

Towards Caring Classroom:

Analysis of Teacher-Students Dialogue in Grade 6 in South Korea

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For every student who needs Aldo¹ in their lives

¹ Aldo is a special imaginary friend to a bullied little girl in the children's book 'Aldo' by John Burningham.

“Aldo is my friend only, and he's secret. I know he will always come to me when things get really bad. Like when they were horrid to me the other day”

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Korea

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IV

Abstract

Within the sociocultural perspective, caring classroom is an indispensable context for not only attending students' social and emotional needs, but also achieving social inclusion. This correlation study contributes to seek an alternative approach towards caring classroom by way of integration into daily practice. The possibilities of a teacher and students interaction, which occupies most classroom activities, in facilitating classroom climate around caring were examined through correlation and multiple regression analyses. This strategy is grounded in a review of current deficit-based, decontextualized programs and interventions. In particular, this study investigated the impact of a teacher's evaluative or non-evaluative feedback on students' perception of caring classroom, in which studies have overlooked. For that, Wells' framework for analyzing a teacher-students interaction (Wells, 1999) was used with dichotomous categories, the IRE (initiation/response/evaluation) and the IRF (initiation/response/non-evaluative follow up).

This study was conducted in one six grade classroom in South Korea, with one teacher and 28 students being participated. A teacher-students interactions were recorded through ten lessons, and students' perceptions about their classroom climates were collected by the personal measure called 'What is Happening In this Class? (WIHIC; Fraser, McRobbie & Fisher, 1996). The WIHIC included four aspects of caring classroom climate: Student cohesiveness, teacher support, cooperation and equity. Both data were then analyzed in order to respond the research questions below:

1. To what extent do IRE and IRF take up classroom dialogue?
2. Does IRE/F proportion of the observed dialogue correlate with student's caring rating scale?
3. How much impact of the IRE/F pattern dialogue on students' perception of caring classroom?

The results showed that a teacher-students interaction during class has potentials in cultivating caring classroom climate. Especially, the teacher's dialogic stance on whole classroom interaction was more related to students' sense of teacher support and equity than the monologic interaction. Significant associations were yielded between the IRE/F and teacher

support and between the IRF and equity in the classroom. However, the IRE/F were not significant predictors of student cohesiveness and cooperation in the study; thus, further study is required given the theoretical relevance and the complexity of those dimensions. In addition, the regression models in the study presented the opposite effects of the IRE/F pattern dialogue on a range of aspects of caring classroom, negative and positive respectively. The excerpts from the transcripts were used to support the statistical outcomes of the study.

The associations between a teacher-students interaction and caring classroom were connected to the theory, practice and policy in relation to both domains of caring and classroom dialogue. This study provides an empirical evidence of the role of whole classroom interaction in enacting one vision of Wells' framework, namely creating inclusive and caring community. In addition, it proved to be possible that dialogic whole classroom interaction exerts in creating inclusive and caring classrooms in a sustainable manner. Lastly, the findings of the study inform the educational policy about teacher preparation and training programs with respect to the quality of classroom dialogue. Teachers need to understand the unified nature of classroom interaction toward whole aspects of development.

Foreword

I still remember one parents' meeting when I was a special education teacher. A mother told me, "I have butterflies in my stomach every morning with the thought of how she spends a day at school". The opportunity to work as a special education teacher gave me a viewpoint on how the classroom should look like. During my working experience, I had attempted to support students for better experience with the teacher and classmates at school. Sometimes I taught social skills. For five years, I had taught a subject called 'Together', which aimed students to learn how to live with people who are different from them. I did some projects with some of my colleagues to help my students learn in working as a group member. However, it was difficult that these works were connected to what was really happening in their classroom.

At that time, I read relevant research a lot, mostly related to inclusion, yet they were not enough to get clues to what efforts need to be more focused in the classroom towards inclusion, support and caring. Those research were mostly discussed at school level. In addition, the theoretical legitimacy about social inclusion was emphasized, but the methods teachers could easily use in their classroom were rather absent. They were mostly about interventional programs, which require extra resources. The unsolved issue at the time dictated me to study further for the way teachers can use strategies at hand from research and this way is integrated in their classroom practice. Of course I value those research I've read at the time, but the teacher in me wanted to look closely a classroom where so much things happen every day.

Each student lives a life in their classroom with their own stories from day to day. I believe we need to hear the stories more. Therefore, the first gratitude goes to students and their parents, who have shared their lives with me, so made me grow up during last ten years. Further big thanks go to the teacher and students who opened their classroom for this project last beautiful autumn. I've learned a lot from you. In addition, the sociocultural theory of L. S. Vygotsky and his successors has influenced this study a lot, in which mostly I've learned during last two years at the University Oslo. Therefore, I am thankful to all the teachers here, especially to my supervisor Steinar Theie who inspired this project and gave me big support

in the process of learning to be a researcher. I have so much respect to you as my teacher. I appreciate the opportunity to have finished this journey together with you.

I would also like to thank Korean government and the embassy of Republic of Korea in Norway. Without the financial support from them, I know it would have been more difficult to live and study in a new country. During this studying period, I've always tried to remember what I've owed from my home country. I'm grateful to my teacher Jiyeon Park at Ewha Womens University as well, who gave me advice for studying a master's course. Last but at least, I would like to say a big 'thank you' to my family and friends: for always believing in me, for being always there and for giving me wonderful memories in my life. Especially, I would haven't survived here without my friends in Oslo -Marwah, Selma, Kate, Katherine and Sofi. To my Korean friends -Uyeon, Sunmi, Grace and her lovely children, Yeopjib, Myeongsuk, Sangae, Jinsuk, Bui and Sofia- Your greetings from Korea made me smile whenever I really needed it.

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1 Introduction

As an outgrowth of growing issues about school crisis such as school violence, South Korea has just enforced Character Education Promotion Law in July, 2015. This law aims to inculcate key competencies and virtue in students such as honesty, responsibility, respect, caring, communication and cooperation. Although I disagree much with the moral virtue approach with the premise of evaluative standards in practice, the enactment has thrown light on the socio-emotional aspect of education. The law has driven from the fact of the increased youth suicide rate from school violence since 2011 and the persistent criticism of Korean education system notorious for the extreme competition, thereby neglecting non-academic aspect of education. Indeed, several international comparative index among students shows the current situation of the country (e.g. IEA, 2010; OECD, 2014). For example, the Programme for International Students Assessment (PISA) results of 2012 (OECD, 2014) show that Korean students rank the lowest in terms of students' sense of being happy at school among 15-year-old students in 65 countries. In addition, students' sense of belonging was low as well (e.g. the item 'I'm satisfied with my school'). The affective status of Korean students from the PISA survey is a striking contrast with the academic excellence in mathematics, reading and science performance. The results show that schools have been unsuccessful in attending to the social-emotional needs of students.

Such concerns are by no means limited to one country. It is apparent that the affective aspect of students' social and emotional experience is not enough satisfactory in many countries. For example, according to UNICEF (Innocenti) Report 11 on children's wellbeing (UNICEF, 2013), Norway shows a gap in ranking between objective and subjective wellbeing dimensions. As to the quantitative status of children's wellbeing such as poverty rate, participation rate in early childhood education and environmental safety, Norway performed the second leader among 29 developed countries. However, Norway dropped five places with respect to subject wellbeing dimension when measured in children's self-report on overall life satisfaction in terms of relationships with their classmates and parents. Their own views on relationship with teachers at school also reported below average among OECD countries (OECD, 2013). Of course, Norwegian students reported a high level of life satisfaction in

general, but it's apparent that more efforts towards emotional wellbeing are needed compared to other top countries ranked similar or higher positions.

In order to address those issues, the interest in fostering social and emotional support for students has been heightened in educators and researchers of many fields. Research literature has demonstrated benefits of a high priority of supporting social and emotional development of students such as the improvement of behaviors and increased inclusion (e.g. Weare & Gray, 2003). My concern on social inclusion involving students with special needs or at risk has influenced the choice of topic of the study as well. I agree with the view on inclusion by Causton & Theoharis (2014) that full inclusion requires “*the common definition of inclusion centered on belonging for each and every child, regardless of need or ability*” (p. 35). Here, the terminology of caring becomes not only an end itself, but also means towards inclusive and supportive classrooms. Weare & Gray (2013) argue that “*the learning of emotional and social competence is, at its heart, about learning to be a warm, caring and empathic human being who can make worthwhile personal relationships with others*” (p. 56). In addition, according to the WHO Health Promoting Schools Initiative (WHO, 2014), those schools focus on caring oneself and others. As an influential care theorist in education, Noddings (2003) also claims that caring is essential in education and the efforts should be given to the conditions for facilitating caring relationships in school.

1.1 Dialogic approach to caring pedagogy?

Research shows that creating school environment in favor of students' wellbeing is one of key strategies towards students' social and emotional development (Konu, Lintone & Rimpelä, 2002; OECD, 2013; Weare & Gray, 2003, WHO, 2014). For example, Weare & Gray (2003) report that school environment is the largest determination of the level of emotional and social wellbeing in teachers and students. My starting point for this study is with this acknowledgement of the role of school climate on improving youth wellbeing in line with the current emphasis on universal approaches rather than deficit based intervention (Wright, 2015). More specifically, the focus of the study is a classroom where teachers and students spend most of their time at school so that there seem to be more opportunities for social and emotional support to students. According to Fraser (1991), school climate research tends to rely on the field of educational administration. Thus, the school level investigation might explain general status of students' wellbeing more, as it involves more ecological systems

around each student (Bronfenbrenner, 1979). However, this study doesn't attempt to investigate extensive coverage of students' emotional wellbeing. Indeed, it would be impossible to do in this short period of the project. Instead, this study gives more attention to students' immediate environmental factors at school, namely a classroom where students encounter teachers and their peers. A substantial body of research supports the idea that classroom level variables are more likely to account for the variance of each student's psychological outcome (Fraser, 1991). Of them, teachers' practice emerged as a potent criterion (e.g. Howard, Dryden & Johnson, 1999; Osterman, 2000, 2010).

Given the rationale above, this study aims to gain some understanding about what contributes to caring classroom climate, particularly in teacher-students interaction factors during class. Here, the caring pedagogy is suggested as a rounded framework in fulfilling every student's socio-emotional needs in the classroom. As can be inferred above, the fundamental nature of caring is an affective relation among more than two persons. According to Bronfenbrenner (1979), "*such affective relations tend to become more differentiated and pronounced in the course of joint activity*" (p. 58). For him, development is influenced by this positive and reciprocal relation. Thus, it can be seen that the joint activities are particularly relevant factors in striving towards the goal of caring classroom. As discussed in the next chapter, previous research in this area is problematic in using universal terminology and how it should be applied in practice. For example, social and emotional learning (SEL) has served as an umbrella term for interventions such as bullying prevention, character education and social skills training (Jones & Bouffard, 2012). In a discussion of applying caring in school context, a controversial issue is whether caring is a matter of teaching. The assumption of the approaches taking a stance of teaching interpersonal skills is that cognition and emotion are developed separately (Goleman, 1996; Weare, 2004). Consequently, a number of research in different fields espouse individualistic programs of building social and emotional competencies in students. The SEL program is driven from this view of learning and development. However, the relational context of classroom is not taken into consideration in those approaches. That is incongruent with the fundamental nature of caring.

Within the activity theory (drawn from the work of A. N. Leontiev's, Y. Engeström, and others), discoursing is an operational means structured by discourse genres in the process of joint activity (Wells, 2007). In this regard, classroom actions such as curricular activities or tasks are achieved through classroom discourse. The notion of joint activity in the study refers

to the situation “*where there are participants who exercise different responsibility by virtue of differential expertise*” (Cole, 1985, p. 155). In line with the argument of Bronfenbrenner above, thus, it can be argued that the quality of classroom discourse plays an important role in both cognitive and affective outcomes of education. Numerous studies which review and investigate classroom discourse have highlighted issues related the quality of classroom discourse (e.g. Cazden, 2001; Mercer & Littleton, 2007; Nystrand, 1997; Wells, 1999). The dialogic approaches such as dialogic instruction (Nystrand, 1997), dialogic inquiry (Wells, 1999), dialogic teaching (Alexander, 2008) and instructional conversation (Tharp & Gallimore, 1988) have drawn from the assumption that students’ active engagement is more needed in the process of co-constructing knowledge and those dialogic interactions make a significant contribution to students’ learning and development. In this regard, the traditional pattern of whole class interaction, triadic dialogue (Lemke, 1990) or three part I-R-E exchange (initiation-response-evaluation; Mehan, 1979), has been criticized in its monologic nature, in which a teacher mainly asks known answers and students recite what they remember. For example, Lemke (1990) claims that teachers’ overuse of question-and-answer dialogue is due to “*a mistaken belief that it encourages maximum student participation*” (p. 168). Thus, small group discussion between a teacher and students or among students are much favored compared to the whole classroom interaction in many approaches above. However, the whole classroom interaction is re-assessed and thus understood in the way that this patterned dialogue also could function in favor of dialogic pedagogy (e.g. Mercer, 2000; Wells, 1999). In addition, as Skidmore (2006) points out, research has paid scant attention to affective educational potentials of teacher-student interaction despite of theoretical legitimacy from the legacy of sociocultural theory and Bakhtinian theory. I’ll discuss them specifically in chapter 2. Given the persistence of this pattern of classroom dialogue (Howe & Abedin, 2013), I wanted to look more closely at the role of whole classroom interaction in terms of a feasible and sustainable strategy towards caring classroom. The current study sits alongside a belief that the triadic dialogue, known by the structure I-R-F (initiation-response-follow up; Wells, 1993), could also function as dialogic interaction and thereby improving whole aspect of development.

1.2 Aim of the study and research questions

This study aims to investigate teacher-students interaction based on the IRE (initiation-response-evaluation) / the IRF (initiation-response-feedback) exchange structure in light of classroom climate around caring. In particular, the goal of this study is closely to look at the relationship between the non-evaluative teacher's follow up (IRF) and the degree of student's sense of a caring classroom. Thus, my intention is to explore how co-constructing of meaning-oriented dialogue exerts in creating inclusive classroom environment. This project would point up dialogic approach to caring pedagogy as a holistic manner.

A perceptual measure at the individual level was considered important in understanding each student's experience with regard to caring amongst a teacher and students rather than observational data (Fraser, 1991). The measurement of caring classroom climate was addressed by using the modified version of 'What is Happening In this Class?' (WIHIC; Fraser, McRobbie & Fisher, 1996). Meanwhile, the teacher-students interaction data from observation was analyzed into two categories depending on the third move, evaluative (IRE) or non-evaluative (IRF) follow ups. The data used was cross-sectional and correlational/multiple regression analysis were used, thus causal inferences were not determined. This project explored how a teacher-students interaction exerted in facilitating student's sense of a caring classroom. Accordingly, the main question was identified:

How does the IRE/ the IRF sequence in teacher-students dialogues have an impact on student's sense of a caring classroom?

In order to address the question, sub-questions were followed:

1. To what extent do IRE and IRF take up classroom dialogue?
2. Does IRE/F proportion of the observed dialogue correlate with student's caring rating scale?
3. How much impact of the IRE/F pattern dialogue on students' perception of caring classroom?

1.3 Outline of the study

In chapter two, theoretical background is presented. Little research has been conducted on the association between classroom dialogue and caring classroom, so research literature from both domains are introduced. The caring pedagogy is discussed within the sociocultural perspective. In line with this view, Wells' framework (Wells, 1999) for teacher-students

interaction is explained. In chapter three, the methodological approach, which builds onto correlation research, including the data collection method, sampling and the data analysis is described. Ethical issues of the study are followed. The results of data analysis are discussed in chapter four, with three sections of outcomes from: preliminary (research question 1), correlational (research question 2) and standard multiple regression analysis (research question 3). Several excerpts from the transcripts are presented as supporting evidence for the effect of the IRE/F pattern dialogue on students' perception of caring classroom. Finally, findings are summarized and discussed in conjunction with related theories and literature with three sections: Teacher-related dimensions of the WIHIC (several significant results), student-student related dimensions of the WIHIC (non-significant results), and the opposite effects of the IRE/F exchange on students' sense of caring classroom. The theoretical and practical implications are discussed in terms of the expanded role of whole classroom interaction, the potential of dialogic interaction as a feasible, sustainable strategy towards caring classroom, and the importance of preparing and training teachers for the quality of classroom dialogue. Further studies are recommended based on the methodological limitations of the study. The conclusion is made in relation to where the current study stands in educational discourse.

2 Theoretical background

Given that there has been little study about the relationship between classroom dialogue and social and emotional dimension of learning, research from both domains are reviewed. In response to the purpose of the current study, the early part of this chapter gives rationales to the need of caring classroom with related notions from socio-cultural theory. I begin with the conception of the development of mind and accordingly proceed to present the expanded notion of zone of proximal development. Of relevance to the school, I briefly consider related different perspectives and approaches with respect to emotional aspect of teaching and learning. As an overarching framework for these theories, care pedagogy is introduced in terms of the notion, characteristics and approaches to practicing it.

In the latter part of this chapter, however, a different stance of building caring classroom is provided by the agency of classroom dialogue as a holistic approach. This position is grounded on a unified perspective on teaching and learning by Vygotsky and his followers. In the following texts, Wells' framework for classroom dialogue is presented. His new insight to the ubiquitous classroom interaction pattern is explained with related theories. In this regard, a transactional model of discoursing is presented. In addition, his framework shows how a teacher and students interactions were analyzed in terms of four levels: Episode, sequence, exchange and move.

2.1 The status quo of emotion in education

To date, there has been growing census around the need to foster the student's social-emotional development in school. In 2005, Education for All (EFA) global monitoring report has specified that the quality of education is achieved in terms of both cognitive and emotional development of learners (UNESCO, 2005). As a second element of the quality of education, it is imperative that education encourages student's emotional development in terms of peace, citizenship, security, equality and global/local values down to future generation (ibid., p.29). Inclusive education is regarded as a guideline for strategies and methods to reach this EFA goal (Ekinth &Brule-Balescut, 2006; UNESCO, 2009). Inclusive education in this study refers to the definition of UNESCO (UNESCO, 2009, p. 8): Inclusive

education is a process of strengthening the capacity of the education system to reach out to all learners. Namely, inclusive education serves diverse needs of all learners in their communities, especially those with special needs and challenges barriers in educational policies and practices. With school effectiveness discussion, there has been incessant debates over the efficacy of inclusive education. This debates dictate us we need to keep studies on the best practice fulfilling dual goals, equity and effectiveness (Lindsay, 2003; Savolainen, 2006). Thus, the school and students achievement holds an important position in the discourse of inclusive education as well regarding accountability. In addition, since the emotional development of students is hard to assess compared to cognitive development, it seems natural that the affective aspect of inclusive education has been relatively neglected. Hence, it is not surprising that the second aspect of education quality got out of picture in monitoring to the extent which the EFA goals have achieved in the countries so far in the face of the target year of 2015 (UNESCO, 2014).

However, several studies on the review of effective, inclusive schools have emphasized the importance of going beyond the traditional focus on cognitive achievement. Following Booth's notion of participation in 2002, Black-Hawkins (2014) asserts that we need a framework of participation encompassing complex contexts in the classroom. Within the framework, teaching and learning have a social and collective nature, so the inclusive classroom practice requires all aspects of classroom experience. She puts classroom relationships as a basis for participation. Another study by Causton & Theoharis (2014) positions belonging in the center of inclusive school principles. They argue that regardless of ability, acknowledging every child as valued members of the classroom would contribute to the inclusive culture in school. The importance of a sense of belonging is also claimed by Osterman (2000, 2010). From the extensive review of studies about students' sense of acceptance in school, Osterman (2000) maintains that fulfilling this sense of belonging impacts on student's emotional wellbeing as well as motivation and behavior. In addition, she asserts that the individual experience of being accepted would extend into the relationship with others in the classroom. According to Osterman (2010), competence, autonomy and relatedness are interdependent, so it is imperative that education is attentive to student's socio-emotional needs. Her reviews are consistent with other researches about relationship of those motivational needs (e.g. Goodenow, 1993a; Ryan & Powelson, 1991).

