

## Psychometric Properties of the Empathetic School Community Competency Inventory

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The present study aimed to develop a self-reported measurement instrument - the Empathetic School Community Competency Inventory (ESCCI)-to better understand members' empathetic sense to schools as their community in the context of secondary schools in South Korea. Based on a synthesis of the literature on the school community, empathy, and competencies, and a series of preliminary analyses with a panel of expert judges and pilot tests, initial ESCCI items were developed. In total, 435 students and 134 teachers from secondary schools in South Korea provided usable data as measured by the ESCCI. The results of EFA and CFA suggested a five-factor model: culture of respect ( $\alpha = .94$ ), empathetic community identity ( $\alpha = .93$ ), communication structure ( $\alpha = .91$ ), emotion immersion ( $\alpha = .91$ ), and caring process ( $\alpha = .89$ ) with  $\chi^2(980, n = 285) = 3080.169$ ;  $p$ -value  $< .0001$ , RMSEA = 0.068; 90% CI [.059, .064],  $p$ -value  $< .0001$ ; CFI = .88; SRMR = 0.04; and TLI = .88, leaving 46 items out of initially developed 76 items. The ESCCI model developed based on the findings of the study can be used to assess schools' competency as an empathetic community and design programs to promote empathetic school cultures in secondary schools in South Korea. Implications and limitations of the study are discussed.

*Keywords : Empathy, Community Competency, School Community, Design of Empathetic School Community*

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## Introduction

Students spend much of their time at schools. A school community is an important place for students to shape their habits and attitudes. At school, students learn not only academic knowledge but also soft skills needed as citizens in a society. Schools influence students on social and emotional development (Grover, Limber, & Boberiene, 2015). Students in South Korea are not exceptional. School as a community is the main place where Korean students spend their time as teenagers. Then, are Korean students happy with their school life? Are schools in Korea supportive and competitive for students to feel happy as a school community member? Korea has the dishonor to have had the highest suicide rate across OECD countries over the past two decades and steadily increased. The suicide rate in 2013 in South Korea reached nearly 30 deaths per 100000 persons with the big difference compared to that of the second highest country, Hungary, nearly 20 (OECD, 2015). By gender, men tend to commit suicide than women. By age, young people under 25 and the elderly are at risk. In addition, suicide is the main cause of death among teenagers in South Korea (Lim, Ha, & Song, 2014). While suicide rates among elderly people have decreased over the years, those among young people have not declined (OECD, 2015). Psychiatric disorders such as severe depression and social isolation are associated with high suicide rates (OECD, 2015).

Considering that Korean students spend a high portion of their time at school and academic programs after school in the community they belong to, how a school takes care of its students as a school community is important to provide answers to challenges that South Korea has faced in terms of high suicide rates among teenagers. Schools in South Korea have focused on academic knowledge to make students enter colleges with higher scores on the entrance exam. Now it is a time for schools to consider how schools can support students to develop their sound mind with high subjective well-being rates at school. Many research studies have been conducted on educational communities, empathy education, and culture

of school communities with participants of kindergarten through secondary school students in South Korea (e.g., Jo, 2016; Jo & Suh, 2004). However, the combination of the concepts of empathy and community competency is a new aspect. A study on combining the two concepts would be a new approach to infer how the two concepts were related in the context of secondary school communities in South Korea.

Toward this end, the purpose of this study was to combine the two concepts and develop an instrument that can assess an empathetic competency as a school community in the context of secondary schools in South Korea and better understand empathetic school community competency through a synthesis of literature on school community, empathy, organization, and group level competencies and verified through experts' review. Using an instrument developed based on the theoretical model through literature review, both exploratory and confirmatory factor analyses were conducted to identify a new common factor model of the ESCCI applied on the data collected from school members in secondary school communities in South Korea and to test validity and reliability of the identified common factor model.

