRESS REPORT FEBRUARY 1985
1992 lecturers in UNIVERSITY OF BEDFORDSHIRE: Appendix 16 Secondary Teacher Education Staff Details in BEDFORD COLLEGE OF higher education SECONDARY INITIAL TEACHER EDUCATION SELF_ASSESSMENT OCTOBER 1993 and 1994

1969 students in UNIVERSITY OF BEDFORDSHIRE Brochure of 1969 The Bedford College of Physical Education Old Students' Association
1985 students in UNIVERSITY OF BEDFORDSHIRE Brochure in 1985 The Bedford Physical Education Old Students' Association
2012 students in UNIVERSITY OF BEDFORDSHIRE in the internal resource

UNIVERSITY OF BRIGHTON (lecturers and students)
1958 and 1975/76 lecturers in UNIVERSITY OF BRIGHTON: including all full-time lecturers such as Education, Science, Art, etc (Webb, 1999, p. 99)
1995 lecturers in UNIVERSITY OF BRIGHTON: including head of school and teaching and research (Webb, 1999, p. 162)
2012 lecturers in UNIVERSITY OF BRIGHTON in the internal resources including just PETErs

1958 and 1975 students in UNIVERSITY OF BRIGHTON: (Webb, 1999, p. 96)
1997 students in UNIVERSITY OF BRIGHTON: (Webb, 1999, p. 162)
2012 students in UNIVERSITY OF BRIGHTON in the internal resource

SEOUL NATIONAL UNIVERSITY (lecturers and students)
1963 professors in SEOUL NATIONAL UNIVERSITY: (Brochure in College of Education at Seoul national University, 1963-64)
1989 and 1996 professors in SEOUL NATIONAL UNIVERSITY: (College of Education at Seoul National University since 1946, 1996)
2012 professors in SEOUL NATIONAL UNIVERSITY: (in the official curriculum in 2012)

1989, 1996 and 2012 students in SEOUL NATIONAL UNIVERSITY: internal resources

INHA UNIVERSITY (lecturers and students)
1978, 1984, and 1997 professors in INHA UNIVERSITY (The 50th Anniversary 1954~2004 Inha University, 2004)
2012 professors in INHA UNIVERSITY (in the official curriculum in 2012)

1978 students in INHA UNIVERSITY (The 50th Anniversary 1954~2004 Inha University, 2004)
1997 and 2012 students in INHA UNIVERSITY: internal resources