Based on the literatures above, emotion is no longer peripheral plane of teaching and learning. It is itself one aspect of learning and development. However, as seen in chapter one, current educational issues in school such as school violence or students' dissatisfaction in instruction and relationship at school give rationales for further authentic efforts to enhancing emotional dimension of education. In other words, emotion needs to be given an equal status as cognition in teaching and learning. As Kunc (2000) points out, fostering students' emotional needs as a precursor for school achievement would be inappropriate. As a rule of thumb, there has been scant attention to emotion in educational practice despite the theoretical legitimacy. As far as I'm concerned, the jury may be still out, the impeding factors are ascribed to the accountability dogma and emotion's secondary status as a prerequisite condition for student's academic success. Teaching emotion and moral virtues is by no means new terrain in education. The discourse in moral and character education has contributed to school-based approaches in relation to socio-emotional development of learners with a great deal of influence. My stance in this project is not to depreciate the role of moral and character education, but to seek alternatives with the acknowledgement of the power of inclusive classroom and school. The starting point in the study is from a number of discourse on students' socio-emotional needs which reveal that cognition and emotion are highly intertwined (Vygotsky, 1987). Accordingly, as an overarching framework to the current study, the socio-cultural approach to emotion is chosen and discussed in detail below.

2.2 A socio-cultural approach to cognition and emotion

Many studies regarding the integral relationship between cognition and emotion fall under Russian Psychologist L.S. Vygotsky. According to Vygotsky (2012), the separation of these two spheres of development engenders a segregated thought, which has isolated cognition from the all aspects of life and the individual. Perceiving this problem in traditional psychology, he demonstrates "*the existence of a dynamic system of meaning in which the affective and the intellectual unite*" (ibid., P.11). Similarly, the language against the dichotomy between these two aspects of development is also discussed by another renowned constructivism scholar, Jean Piaget. Piaget's basic idea is that affect and cognition are not separable like 'two sides of the same coin' (Piaget, 1981). As we can speculate from the metaphor, however, Piaget has limited the relationship between intelligence and affect unlike

Vygotsky's key idea above. He asserts that affect doesn't make up structure like cognition does in development even though each development stimulates in another. In this regard, affect acts only as "*energetics of behavior*" (ibid., p.7). For Vygotsky, on the other hand, consciousness is constituted with "a unity of affective and intellectual processes" (Vygotsky, 1987). Thus, Vygotsky claimed that researchers have to analyze the integral nature over the course of development against analysis of each composed element. Instead of elements, the units involve "*all the basic characteristics of the whole*" (ibid., p.46). Across the works of Vygotsky, reviewed by Vadeboncoeur & Collie (2013), at least two unit were identified: word meaning and *perezhivanie* (translated into 'lived or emotional experience'). To understand these two units, especially in relation to emotional aspect of development, some key concepts are presented below.

2.2.1 The development of mind

In the socio-cultural theory, development has dynamic aspects within teacher-learning context. Contrary to universal development approaches, this theory regards development as being relative and active. For Vygotsky (1978), the development of mind presupposes social supports as well as the utilization of historically developed tools as auxiliary means. The other Vygotskian scholars taking a same stand on the issue believe that socio-cultural contexts affect the mental process of human and this process is dialectically related to each other. Vygotsky (1978) highlights the mastery of tool use and internalization of higher psychological functions; thereby, the goal of mental process is more or less vertical transformation from an interpersonal developmental process to an intrapersonal achievement. In his text, development proceeds in a spiral circle to a higher level through '*internalization*' process (ibid., p. 56). On the other hand, Rogoff (2003) argues that the goal of development is diverse according to cultural tradition and circumstance in each learner's community. Thus, both the capabilities of intelligence and social responsibility are the key concerns of development. For her perspective, development means different transformation of people's participation in socio-cultural activities. Taken together, a child learn not only from engaging in one's social context, but from the active process of personal mean making by means of cultural tools.

In regard to this socio-cultural process of development, the units of analysis of mind mentioned above become central factors in learning. Vygotsky (1987) states that

understanding and generalizing of word meanings (i.e. concepts) constitute psychological structure. However, the word meaning undergoes further process, for meaning is only *“one of these zones of the sense that the word acquires in the context of speech”* (ibid., p.276). In his view, a word’s sense involves all the psychological aspects of thinking and speech in light of socio-historical context in which a child exist. In this regard, the second unit, emotional experience, comes on the scene. In particular, Vygotsky puts emphasis on affect in the process of young children’s stages of development. He clearly points out that *“affect opens the process of the child’s mental development and construction of his personality and itself completes the process, concluding and crowing the development of personality as a whole”* (Vygotsky, 1998, p. 227). Bozhovich (1977) reconfirms Vygotsky’s idea of intelligence and affect constructing a new structure in the process of development. However, this affective dimension of development in Vygotsky’s view has been misinterpreted and thus neglected in a way that schools prioritize transmission of knowledge and skills to students (Mahn & John-Steiner, 2002; Wardekker, 1998). Nevertheless, several scholars have tried to capture the emotional aspect of the mental process in their educational discourse based on socio-cultural framework. In the next section, I’ll introduce these attempts that shed light on the integral process of development.

2.2.2 The broadened notion of zone of proximal development

The notion of zone of proximal development (ZPD) is a best-known concept for how Vygotsky explains about development. Stated as a distance between an actual developmental level and the level of potential development, the ZPD defines development as ongoing continuum (Vygotsky, 1978). It involves assistance from others in mutual communication by means of language so that children could draw their potential power toward full development. Thus, the concept of development is markedly different from Piagtan universal law of development. Vygotsky (1978) claims that the level of potential development is determined through problem solving under adult guidance or in collaboration with more capable peers. As to the ZPD, he underlines the role of interaction with another person in the mental process. Therefore, educational provision is situated in considerable importance.

Now that the common application of the ZPD mainly focuses on intellectual development in school, several scholars have criticized or modified the conception in different perspectives (e.g. Rogoff, 1990; Chaiklin, 2003; Cole, 2003). I’ll not elucidate those arguments here in

response to the focus of my study. However, related to the research question of the study, the 'Intermental Development of Zone (IDZ)' (Mercer, 2000) and 'the interrelational dimension' of the ZPD (Goldstein, 2002) are presented, just to name a few. Within the socio-cultural perspective, these two conceptions see the zone as changeable and flexible depending on the context in which the activities take place. The underlying assumption of them is that the ZPD is created through the process of intersubjectivity. Trevarthen (2001) claims that human beings are equipped at birth with abilities prepared for sympathetic and cooperative mental life in a society that creates cultural meanings, seeks to be governed by them, and transmits them to the young. In adult-child communication, they are ready to share verbal as well as nonverbal language, so that they mutually contribute to their present social context. Therefore, as Rogoff (1990) states, intersubjectivity is a multifaceted matter. The cognitive, social and emotional process of learning and development coincide in the joint activity and thus the teacher and learners become a community of shared understanding and purpose.

However, the approaches in creating the zone is different between Mercer and Goldstein. Mercer has coined the notion of IDZ while putting emphasis on shared space between a teacher and learners as a dialogue changes. On the other hand, Goldstein has rediscovered the ZPD, faithful to Vygotsky's accounts, in light of the terminology of Nodding's the ethic of care. The IDZ continually varies in the process of teaching and learning by means of dialogue. A teacher and learners engage in activity through negotiation based on their knowledge, capabilities and motivation (Mercer, 2000). Similarly, Wells (1999) points out that teaching is more powerful when *"it also involves the ongoing co-construction of each student's ZPD and on-the-spot judgments about how best to facilitate his or her learning in the specific activity setting in which he or she is engaged"* (p.329). Wells has not coined another terminology for the broad comprehension of the ZPD, but he argues that learning involves not only all aspects of the learner, but transformation of the learner and then the communities of which the learner is a member. In this socio-cultural context, consistent with Well's approach in using dialogue as a semiotic mediation tool in the classroom (Wells, 1999), Mercer & Littleton (2007) give an account of dynamic nature of classroom interaction at the cultural and social level. The forms and level of dialogue between a teacher and students differ at each level. Accordingly, the language becomes more dynamic depending on the situated context. Thus, they stress a dialogic contribution of both a teacher and learners in the space of intersubjectivity. Bronfenbrenner (1979) also presents the developmental impact of a dyad as a means of facilitating the level of reciprocity, mutuality of positive feeling and

the gradual shift of balance of power. To sum up, all variables related to a member of learning community are naturally taken into account along with the process of social interaction.

On the other hand, Goldstein (2002) argues that the relational dimension of the ZPD has not manifested unlike the Vygotsky's view on affect as seen in above. According to her, the centrality of affect in development has been overlooked, so it is not unnecessary that the interrelational zone be reclaimed and resurfaced for the full range of development. For this, applying Nodding's assertion of placing a special emphasis on caring to education is required. Goldstein (2002) believes that caring in Noddings' perspective is accord with the Vygotsky's acknowledgement of affect as a unit. In line with Noddings (2005), she has positioned caring relation at the core of teaching and teacher education.

This study takes a same stance on the refinements of Vygotsky's notion of ZPD above in a way that a teacher and learners co-construct the ZPD and the affective aspect of social interaction is significant, which has been failed to notice its explicit role in educational practice. Hence, every aspect of child's environment, both cultural and social, exerts its influence over the course of the child's development. This acknowledgement gives rise to the focus of the inclusive classroom climate as an optimal state of community of learning at the micro level in the current study. Inclusive classroom acknowledges and welcomes a whole child with diversity as seen in 2.1 section. In addition, dialogue has significantly informed this project as a holistic approach to this classroom climate. This leads to a question: how co-constructing of meaning-oriented dialogue exerts in creating inclusive classroom climate? Among those research mentioned above, the conceptions of caring (Noddings, 2003) and dialogic inquiry (Wells, 1999) are given in the next section, to come closure to this question.

2.3 Research on caring pedagogy

Since terminology caring is tacit itself, it is fair that there are differences in the conceptual and empirical perspectives when applying to caring in school context. North American researchers mostly use emotional intelligence (Goleman, 1996), which regards caring as a sub-concept of intelligence, whereas the term emotional literacy (Weare, 2004) is preferred in UK research. McLaughlin (2008) has chosen 'emotional wellbeing' as the most encompassing term. Emotional wellbeing refers to an umbrella term, which accepts different elements of the conception in multiple context: Psychology, Psychotherapy and Neuroscience. According to

her, key elements of those traditional concepts above, i.e. self-understanding, understanding and managing emotion, and understanding social situation and making relationships in the framework of Weare (2004), are more or less focused on individual level. Within the sociocultural perspective, on the other hand, the notion is not bifurcated capacity. Vygotsky's idea about the unity of thinking and feeling processes, as discussed in 2.2 section, casts new attention of social environment of the school. Of discourse on key concepts in emotional wellbeing such as care (Gilligan, 1982; Noddings, 2003), empathy (Buber, 1959), sensitization (Hundeide, 2010) and mentalization (Allen & Fonagy, 2006), I argue that an ethic of care, as a day-to-day pedagogy, should be essential. Thus, creating caring classroom is not only foundation, but also the main purpose of teaching and learning. It is consistent with the review from the research on resilience of McLaughlin (2008) as concluded: "*...communities and particularly the community of the school are important sites for flourishing or languishing. Social inclusion becomes a very important issue*" (p. 364). The main idea in an ethic of care is caring as a state of relation between the carer and the cared-for (Noddings, 2003), so the social process becomes much in the foreground of teaching and learning.

2.3.1 Bringing care ethics in classroom

Carol Gilligan is a pioneer in the field of ethics of care. In her book 'In a different voice', she asserts that "*the dialogue between fairness and care not only provides a better understanding of relations between the sexes but also gives rise to a more comprehensive portrayal of adult work and family relationships*" (Gilligan, 1982, p. 174). Criticizing dominant articulation of Kohlberg's theory about moral development, Gilligan (1982) purports that the activity of care, experientially from women, has been devalued and needs to regain its position in moral development. According to her, care of relationships and responsibilities represents the maturity, just as the concept of justice as an optimal moral development by Kohlberg. The tension between these two concepts has been continued in the form of theoretical priority in moral development since Gilligan's refutation. From my perspective, it resembles the discourse on cognition and emotion with regard to its supremacy. Alongside of the debates, a conflict but complimentary relation between caring and justice has been recognized and articulated. For example, Noddings (1999) believes that care enriches justice in a way that care draws our attention at the individual children in the process of improving unequal situations. In other words, care may broadened the horizon of moral reasoning so that the

moral judgement is more appropriate and ideal to everyone. Another scholar Blizek (1999) also claims that care and justice can be either compatible or incompatible according to the situational factors. Thus, more rooms are needed in moral judgement. Power & Higgins-D'Alessandro (2008) note that Kohlberg has accepted the nature of community in light of mutual care and responsibility, so his justice community approach has incorporated certain features of care.

Of the influential contribution to the fields of research, my interest in this study is a pedagogical building of the ethic of care. In Nel Noddings' second edition book of caring (Noddings, 2003), followed the publishing in 1984, she clarifies that the notion of caring is not a virtue, but "*a relationship that contains another, the cared-for, and we have already suggested that the one-caring and the cared-for are reciprocally dependent*" (p. 58). The inherent nature of classroom is social and relational in the way that members of the classroom encounter each other and work together, hence they build relationships to some extent. In addition, it was not until Nel Noddings that the ethic of care was particularly applied to the context of education. Therefore, I have chosen to use the notion of caring among various vocabularies while focusing a classroom as a space of manifesting caring relation at school at the micro level (Bronfenbrenner, 1979). It is also the place that a teacher and students have daily experience most. In a classroom, it is assumed that a teacher takes the role of the one-caring and students respond the carer as the cared-for. In such relation, responsiveness becomes pivotal in view of the fact that "*responsiveness is at the heart of caring and also at the heart of teaching themes of care*" (Noddings, 2005; p. xxv). In this context, teachers who are faithful to the ethic of care display 'engrossment, later attention' (Noddings, 2010) and 'motivational displacement' (Noddings, 2003). Beyond observable care actions, they listen and feel as nearly as possible students do (i.e. engrossment) and then take steps to act in place of the cared-for (i.e. motivational displacement). Noddings (2003) claims that teachers should strive to keep the caring relationship with students even though these actions are precluded with whatever reasons. For example, if there is one student who doesn't pay attention to the reading class while keep drawing on the textbook, the teacher attends the student's need at present. He or she might be bored or wants the attention from the teacher. However, even though it is the extant emotion of the student, the teacher just shouldn't stop the class and pay attention only to the student since there are other students' need and the teacher has also a goal for this class. In this moment, motivational displacement is hard to be achieved to the full extent. As the one caring, the teacher could have a conversation with the student after class.

The teacher would acknowledge the student's feeling, but explain that there are rules every members share for the sake of others in classroom. The teacher might ask what is best for all instead of what is right. Meanwhile, the student would respond in a positive way. Here, responsiveness exerts in this series of events of caring.

The ethic of care in classroom demands four components: Modeling, dialogue, practice and confirmation (Noddings, 2003, 2005). Modeling in a classroom means that the teacher shows how to care in a relation with the cared-for rather than telling them how to draw moral reasoning in terms of principles and laws. Students learn care in their real lives as an experience of being cared and witnessing the practice of caring. Examples of modeling in a classroom are the teacher's support to students who have difficulties and the peer tutoring to name a few. Dialogue in Noddings's text is a tool for asking questions, listening, giving students to question, and maintaining the relations. The dialogue needs to be open-ended, so that both the teacher and students can gather information and discuss in decision-making situation. Under this circumstance, neither does the teacher cram their head with moral knowledge, nor does the teacher ignore conflicts between them. Next, practicing care in a variety of activities are required. The teacher gives students opportunities to experience to be the one-caring in their daily lives. Through practice, the cared-for becomes the one-caring and they learn the attitudes and skills for the capacity to care. It is consistent with Bronfenbrenner's curriculum for caring, which asserts that students should "*not to learn about caring, but to engage it*" (Bronfenbrenner, 1979, p.53). Both scholars set the setting beyond school such as a day care center or a community service center. In addition, they pay attention to the conditions of the place while claiming the proper guidance and attitudes focus. Lastly, teachers become "*other who sees through the smallness or meanness of my present behavior a self that is better and a real possibility*" (Noddings, 2005, p. 25). This act of confirmation requires trust and continuity in a relationship. One-caring teachers acknowledge the positive motive of students trying to be better selves. Regardless of the results of the act of students, teachers see their intention and commitment more important. In short, the stage of caring ethics in classroom plays with the activities of modeling, dialogue, practice and confirmation through a supporting and responsive relation between the teacher and students. In a caring classroom, students develop positive self-image and self-esteem, further the dimension of emotion by experiencing to care and to be cared for (Noddings, 2002). The one-caring teachers take the role of dialogic facilitator in learning and development. As Buber (1965) states, inclusion occurs in a caring classroom through these relational process.

2.3.2 The existing approaches to caring classroom

Besides the four means of Nel Noddings above, a wealth of programs and methods have burgeoned through multiple approaches to social and emotional domain of development. The premise of this project is that caring is essential in the classroom climate. It is underpinned by the findings of Nucci & Powers (2014) that *“a fundamental source for students’ social development is the social climate of the classroom and school and the approach that teachers and administrators take toward managing student behavior”* (p. 128). Therefore, I consider the approaches introduced below a path to caring classroom, either directly or indirectly. In line with McLaughlin (2008), the aims of these programs or strategies are inextricably bound up with caring and inclusion in the process of teaching and learning. Spurred by the predominant concerns on inclusion and emotional wellbeing, research and debates have been booming. In my view, the literature is bifurcated: ‘how’ to teach and ‘what’ to teach. The former involves classroom discipline/management and dialogue, to mention a few. The latter encompasses a wide range of intervention programs such as socio emotional learning (SEL), the child development project (CDP, revised now as Caring School Community) and Roots of Empathy. Here, ‘how’ approach refers to the non-intervention one, which is applicable in existing typical classroom routines. In contrast, ‘what’ approach generally indicates the use of intervention programs in fostering interpersonal knowledge and skills.

‘How to teach’ avenues. One of influential theory to the role of emotion in the discourse of moral and character education is the attachment theory by Bowlby (1982). According to the attachment theory, the relationship between a child and caregivers in terms of secure attachment has a great impact on ongoing children’s development in their lives. Thus, it focuses on the social and emotional development of infants and young children through sensitive care from caregivers. Within the perspective of the attachment theory, teachers become caregivers and thus the main job of teachers is to build a trusting and supporting relationship with students. In this classroom, traditional punitive classroom discipline and management hand over its position to the relation-focused classroom management. For example, in the book of ‘Learning to trust’, Watson (2003) presents several activities which give students opportunities to get to know each other and to engage in joint activities. From this in-depth case study of one teacher, she claims that teachers should demonstrate unconditional caring and provide supportive guidance and opportunities for students to enhance competence, autonomy and belonging.

Meanwhile, for the sense of community, communal activities have gained power in the educational practice (e.g. Dewey, Vygotsky). The conception of collaboration or cooperation is significant in their work. Dewey (2001) assumes that education is a social environment and individuals *“are also interested, and chiefly interested upon the whole, in entering into the activities of others and taking part in conjoint and cooperative doings”* (p.28). In addition, for Vygotsky, cited in Chaiklin (2003) and Daniels (2007), cooperation and collaboration play a compelling role in the zone of proximal development, so it is a strategy to effective teaching and assessment. Even though it is not explicitly articulated about the relationship between cooperation and caring in the texts of Dewey and Vygotsky, joint and collaborative activities are considered as cogent approaches to caring classroom regarding the nature of social environment in terms of thinking and feeling (Dewey, 2001; Vygotsky, 1987). For these activities, language is viewed as a crucial tool in engendering shared understanding and meaning. For example, for Vygotsky, language *“takes on an intrapersonal function in addition to its interpersonal use”* (Vygotsky, 1978, p. 27) and *“absorbs intellectual and affective content from the entire context in which it is intertwined”* (Vygotsky, 1987, p. 276). Dewey (2001) also believes that *“the communication which insures participation in a common understanding is one which secures similar emotional and intellectual dispositions”* (p. 8). Thus, dialogue has been studied with different lens as a powerful tool to incorporating all dimensions of development. Examples within sociocultural framework are dialogue journal (Mahn & John-Steiner, 2002), dialogic inquiry (Wells, 1999, 2002a) and exploratory talk (Mercer, 2002).