## **Conceptual Framework**

### **Teams, organizations, and community**

Every group forms its own identity through discriminatory attributes. A community can be a group. A group generally can be defined as a set of two or more interdependent individuals who interact with each other (Forsyth, 2009), and groups are distinguished from non-interactive crowds. Groups can be divided into several categories: teams, organizations, and communities. There exist commonalities and differences among different groups. For example, Lee and Kim

(2016) suggested that groups have six common characteristics: synergy, interaction, structure, cohesion, social identity, and goals. Groups are different from the sum of individuals., and the second was to detect the traits of school communities by comparing the features of each group (Lee & Kim, 2016).

Teams and organizations generally shared similar attributes, but the most notable difference depended on the strength with which the feature was implemented (Forsyth, 2009). Also, teams tended to be formed within a larger organization and more effectively accomplished tasks. A team tended to be goal-oriented, and team members shared goals. Teams tended to move as one organism to achieve the group's shared goals. This is characterized by high interdependence and task-oriented interaction, high productivity and cohesiveness, and strong synergy (Forsyth, 2009). An organization meant larger than a team; for an organization to operate, task procedures need to be ordered, and the characteristics of interactions tended to be more stable and structured (Colquitt, Lepine, & Wesson, 2015; Forsyth, 2009; Jung, 2010).

Teams and organizations have many similarities due to the same principles of operation. For example, the operating principles of both teams and organizations often stress effectiveness (Colquitt et al., 2015; Forsyth, 2009; Jung, 2010) while a school community focuses more on values or ideologies (Park, Na & Shin, 2008). Therefore, a team or an organization exists to increase its performances.

In a community, members are cared for and supported. Furman (1998) explained that community was the place in which members experienced feelings of belonging, trust in others, and safety. Jin and Kim (2004) stressed the sharing of goals and value systems, intimate ties, collaborative interaction, and communication. Kim (2005) emphasized mutual dependence based on solidarity through trust and cooperation. In addition, Jo and Suh (2004) pointed out that a sense of community, cooperative and caring relationships among school members, and cooperative learning activities are key elements of a school community.

## School as an empathetic community

School communities have somewhat different characteristics from teams and organizations. Past studies related to school community agreed that schools are designed to function like a traditional family. Thus, students in many contemporary societies who have a fragmented family life expect to have their needs for nurturing and stability met by the school communities.

McMillan and Chavis (1986) viewed school community as the quality of human relationships and proposed four elements of community: membership, influence, integration, and fulfillment of needs, and a shared emotional connection. Sergiovanni (1994) highlighted emotional support as well as shared values and purposes as school community factors. He claimed that schools need to incorporate these elements into their development. Moreover, Noddings (1992) emphasized the necessity of emotional support to lead to a successful life in school. A school community's purpose is to realize the adoption of its common values or principles by community members. In other words, for a school community, being a school community itself is the most vital goal. The operating principle of a school community is maintenance rather than effectiveness (Jung, 2004). In addition, a school community's structure is more flexible than that of a team or an organization and it often allows certain amounts of autonomy to school teachers and administrators. This tendency results in a school community's relatively weak productivity and task-orientated interaction.

For a school to develop positive relationships with other students, teachers, and school staff, school members need to be more social and emotional, which can be described *empathetic*. Empathy can be defined as the ability to recognize others' emotions, to feel the way that others feel, and to care about others' emotional status (Davis, 1983; Howe, 2012). Empathy fosters altruistic behaviors, improves the quality of social relations, and is positively associated with social behaviors, such as helping, sharing, and cooperating (Hoffman, 1981; Miller & Eisenberg, 1988;

Osterman, 2000).

Empathy can be developed over time (Elias et al, 1997). Such social and emotional learning can promote both mental health and academic success at school (Merrell & Gueldner, 2010). One approach to contemporary empathy education is individual-centered and it focuses on developing individuals' empathetic characters and relationships with others (Elias et al., 1997; Geng, Xia, & Qin, 2012; McNaughton, 2016). However, this approach does not seem to be enough to enable a school to become an empathetic community. The presence of many individuals with strong empathy does not necessarily lead to an empathetic school community. To enable a school to foster an empathetic community, empathy education needs to incorporate a community-centered approach (Bassett-Gunter, Yessis, Manske, & Gleddie, 2016; Cinkir, Nayir, & Cetin, 2016; Rovai, Wighting, & Lucking, 2004; You, O'Malley, & Furlong, 2014).