The instructional strategies to caring classroom above are consistent with the review of Osterman (2000) that cooperative learning and dialogue have a strong bearing on students’ sense of relatedness. She also has revealed that teachers play a central role in s relationship between teacher and student. In her review, teacher support highly influences the students’ feeling to be cared for and consequently peer relationships are ascribed to teachers’ attitude and perception. In addition, as a last component of classroom practice for students’ sense of belonging, she identifies that the experience of autonomy with adults enhance the needs of relatedness. The reviewed studies reconfirms that the needs of competence, autonomy, and relatedness are interdependent, so students’ full experience of each needs is indispensable.

‘What to teach’ avenues. These avenues aim to enhance student’s affective capacities necessary to handling their social environment through intervention programs. One of

approaches is social and emotional learning (SEL) program. The SEL has been initiated by the work of Goleman (1996) who suggests the term ‘emotional intelligence’ besides traditionally recognized intelligence (e.g. mathematical, linguistic intelligence). Broadly, it involves the capacities of understanding both himself (intrapersonal intelligence) and others (interpersonal intelligence). His work has exercised leverage in social and emotional education at school. According to Elias, Kranzler, Parker, Kash & Weissberg (2014), the SEL has developed to intervene the environment so that skill acquisition is sustainable. Thus, not only students but also teachers and administrators learn key attitudes and skills through SEL programs (i.e. self-awareness, social awareness, social-management and organization, responsible decision making, and relationship management). An example is the RULER approach at Yale Center for Emotional Intelligence, which is designed to bring about a change in both individual and classroom through teacher training and feeling words curriculum (Hagelskamp, Brackett, Rivers & Salovey, 2013).

Another approach is a program at the Developmental Studies Center, called the Child Development Project (CDP) initially based in Oakland, California. The program aims to build caring communities at classroom and school. The CDP research purports that a sense of community informs every aspect of students’ learning (Kohn, 2006). It is implemented by teachers with the provision of cooperative learning, developmental discipline, lessons with literature related to prosocial values and communal activities for students and parents (Solomon, Watson, Battistich, Schaps & Delucchi, 1996). To build a classroom as a community, Kohn (2006) also asserts that teachers need to be caring and responsive and to encourage cooperation between students in their daily lives at school. It is also required that activities (e.g. class meeting, circle time) and curriculum are planned to support students’ social and emotional growth. As an alternative to coercive classroom management, developmental discipline provides different approaches to misbehavior in the way that teachers involve students in taking responsibilities for the behavior and prefer to use natural and logical consequences to solve the problem (Watson, 2014). Recently in a response to pressures of high accountability in education, the center has reconciled the CDP with the focus on literacy (i.e. reading and writing) while supporting a caring learning community (Brunn, 2014).

Last noteworthy approach is the one which places empathy at the heart of moral development. As Slote (2007) defines, empathy “*involves having the feelings of another (involuntarily)*

aroused in ourselves” (p. 13). Contrary to care ethic theorists, he contends care and justice cannot be integrated as a whole and empathy is the basis for caring motivation. The approach focusing empathy concerns individuals rather than relationships. However, although Noddings (2010) acknowledges the contribution of Slote’s work into the language of care, she argues that the relationship established before between people has a power on caring. On the other hand, Slote (2007) claims that empathy is the spring of caring about others while criticizing Nodding’s narrow view of empathy. An example of the empathy-based approach is ‘Roots of Empathy’ program begun in Canada by Mary Gordon. It is a program which invites a baby and his or her parents in the classroom and engages students in their relationships. Students learn emotional literacy and problem solving through the opportunities to care about the baby. According to Gordon (2012), a caring classroom is formed as students develop empathy with the living experience of the program and further integrated social and emotional learning by their teachers.

2.3.3 The necessity of holistic approach to caring classroom

The endeavor of the approaches above has contributed to the social development of students and positive school environment. However, there are several concerns needed to be taken seriously. First, several approaches attach little importance to the role of social environment. Separate programs such as the SEL program or the empathy-based approach put more emphases on the individual growth, which attribute the existing problems to individuals. Hence, this deficit based approaches have neglected the inextricable connection between individuals and social environment. The review of resilience and mental health by McLaughlin (2008) reveals that the findings support the need to improve students’ whole experience and learning in school, both social and individual. Thus, the social climate of classroom and school is also notable as individual development of student, teacher and administrator. Especially, it is clear that the social interaction in classroom and school highly influences the development of mind as many studies have demonstrated above. However, such programs are implemented in a separate time with an effort to cultivate interpersonal skills and attitudes by didactic instruction. Therefore, these approaches are decontextualized since the content in their programs is universal and the attitudes and skills are not taught in situated cultural and historical context.

Considering high demand on academic achievement in contemporary society, in addition, such circumstances are serious impediment to full applicability of most approaches above. For example, as Brunn (2014) indicates, the CDP has been revised into the more academic area because of frustration in succeeding of full implementation of all participated schools. The CDP team also has experienced the reduction of class time for the social and emotional development of students. In this regard, the strategies to foster caring classroom need more integrated approach for sustainability. In addition, it is necessary that the strategies are based on existing internal resources in natural educational activities. As Osterman (2010) concludes from the review of related literature, instructional strategies, the teacher's manner of classroom interaction and classroom conditions to student behavior are associated with students' sense of belonging. Thus, using classroom variables seems more plausible to cultivating caring classroom.

Lastly, classroom management and activities based on attachment theory require teachers to build caring, responsive and supportive relationship with students. From the underlying assumption of attachment theory, there is a danger of ascribing the failure in meeting students' needs only to teachers' characteristics and efforts. According to Osterman (2010), teacher practice is also affected by understanding motivation and organizational condition. In addition, these approaches are limited due to time constraints. The persistent demand on accountability at school dictates how class schedule is organized. Subjects for tests have gained a dominant position at school. Consequently, classroom and school activities for students' socio-emotional needs have begun to lessen.

In short, in connection with the issues mentioned above, classroom dialogue seems more appropriate and workable candidate to fostering caring classroom climate in the current scene of classroom. Its application is comprehensive in daily classroom routines since classroom talk is the most pervasive component in classroom activities (Cazden, 2001; Flanders, 1970; Littleton & Howe, 2010). In addition, it corresponds with the social nature of learning (Moll & Whitmore, 1998; Vygotsky, 1978, 1987). The approach may enable both teachers and students to actively engage in learning activities. Given the integrity of thinking and feeling in development and language as stated earlier, the quality of classroom dialogue may have strong potentials to enhance classroom climate towards caring. Hence, the research review above gives an impetus for the research question of the study: How a teacher-student interaction is related to students' sense of a caring classroom? In particular, this study focuses

on the whole class interaction, in which a teacher and students engage together in the classroom talk in light of the relational nature of caring. In the next section, the literature review on whole class interaction is presented and thereby steers the study to Wells' framework used in both analyzing data and justifying the research question. Here, dialogue is distinct from the concept of conversation in terms of Bakhtinian version of dialogue (Alexander, 2005). According to him, classroom dialogue is comprised of a meaningful sequence of chained exchanges. Unlike conversation, the act of questioning and the outcome of followed answers are significant. The concept of dialogue in the study is unlimited to dialogue on moral and interpersonal issues. This project understands classroom with a Vygotskian lens, so the focus is co-constructing of meaning by dialogue among teachers and students as a holistic approach to caring classroom. It is also based on Osterman's findings (Osterman, 2010) that the role of teacher has the strongest influence on an affective classroom climate.

2.4 New insight to teacher-students interaction

According to Howe & Abedin (2013), the work in classroom dialogue across four decades shows that the monological discourse of classroom talk, initiation-response-evaluation (IRE; Mehan, 1979) or initiation-response-feedback (IRF; Sinclair & Coulthard, 1975), takes still up most of classroom talk even though there have been numerous studies about small-group interaction among students in the classroom. In a simple way, the interaction between a teacher and students, in the form of teacher asking questions (I), students attempting to respond to (R), and teacher provides an evaluation (E) or feedback (F), is ubiquitous in a classroom setting. The evaluative studies of dialogue, either model-based or target-based, in the review show the "*endorsement of group dialogue*" (Howe & Abedin, 2013, p.345); however, the whole-class interaction, in which the IRE/F exchange pattern is likely to be prevalent, has been little focused. In an effort to produce the resource-based approach to caring classroom, the whole-class interaction has been adopted as a candidate in this project. This study agrees with the inference of Howe & Abedin (2013) that "*if dialogic practice matter in small-group context, they are also likely to matter in whole-class settings*" (p. 345).

In the proceeding section, Wells' (1999) framework for classroom dialogue was chosen to justify the hypothesis of the current study and analyze the data. Since his framework is rooted

in activity theory and systematic linguistics, I'll explain them within a transactional model of discoursing in an activity system before introducing the coding scheme.

2.4.1 Casting new light on the whole class interaction

Traditionally, the IRE interaction pattern is regarded as recitation mode of classroom dialogue, in which the teacher has a control over what should be learned during class. Accordingly, transmitting knowledge to students through "*known information question*" (Mehan, 1979, p. 195) is prioritized in the goal of education. In this regard, researchers have long criticized that this mode of classroom interaction constrains students' engagement in learning and relationship with the teacher. For example, Nystrand (1997) argues that the three-pattern exchange limits the reciprocity in the classroom, so the classroom talk needs to be more like conversation or discussion. In such interaction, teachers and students negotiate and share the joint process of meaning making. It is consistent with Noddings's contention that ordinary conversation is significant in moral education (Noddings, 2002). She doesn't consider the IRE pattern as real dialogue, in which we often have in every daily life beyond school subjects. In order to build a relationship, according to her, "*we need to engage in conversation about shared interests and everyday events*" (ibid., p. 128). Mayer (2012) also contends that the teacher-led interaction pattern is not well qualified in understanding co-construction of meaning in democratic classrooms. Even though she acknowledges that the traditional classroom discourse might be suited in culturally valued pedagogical goals, she places more value on student-led learning in fostering students' active participation and creativity in learning. In contrast to sharp criticisms on the IRE move, however, she embraces the sequence in her broader 'participant framework' of classroom discourse.

However, though I concede that the role of students should not be ignored, Wells' claim that "*triadic dialogue is neither good nor bad*" (Wells, 1993, p. 3) convinces me that his theory is useful in this project given the persistent existence of the IRE/F sequence in classroom dialogues and his vision of education in "*fostering the dispositions of caring, collaboration and critical inquiry*" (Wells, 2002a, p. 205). In his observational research on science class in elementary school (Wells, 1993), he found that the third move in the three-part classroom interaction pattern functioned differently depending on the nature of the overall activity. According to the study, the same basic genre is not static, but variable in larger context. The collaborative action research from 1991 to 1997 in Toronto (Nassaji & Wells, 2000) also

supports his suggestion. Drawing on the findings from the episodes of teacher-students classroom interaction, the initiation-response-follow up (IRF) move could still not only facilitate the discussion between teacher and students, but also shape the interaction as more or less conversation genre. The types of initiating question (i.e. assumed known or negotiable or personal question) have an influence on how the sequences develop. However, the third non-evaluative pattern applies greater leverage in extending student participation. Therefore, it is suggested that the co-constructing of meaning could be achieved by the role teachers choose. In another action research to adopt an inquiry approach to curriculum (Wells & Arauz, 2006), the research team with the Developing Inquiring Communities in Education Project (DICEP) concludes that a simple change in asking questions, in which students might respond with various answers, makes more dialogic interaction. In addition, they argue that true dialogue doesn't need to be limited to certain genres or topics, so typical topics from curriculum could bring opportunities for teachers and students to contribute co-construction of knowledge through dialogue. This understanding of the whole class interaction of Wells parallels with the standpoints of Mercer (2000) and Mercer, Littleton (2007) in that whole class interaction doesn't need to be thought of as a unidirectional and singlehanded process. For example, Mercer (2000) claims that "*children may take an active role in soliciting help or obtaining information and transforming what they are given into their own new understanding. They can also contest what they are given, and gain understanding from engaging in argument*" (p. 134). The DICEP team redefines the triadic interaction at both the macro and micro level with initiation (I) of teachers providing challenges for students, response (R) of students trying to develop further understanding, and follow-up (F) of teachers scaffolding students in the zone of proximal development.

In brief, Wells and his research team shed new light on the role of whole classroom interaction. Through a great body of research, they have opposed to the dichotomous distinction of discourse by the evident structures and the lopsided position in certain genres to sharing meanings and fostering values (e.g. conversation). Instead, they urge us to look the dialogue in the context of activities and to note how dialogue proceeds. Therefore, the triadic dialogue could also function favorably to students' participation with the teacher's "*dialogic stance*" (Wells, 2007, p.269) regardless of the frequency of the dialogic talk. According to him, the dialogic stance refers to the standpoint that knowledge is co-constructed between participants and re-constructed in the process of discussion. As a sociocultural theorist, for him, knowing is more important than knowledge and this knowing involves the whole person,

intellect as well as emotion (Wells, 2001). In this regard, this study is based on his argument that *“the development of children understanding of their world (...) needs to be understood in terms of a co-construction of knowledge through jointly conducted activities that are mediated by artifacts of various kinds, of which dialogue is the most powerful”* (Wells, 2007, p. 245). To be specific, the IRF structure is multifaceted depending on how teachers plan and utilize, so the third move in the sequence has high potentials in learning and development.

2.4.2 Classroom discourse in the activity system

In response to the findings above, Wells and the DICEP team have devised an analytic framework under their understanding of students' learning and development at school (Wells & the DICEP, 2001). According to Wells (1994, 1999), the framework has mainly developed from the works of not only activity theory (e.g. Leont'ev, Engeström), but also systemic linguistics (e.g. Halliday). Leont'ev (1979) regards activity as a system which exists in social relations. This system consists of three units, activity, action and operation respectively. In his theory, actions are components of human activities and operation is more or less automatic behaviors to achieve the goal of actions. Wells (1994, 1999) adopts this conception to educational discourse with the notion of practice of education, classroom events and using semiotic tools in order. An important key of their framework is the role of language as a mediating artifact in activities, which is influenced by Halliday's systemic functional theory of language (Halliday, 1978). He notes that the model of Leont'ev doesn't explain how activity and actions occur in the situational context. Thus, he agrees with the suggestion of Engeström that the activity systems is more appropriate in *“analyzing complex interactions and relationships, a theoretical account of the constitutive elements of the system under investigation is need”* (Engeström & Miettinen, 1999, p. 9). The activity system incorporates rules, community and division of labor with the basic notion of mediation (i.e. subject, object, mediating artifacts) within cultural-historical perspective.

Wells (2007) has elaborated this model into a transactional model of discoursing as seen figure 1 below. In his analysis of the discussions with other scholars, he found that multiple goals and discourse genres are working simultaneously in some discursive interaction such as classroom interaction. Consequently, the activity system additionally includes two subjects and two mediational means (discourse) within a specific situation in the model based on criticism of the absence of reciprocal influences, mutual adjustments and concomitant

transformation of identity experienced in the dialogue (Wells, 2002b). The cultural historical context (rules, community and division of labor) in the activity system is still same in the model, yet there are at least two subjects (participants) who share the same context and they act on the same object to which individuals' actions are aimed at is placed in the middle (i.e. black circle) contrary to the activity system. However, Wells (2002b) makes clear that *“this does not mean that they construe it in exactly the same way.”* (p. 59). He has elaborate the model in light of the perceived nature of discoursing with several changes including (Wells, 2007):

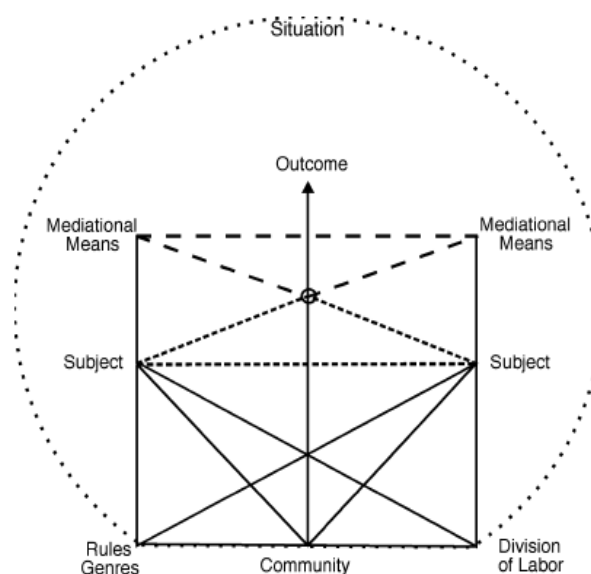


Figure 1. A transactional model of discoursing in an activity system (Wells, 2007, p. 175)

First, the mediational process is emergent and co-constructed in the transaction by more than one subject, so this process is represented by dotted lines in the upper part of the model (figure 1). Second, the lower broken-lined triangle indicate the transaction between two or more subjects. Third, the upper broken-lined triangle represents the level of operation, for more than one subject have their own language resources. Lastly, the model shows that the outcomes, positioned in the situation, are various resulting from the multiple transactional operations within the context. In other words, classroom discourse between teacher and students mediates actions, so it becomes valuable resources in operating educational goals and further outcomes. Elements of the activity system shape the co-constructing meaning among participants who exist in cultural-historical context.

2.4.3 The coding scheme for analyzing teacher-students interaction

On the basis of related theories above, the coding scheme for systematic analysis of classroom interaction has been devised. Wells and the DICEP team aims to enhance educational practice through dialogic discourse, with the vision of “*creating communities characterized by inclusiveness, equity, caring as well as by intellectual achievement*” (Wells & the DICEP, 2001, p.1). In their framework, the scope of analysis is mostly based on spoken discourse, but other modes such as written or social discourse are also included. The discourse is considered as a tool-kit for the activity of teaching and learning (Wells, 1999). In addition, the various functions of discourse are focused and both personal and collective experience from the participation in discourse are taken into account. In using the scheme, Wells and the research team point out that the coding process should give consideration to the context and it is necessary to recognize that all perspectives are not adopted.

Along with the activity theory, the units of analysis involve curricular unit, activity and task in action. The focus of the study, teacher-students interaction, is placed in the unit of operation which is a means of achieving the goals through classroom activities. The following is outlines of sub-units in discourse by Wells & the DICEP (2001):

Episode. An episode is the scope including a number of interactions occurred in conducting tasks or sub-tasks. In the coding framework, the episode is categorized by the types of task and subject. Here, the episode refers to the discourse that mediate activities.

Sequence. A sequence starts by initiating move and includes a nuclear exchange and all bounded exchanges. Figure 2 below shows that a number of sequences constitute the episode.

Exchange. Every exchange involves an initiation move, a response move and the follow-up move. It has two types, a nuclear exchange and bound exchanges. A nuclear exchange are independent, but bound exchanges are literally tied to the nuclear exchange. The most frequent of these are dependent exchanges which extend or modify the nuclear exchange in the form of requests or giving details. A teacher, a same student or a new student can be an initiator in any exchange.