In a community, members feel that they experience belongings, they trust in each other, they matter to each other, and their needs are met through collaborative interactions and cooperation (Furman, 1998; Grover, Limber, & Boberiene, 2015). A good community has a competency. Community competency can be defined as the fundamental ability to help a community form and maintain its desired vision effectively and community competency consists of identity, structure, process, and culture (Colquitt et al., 2015). According to Grover, Limber, and Boberiene (2015), schools are places as community and for a school to develop a sense of community, "a school must (a) be safe and perceived as fair, (b) encourage active participation by students, (c) foster positive relationships with peers and school staff, and (d) be a place students want to be (p. S79)."

Empathy can be affective, which is "the extent to which one feels what another person is feeling (Olderbak & Wilhelm, 2017, p. 1093)." Empathy can also be cognitive, which is "the extent to which one infers the thoughts, intentions, and feelings of another person (Olderbak & Wilhelm, 2017, p. 1093)." Past studies on empathy have mainly focused on three components: emotion recognition, emotion

immersion, and response (Davis, 1983). Emotion recognition refers to recognizing and understanding emotional status of other people, embraces cognitive perspectives, and usually proceeds before emotion immersion and emotion response occurs. The conceptual model of the empathetic community is presented (see Figure 1).

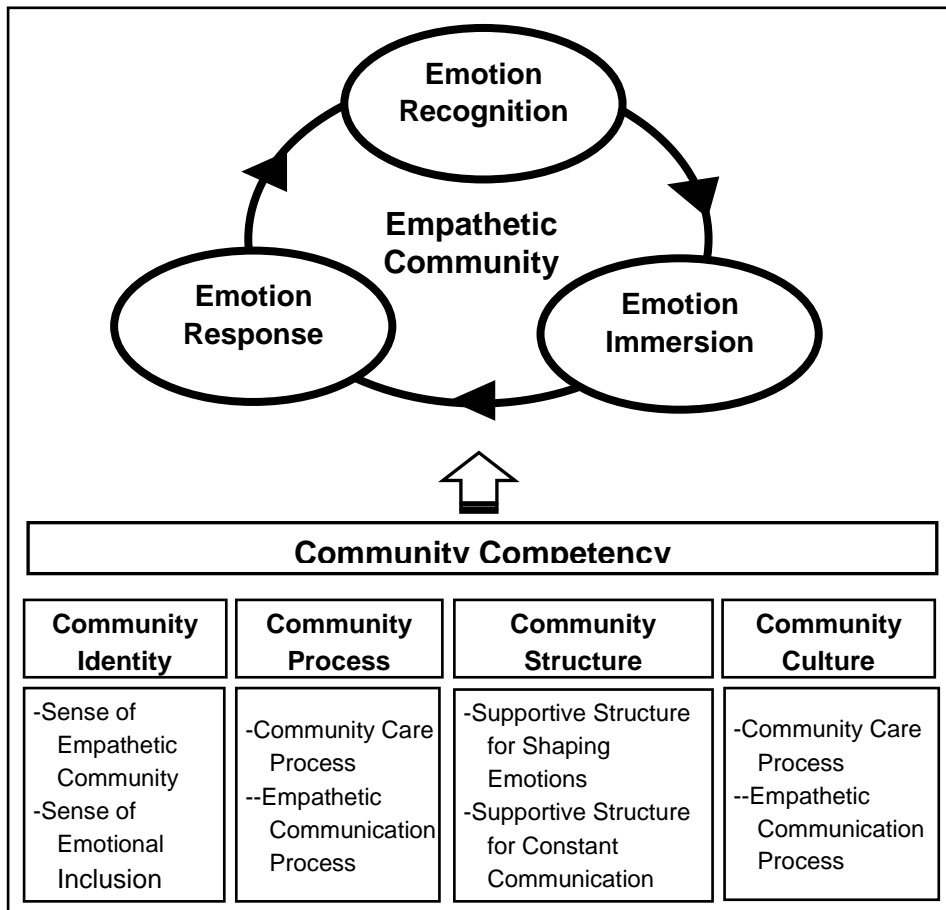


Figure 1. A structural model of an empathetic school community competency

### Emotion recognition

Past studies suggested that emotion recognition embraced cognitive perspectives

in that emotion recognition referred to recognizing and understanding emotional status of other people and revealed that emotion recognition usually proceeds before emotion immersion and/or emotion response occurs (Clark, 2007; Jo, 2016). We defined emotion recognition as the ability of a school community to understand and feel emotional status and care for the needs of its members and their schools as an empathetic community.

### **Emotion immersion**

For emotion immersion and emotion response to occur, emotion recognition usually proceeds first. Emotion immersion can be defined as the ability of community members to feel deeply the emotions of members and the community with their hearts. This ability is considered one of the most common attributes of empathy (Clark, 2007; Davis, 1983; Jo, 2016). Past studies viewed emotion response as the ability to actively take care of the needs of members and the community (Clark, 2007; Jo, 2016). Thus, an empathetic school community is composed of emotion recognition, emotion immersion, and emotion response.

### **Emotion response**

Emotion response was viewed as the ability to actively take care of the needs of members and the community. Emotion immersion means as the ability of community members to feel deeply the emotions of members and the community with their hearts. This ability is considered one of the most common attributes of empathy (Davis, 1983).

A school community focuses more on values or ideologies. A school community's structure is more flexible than that of a team or an organization and it often allows certain amounts of autonomy to school teachers and administrators (Colquitt et al., 2015; Forsyth, 2009). Each element of community competency



includes specific sub-competencies depending on the vision of each community. Sub-competencies of school community competency reflect the attributes of an empathetic school.

### **Community competency**

In this study, we defined community competency as the fundamental ability to help a school community form and maintain its desired vision effectively. Community competency consists of identity, structure, process, and culture (Colquitt et al., 2015; Jung, 2010; Marquardt, 1996). Each element of community competency includes specified sub-competencies depending on the vision of each community. Sub-competencies of school community competency reflect the attributes of an empathetic school.

### **Identity**

Identity means that community members recognize what their community vision is and then, build their identities based on the vision (Marquardt, 1996; Sergiovanni, 1994). This identity of a community consists of a sense of empathetic community and a sense of emotional inclusion and these two sub-competencies of identity function to drive a school member to form an empathetic school community as the beginning and the ending points (Marquardt, 1996; Sergiovanni, 1994). Developing a sense of emotional inclusion requires feelings satisfied as a member of the community and a sense of belonging to the community (Furman, 1998; McMillan & Chavis, 1986; Osterman, 2000). Students who experience a sense of belongingness perceive themselves to be more competent and autonomous and have higher levels of intrinsic motivation and more positive attitudes toward school (Osterman, 2000). It can be hypothesized that an empathetic school can regard an empathetic relationship as a key goal of a school community. Thus, the degree to which the

relationship is developed through the emotional support of members can be one of the most significant aspects of a member's identity.

## Structure

Structure refers to how communities are formed and maintained. An ideal structure can provide a stable framework for effective implementation of process (Colquitt et al., 2015; Marquardt, 1996). A structure with a high sense of empathetic community may have an environment to support its members to share their emotions systematically and financially, which we called emotional sharing support structure. An ideal structure may also pursue a horizontal relationship structure that allows members to share their emotions freely, which we call horizontal relational structure. A structure with a high sense of empathetic community may have a system to encourage members to constantly communicate with other members such as regular meetings, which we called constant communication support structure.