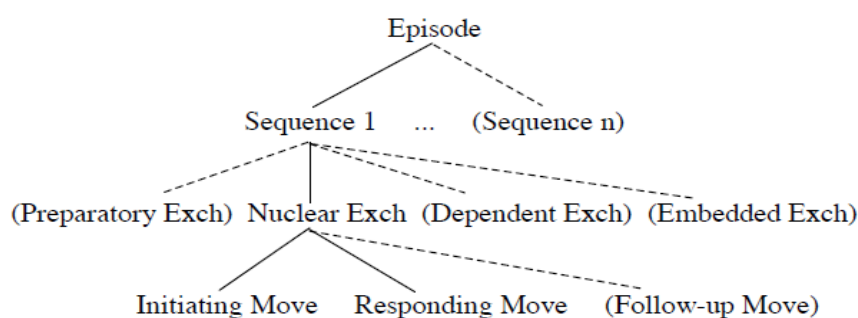


Figure 2. The hierarchical relationship between units of discourse (Wells & the DICEP, 2001)

IRF move. It is the smallest units in the analysis. The initiation, response, and follow up moves are categorized according to their functions. In the coding framework, the follow-up move functions include ‘evaluation’, ‘comment’, ‘action’, ‘clarification’ and ‘metatalk’. Evaluation is defined as an expression about what has been said or acted as ‘accept’, ‘reject’, ‘correction’, ‘reformulate’, ‘counter’ and ‘repeat’. The subcategories of comment are ‘exemplification’, ‘amplification’, ‘connection’ and ‘summarize’. The ‘repetition’ might be used for ‘clarification’. However, the difference between evaluation and clarification is the purpose of the move. In the evaluative follow-up move, the speaker repeats what just been said to accept or reject the second move.

In short, classroom discourse is constituted with the hierarchical units, from episode to move. The lowest units involve three moves functioning initiation, response and follow ups which make up a nuclear exchange. Yet if the follow ups act as another initiation, it is judged either dependent or embedded exchange depending on its nature. Since these exchanges are associated with the ongoing discourse, it doesn’t function as an independent component. Thus, one sequence is consisted of one nuclear and the associated (i.e. bound) exchanges. The unit of episode includes several sequences on the same topic and of the unchanged structure. At the last level of units, either teacher or students might take any role in the moves. However, the follow ups are the diverse replies to the second response, usually by the teacher. In order to respond to my research questions, I have adopted the framework in a simply way. The construction of sequences between a teacher and students, namely triadic dialogue, is focused and analyzed at the level of move on the part of a teacher (i.e. teacher initiation and follow up move). Thus, neither student initiation move nor bound exchanges included in the analysis process. In addition, the follow-up is re-structured in terms of the evaluative and non-

evaluative follow-up with the code E (evaluation) and F (feedback) in sequence. The four level of the framework in figure 2 was used to analyze quantity in how the teacher provides the evaluative or non-evaluative follow up regarding a student's contribution to meaning making.

2.5 Putting all together

In the chapter one, the growing concerns on socio-emotional aspects of education were discussed. The status of children's emotional wellbeing is by no means satisfactory and too often, students with special needs or disability, are mocked or bullied. The research review in Vygotskian side suggests that bring caring pedagogy to school counts as a new alternative to enhance the emotional wellbeing of students. Considering the global issue of inclusion following the United Nations' 'Education for All' agenda, creating caring classroom is just not a means, but would be ends in teaching and learning.

Meanwhile, the literature review in this chapter mirrors that the approaches to caring at school are more or less decontextualized or deficit based. The rampant pressure about achievement has crowded out the attention to caring in practice. For these reasons, it is plausible that this project explores how teacher-students interaction exerts in facilitating students' sense of a caring classroom, for classroom dialogue mostly occupies classroom activities.

Wells' framework is used in the study as a holistic approach to caring classroom. Furthermore, the data collected from teacher-students interaction during class are analyzed by the framework with modification in light of research questions. Wells' new insight to whole class interaction accounts for the potential of co-constructing of meaning to the full development of students.

3 Methodology

In accord with the nature of the research question mentioned above, it was decided to use correlational research, one of nonexperimental research designs. Correlational research design is to describe and measure the degree of association between two or more variables or sets of scores using the correlational statistic (Creswell, 2012). This study aimed to investigate the relationship between teacher-students dialogue and the degree of student's sense of a caring classroom. Accordingly, the research questions of this study dictated both explanatory and prediction studies. In other words, this project adopted causal relationship study and prediction study simultaneously. However, the causal relation doesn't mean that this study seeks to find cause-and-effect relationships among the variable as defined above. Gall, Gall & Borg (2007) state that the prediction study concerns with maximizing the correlation between the predictor variables and the criterion (i.e. the dependent variable). In this regard, this project used multiple regression among multivariate statistics, which provided analysis when there are many independent variables and/or dependent variables to describing how all correlated with one another to varying degrees (Tabachnick & Fidell, 2014).

In the current study, the data of sub-variables were collected from each student in the sample (i.e. IRE, IRF from the dialogue variable and student cohesiveness, teacher support, cooperation and equity from the students' perception variables of a caring classroom). The predictor variables, IRE and IRF, entered into the regression model at one time and the coefficient of multiple correlation (R) was calculated to get estimates of the magnitude of relationships between variables. In addition, the coefficient of determination (R^2) was checked to see the percentage of the variance of the dependent variable that was explained by the predictor variable(s). In order to get a better estimate of the true population value in light of a small sample (Pallant, 2013), the adjusted R square statistic was also reported. Lastly, two statistical significance tests were done to determine the significance of R square and the beta values (i.e. compared contribution of each predictor variables).

In the beginning, this chapter gives rationales for the main methods being aware of several limitations. Then, participants, instrumentation, procedures, and data analysis are discussed. Validity and reliability of the measures are described afterwards. Lastly, ethical issues are

followed due to the characteristics of data collection, the participation of children and the use of video recording during observation.

3.1 The choice of method

Since a correlation study deals with two or more quantitative variables (Fraenkel, Wallen & Hyun, 2012), I have collected numeric data from mainly two methods, questionnaire and observation. These two means can be used in either quantitative or qualitative research, but all data were numbered for statistical procedures due to the purpose and research questions for this study. From the questionnaire, each student's perception of their classroom climate, specifically towards caring, was examined. In addition, teacher-students dialogue were observed through video recording, and data conversion (Teddlie & Tashakkori, 2009) was followed, in which the transcriptions were quantified with the frequency of the IRE or IRF sequences.

According to Gall et al. (2007), questionnaire is a printed form that asks the same questions of all individuals in the sample and for which respondents record their answers in a verbal form. Questionnaire is considered as a good technique to investigating phenomena that are not directly observable. In addition, since a student's attitude towards classroom climate is a high-inference variable (Gall et al., 2007), questionnaire is an economical mean in capturing psychosocial constructs in limited period of the project compared to unstructured methods. Hence, I chose this method to investigate how students perceive their classroom practice. However, a main limitation of the method is that the questionnaire cannot probe into their inner experience in depth. I'll discuss it in discussion and conclusion chapter.

Secondly, systematic observational method was used for the classroom dialogue variable. Recent studies about the analysis of classroom talk recommend mostly mixed methods based on the sociocultural perspective about learning and development (Mercer, 2010; Wells, 1999). These studies regard education as cumulative experience of socially constructed meaning making. Thus, it is crucial to look into the context of learning and teaching. However, under the circumstances of this project's practical issues, it seemed fair to focus on simple teacher-student dyad. In addition, the purpose of my project was to identify whether non-evaluative teacher's follow up in IRF sequence facilitated students' sense of a caring classroom. Thus, it was reasonable for this study to focus on the immediate context of interaction. The IRF

exchange is a classic unit of ‘linguistic’ discourse analysis (Mercer, Littleton & Wegerif, 2009), but this qualitative analysis converted into the relative frequencies of occurrence of the IRF sequence in the study. Since systematic observation usually provides quantitative results for statistical procedures, it fits the characteristics of the intended research design as well. Video recording was chosen for the careful and accurate coding in consideration of dynamic and lively interaction during class. This method enabled coders to replay and rate the observed events several times for thorough coding. Subsequently, ethical concerns arose from using this method involving students.

3.2 Sampling

Given that the variation of the teachers was important in the present study, several teachers were recommended by personal contact through my working experience at school. I emailed them with the project summary. After informed this study, one teacher volunteered for the project. The teacher is working at a government-run innovative school which aims to bolster teacher’s autonomy in a context of dealing with educational issues in Korea. Accordingly, six-grade students aged twelve of the class also made up the sample after I obtained parental consent as well as all students’ agreement. In South Korea, six-grade means a transitional period between elementary and secondary school according to Korean educational system. This age group has a capacity of abstract reasoning and starts to form self-identity through a social relationship. Thus, it was considered that the sample could understand and complete the questionnaire carefully in terms of affective classroom climate in their classroom. The public primary school is located in a large urban city in South Korea and the class size is 28 students, with boys and girls being equally represented. Thus, gender variable was controlled since there are divergent research results over gender differences of perception in the WIHIC. The sample is a mixed group of ability. Among them, two students have special needs, and only one student has a multi-cultural background and others come from homogeneous Korean family.

In other words, the current study used convenience sampling, a form of nonprobability sampling. In this regard, this study has difficulties of making valid inferences about a population from the sample, as all people don’t have equal chance of being subjects. Therefore, it is more desirable to select a sample randomly from a population. However, this sampling method was selected since the project was dependent on the teacher factors as we

mentioned above. In addition, the group of student participants is close to the population in terms of class size, gender and ethnicity (Korean Educational Statistics Service, 2014). Thus, this project sticks to the position of Gall et al. (2007) that we can make inferences about population with data collected from a convenience sample when the sample is carefully conceptualized with being representative as possible. On the other hand, the sample size is less than 30, just below the recommended minimum in correlation study (Gall et al., 2007). Taken account of the average class size and practical limitations, I selected the accessible sample once and for all.

3.3 Instrumentation

The current study examined the association between two measures. The dependent variable in the project was how students perceived their classroom environment in a sense of caring. The modified version of ‘What is Happening In this Class’ (WIHIC; Fraser et al., 1996) measured the student’s attitude at the individual level. I selected the WIHIC among various applicable questionnaires, which encompassed the concept of caring classroom most through literature review. Among the scales of the WIHIC, four scales were chosen with each eight indicators. Thus, the sub-dependent variables became ‘student cohesiveness’, ‘teacher support’, ‘cooperation’ and ‘equity’ in the classroom. The instrument employs five-point Likert scale for response. More detailed rationales are described below.

Another variable, the independent variable, was the classroom dialogue patterns between teacher and students in terms of IRE/IRF exchange structure. The lesson transcripts were coded into teacher initiation, student(s)’ reply and teachers’ follow up as either evaluative feedback or non-evaluative feedback. Other uncategorized classroom talks were excluded. The current study explored how these two IRE and IRF patterns in the classroom dialogue explained the variance in the caring classroom. To address a challenge for getting quantitative data in accordance with the current research design, I tallied the frequency of the two structures with reference to each student’s dialogue with the teacher by means of the coding instrument of Wells & the DICEP (2001). The use of this measure brought several concerns such as the difficulty of coding same utterance with different functions. I minimized the limitations by taking into account of the context and nonverbal communication when coding the data.

This section only describes the instrument for the student's sense of caring classroom. Firstly, an overview is given of considered instruments for assessing the degree of caring classroom from student's perspective. Then, the rationales of choosing the WIHIC are discussed with description of the WIHIC. On the other hand, the measure for the second variable is presented in the data analysis section later.

3.3.1 Overview of classroom environment instruments

Literature reviews (Fraser, 1998, 1999) on psychosocial learning environment research reveal that there are various valid instruments for student and teacher to make judgements about their classroom climate. According to Khoo & Fraser (2008), students have a higher vantage ground on learning environment assessment compared to the external observer. Among instruments of student's perception, I then examined several instruments which involve mostly affective domain in light of scales considered relevant to caring in the literature. These instruments below investigate multiple aspects of student's social relationship to school.

Student Sense of Connectedness with School (SSCS). In a context of small school initiatives in United States and efforts to create learning communities, Brew, Beatty & Watt (2004) initially developed SSCS to measure student's sense of connectedness with school based on relevant measure such as student sense of belonging, engagement, expected learning and trust. They published it in 2005 with five scales with twenty items: Teacher support, trust in school leaders, sense of belonging, confidence in school and academic engagement. The sense of belonging constructs covers related peer factors as well as sense of fairness and respect. Typical terms are 'my teachers listen to me when I have a problem' (teacher support), 'I feel safe at school' (sense of belonging) and 'I do my best to contribute to group project' (academic engagement). The unit of analysis is school, and it is originally designed for secondary school. Four-point Likert scale is used for response (i.e. strongly agree, agree, disagree and strongly disagree). Subgroup difference between those being most at risk and those being least at risk supported construct validity (Brew & Beatty, 2010).

Psychological Sense of School Membership (PSSM). The PSSM is a short instrument designed to measure student's sense of belonging by Goodenow (1993b). He developed the measure to examine the social relations between student and school personnel including teachers in terms of acceptance, inclusion, respect and engagement. The psychometric properties of the instrument were confirmed in the cross-national as well as longitudinal

studies (Goodeneow, 1993b). The final version has 18 items including one third of negative items. Typical items are ‘the teachers here respect me’ (between student and teacher) and ‘people at this school are friendly to me’ (between student and school). The response alternatives range from 1 (not at all true) to 5 (completely true). From the scores of student’s psychological membership to school, The PSSM intends to identify both social /contextual influences in education and secondary students at risk.

My Class Inventory. The MCI measures elementary classroom’s climate with the items simplified from the Learning Environment Inventory (LEI; Fraser, 1998) The MCI has a better readability for young children and students with limited reading skills. The measure assesses the extent to which not only students are cohesive and cooperative, but also students are active participants in learning. The modified MCI (Goh, Young & Fraser, 1995) has 20 items with four dimensions (i.e. cohesion, competition, friction and task orientation). Each five items correspond to the subscales. The response format was expanded to three options (seldom, sometimes and most of time) from the simple Yes-No response. Sample items are ‘some pupils fight in my class’ (friction) and ‘all the pupils are good friends’ (cohesion).

What Is Happening In this Class? In accordance with the contemporary issue (i.e. equity and constructivism) in education, Fraser et al. (1996) developed the WIHIC questionnaire through the synthesis of existing valid instruments. The WIHIC is distinctive in that

- Several dimensions of the personal form (e.g. Student cohesiveness, cooperation and involvement) assess the extent to which students perceive themselves as an active participant in the construction of knowledge. (Fraser et al., 1996)
- The WIHIC can be used for both various grade levels and each stakeholder at school including parents with actual and preferred forms.

The modified final version contains seven scales with eight items per scale: Student cohesiveness, teacher support, involvement, task orientation, investigation, cooperation and equity. It employs a five-point response format (i.e. almost never, seldom, sometimes, often, and almost always). Either all dimension or selected one can be assessed with reference to the fitness of interest of the user. Sample items are ‘the teacher helps me when I have trouble with the work’ (teacher support) and ‘I receive the same encouragement from the teacher as other students do’ (equity).

3.3.2 Rationales of selecting the WIHIC

In the current study, student's perspective from their own experience in the classroom was salient, as this project focused on whether the IRE/F based extant classroom dialogue had a relationship with student's sense of classroom climate. In response to this focus, the instrument which has a personal form was selected among those instruments above (e.g. the teacher talks with me). The personal form investigates a student's perception of the classroom not as a whole but as an individual role (Fraser et al., 1996). Consequently, school climate instruments additionally considered such as School Connectedness Scales (Parker, Lee & Lohmeier, 2008) were naturally excluded, for these measures focus on two or more ecological system of Bronfenbrenner (Kohl, Recchia & Steffgen, 2013).

Furthermore, the dimensions of WIHIC were reexamined for suitability in light of effective inclusive education framework. The premise underlying is that caring classroom is compatible with the aspects of the inclusive classroom. Setting the organizational structure and exercising classroom practice to enhance all learner's participation and interdependence are important elements of inclusive school (Dyson, Howes & Roberts, 2004; McLeskey, Waldron, Spooner & Algozzine, 2014). The assessment of cooperation and equity dimension in the WIHIC supports the importance of restructuring the classroom for inclusion. In reviews of research for promoting successful inclusion in the classroom, cooperative learning and peer support strategies are considered as most evidence-based models (Frederickson & Cline, 2015). Thus, at the classroom level, the WIHIC is an expansive tool covering dimensions of the Index for Inclusion (Booth & Ainscow, 2011), apart from the dimension of inclusive policies.

As a last criteria, the psychometric properties of the WIHIC were reviewed. The established validity and reliability in previous research with large samples justified the use of the instrument for the current study. First, the instrument is widely used in a number of countries. It has been cross-culturally validated not only in western countries (Dorman, 2003), but also in Asia (Aldridge & Fraser, 2000; Fraser, Aldridge & Adolphe, 2010). In addition, Kim, Fisher & Fraser (2000) have studied in Korea to support the validation of the Korean versions of the WIHIC. The research team has proceeded the translation and back translation, and administered the version to 543 secondary student's attitudes to their science class. The result provides the adequate cross-cultural validity. Since this research used the original version with 10 items per each scale, I selected the modified Korean version of the WIHIC validated and revised for primary students form the study by Song (2013). This Korean version was

used for science class, so I changed the term ‘science class’ to ‘class’ in the questionnaire same as the English version. Table 1 below presents a description of selected scales in the WIHIC (details in appendix 1).

Table 1. Description and sample item of selected WIHIC dimension

Dimension	Description of the dimension	Sample item
Student Cohesiveness	The extent to which students know each other and have positive relationship with one another	Other students in this class are my friends.
Teacher Support	The extent to which the teacher provides personal interest and support.	The teacher cares about my feelings.
Cooperation	The extent to which students cooperate with each other during class.	I work with other students on assignments in this class.
Equity	The extent to which the teacher treats students equally in terms of help, encouragement and opportunity in discussion	I’m treated the same as other students in this class.

Secondly, research shows that the instrument can reliably measure student’s perceptions of their learning environment. According to Gall et al. (2007), reliability can be measured alternatively by Cronbach Alpha as internal consistency. This measure provides a coefficient of inter-item correlations. Fraser et al. (1996) report the Cronbach Alpha, ranged from .77 to .89 with personal form. Also, the Alpha in Dorman’s study (Dorman, 2003) is reported from .76 to .85 with personal actual form. On the whole, the internal consistency of all scales in the WIHIC is above .70.

Lastly in addition to cross-cultural validity mentioned above, factorial validity (Allen & Fraser, 2007; Fraser et al., 2010, Dorman, 2003, 2008) is strongly supported in previous research. Dorman (2003) demonstrates the international applicability of the measure in the current classroom irrespective of grade level, gender and country. Therefore, various research

above provide both internal validity and external validity of the WIHIC, so it gives sound rationales of using this instrument for the project.

To summarize, little found specifically designed to measure caring classroom at primary school (Bulach, Brown & Potter, 1996; Ng, Su, Chan, Leung, Cheung & Tsun, 2012), so I reviewed related classroom climate instruments found to serve the purpose of the study. Among them, the WIHIC was selected alternatively with sound psychometric characteristics and conceptual relevance. In light of the project's interest, only four of seven scales of the WIHIC were finally included in the questionnaire layout. Involvement, investigation and task orientation dimension of the questionnaire were excluded since it mainly measures student's role within the classroom in the cognitive perspective.

3.4 Procedures

3.4.1 Preliminary procedures before data collection

I planned that the questionnaire was administered by the teacher during school routine. Hence, I had several conversations through email about the procedures and cautions of administering the questionnaire. After I traveled to Korea, I had a preliminary meeting at the school not only to examine the physical conditions like classroom size and time schedule, but also to get the background information about the students and planned lessons. Since the project needed data at the individual level, it was important to know about physical setting in advance (i.e. seat arrangement). Moreover, the teacher and I discussed about the position of the camera regarding the issues of sound, light and the possibility of capturing all of participant. I gave a consideration to the quality of recorded sound due to rather big classroom size and vulnerable location to noise. The classroom had a lot of windows and the planned time for observation overlapped the time for lower grade students to go home from school. Thus, audio recording was added with the permission of the teacher. Lastly, I decided to observe social class since the teacher considered that the class had more frequent teacher-students interaction compared to other subjects. Consequently, the observation was planned once a week and the lesson time was eighty minutes consecutively.

3.4.2 Administering the WIHIC and observation process

For the first data, I sent the questionnaire for student to the teacher by mail before observation. Parent consent form was accompanied as well. Before administering the WIHIC, the teacher explained how the questionnaire result would be used, with the ensuring confidentiality of the response except for the study. The direction on the paper was re-explained, and the teacher assisted students in completing the form. Students circled one of five response option according to their own experience which how often each statement occurred within the classroom. An illustration of the questionnaire is presented in Table 2 below. All students completed the questionnaires. Then, the teacher put them in an envelope without taking a look and returned it to me at the preliminary meeting.