## Process

Process indicate dynamic activities and strategies to accomplish school community goals (Colquitt et al., 2015; Marquardt, 1996). This process consists of empathetic communication process and community care process. Empathetic communication process includes active listening and sensing others' emotions (empathy) by considering others' situations. Empathetic communication focuses on speakers' emotions behind the verbal content as well as the content itself. Empathetic communication process can support emotion immersion. Community care process indicates strategies or activities to make community care occur. This process may include the following activities: sharing what members in a community need, asking care-seeking questions, developing one-to-one relationships, and

providing feedback. Community care process helps community members actively care for one another (Colquitt et al., 2015; Marquardt, 1996; Noddings, 2005).

## Culture

The last element of the community competency is culture. A culture has shared norms and core values that affect members' certain attitudes and behaviors. A culture can be the basis for establishing identity, process, and structure (Marquardt, 1996). Core values necessary for achieving the vision of the empathetic school community are a culture of trust, a culture of respect, and a culture of care (Noddings, 2005). A culture of respect is an environment where members can express their feelings honestly and their feelings are accepted (Sergiovanni, 1994). A culture of respect accepts diversity such as different feelings, tendencies, and opinions. A culture of care refers to an atmosphere in which anyone can ask for help whenever it is needed and care for those who need it. This sense of solidarity can promote a virtuous cycle structure leading to additional care behaviors (Noddings, 2005; Sergiovanni, 1994). The effective creation of an empathetic school community requires the community to possess its own competency (Marquardt, 1996).

Thus, we supposed that community competency has distinctive characteristics. First, community competency has four elements: identity, structure, process, and culture. Second, community competency functions like an organism with synergy. Third, community competency has strong shared values and ideology. Last, community competency pursues relationship-oriented interaction. Therefore, these unique features of a school community provided the rationale for exploring the school community competencies that reflect the attributes of the school community in South Korea.

One of the goals of a school community is to realize the adoption of its common values by community members. One operating principle of a school community is

maintenance rather than effectiveness (Jung, 2004). Jo and Suh (2004) pointed out that a sense of community, cooperative and caring relationships among school members, and cooperative learning activities are key elements of a school community. McMillan and Chavis (1986) viewed school community as the quality of human relationships and proposed four elements of community: membership, influence, integration, and fulfillment of needs, and a shared emotional connection. Sergiovanni (1994) highlighted that emotional support along with shared values and goals are the main school community elements and that schools need to incorporate these elements into their development. Moreover, Noddings (2005) emphasized the necessity of emotional support for school community members to have a successful life in school. Therefore, the features of a school community include relationship-oriented interactions, flexible group structure, high social identity, shared values and ideology, and the maintenance principle.

## **Methods**

### **Scale development procedure**

Based on the literature reviewed and related theories, an initial set of 76 items were developed. These items were to measure school members' emotion recognition, emotion response, emotion immersion, identity, structure, process, and culture.

### **Content validity: panel of expert judges**

The content validity of the initial ESCCI was tested, using a panel of expert judges (Crocker & Algina, 1986). Five expert judges in empathy education and school community were recruited: three were secondary school teachers and two

were university professors. They were asked to examine items and judge the extent to which the initially designed items can sample the empathetic school community competency of school members, following the two questions: (a) Is this item relevant to the item category? (b) Does this item indicate its meaning clearly? The relevance of each potential item was rated on a 4-point Likert scale: 1 = not related to the category, 4 = very related to the category. Items with a content validity index (CVI) of less than 80% were modified, and those with a CVI of less than 60% were rejected (Kim, 2016). Applying these criteria to the results of the initial 76 items that the experts rated, 13 items were eliminated from the initial item pool, and 25 items were revised.

### **Pilot test of the scale**

The 63 remaining items were pilot-tested by 20 students, randomly selected from secondary school students to see if the 63 items of the ESCCI were well understood when administered. During the several pilot tests, items were adjusted in content and the manner of presentation. The main revision included three areas: (a) replacing the difficult terms with commonly used terms; (b) including more specific examples for abstract concepts; and (c) presenting the definitions of keywords. Finally, 63 items have been revised and selected as the final ESCCI.