Table 2. An illustration of the WIHIC question form

Student Cohesiveness	Almost never	Seldom	Sometimes	Often	Almost always
3. I am friendly to students in this class.	1	2	3	4	5

As planned, the classroom dialogues were observed from 21st September 2015 to 22nd October 2015. I told the teacher to demonstrate his typical daily practice. I observed the class behind of the classroom with a video camera. The camera was equipped with stereo microphone for the good quality of sound. In addition, an audio recorder was placed at the front of the classroom near the blackboard. Whenever a dialogue started, I turned on the camera. However, student-student interaction wasn't recorded since this project only looked for the IRE/F sequence in teacher-students dialogues. After first observation, I discussed with the teacher about how the observation went. Then, two more subjects, math and reading discussion, were added on to the observation schedule based on the need for more data in light of approximate results from the first observation as well as the expected absence of the class due to extracurricular activities. It was expected that the half-term break started at the end of October. The observation schedule differed every week according to the school and class activity plan (e.g. students went to a library for the project activity), and the lesson time ranged from about 40 minutes to 80 minutes. Whenever I visited the school, I went there earlier than the schedule or stayed more after observation in order that students got familiar

with the observer and video recording. I avoided moving during class, but moved as silent as possible when necessary.

During the observation period, ten lessons were recorded. I transcribed all the lessons from the video recording for analysis. In order to address the methodological challenges of video data (Roschelle, 2000), I didn't rush to put a code for analysis. In the initial transcripts, I included notes from the observation in terms of context. The final transcripts were completed through many revisions with repeated replies of the files. Afterwards, I classified all classroom talk into the IRE/F structure. Irrelevant lines were left off after the coding process. The audio recording complemented the sound issue when students sitting relatively far from the camera talked in a low voice. Small notes about seats arrangement were written so that I could identify whom were interacting with the teacher. In light of the research question of the study, I didn't include all detailed nonverbal communication in the transcripts. However, several types of nonverbal communication (e.g. silence, voice tone and facial expression) were recognized to catch the context of the dialogue. The Korean transcripts translated into English afterward.

3.5 Validity

In quantitative studies, validity involves being faithful to the assumptions common to the statistics used, the validity of the measure used, the careful sampling and the avoidance of internal and external validity threats (Cohen, Manion & Morrison , 2011). In this regards, normality as well as possible outliers were checked for correlation analysis. Then, other assumptions of multiple regression such as sample size and multicollinearity were reviewed whether they were violated. The preliminary analysis of the data and other related statistical processes nearly supported these assumptions. However, the sample size of the study is slightly below 30 with one teacher and 28 students, which doesn't meet the exact criteria in multiple regression analysis (i. e, about 15 participants per predictor in order to have a reliable equation; Pallant, 2013).

Meanwhile, I reviewed whether the scale has demonstrated sound validity in terms of measurement validity, internal validity and external validity. The various studies mentioned in the section of rationales of choosing the measure mostly conducted factor analysis to confirm the discriminate validity of the WIHIC, which supported construct validity. Internal reliability

of the scale in previous studies was checked as well in light of the relationship between validity and reliability. Bryman (2012) states that these two psychometric properties are related because validity presumes reliability. Thus, reliability as stability, equivalence and internal consistency intertwines the validity of the measure (Cohen et al., 2011). In addition, cross-cultural validity was considered in respect of external validity. External validity concerns the generalizability of the study beyond the research context. Hence, I reviewed whether the measure was validated in Asia and my home country. Likewise, representative sample would be desirable in the way that the findings can be generalized to the target population. Under the circumstances, the study selected convenience sample with being representative as possible. Nevertheless, the non-random sample and small sample size weakened the external validity of the study.

As to internal validity issue, several validity threats were considered with respect to research design. In a correlational research, internal validity refers to be attentive to alternative explanations for relationships found in the data (Fraenkel et al., 2012). Possible threats are known as subject characteristics, location, instrumentation (instrument decay, data collector characteristics and data collector bias), testing and mortality. The current study is a cross-sectional study of one classroom by a single data collector, so data collector bias and mortality are the most potential pitfalls. However, no missing participants and data in the project minimized the internal validity threat. In addition, using the established coding scheme as seen in chapter 3.7 enabled to check the data systematically with being maintained the focus. This framework led to better accurate data and analysis while minimizing the data collector bias.

In addition, the use of questionnaire to gather students' perception of their classroom climate, especially psychosocial aspect, is likely to undermine ecological validity since the findings are derived from unnatural context. Using other methods such as interview with students would explain full situation better. Meanwhile, structured observation of classroom interaction in the study is likely to bring validity threat in terms of reactive effect due to the participant's awareness of being observed with the knowledge of the study (Bryman, 2012). However, I tried to reduce this threat through frequent visits to the classroom so that the students got accustomed to the observer. The teacher was also told to demonstrate their typical daily practice and I had conversations about the progress during data collection as many as possible.

3.6 Reliability

According to Cohen et al. (2011), for research to be reliable, it would demonstrate similar results over time, over instruments and over groups of respondents. Thus, among several approaches of checking reliability, I chose internal consistency method to estimate measurement score reliability since the attitude scale was administered once to gather data for the dependent variable in the study. Accordingly, Cronbach’s Alpha coefficient and item-total correlation were computed to check reliability of the WIHIC scale.

Table 3. Internal consistency reliability (Cronbach’s Alpha coefficient) and the variation in the item-total statistics

Scale	Alpha (student)	Variation in Item-Total Correlation
Student Cohesiveness	.853	.530 ~.670
Teacher Support	.869	.310~.746
Cooperation	.828	.261~.750
Equity	.855	.137 ~ .713

*SC: Student Cohesiveness, TS: Teacher Support, C: Cooperation, E: Equity, The number following is the order of the item in each dimension.

Table 3 above shows that all selected scales display reliability above .8. Reliability coefficients ranged from .828 (cooperation) and .869 (teacher support), comparable to those coefficients mentioned in the chapter three before. The item-total correlations were examined to identify which items students responded unreliably, and then two items were recognized (C5 ‘I learn from other students’ and E4 ‘I am treated the same as other students in this class’). They are rather abstract compared to other items indicating specific behaviors. Although I also considered the Alpha if item deleted values whether they led to higher Alpha than the final Alpha, I didn’t remove those items since the WIHIC was an established, validated scale so that I could compare the results with other studies. Generally, the internal consistency reliability for the scale used was good, compared to the criteria (i.e. the alpha above .7; De Vaus, 2014).

Given that structured observation for classroom talk data was used in the study, on the other hand, inter-rater reliability could be applied for ensuring the accuracy of coding results. Even though I thoroughly coded the observed classroom interaction following by the selected coding scheme below without personal bias, it was likely to have errors when I categorized the classroom interaction pattern. The reliability threat in this respect would have minimized if the results agreement between another person and I was computed and compared. Under the circumstances of this study (i.e. data collection in my home country and practical limits of training another person), inter-rater reliability wasn't checked, so this might be one of limitations of the current study. However, systematic observation selected in the current study enabled the study to have more reliable and accurate data of classroom interaction by means of video recording.

3.7 Data analysis

In this project, quantitative analysis of data falls into two part: Coding of classroom interaction and statistical analysis. As discussed in the chapter two, Wells' approach to the three pattern exchange dictated the coding and preparation for statistical analysis. The first subsection describes how the classroom interactions were analyzed. I introduced several concepts again for better understanding of the process. The statistical techniques were employed to investigate the association among variables after gaining each numerical data from the variables. The second subsection explains Pearson's correlation and multiple regression.

3.7.1 Coding of teacher-students interaction

The utterance of each participant were analyzed into three turn sequence, either IRE or IRF. The criteria of coding third turn was whether the teacher talk intended to evaluate the second turn of the student. Even though the current study adopted this dichotomous distinction of third position, the assumption of the three-pattern sequence differed in light of a reevaluation of the traditional third move by Wells (1993). Wells disputes the criticism of the evaluative role of the typical classroom interaction pattern, known as IRE (Initiation-Response-Evaluation; Mehan, 1979) or IRF (Initiation-Response-Feedback; Sinclair & Coulthard, 1975). He contends that the same IRF exchange pattern has a room for a variety of functions and roles (Nassaji & Wells, 2000). The definitions of each function of the follow ups mainly

follow the description of Wells & the DICEP (2001) and are summarized below. Yet in response to the research question, I focused on only the occurrence of ‘structure’ of each utterance, not ‘exchange’ or ‘function’. In addition, all participants were coded as reference number (i.e. S1, S2, etc.)

Initiation-Response-Evaluation. In this exchange structure, the teacher gives his or her opinion to express his agreement or disagreement about what the student said before. When the teacher accepted, rejected, corrected or reformulated what was said before, I coded this teacher talk as E. The evaluation included not only the teacher’s praise (e.g. ‘Good’, ‘Creative’, etc.), but also the teacher’s incorporation of the response usually with the form of justification (e.g. ‘What he said is really important because...’). Take an illustration of the IRE pattern from the transcripts in Table 4. In line three, the teacher approved the student’s answer with reformulated repetition. The teacher’s followed behavior confirmed his acceptance of the student response again. Thus, the lines were coded as IRE sequentially.

Table 4. An example of the IRE pattern

Teacher-students interaction	Structure (T/S)
1 T Alex!	I (T)
2 S17 Location?	R (S)
3 T Yes, in number three, location (Teacher writes)	E (T)

In the moves only involving non-verbal gestures, it was also coded as E if the move evaluated the student response. In line six in the table 5 below, the teacher accepted the second move with nodding. Even though the teacher didn’t say ‘yes’, the gesture indicated that the teacher approved what the student said. Thus, all the non-verbal gestures and expression in the third move were categorized into the binary code, E or F depending on its function.

Table 5. An example of coding non-verbal expression

Teacher-students interaction	Structure (T/S)
4 T Jenny!	I (T)
5 S21 I’m opposed to Brian’s opinion. He said in the end that we have to live because we’re born in our country. But it’s not different with	R (S)

a situation that a person was born in the mountains in rural district and move to Seoul when he grows up, umm, what was it? It's not different with that.

6 T (Nodding)

E (T)

Initiation-Response-Feedback. In short, feedback included other types of follow-up but evaluation. The feedback move (F) was coded when the teacher's talk functioned as comment, clarification, justification/explanation, action and metatalk. Since I coded all functions just mentioned before as F, I don't give specific definition of each function here. However, in general, F was coded when the teacher worked with the student's response in a variety of ways (Nassaji & Wells, 2000). The frequent feedbacks in the transcripts were: Comment (e.g. the teacher develops the student's response by summarizing or giving examples of what has been said) and clarification (e.g. the teacher requests the student to confirm or deny teacher's understanding about the student's response).

Table 6. An example of the IRF pattern

Teacher-students interaction	Structure (T/S)
7 T Tony!	I (T)
8 S8 I'm against government designation...	R (S)
9 T You're against government designation... and why? Tell us the reasons.	I (T)
10 S9 Government designation means that we have only one book. On the other hand, if publishing companies make textbooks, we have many books, so the contents unwritten in the designated textbook...	R (S)
11 T Ah, if publishing companies make several books, then it can supplement the contents which are unwritten in the government-designated textbook because there're contents that publishing companies only describe in the book. So you don't agree with the plan.	F (T)

Table 6 above shows an example of the IRF sequence from the transcripts. In this excerpt, the teacher commented on what the student said before through amplification. In line 9, the teacher requested the respondent to clarify what he intended to refer to, so it's a form of F. However,

it was coded with I (T) as a bounding exchange. This study adopted Wells' definition of sequence, which means a 'nuclear' exchange and many 'bound' exchanges associated with the nuclear exchange. For this reason, while the teacher's follow up had the form of clarification, it was considered as one bound exchange in the sequence. Furthermore, the teacher used 'Uh-huh' or 'Oh!' often when a student replied with long sentences. In light of the context and the student's next move, it functioned in the way of showing the teacher's understanding and encouraging to continue the utterance. Thus, it was coded as F.

Meanwhile, the third move often contained more than one follow up. For example, the teacher summarized the student response, then evaluated the second move's contribution (e.g. 'It's an important opinion'). When calculating the frequencies of the teacher's follow up for each student, I included both forms in each tally, since the two structures joined in the student's experience. In the transcripts, this double form of the third move either elicited another response from the speaker or other students, or led to end the dialogue. In other words, the extent to which the third move played a role in the dialogue differed from individual to individual. Thus, it seemed reasonable not to ignore any of them. However, several exchanges were excluded for some reasons. For example, when several students took part in the reply together after the teacher's initiation, I left the dialogues out in the analysis. The focal unit of analysis in the current study was sequences at the student level, not classroom level. Therefore, neither such exchange structures nor the follow ups after choral response of most students were naturally omitted in the statistical analysis.

3.7.2 Preliminary analyses and multivariate statistics

This study used IBM SPSS Statistics (Version 22) to undertake data analysis in order to address the research question. The data set derived from data collection had 28 cases in rows and 35 variables in columns, one for the respondent ID, two for the frequencies of the IRE and IRF and others for the values of each question from the questionnaire. As noticed above, 32 questionnaire questions were divided into four sub-categories: Student cohesiveness, teacher support, cooperation and equity. Thus, I gave each question an abbreviated name (e.g. 'SC1' for the first question in the dimension of student cohesiveness). To sum up, each sum of the four scales comprised the dependent variables and the IRE/F values were the independent variables in this project.

Given the number and nature of variables above, multivariate statistical methods are required (Tabachnick & Fidell, 2014). Accordingly, as a preliminary analysis, I tested the assumptions of using parametric techniques in terms of 'normal distribution' (Connolly, 2007). The descriptive statistics, hence, included mean, standard deviation and range of scores with cumulative percentage. The reliability and validity of the measure used were also checked for further statistical analysis. Pallant (2013) asserts that checking the reliability of a scale is critical in the studies when the selected measure explores personality characteristics, attitudes, beliefs, etc. With all the assumptions met, I analyzed the data set with simple bivariate correlation (i.e. Pearson correlation between IRE and SC sum, between IRF and SC sum and between IRE and TS sum, etc.). According to De Vaus (2014), the correlation coefficient describes the strength and direction of the relationships among variables. Thus, the analysis revealed the nature of the relationships. In the meantime, the significance test result examined whether the sampling error was within the appropriate level.

Furthermore, the multiple regression analysis explored how much impact each IRE and IRF variables had on the dependent variables: SC sum, TS sum, C sum, E sum. In other words, it explored the interrelationship among a set of variables (Pallant, 2013). The standard multiple regression was used as a simple strategy. In the model, each independent variable, IRE and IRF, was assessed respectively in terms of the extent of how much it explained the variance in the dependent variable (Tabachnick & Fidell, 2014). After checking the assumptions including multicollinearity (i.e. the correlation between independent variables was .693, below the criteria of .7), the predictive power of each independent in the regression model was evaluated.

3.8 Ethical issues and the NSD permission

During all the phases in conducting the research, ethical issues have occurred mainly due to the children involved participants and the research methods of using the questionnaire and video recording. Thus, this project follows the standards from both De Nasjonale Forskningsetiske Komiteer in Norway (2006) and the American Psychological Association (APA; 2010). Related specific procedures are summarized and described below. First, this project took care to secure no harm for the current participants, the teacher and the students. For that, the reasonable steps were taken. In Norway, Personal Data Act covers the research projects accompanying the process of personal data. In Jun 2015, thus, I submitted a

notification form to the Norwegian Social Science Data Service (NSD). It included the information: the sample, the methods for data collection, the plan to inform about the project to the sample and the methods to safeguard attained information security, etc. The license of the project was granted in July with several comments regarding the letter of information and consent form (Appendix 2). Accordingly, I sent a revised letter of information to the NSD. In the receipt, the NSD described several process to make the data anonymous. It contained deleting all direct personal data, deleting digital audio and video files until the estimated end date of the project, etc. The reference number of the project is 43795.

Similarly, for the participant's rights and dignity, the participants were informed that the participation is voluntary and can be withdrawn by free will. In addition, since children actively participated in the study, their needs and interest were considered before, during and after research process (e.g. the questionnaire was selected considering the students' age). The data collection started after I got the consent form from not only the teacher (Appendix 3), but also the parents (Appendix 4). Students were also asked to express their independent decision to the participation based on the knowledge about the project. For the rights to privacy and confidentiality, all personal data was stored separately and anonymized. In addition, the data from digital recordings and paper was stored in a private computer with only authorized access. Given the use of the attitude scale and digital recording, I explained that the data would be used only for the study. The questionnaire asked the students to identify themselves since the analysis was planned at the individual level. Thus, it was not fully anonymous, but students were informed about the limited access and using reference numbers instead of their names. Finally, guided by fidelity and responsibility principles of the APA, I attempted to build trust with the teacher and the students during data collection. I also discussed with the teacher about the project progress before or after observation for cooperation. By the same token, I tried to disrupt the class less from the presence of the observer and recording devices. This study also followed the integrity standards of the research community based on the knowledge from the published standards above including the guidance of University of Oslo. These standards include plagiarism, reference practice, reporting the research results honestly, etc.

4 Research Results

This chapter presents the results of data analysis with three sections. In the first section, the outcomes of the preliminary analysis on the independent and dependent variables are displayed to check if the data supports the assumption of the following statistics for which to address the research question: Does the IRE/F pattern classroom interaction have a relationship with student's perception of their classroom climate in terms of caring? Then, the correlational analysis between the triadic dialogue and student's sense of a caring classroom is shown. The last section explains how much each explanatory variable, IRE and IRF, affects the student's assessment of their classroom climate around caring with four aspects: Student cohesiveness, teacher support, cooperation and equity.

4.1 Descriptive statistics for variables used

This section falls into two parts. The observed dialogue patterns are analyzed in a descriptive way involving the frequency, mean, standard deviation and minimum as well as maximum scales. Likewise, the next section displays the outcomes of the questionnaire for assessing classroom climate in respect of caring with four subscales of the WIHIC. The prerequisites for further inferential analysis are explained as well. The results are below.

4.1.1 Frequency of the IRE and IRF sequence

Followed by the coding procedures as already explained before, as a result, the length of observed dialogue lasted 382 minutes. It was showed that the teacher adopted the IRF sequences more often than the IRE sequences during the class. The total was 960 sequences, but the final consequences were 856 with 259 IRE and 597 IRF sequences. Since most students participated together in a response of the teacher's initiation, the 50 IRE and 54 IRF patterns found to be irrelevant. The difference between the IRE and IRF sequence occurrence is seen in the table 7 below.

Table 7. The frequency of the observed IRE and IRF classroom interaction pattern

Variable	%	N
IRE	30.26	259
IRF	69.74	597
Total	100	856

In addition, table 8 below shows the descriptive statistic with respect to the classroom dialogue variables. Table 8 presents that the students' experiences of the IRF structure are more varied individually than of the IRE structure with a mean of 21.32 and a standard deviation of 13.625 (compared to a mean of 9.25 and a SD of 4.719 in IRE). In addition, there are significant different experiences among students when it comes to either the dialogic or monologic interaction between teacher and students. The minimum frequency is 1 and the maximum frequency is 51 in IRF sequences. Although relatively narrow, the range of IRE is still broad from 2 and 20.

Table 8. The variability of the classroom interaction pattern

Variable	N	Mean	SD	Minimum scale	Maximum scale
IRE	28	9.25	4.719	2	20
IRF	28	21.32	13.625	1	51

4.1.2 Students' perception of their classroom

The outcomes of each scores on the four subscales in the WIHIC are displayed in this section. As already seen above, the student's sense of caring classroom was measured at the student level with four subscales: Student cohesiveness, teacher support, cooperation and equity. Each subscale contains the eight items equally, and students answered on the questionnaire within a range from almost never=1; seldom=2; sometimes=3; often=4; and almost always=5. For all dimensions, the minimum score is 18 in equity dimension (8 is the lowest possible score) and

the maximum score is 40 in both cooperation and equity dimensions (40 is the highest possible score). The ranges of the recorded all scores are more or less overlapped.

Table 9 below shows that the participants assessed their classroom climate positively in terms of the four aspects with the least variance of the means (31.57 in SC, 31.29 in TS, 31.32 in C, 32.43 in E). This indicated that students perceived each aspect of their classroom climate to a similar extent. Among the four scales, the positive assessment on equity has a slight highest mean, and the student cohesiveness had the second highest mean. In contrast, the rating on teacher support scale records the lowest. Interestingly, this subscale had a larger mean variance. In other words, each student experienced teacher support in varying degrees compared to student cohesiveness, cooperation and equity in the classroom. On the other hand, the subscales reported the higher means, equity and student cohesiveness, had relatively smaller variances than the other subscales. The means of student cohesiveness and the cooperation scales rank second and third respectively. Given that the relationship between the standard deviation and the normal curve (Gall et al., 2007), the distribution of the scores of each scale is normal, clustered closely around the mean (with a SD of 4.725, 5.234, 4.869, 4.795 respectively). Thus, it doesn't violate the assumption for further inferential statistics later.

Table 9. The variability of student's assessment of their classroom climate with four subscales of the WIHIC

Scale Sum	N	Mean	SD	Minimum scale	Maximum scale
Student Cohesiveness	28	31.57	4.725	20	39
Teacher Support	28	31.29	5.234	19	39
Cooperation	28	31.32	4.869	20	40
Equity	28	32.43	4.795	18	40
Total	28	126.61	16.017	83	155

*no missing data

4.2 The relationship between classroom dialogue and student’s perception of caring classroom

The outcomes of correlation analysis between two types of classroom dialogue and the four subscales of the WIHIC are presented in table 10 below. Pearson’s correlation (r) among variables revealed that statistically significant correlation was found between the IRF and student’s perception of their classroom in terms of equity. The relationship is positive, which means that the more IRF sequences take places during classroom interaction, the more students perceive their classroom positively in terms of equity. The correlation size, $r = .44$, suggesting a medium relationship of the two variables according to Pallant (2013, p. 139, citing Cohen). However, the correlations among those variables are not significant.

Table 10 shows the opposite correlation between the IRE/F values on student cohesiveness and teacher support with negative and positive value respectively. In the subscales of cooperation and equity, however, the positive association existed with both the IRE and the IRF. Within a Moo’s scheme of human environment (Moo, 1973), there is an opposite influence of teachers’ follow up, when either evaluative or non-evaluative, on the relationship dimension of environment (student cohesiveness and teacher support in WIHIC). On the other hand, the correlation scores indicate that teachers’ positive or negative follow up doesn’t exert a contrasting effect on the personal development (cooperation in WIHIC) as well as system maintenance and change dimensions (equity in WIHIC). In short, it is likely that the IRE and the IRF make much difference to the relational aspect of human environment in opposite ways.

Table 10. Correlation between classroom dialogue and student’s perception of their classroom climate

	Student Cohesiveness	Teacher Support	Cooperation	Equity	Total
IRE	-.14	-.25	.15	.17	-.03
IRF	.20	.25	.24	.44*	.35

* $p < .05$

4.3 The effect of classroom dialogue on caring classroom

The results of standard multiple regression are presented below in order to address the third research question. In the each model, the classroom interaction pattern variable, which includes the IRE and the IRF, is included and evaluated in terms of predictive power on the student’s perception of their classroom climate in light of caring. The four subscales of the WIHIC come under the aspect of the caring classroom as presented below. In addition, several excerpts from the lesson transcripts are adduced as examples of supporting the model in each sub-section.

4.3.1 The IRE and IRF pattern dialogue and student cohesiveness in the classroom

As a result of the analysis of predictive relationship between the classroom dialogue and student cohesiveness in the classroom variables, the IRE classroom dialogue pattern negatively affected students’ perception of their classroom climate in terms of student cohesiveness. On the contrary, the IRF exchange between teacher and students positively influenced the criterion behavior with similar influence ($\beta = -.540$, $\beta = .575$). However, the regression analysis in table 11 demonstrates that the IRE and IRF patterned dialogue don’t make a significant contribution to the prediction of student cohesiveness in the classroom. ($p > .05$)

Table 11. Multiple regression explaining the effect on student cohesiveness in the classroom from students’ perspective

Multiple regression – Dependent variable ‘Student Cohesiveness’	
Independent variables	Beta
IRE	-.540
IRF	.575
$R^2=.192$, Adjusted $R^2=.127$, $F(2, 25)=2.970$	

$p=.070$

In the class, students occasionally experienced that other students helped him with work. In the excerpt 1 below, when a student was making a story with several pictures on the math textbook, the word he wanted to use in his answer was on the tip of his tongue (line 19). Other students (line 20, 21, and 23) gave adequate words they could think of so that the student continue his answer. During the interaction, the teacher just expressed his understanding with the feedback of 'Uh-huh' (line 14, 16, 18, 25). Accordingly, as far as I'm concerned, the feedbacks seem to open the room for other students to participate in the dialogue. With not being evaluative, other students might feel free to get into the ongoing conversation. The experience of being helped by other classmates would enhance the student cohesiveness in some way in the classroom to a certain extent.

Excerpt 1.

12 T: Nick!

13 S5: These children found a note.

14 T: Uh-huh.

15 S5: The note told them to find the building blocks, so

16 T: Uh-huh.

17 S5: They were looking for the building blocks.

18 T: Uh-huh.

19 S5: In front of the tomb, the, the, the, the, what do we call it?

20 S6: The royal tomb.

21 S18: Entrance

22 S5: The entrance.

23 S10: Stairs. Stairs.

24 S5: The entrance. The entrance is.

25 T: Uh-huh.

26 S5: They found out that the entrance was the building blocks. And

(Continued)

However, in the excerpt 2 of the IRE dialogue pattern, it can be seen that the student might have experienced negative feelings during the dialogue. The teacher waited up for the student to finish his answer and only evaluated his effort once (line 34). In the meantime and afterwards, the student didn't get any adequate feedback from both his classmates and the teacher. In line 29, another student seemed to help the student to finish his utterance, yet his intention was to dispute the opposite argument in his turn as soon as possible (Line 31). Hence, the student didn't experience of being helped when he had troubled with his work.

Excerpt 2.

27 T: Robert!

28 S3: I think that the fact we don't enter the army... (Long silence)

29 S13: is okay

30 S3: I think it is okay (Talks slowly)

31 S13: You're a despicable man. (* This student didn't agree that it's okay not to enter the army when people live in another country.)

32 SS: (Laughter)

33 S3: (Talk very slowly while reading his note) They already went to another country and had a good life. But, if they go to army just because they consider their friends or other people, I think it's the same as we don't give up Korea.

34 T: It's so difficult for him to read. But Robert made an effort to participate from start to finish.

4.3.2 The IRE and IRF pattern dialogue and teacher support in the classroom

For the students' perception about teacher support in the classroom, results in the table 12 indicate that both IRE and IRF patterned dialogue are significant predictors ($p < .01$). The two types of classroom dialogue made the similar contribution to explaining how students assessed teacher support within their classroom. The model, which includes the IRE/F patterned dialogues, explains 40.4 per cent of the variance in the teacher support in the

classroom ($R^2=.404$). Given the small size of the sample, Adjusted $R^2(=.356)$ can be a better estimates of the value in the population (Pallant, 2013). Therefore, the model explains that the more students experience dialogic talks with the teacher during class, the more students assess positively the teacher’s interest and support about them. To put another way, it is likely that students perceive negatively their teacher’s support when they have frequent evaluative feedback on their utterances. The magnitude of each influence was similar ($\beta= -.809$ and $\beta= .813$ respectively).

Table 12. Multiple regression explaining the effect on teacher support in the classroom from students’ perspective

Multiple regression – Dependent variable ‘Teacher Support’	
Independent variables	Beta
IRE	-.809**
IRF	.813**
$R^2=.404$, Adjusted $R^2=.356$, $F(2, 25)=8.465$ **	

** $p=.002$

The influence of the IRE and IRF pattern dialogue was observed in the excerpts below, too. The excerpted lesson is from the unit of figures’ volume in math class. The teacher asked students to explain how they calculated the figures on the blackboard. The excerpt 3, an example of the IRE dialogue pattern, demonstrates that the teacher evaluates the student’s second reply in a way that he asks another explanation from other students (line 39). Even though it’s not explicit, this third turn of line 39 rejects the student’s answer with no feedback. By this token, it’s likely that the student felt little help from his teacher when he troubled with the question.

Excerpt 3.

35 T: Sam

36 S11: The side, no. The length of the side is divided...

37 T: The length is divided by three?

38 S11: Pi is...

39 T: Who else? The problem our classroom has in math is that we solve the problem well, but we're not good at what? Explanation. What was the first problem when we had a test for this unit?

(Continued)

In the excerpt 4, on the contrary, the teacher requested the student to clarify with respect to the student's earlier answer in line 44. Likewise, the teacher gave feedbacks to the student in order to encourage the student to elaborate the solving process in line 47 and 49. In addition, the teacher called for another explanation of the student in the form of bounding exchanges in line 51 and 53. In the meantime, other students helped the student with the information of the figure (line 46). The teacher supported the student to understand his work in this way. Consequently, it is probable that the student positively experienced teacher support during this dialogue.

Excerpt 4.

40 T: The toilet paper, okay? What do we do when calculate the volume of the figure itself? How, how do we do with that... How can we calculate the volume? Let's think carefully. The center has a hole like toilet paper. What do we do? Julien!

41 S10: First, what do we call it? The biggest one there. The outermost.

42 T: The big one.

43 S10: Yes, we have to calculate it first.

44 T: No, so you can do with the figure of which radius is something.

45 S10: No, well. Ah, uh, it's not seen.

46 SS: Five centimeter.

47 T: From here to there is 5 cm. And here to there is another 5 cm, okay?

48 S10: Ah, then, what is it? The radius is 10 cm...

49 T: The figure of which the radius is 10 cm.

50 S10: Yes, we calculate it first.

51 T: We calculate the volume of the cylinder first and then?

52 S10: Then, we calculate the inside.

53 T: The inside of what? (Continued)

4.3.3 The IRE and IRF pattern dialogue and cooperation in the classroom

The model below notes that there is an opposite influence on students' perception of cooperation in the classroom by the dialogue pattern between teacher and students during class. While the assessment was adversely affected by the IRE variable, the IRF variable exerted a positive influence. In addition, the predictive power of the IRF variable was somewhat stronger than the IRE variable ($\beta = -.029$, $\beta = .258$ respectively). However, as seen in table 13, the IRE and IRF patterned dialogue don't contribute significantly in predicting cooperation in the classroom ($p > .05$). Likewise, the observed classroom dialogue explains less variance of cooperation in the model.

Table 13. Multiple regression explaining the effect on cooperation in the classroom from students' perspective

Multiple regression – Dependent variable 'Cooperation'	
Independent variables	Beta
IRE	-.029
IRF	.258
$R^2 = .057$, Adjusted $R^2 = -.018$, $F(2, 25) = 756$	

$p = .480$

The excerpt 5 below, an example of the IRE dialogue pattern from one of lesson transcripts in social class, occurred at the beginning of the lesson. The teacher initiated the lesson with written questions by asking the whole students to guess the answer (line54). The teacher's rejection of the student's second turn in his follow up ended the dialogue (line 56). In other words, the teacher's evaluation in the third turn didn't provide any room for the student or other students to participate the exchange anymore.

Excerpt 5.

54 T: Let's think about what words are appropriate in the brackets in today's learning objective. (Several students raise hand up) Tyler was the fastest. Tyler!

55 S1: In number two, culture

56 T: Uh, no.

In another instance of the same lesson in the excerpt 6 below, on the other hand, the teacher asked students to share their interests in any country of the world. In line 61, the first student's reply was connected to the related information about a neighboring country by means of the classroom teacher's feedback. The third turn (line 61) expanded the answer and opened the knowledge building for other students as well. In addition, as shown in line 64 and 65, one new student replied another student's initiating question about the location of the country instead of the classroom teacher, and the teacher replied afterwards (Line 66). This reply raised another question from another new student (Line 67). In this regard, the teacher and students worked together to achieve the class goal. Unlike the former one, this excerpt demonstrates that the teacher's feedback in the third turn is likely to invite other students to participate together in the current activity. Consequently, the cooperation among students is encouraged and occurred in these exchanges.

Excerpt 6.

57 T And, Cathy!

58 S17 Cabo Verde

59 T What?

60 S17 Cabo Verde. Umm...

61 T Cabo Verde. If you see the below, there are countries like Sierra Leone.
We had had news about Sierra Leone for a while. Why was that?

62 SS MERS

63 T MERS? MERS is from the Middle East.

64 S9 Teacher, where is it?

65 S14 It's near um, Guinea.

66 T It's next to the Gulf of Guinea in Africa.

67 S4 Where is the Gulf of Guinea?

68 T There is Sierra Leone near by the equator. What was the news for a while? Sierra Leone.

4.3.4 The IRE and IRF pattern dialogue and equity in the classroom

Table 14 below shows that the IRF patterned dialogue is a significant indicator in predicting the students' assessment on the equity in their classroom ($p < .05$). However, the IRE patterned dialogue predictor is not significant to the prediction ($p = .303$). In addition, as a result of comparison of the importance of the predictive variables, the beta weight of the IRE is $-.257$ (and not significant) and the one of the IRF is $.618$ (and significant). Thus, the IRF indicator makes a larger contribution to the students' assessment of equity in the classroom relatively. In addition, the IRF variable has a favorable impact on the assessment contrary to the negative prediction of the IRE variable. According to the model, 22.8 per cent of variance in the students' perception of the equity in the classroom is explained by the two predictors. Given the small size of the sample, Adjusted $R^2 (= .167)$ can be a better estimates of the true value in the population (Pallant, 2013). Therefore, it is likely that the more students experience supportive teacher's feedbacks on their utterance during class, the more students perceive their learning environment as being equitable. In addition, the dialogic teacher-students interaction during the class has a stronger impact on equity in classroom than the adverse interaction.

Table 14. Multiple regression explaining the effect on equity in the classroom from students' perspective

Multiple regression – Dependent variable 'Equity'	
Independent variables	Beta
IRE	-.257
IRF	.618*
$R^2=.228$, Adjusted $R^2=.167$, $F(2, 25)=3.698^*$	

* $p=.039$

During classroom observation, students experienced the IRF patterns more when they tried to solve questions, in which they didn't seek correct answers or they had reading discussions. Take an example of reading discussion transcripts. In this lesson, students debated on the necessity of school and studying. In excerpt 7 below, the student who answered (S25) was wearing hearing aids, so auditory distraction needed to be reduced. However, there were still noise, so one student asked other classmates to be quiet (Line 75). In addition, the teacher indicated that several students were too loud as well (Line 76). Then, the teacher gave a feedback with more details on what the student meant in her answer (Line 78). In this dialogue, the student experienced a positive attention from her classmate, and her articulation was explained more clearly with the teacher's comment. In this regard, the student experienced an equitable opportunity in participating classroom activity by means of both peer and teacher support, and other students learned how to work with her.

Excerpt 7.

69 T Ann! (goes near her)

70 S12 Ah!

71 S25 I'm... I'm opposed to (Low voice)

72 T Wait, wait, wait! Please say louder!

73 S25 I... oppose... (The talks went unheard)

74 (Calling noisy students aside)

75 S10 Hey guys, we can hear our friend if you guys are quiet, can't we?

76 T Hey, hey, hey. We can't hear her.

77 S25 Since everything, everything is often wrong even at school, I think it is okay to use internet.

78 T Ah, even though we learn from teacher, it is possible that the teacher makes a mistake or could be wrong. So you think we could learn from internet. Because there are things you still don't get it even though you learn from your teacher.

However, in the dialogue of the excerpts 8 below, the teacher used an extra token to praise the student's argument (line 83). Thereby, it was likely that other students felt they were treated differently. In fact, even though it wasn't open-ended questions, one student wrote 'students have different individual abilities' next to the one of equity indicator in the questionnaire. Thus, he didn't agree that he gets as much praise like other students' work. Again, it can be said that the more students experience explicit evaluations during the class, the less students perceive that their contributions to the classroom activity are valued and respected in much the same way.

Excerpt 8.

79 T Roy!

80 S6 I'm against Mary's opinion. Because, according to someone's saying, the pain of learning is a moment, but the pain of ignorance lasts forever.

81 T Ah, the pain of learning is a moment, but the pain of ignorance lasts forever.

82 S6 So learning, study is hard and difficult, but if we have easy life and didn't study, I... My future will get troubled...could be troubled. For that reason, I think it's better to undergo hardship now and have a future with more break. And we could prepare such conditions.

83 T (Putting a token on logic part) He used a saying, okay? It's very persuasive to use conventional expression or saying and such things, okay?

4.4 Summary

To recapitulate this chapter, two key findings were shown in terms of how the patterns of teacher-students interaction contributed to the students' perception of their classroom climate. First, in general, the IRF pattern had a greater influence on students' sense of caring classroom than the IRE move. Among significant findings in the regression model, the strongest magnitude of the impact was the IRF move on students' assessment about teacher support with the beta weight of .813. Even though the beta weight of the IRE on the same dependent variable was slightly different ($\beta = -.809$), the IRF pattern played a significant role on the equity in the classroom again unlike the IRE pattern dialogue was not a significant indicator in predicting the same dimension. Furthermore, the correlation analysis revealed that the significant relationship was found only between the IRF and equity. In a nutshell, the IRF pattern was a stronger predictor than the IRE.

Second, teacher support in classroom had the high status when arranged in order of influential power by a teacher and students interaction. Compared to other criterions (i.e. student cohesiveness, cooperation, and equity), the IRE and the IRF pattern dialogue explained the variance of students' perception about teacher support the most. Then, equity in the classroom held the second rank. Each model in the findings showed consistent results that the two teacher-students interaction patterns had a contrast association with the indicators of caring classroom. Lastly, the evaluative third turn of the teacher made a negative contribution to the prediction of students' assessment on classroom climate. On the other hand, the dialogic talk between a teacher and students influenced positively on students' perception of their classroom in terms of caring. Other two indicators of caring classroom, student cohesiveness and cooperation, had non-significant associations with the teacher-student interaction in the study. Among the WIHIC scales, in short, teacher support and equity in classroom was significantly associated with the non-evaluative teacher's follow up (IRF).

5 Discussion and conclusion of findings

Around four decades ago, Flanders (1970) argued that caring and nurturing teacher behavior would get more focus later and if so, improving teacher-student interaction could be fundamental towards the shift. Indeed, as reflected in chapter two, nowadays school has faced challenges to bring emotion in educational practice in a way of reconciling teaching in both cognitive and social domain. The literature review on classroom dialogue research revealed that dialogic practice could also make a difference in whole class context with different approaches (Howe & Abedin, 2013; Mercer & Howe, 2012; Wells, 1999). In line with the sociocultural theory, the current study took up the challenge by examining the relationship between the pattern of whole class interaction during lessons (i.e. the IRE/F pattern in classroom dialogue) and students' sense of a caring classroom (the WIHIC scores). In other words, the study has sought to know whether a teacher-student interaction based on new insight of the IRF (initiation-response-follow up) framework by Wells (1999) has a potential of playing an influential role in cultivating caring classroom climate. For that, correlation research design, both explanatory and prediction study, was adopted to determine the nature and strength of the association. The data from a teacher-students interactions were analyzed regarding how they were associated with students' rating on the scale containing conceptually caring-related indicators.

This project aimed to complement the existing approaches to caring classrooms in more holistic way as presented 2.3.3 section. In other words, the hope was that the findings might provide the catalyst for putting caring pedagogy and the quality of a teacher-students interaction together, which I found it more integrated manner. Thus, the focus was on a teacher-students classroom interaction mainly based on two perspectives: Sociocultural discourse on development and Wells' framework to classroom dialogue as a semiotic tool-kit. Based on the findings in chapter four, the following text discusses the findings and considers what they might speak to the practice and further studies. With the introduced limitations of the study, I conclude with a claim that the more frequently teachers' non-evaluative follow ups are used, the more students perceive the classroom climate as being inclusive and caring. On the basis of this conclusion, teacher education in the knowledge of relationship between

their interaction with students and classroom climate, and teacher training in enhancing the quality of classroom interaction are recommended.

5.1 Summary and discussion of findings

In order to summarize and discuss the findings, this section is divided into three parts. The results from both causal relationship and prediction studies are categorized into whether there is a significant or non-significant association and then I move to a distinct characteristic common in the four regression models: Teacher-student related (teacher support and equity) and student- student related (student cohesiveness and cooperation) dimensions. The first part consists of the results of significant association between the three-pattern exchange and the first two indicators of caring classroom. Thus, the following section discusses the rest in terms of possible relation to other research. Meanwhile, the opposing effects of the IRE/ IRF consistent in multiple regression analyses are discussed as a key finding in the last section.

5.1.1 A teacher-student interaction and teacher-student related dimensions of caring classroom

The IRE/F pattern dialogue and teacher support. Of the four scales of a caring classroom, student's perception of teacher support in their classroom shows the strongest association with both the IRE and the IRF pattern dialogue between teacher and student. The finding suggests that more dialogic talk between teacher and student leads to student's positive perception of teacher support being existed in the classroom. Likewise, it is likely that teachers' evaluative feedbacks have a negative effect on students' perceptions of their teacher in the interpersonal as well as academic supports. Since both associations are significant with reasonable magnitude, the findings substantiate the claim of the study that the teachers' choice of third turn in instructional dialogue might explain in part the ongoing process of building caring classroom climate, especially in terms of teacher-student relationship. In other words, the more teachers adopt dialogic stance during whole classroom lesson, the more students perceive their teacher's attitude towards them as caring and supportive.

From the sociocultural perspective, the classroom interaction becomes social transaction, and it is working within system (Moll & Whitmore, 1998; Wells, 2007). In light of this, teachers and students work together in the zone of proximal development (ZPD) towards shared

meaning by means of diverse mediational means, in particular discourses. The current study tells us that those students who experience dialogic interactions have more positive attitudes toward their teachers. It means that they are more likely to like their teachers and engage more in classroom activities. Osterman (2000) provides evidence for the positive association between teacher support and student engagement from her research review on students' need for belonging. In particular, this finding contributes to broaden the notion of relationship in the experience of belongingness in that *"how students feel about school and their course work is in large measure determined by the quality of the relationship they have with their teachers in specific classes"* (ibid., p.344). The result extends teachers' interactional role in establishing classroom climate of support. Her review, citing Dewey and Vygotsky, suggests that dialogue directly influences students' sense of belonging as one of effective instructional strategies (Osterman, 2000). The interaction in such links, however, is mainly focused on teachers' role as an interpersonal facilitator. Even though she acknowledges the interdependent relationship among autonomy, competence and belonging, Osterman (2010) distinguishes teachers' practice between the academic and non-academic aspect. The finding in the study justifies future exploration of this dichotomous thinking by default. The finding implies that the instructional interaction might have a potential in the space of teacher-student relationship depending on the students' experience of co-participation in the discourse. It also refutes the priority of conversation genre in educational discourse with respect to teacher-student relationship (Noddings, 2002, pp.118-130).

The IRE/F pattern dialogue and equity. In addition, it also turned out that the IRF patterned dialogue was a significant predictor in equity in the classroom assessed by students. In other words, this project has established a link between students' experience of teacher's supportive feedback and their perception of their learning environment as being fair. The present findings of causal relationship study provided evidence about positive medium relationship between them. Moreover, regression analyses also showed that the extent to which students experience equity in their classroom was likely related to how much the teacher adopted the IRF pattern in whole classroom interaction. However, the strength of the association was relatively smaller than teacher support. The current study also didn't completely succeed to establish a link between the IRE patterned dialogue and student's perception on equity in the classroom despite the evidence from the exemplary excerpt above. In short, teacher's non-evaluative feedback was associated with students' experience of equitable participation and encouragement.

Here in the scale, the term ‘equity’ seems to be used interchangeably with ‘equality’ given several items such as ‘my work receives as much praise as other students’ work’. This item reflects that the notion is beyond merit-based distribution, often referred as fairness rooted in the philosophical work of Rawls (Noddings, 1999). Equality in the study is defined as which *“all members are recognized equally, regardless of their unique contribution or needs”* (Thousand, Nevin & McNeil, 2000, p. 140). According to Thousand et al. (2000), justice includes both terms, in which support is given to who are most in need of. In line with Noddings’ perspective on justice and caring (Noddings, 1999), it is assumed that the scores of equity scale mirror in part the caring classroom climate.

To some extent, the outcomes here parallel with the Equity in the Classroom (EIC) project by Creative Associates International regarding teacher’s practice (Rimer, Llewellyn & Anderson, 2009). In Africa, Asia and Latin America, the EIF project had been implemented during three years aiming to enhance equity in school, especially for girls and other marginalized children. The project regarded teachers as significant agents in the change. Of teacher-related strategies, the project recommended teacher’s equitable facilitations in teacher-student interaction. The techniques in their teacher-learner interaction tool included questions requiring more than recitation, feedbacks resulting in equal encouragement, paraphrasing and summarizing. The interpretation of the project shares the view of the constructivists on social interaction and the non-evaluative follow up from Wells’ coding scheme. However, the current study didn’t take the level of ‘authentic questions’ (Nystrand, 1997, p. 7) into account.

On the other hand, the finding implies that triadic dialogue pattern, depending on how the teacher utilizes the third turn, might be associated with students’ inner experience of being equally valued regardless of their abilities. The approach adopting this supposition would take a difference stance on the existing approaches. For example, instructional conversation (Tharp & Gallimore, 1988) is considered as one of standard for effective pedagogy by Tharp, Estrada, Dalton & Yamauchi (2000) in achieving all goals of school reforms in United States: Excellence, fairness, inclusion and harmony. The instructional conversation emphasizes the conversational interaction between teacher and student in instructional process. According to Tharp et al., (2000), for instructional conversation, classroom activities need to be organized in groups and the discussion based on student’s knowledge and interest becomes significant between a teacher and a groups of students. For them, whole classroom interaction doesn’t create enough space for building knowledge together among teachers and students, as it is

teacher-centered and is inherently to seek known answers. It is similar with the view of Nystrand (1997) on the three-part exchange. He argues that knowledge solely given by the teacher and students' role is limited to remembering in his or her answer. In order to have a dialogic instruction, he proposes open-ended discussion and instructional conversation. However, the finding offers additional account of ensuring equity in classroom. The results of the study suggest that the opportunity to construct knowledge together for students might be more or less possible in whole classroom interaction as seen in Wells' framework.

It is noteworthy that the significant associations above are on the indicators related between teacher and student. As described in 3.3.2 section, the scales of teacher support as well as equity investigate how the teacher behaves to students. For example, the teacher support scale asks student whether there are the teacher's help and personal interest in them. In addition in equity scale, students can report the extent to which the teacher treats them equally with the items such as 'I get the same opportunity to answer questions as other students'. In this study, I hypothesized that students who experience the IRF pattern dialogue would perceive their classroom climate more as inclusive and caring. The results in explanatory study showed a significant correlation between the IRF and students' perception of equity in classroom. In addition, the prediction study demonstrated that the IRF pattern dialogue significantly predicted positively teacher support and equity in the classroom. Based on the findings, the IRF pattern dialogue was the strong predictor of teacher-student related dimension of caring classroom.

5.1.2 A teacher-student interaction and student-student related dimensions of caring classroom

Whereas teacher-student interaction pattern demonstrated significant associations with teacher-student dimension of caring classroom, the same predictors didn't significantly contribute to explaining student cohesiveness and cooperation in the classroom. However, the IRE and the IRF pattern dialogue didn't fail to differ in the opposing impact on the students' perception about student cohesiveness and cooperation in classroom. The excerpts are shown in the chapter four also provide evidence that the experience of cohesiveness and cooperation could occur by dialogic interactions between a teacher and students, even in the three-pattern exchange as Wells' framework suggests in chapter two. With these inconsistent results in mind, the insignificant results from the correlation and regression analyses require further

study. These two sets of regression model might explain that more factors are related in explaining the variance of students' perception about their classroom climate related to these two dimensions. Note, however, that teachers significantly influence the social climate of acceptance and relatedness through their interpersonal support and interaction with students (Osterman, 2000, 2010), it is very likely that the teacher-student interaction is related to the relationships among students to a certain degree in terms of cohesiveness and cooperation in the classroom. In the next following texts, the findings are discussed from this perspective.

The IRE/F pattern dialogue and student cohesiveness. According to online Oxford English dictionary, cohesiveness is defined as the quality of a forming united whole. As echoed in the items of the WIHIC, student cohesiveness in the study is used as a broad term including friendship (e.g. the item four, 'other students in this class are my friends'), social support (e.g. the item eight, 'In this class, other students help me with my work'), acceptance (e.g. the item seven, 'students in this class like me') and so on. Overall, the scores on the student cohesiveness represent how students perceive themselves in engaging social relationship among peers in the classroom. As mentioned above, multiple regression analysis failed to account for significant explanation of variance in student cohesiveness by the IRE and the IRF pattern in classroom dialogue.

A body of literature on peer relationship in the classroom explain that friendship, group acceptance and social networks are different domains, and the age-related changes in each domain are distinct (Gifford-Smith & Brownell, 2003). Their literature review shows that children's experience of peer relationship needs to be understood in a multidimensional perspective in light of both distinct and inter-relational relationship. Thus, it is necessary that the outcomes of the current research need to be interpreted from various angles, for the questionnaire involves a range dimension of students' perception of their relationship with other students as explained above. In addition, since the age of the students participated in the study (i.e. transitional grade in South Korea) doesn't draw clear distinction between primary and middle school, there are more factors need to be considered. Thus, the measurement tool and the sample size of the study may have influenced the outcome, as they're not enough to delineate the whole aspect of the reality. Of course we cannot be sure exactly, however, given the predictive relationship between the IRE and the IRF in the regression model and the excerpt above in 4.3.1 section, I argue that teacher-student interaction may have a potential to enhancing student cohesiveness in the classroom, especially in terms of peer acceptance.

Research shows that a teacher plays a significant role in promoting peer acceptance in the classroom. For example, Osterman (2010) suggests that teachers' positive interaction with students is linked with students' perception of themselves as well as others. She argues that teachers' messages through their verbal and non-verbal language deliver their attitudes toward the student. In addition, research on classroom ecologies (Vaughn & Schumm, 1996) also shows that accepting teachers might influence the success of inclusion of students with learning disabilities through modeling acceptance, understanding and social support. While these studies focus on affective qualities in teacher-student interaction, the present finding might complement to the affective power of teacher-student interaction even through cognitive tasks. It is likely that teachers could also demonstrate their positive attitude toward students through the process of co-constructing knowledge. Through feedbacks to a student's answer, teachers can express their understanding, then these shared understandings are echoed by all members of the classroom.

The IRE/F pattern dialogue and cooperation. Cooperation was the least successful criterion variable among the subscales of WIHIC. Based on the notion of caring in the study, cooperation is defined within social cohesion perspective among other perspectives (motivational and cognitive) in the way that "*students help their groupmates because they care about the group*" (Slavin, 1996, p. 46). Within this perspective, the processes of a teacher explaining the task to students and students working together in a group are similar with practice influence by other perspectives, but teambuilding activities before and after group work is required for effective cooperative learning. The focus is not only on the increasing student cognitive achievement.

Cooperative learning is used in diverse disciplines as an evidence-based strategy aiming to several objectives in the classroom such as inclusion (Frederickson & Cline, 2015) or democracy (Althof, 2008). The subscale of cooperation asks students mostly to the extent students perceive their own attitudes in cooperating with other students (e.g. I work with other students in this class). The results in the regression model presented the least predictive power of both the IRE and the IRF variable in explaining the variance of students' perception of collaborative position in the classroom. In addition, the correlation analysis also didn't yield significant correlations between the IRE/F pattern dialogue and the cooperation in the classroom. In relation to these outcomes, it seems attributable to the other conditions under cooperative learning has occurred. According to Johnson & Johnson (1991), there are barriers

which hinder attitudes that students develop toward cooperative experience depending on students' cognitive and social skills. Thus, it is essential to structure the cooperative learning properly by teachers. In this regard, the quality of interaction among students is more influential than teacher-student interaction. In addition, teachers' role is more focused on not only providing group rewards, but also carefully structuring group interactions (Slavin, 1996). Hence, it is much less likely that teacher-student interaction is directly related to students' perception of classroom climate in terms of cooperation.

However, the excerpts in 4.3.3 section indicate that the cooperative experience during classroom interaction is possible by the teacher's feedback in his follow up. In addition, teachers could provide the model of effective interaction such as the strategies of reciprocal teaching, summarizing, questioning, clarifying and predicting (Palincsar & Brown, 1984) through the IRF pattern dialogue. Those strategies have parallels in Wells' coding scheme with regard to non-evaluative feedback. In effective cooperative learning, students take this teacher's role for 'face-to-face promotive interaction' among students (Johnson & Johnson, 1991). Therefore, even though the result was minimal, I personally believe that the link between the IRF pattern dialogue and cooperation exist indirectly. The understanding is based on the text of Vygotsky (1978) that the collaboration between students also can determine the ZPD besides instruction. In previous literature review on sociocultural approach to cognition and emotion, it was discussed that social interaction among teachers and students results in both cognitive and emotional experience. Since a great body of research on the outcomes of cooperative learning focus primarily on academic achievement, further research needs to explore evidence about what additional conditions are required for internalizing cooperation in the classroom.

5.1.3 Differential effects of the IRE/F patterned dialogue on caring classroom

Repeatedly demonstrated associations between teacher-student interaction and a range of caring indicators were that the two patterned dialogue went in the complete opposite direction of students' evaluation of caring classroom. The monologic interaction between the teacher and students, the IRE, showed a negative prediction of a range of aspects of caring classroom. On the other hand, students who had frequent IRF pattern dialogues with the teacher reported high scores on the WIHIC scales. The excerpts described in chapter four above provide

evidence for the role of dialogic classroom interaction in building knowledge by both teacher and students. In addition, it was consistent that the IRF played a greater impact on each indicator in the model rather than the IRE move. However, since the scores of student cohesiveness and cooperation didn't result in significant associations with the three-exchange dialogue, further study is required. A range of factors such as sample size or psychological compounding variable might contribute to the results.

As reviewed in chapter 2, a number of studies on typical classroom interaction pattern have claimed that the triadic dialogue constrains the active role of students in knowledge construction, so it only functions as a transmitting tool of teaching in favor of teachers' control (Cazden, 2001; Lemke, 1990; Nystrand, 1997). Noddings (2005) also asserts that this pattern of dialogue doesn't serve an essential role in *"learning how to create and maintain caring relations with intimate others"* (p. 53). She also considers the academic lesson as an insufficient time for the genuine dialogue. The results of this study, however, suggest that the different adoption of third turn in the typical classroom interaction might widen the space for reciprocity between teacher and student more. Indeed, the IRF pattern dialogue had positive associations with student's assessment of their classroom being caring, although some indicators need further exploration. In contrast, it was shown that more students who experienced the teacher's evaluative feedback reported less positive perception of the classroom climate in terms of caring. It is consistent with Wells' beliefs that teachers' responsiveness in their interaction with students activates the individual and collective zone of proximal development and hence, it enlarges the learning including emotion.

In addition, the findings promote the view of sociocultural perspective of the role of language in education. Vygotsky (1978) suggests that tools and speech are the mediators toward higher mental process. In his view, the mastery of tool use leads children to the highest level of development. His central concern on mediation is the role of language as an instrument to teaching, learning and development. Vygotsky and his successors highlight the transforming function of language first and foremost (e.g. the term 'tools of tools' by Luria). For them, *"meanings function in the living process of verbal thinking"* (Vygotsky, 1987, p. 249) as dialogues proceed. For sociocultural theorists, the nature of language needs to be socially interactive and reciprocal. Thus, the main concern is about the quality of teacher-student interaction. Of approaches to promote dialogic interaction, the results of the study provide further evidence of Wells' assertion that a community of inquiry enables to provide all

possible assistance in the ZPD (Wells, 1999). In addition, it also substantiates my claim that this dialogic whole class interaction can contribute to building a caring classroom climate. Therefore, the outcomes in the current study indicate that the goal of enhancing caring in classroom climate can be embedded in the instructional discourse without being outside of classroom. It also addresses in part not only the limitation of existing approaches, but also the need of an integrated approach in fostering student's full development in the cognitive as well as affective perspective.

5.2 General implications of findings

These findings above encouraged me to conclude that teachers need to be in sociocultural frame of teaching and learning, especially related to students' socio-emotional needs. In the beginning of the chapters, it was pointed that the growing issues school facing now such as low status of emotional wellbeing of students and bullying are ascribed to the neglect of emotional dimension of education. This study has taken a sociocultural view of emotion in finding alternative approach to resolve the challenges at hand. Drawing on caring pedagogy and the sociocultural aspect of classroom dialogue, I have investigated how students' perceptions of classroom climate are influenced by the most common pattern of classroom dialogue. Based on the discussions above, this section attempts to argue how the findings are positioned within the theoretical framework of the study and may affect the educational practice.

5.2.1 The expanded role of whole classroom interaction

As reviewed in 2.4 chapter, the main problem encountered in whole classroom interaction is considered that it cannot be favorably used for students in participating co-constructing knowledge process during class. Clearly, even a body of previous research on dialogism mainly influenced by the works of Bakhtin (e.g. Nystrand, 1997; Dysthe, 2011) finds more values in group-based interaction believed to produce more reciprocity between teacher and student. Freire (1998) also advocates the importance of respect for students' knowledge through the discussion about "*the logic of these kinds of knowledge in relation to their contents*" (p. 36) with the aim of the co-constructing of knowledge in teaching.

Not surprisingly, research on the effect of whole classroom interaction hardly mention about affective qualities of the classroom environment as Cazden (2001) points out in her book. Within the sociocultural perspective on education, to be specific, cultural historical activity theory has recently drawn attention to rethinking the interdependence of feeling, thought and action (Wells & Claxon, 2002). It is accord with Wells' transaction model of discourse in the activity system. In his framework, *"the mediational means-discoursing- is a process, emergent and co-constructed over the course of the interaction"* (Wells, 2007, p. 174). Likewise, the prior interaction genre available to members of community of inquiry also goes through the same process. Thus, it is possible that the pervasive genre of whole classroom interaction opens a gate for the knowledge building by collaboration between teacher and student. The findings of the study demonstrate the expanded role of whole classroom interaction. In addition, the relatively more frequent IRF pattern dialogues than the IRE in the study re-recognize the explicit involvement in the process of the transaction in Wells' framework. Mercer (2000) and Mercer & Littleton (2007) take a similar understanding of the three pattern exchange providing diverse functions. This is accomplished through recaps, elicitation taking the form of teacher questions, repetition in an affirming manner, reformulation and exhorting students to think or remember (Mercer, 2000). However, they put more emphasis on the forms of teachers' questions for student's thinking and academic achievement.

According to Wells (2001), theory should grow out of investigating of the relationship between vision and practice in the classroom. Through the investigation, research aims to seek *"improved enactment of vision in practice and an increased understanding of the ends and means of education"* (p. 26). The current study has found the relationship between one of vision - creating inclusive, equitable, caring and effective community- and the quality of the teacher-students interaction in whole class instruction. Therefore, given little study is done on this, the findings of the study make a meaningful contribution to constructing the framework for inquiry by Wells (2001).

5.2.2 The feasible, sustainable strategy towards caring classroom

Taken the sociocultural perspective on emotion and classroom interaction above, the current educational policy and practice related to students' socio-emotional needs have been at odds with what perceived to be more appropriate manner. Similarly, the critical perspective on

individualistic programs and approaches, as discussed in chapter two, indicates that ineffective nature of those trend demands a positive classroom climate based on relationships among teachers and students (Chong & Lee, 2015; Hoffman, 2009; Jones & Bouffard, 2012; McLaughlin, 2008). For example, as Jones & Bouffard (2012) put it, research review on social and emotional learning (SEL) has shown modest effect size despite the positive outcomes of intervention. Given the principles of SEL - “*continuity over time, interconnectedness with academics, salience of relationships, importance of culture and climate*” (ibid., p.11)-, the review suggests an integrated approach into daily practice. These reflections are consistent with the characteristic of emotion by Hargreaves (2000): Emotions are “*embedded and expressed in human interactions and relationships*” (p. 824).

As the present findings present the relationship between teacher-student interaction and the quality of classroom environment perceived by students, it can be suggested that classroom interaction is a great candidate for enhancing emotion in teaching and learning in the manner of daily practice. In addition, as reviewed in previous research (Howe & Abedin, 2013; Wells & Arauz, 2006), the triadic sequence takes up the considerable part of classroom activities despite a number of research projects and efforts. Thus, as Wells & Arauz (2006) argue and the results of the study show, the teacher’s choice of non-evaluative feedback in teacher-student interaction becomes a feasible and practical strategy towards caring classroom in light of classroom reality. The fitness of the IRF sequence to the classroom landscape, with one teacher and more than twenty students (Wells & Arauz, 2006), also supports the feasibility.

Therefore, it is possible that the manners teachers provide support in three-pattern exchange enable students to have positive perceptions about their relationship with the teacher. Particularly, the findings of the study highlight the role of the IRF structure on students’ experience of positive relationships with the teacher in terms of being supported and treated equally. This strategy also can be applied to the care model. Dialogue is regarded as the most fundamental component in the care model (Noddings, 2002). The current study might enrich Noddings’ view of the role of dialogue between the cared-for and the caring. In her discourse, the scope of dialogue is restricted, for the typical pattern of classroom talk is excluded from true dialogue. However, depending on how the teacher understands and develops the sequence, it is likely that the IRF pattern dialogue makes space for building positive relationship between teacher and student. Thus, teachers could have more chances to enact the ethics of care in their daily practice.

5.2.3 Preparing and training teachers for the quality of teacher-student interaction

At the one of meetings with the teacher during data collecting period, I explained what the study aimed to investigate to the teacher. Then, he wondered if it was more appropriate to observe conversations during break for the project. In my view, his understanding of emotion in the classroom is typical as Noddings puts the quality of ordinary conversation at the heart of moral education (Noddings, 2002, p. 126). Teachers tend to understand the language of classroom interaction separately, either intellectual or affective dimension. The arena of building meaningful relationship with students is narrowed to where interpersonal talk exists, exclusive of class instruction. Thus, during school's ordinary routine, class meeting, extracurricular activities, break between classes and lunchtime are in general regarded as opportunities for teachers to support students in their social and emotional development. In this classroom, students usually learn prosocial/moral values and skills through curriculum and the teacher's individual disposition and commitment become significant.

However, the current study in line with Wells' theory casts this understanding in a new light. Teachers need to understand the nature of classroom interaction within sociocultural perspective. Vygotsky (1987) suggests that "*the word absorbs intellectual and affective content from the entire context in which it is intertwined*" (p. 276). Thus, even instructional dialogue cannot be divorced from affective aspects of development. In addition, preservice teachers should be helped to develop epistemological view on language, in which "*semiotic mediation is to enable the speaking subjects to internalize the world they experience in the living of their lives*" (Hasan, 2002, p. 113). At the level of either in-service or preservice, teacher educators should prepare teachers to reflect their discourse pattern and the quality of their interaction with students in light of the interconnections with caring classroom climate. Classroom teachers should practice teaching as 'responsive intervention' (Wells, 1994) in a way of the follow up in Wells' framework: Justification/explanation, comment, clarification, action and metatalk. However, as Jordan, Schwartz & McGhie-Richmond (2009) state, school ethos is likely to influence teachers' belief and practice. In addition, several impediments such as "*the commodification of knowledge and intolerance of diversity*" (Wells, 2002a) exist in building communities of inquiry in the classroom. Osterman (2010) also points out that the organization emphasizing rationality and high accountability demands leads to teachers'

difficulties to handle students' psychosocial needs. Therefore, school and sociopolitical contexts also have to be considered.

The findings of the study highlight a stratum of operation in educational practice, as presented in Wells' framework (2.4.2 section), in which little attention is paid in teacher education programs compared to the second stratum of action (e.g. curricular activity and step). Yet, as discussed above, the focus on this dimension (e.g. use of semiotic tools) is important to engaging each student in the classroom, thereby to develop a teacher-student relationship in a caring and inclusive manner. The data in the cross sectional study is not enough to come up with recommendation at the meso and macro level, yet it is strongly recommended that school system and educational policy/programs support the community of inquiry.

5.3 Limitations of the study and future direction

Despite the efforts to minimize the limitations of the chosen methods and analyses, the study was subject to a number of limitations as some of which have been mentioned before in chapter three. First, whereas both the causal relationship study and the prediction study established a significant positive IRF predictor of caring classroom to a certain extent, statistical power is limited in some data analyses, especially in correlation analyses apart from the association between the IRF and in the regression models of the IRE predictor with criterions of student-student related dimensions. According to Gall et al. (2007), the sample size of the study determines in large the statistical significance of correlation. With the focus of teacher variance in the study in line with the purpose of the study, one six grade of classroom is chosen and observed. This fact, namely small sample size, might have impeded the ability of the study to confirm significant associations and to lead better effect sizes. This may have led to some uncertainty in the estimation of correlation and regression coefficients. Therefore, future research conducting multilevel analyses such as comparing between two classes are needed to verify the stability of the findings. However, as Gall et al. (2007) point out, low correlation coefficients are still meaningful, for "*causal relationship studies are aimed primarily at gaining a better understanding of the complex skills or behavior patterns being studied*" (p. 375). Prediction studies require relatively higher correlation though. Regarding the size of the sample in the study, it also can be differently argued that the cases of classroom talk, not the number of participants, were by no means insufficient for correlation and multiple regression analyses, for I collected more than 800 sequences over a

series of lessons for the predictors (i.e. IRE and IRF). As a rule of thumb, the ratio of cases to the independent variables (IVs) requires more than the number of $N \geq 50 + 8m$ (for multiple correlation, m is the number of IVs) and $N \geq 104 + m$ (for multiple regression; Tabachnick et al., 2014). As I mentioned in 3.6 section, the reliability of these IVs could be limited according to which another person did not participated in coding the observed classroom interaction. In this regard, future study would minimize the reliability threat of the current study by including another rater for more consistent coding.

Another aspect with regard to the correlation and multiple regression analyses is the interpretation of the findings. Even though the analyses can represent the types and the complexity of relationships with high fidelity (Cohen, Cohen, West & Aiken, 2003), the analyses do not reveal causal effects among variables. According to Tabachnick et al. (2014), even a strong relationship between variables might come from other resources, such as the influence of each other or unmeasured variables. In this regard, the associations between the three pattern exchange and student cohesiveness or cooperation in the classroom need future studies. As discussed above, those criterions might have been influenced by other variables or practice. Similarly, the correlation research has been criticized due to its atomistic approach to complex phenomena (Gall et al., 2007). Thus, cautions are required to conclude the findings, and future studies for the full understanding of the association between a teacher-student interaction and caring classroom are necessary. Such studies could help in determining which factors need to be taken into consideration within the theoretical or the practical perspective. In addition, the unrepresentativeness of the sample due to convenience sampling limits the generalizability of the findings. Therefore, I suggest future research with more larger and representative samples, so that greater confidence and generalizability of conclusion are feasible.

Lastly, the methods chosen for the study didn't fully reflect the complexity of classroom. It is acknowledged that the complementary use of both qualitative and quantitative methods is desirable in both classroom talk and classroom environment research (Mercer, 2010; Tobin & Fraser, 1998). Related to the self-report measure in the study, student interview or observation would have complemented the limitation of the study in that "*main findings can be contextualized with thick description*" (Tobin & Fraser, 1998, p. 625). The current study has investigated students' attitudes, especially affective dimension, but as mentioned in 3.1 section, the questionnaire cannot describe deeper experience of students. In particular, since

the notion of caring classroom in this study includes multiple dimensions, combining of qualitative and quantitative information would help in capturing better whole perspective. It is suggested that socio-historical context is considered, for classroom experience is cumulative and multisided. This would fill up low ecological validity of the classroom environment research using single questionnaire. Similarly, Mercer (2010) also argues that each method of analyzing classroom talk has its own strengths and weakness, so *“it may seem logical to use two or more methods of analyzing talk in a complementary way”* (p.9) based on research questions. In the current study, the qualitative data of classroom interaction was used to support the evidence within the context in this regard. Furthermore, for suggestions at system level (e.g. teacher training program, educational policy), large scale studies are necessary in the future.

5.4 Conclusion

With growing needs for attending students' psychosocial needs in school, the current study claims that caring classroom has become important even more in that this classroom climate is likely to foster students' social and emotional development and thus further full development. The findings of the study show that there is a significant link between dialogic whole classroom interaction and students' perceptions of teacher support and equity in the classroom. The teacher's non-evaluative utterance on students' response is also a significant predictor of how students perceive themselves as being treated equally by the teacher. Therefore, this study makes a meaningful contribution towards where we should locate our efforts more. The affective effects of teacher-student interaction have received rather little attention in educational discourse.

These findings of the study could inform teachers in that they need to reflect the quality of their interaction with students during lessons, thereby helping their relationship with students grow and enhancing equity in their classroom. According to the Program for International Student Assessment (PISA) in 2012 (OCED, 2013), teacher-student relations in students' view in both South Korea and Norway indicate lower results than the OECD average. Especially, students in both countries agreed the least with the statement *“most of their teachers really listen to what I have to say”* (ibid., p.170). In this regard, this study might contribute to the educational practices for better classroom climate. Even though the current study was conducted in South Korea, the implications are still useful to other countries, as the

measurement are not specific to the country. This study espouses the argument of Noddings that school should be more responsive to the students' needs (Noddings, 2005). Meanwhile, the role of teachers' supportive feedback in acting as predictors of enhancing student cohesiveness and cooperation is still not clear in the study. As I discussed above, however, previous research and evidence provided by transcript in the study imply that there might be still possible relationship among them, so future studies are expected to explicate the nature of the association with deeper understanding.

Excerpt 9. During reading discussion lesson, students give opinions whether school is necessary or not.

T Jenny

S21 I'm adding to Joe's opinion. School is just not for study, studying. Fr... School is not just for studying. There are many friends and we meet friends and we talk with friends and we play with friends. It's such a place. (SS Laughter) I don't think we should come to school for only studying...come, come, come school because of studying.

T Ah, what Jenny is arguing is that school is very important because it a place we learn community life, things required for community life with friends as well as relationships with friends and so on.

Another contribution made by the present study is that the findings suggest more holistic approach to creating caring classroom, which might complement existing individualistic, intervention-based approaches. As Jenny describes above in excerpt 9, classroom is a place that students learn all from and with the teacher and their peers. Through language, the teacher and students make meanings together and engage mutually in building learning environment. Especially, teachers could play a compelling role in this process with the responsive and supportive feedback to students' response even during whole class discussion. With understanding of interconnectedness between classroom interaction and affective classroom climate, teachers could make opportunities for students to give or get mutual assistance in their ZPD with small, but influential change of their daily practice. Through teachers' dialogic stance, it is likely that the zone is enlarged as possible and thus the learning and development is meaningful to each and every student in both cognitive and affective way.

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Appendix 1: The WIHIC questionnaire

What is Happening in this Class? (WIHIC)

Questionnaire-Revised

Directions for students:

This questionnaire contains statements about practices that take place in this classroom. You will be asked how often each practice takes place. **There are no ‘right’ or ‘wrong’ answers. Your opinion is what is wanted.**

Think about how well each statement describes what this class is like for you and circle a number like below.

	Almost never	Seldom	Sometimes	Often	Almost always
In this class, other students help me with my work.	1	2	③	4	5

Be sure to give an answer to all statements. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinions about all statements.

School_____ **Class**_____ **Name**_____

Student Cohesiveness	Almost Never	Seldom	Some- times	Often	Almost Always
1. I make friends with other students in this class.	1	2	3	4	5
2. I know other students in this class.	1	2	3	4	5
3. I am friendly to students in this class.	1	2	3	4	5
4. Other students in this class are my friends	1	2	3	4	5
5. I work well with other students in this class.	1	2	3	4	5
6. I help other students in this class who are having trouble with their work.	1	2	3	4	5
7. Students in this class like me.	1	2	3	4	5
8. In this class, other students help me with my work.	1	2	3	4	5
Teacher Support	Almost Never	Seldom	Some- times	Often	Almost Always
9. The teacher takes a personal interest in me.	1	2	3	4	5
10. The teacher tries very hard to help me.	1	2	3	4	5
11. The teacher cares about my feelings.	1	2	3	4	5
12. The teacher helps me when I have trouble with my work.	1	2	3	4	5
13. The teacher talks with me.	1	2	3	4	5
14. The teacher is interested in my problems.	1	2	3	4	5
15. The teacher comes to my desk to talk with me.	1	2	3	4	5
16. The teacher's questions help me understand my work.	1	2	3	4	5

Cooperation	Almost Never	Seldom	Some- times	Often	Almost Always
17. I cooperate with other students when doing assigned work.	1	2	3	4	5
18. I share my books, materials, and supplies with other students.	1	2	3	4	5
19. When I work in groups in this class, we work as a team.	1	2	3	4	5
20. I work with other students on assignments in this class.	1	2	3	4	5
21. I learn from other students in this class.	1	2	3	4	5
22. I work with other students in this class.	1	2	3	4	5
23. I cooperate with other students on class activities.	1	2	3	4	5
24. Students work with me to achieve class goals.	1	2	3	4	5
Equity	Almost Never	Seldom	Some- times	Often	Almost Always
25. The teacher gives as much attention to my questions as to other students' questions.	1	2	3	4	5
26. I get the same amount of help from the teacher as other students.	1	2	3	4	5
27. I have the same amount of say in this class as other students.	1	2	3	4	5
28. I am treated the same as other students in this class.	1	2	3	4	5

29. I receive the same encouragement from the teacher as other students do.	1	2	3	4	5
30. I get the same opportunity to contribute to class discussions as other students do.	1	2	3	4	5
31. My work receives as much praise as other students' work.	1	2	3	4	5
32. I get the same opportunity to answer questions as other students.	1	2	3	4	5

Appendix 2: The permission letter by NSD

Norsk samfunnsvitenskapelig datatjeneste AS
NORWEGIAN SOCIAL SCIENCE DATA SERVICES



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Vår dato: 24.07.2015

Vår ref: 43795 / 3 / KS

Deres dato:

Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 17.06.2015. Meldingen gjelder prosjektet:

43795	<i>Towards Caring Classroom: Analysis of Teacher-Students Dialogues in Grade 4 in South Korea</i>
Behandlingsansvarlig	Universitetet i Oslo, ved institusjonens øverste leder
Daglig ansvarlig	Steinar Theie
Student	Mijeong Kang

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 30.04.2016, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Knut Kalgraff Skjåk

Katrine Utaaker Segadal

Kontaktperson: Katrine Utaaker Segadal tlf: 55 58 35 42

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Avdelingskontorer / District Offices:

OSLO: NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uio.no
TRONDHEIM: NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. kyrre.svarva@svt.ntnu.no
TROMSØ: NSD, SVE, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmaa@sv.uit.no

Personvernombudet for forskning



Prosjektvurdering - Kommentar

Prosjektnr: 43795

The sample will receive written information about the project, and give their consent to participate. Parents/guardians give consent on behalf of the students participating in the project.

The letter of information and consent form are somewhat incomplete, and we ask that the following is added:

- Contact information of the supervisor
- The name of the student
- When the project will be completed and information about what is going to happen with the personal data at that point (that it will be anonymized)

We ask that the revised letter of information is sent to personvernombudet@nsd.uib.no before contact with the sample is established.

Please note that when children actively participate in research, participation is always voluntary, even though parents have given their consent. Children should be given information adapted to their age, and it must be made sure that they understand that their participation is voluntary and that they can withdraw at any time.

The Data Protection Official presupposes that the researcher follows internal routines of the University of Oslo regarding data security. If personal data is to be stored on a private computer, the information should be adequately encrypted.

Estimated end date of the project is 30.04.2016. According to the notification form all collected data will be made anonymous by this date.

Making the data anonymous entails processing it in such a way that no individuals can be recognised. This is done by:

- deleting all direct personal data (such as names/lists of reference numbers)
- deleting/rewriting indirectly identifiable data (i.e. an identifying combination of background variables, such as residence/work place, age and gender)
- deleting digital audio and video files.

Appendix 3: The consent form for the teacher

Request for Participation in Research Project

“Towards Caring Classroom: Analysis of Teacher-Student Dialogues
in Grade 6 in South Korea”

Background and Purpose

This study is a Master’s project at the University of Oslo. This study aims to investigate teacher-students dialogues in light of classroom climate around caring. Participation is voluntarily and informed consent from the teacher is required in the project.

What does participation in the project imply?

The data will be collected mainly by observation with video recording. Whenever a dialogue starts, camera will be on. In addition, students will complete a questionnaire assessing student’s perception of classroom climate called What Is Happening in this Class? (WIHIC), developed by Fraser et al. (1996).

What will happen to the information about you?

All personal data will be treated confidentially. Only the Master student and the supervisor (if requested) will have access to the data. Moreover, to ensure confidentiality all data will be stored separately and safely with password in private computer and memory stick. In publications the participants will not be identifiable.

The project will be completed provisionally 30.04.2016. Therefore, all direct personal data (e.g. student name) and indirectly identifiable data (e.g. age) including video files will be

deleted on the estimated completion date for making the data anonymous. In addition, the transcription of the video sequence will not be content information that can be traced to any person that is involved.

Voluntary participation

It is voluntary to participate in the project, and you can at any time choose to withdraw your consent without stating any reason. If you decide to withdraw, all your personal data will be made anonymous.

If you would like to participate or if you have any questions concerning the project, please contact student or supervisor

- Student: Tel. XXXXXX, Email: XXXXXX
- Supervisor: Tel. XXXXXX, Email: XXXXXX

The study has been notified to the Data Protection Official for Research, Norwegian Social Science Data Services.

Consent for participation in the study

I have received information about the project and am willing to participate

Date:

Name: (signed by participant)

Position:

Appendix 4: The consent form for parents

Request for Participation in Research Project

“Towards Caring Classroom: Analysis of Teacher-Student Dialogues
in Grade 6 in South Korea”

Background and Purpose

This study is a Master’s project at the University of Oslo. This study aims to investigate teacher-students dialogues in light of classroom climate around caring. Participation is voluntarily and informed consent from parents is required on behalf of the students participating in the project.

What does participation in the project imply?

The data will be collected mainly by observation with video recording. Whenever a dialogue starts, camera will be on. In addition, students will complete a questionnaire assessing student’s perception of classroom climate called What Is Happening in this Class? (WIHIC), developed by Fraser, McRobbie & Fisher (1996).

What will happen to the information about you?

All personal data will be treated confidentially. Only the Master student and the supervisor (if requested) will have access to the data. Moreover, to ensure confidentiality all data will be stored separately and safely with password in private computer and memory stick. In publications the participants will not be identifiable.

The project will be completed provisionally 30.04.2016. Therefore, all direct personal data (e.g. student name) and indirectly identifiable data (e.g. age) including video files will be deleted on the estimated completion date for making the data anonymous. In addition, the

transcription of the video sequence will not be content information that can be traced to any person that is involved.

Voluntary participation

It is voluntary to participate in the project, and you can at any time choose to withdraw your consent without stating any reason. If you decide to withdraw, all your personal data will be made anonymous.

If you would like to participate or if you have any questions concerning the project, please contact student or supervisor

- Student: Tel. XXXXXXX, Email: XXXXXXX
- Supervisor: Tel. XXXXXXX, Email: XXXXXXX

The study has been notified to the Data Protection Official for Research, Norwegian Social Science Data Services.

Consent for participation in the study

I have received information about the project and am willing to participate

(Signed by participant, date)

(The name of your child)