### **The Empathetic School Community Competency Inventory (ESCCI)**

The ESCCI included 63 items (e.g., Members of our community believe that the community will help them when they ask for help) and were designed with a 5-point Likert-type scale: 1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The package of the ESCCI questionnaire included demographic questions: gender, school year, type of school, the number of classrooms, and the number of classmates.

## Participants

A total of 470 students and 139 teachers in secondary schools in South Korea responded to the ESCCI. The data were first screened at the item level and questionnaires for which more than 5% of the items had no response or for which all items had the same response were removed (Roth & Switzer, 1999). The expectation-maximization method with single imputation was applied for missing value replacement. After screening the data, the 435 students (76.4%) and 134 (23.6%) teachers remained as usable data for this study. Members of middle schools were 52%, while 48% were those of high schools. Among the students, the female consisted 56.3%, and out of the teachers, the female was 59.7%. The data were randomly divided into two sub-samples: one with 284 responses for an EFA and the other with 285 responses for a CFA (MacCallum, Roznowski, & Necowitz, 1992; Tabachnick & Fidell, 2007).

## Data analysis

Establishing the scale construction involved several subsequent statistical analyses: (1) an EFA to identify the desirable common factor model of the ESCCI, (2) a CFA to examine the stability of the derived factor model, and (3) a reliability analysis to determine the internal consistency of the ESCCI (Crocker & Algina, 1986). To perform an EFA and a CFA, the two sub-samples were used separately (Tabachnick & Fidell, 2007). As preliminary steps, the Kaise-Meyer-Olkin (KMO) test was performed to measure the appropriateness of the sample, and Bartlett test was employed to examine whether the structure of the ESCCI was suitable for factor analysis. Next, a principal component analysis as a guide prior to factor analysis was performed to explore the dimensions of the ESCCI (Dunteman, 1989).

For the EFA, supposing that there was no correlation between factors, the maximum likelihood estimation (ML) with the varimax rotation method was

employed using SPSS 19. Several criteria were considered to determine the number of factors: (1) Kaiser's criterion to retain eigenvalues bigger than one, (2) factor loadings of .40 or above, (3) Cattell's scree test (1966), (4) dropping items with factor loading values of .32 or less on two or more factors, which were considered to have cross-loadings (Tabachnick & Fidell, 2007), and (5) meaningful membership of items in each factor. For the CFA with the derived model of the ESCCI, the chi-square goodness-of-fit ( $\chi^2$ ) with degrees of freedom and a *p*-value was examined. To overcome limitations of the chi-square goodness-of-fit such as sensitivity to sample sizes (Kim, Kim, & Kamphaus, 2010), several other model indices were also tested: the standardized root-mean-square residual (SRMR; Bentler, 1990) with 90% confidence intervals, the root-mean-square error of approximation (RMSEA; Steiger & Lind, 1980), the Tucker-Lewis index (TLI), and the comparative fit index (CFI; Bentler, 1990), using AMOS 21.0. Hu and Bentler's cut-off criteria that values of  $\leq .06$  and  $\leq .08$  for RMSEA and SRMR respectively indicate a good fit were adopted. Scores of CFI and TLI equal or above .90 indicate adequate fit, while scores over .95 indicate a good fit (Tack & Vanderlinde, 2016).

In addition to factor analyses, we tested a convergent validity of the extracted model of the ESCCI, which is also a method for establishing a construct validity. Convergent validity indicates a degree to which a measure is similar to other measures to which it theoretically should be similar (Crocker & Algina, 1986).

To test the internal consistency of the ESCCI, coefficient alphas of each factor of the ESCCI were calculated (Cortina, 1993; Grayson, 2004). For this, the two sub-samples were combined into one dataset.

## Findings

The KMO index was .967, which indicates very good, and meant that the data could produce reliable factors (Hutcheson & Sofroniou, 1999). Bartlett's

significance test was also significant for the ESCCI with 18318.822 ( $df = 1035$ ,  $p < .001$ ).

### Results of exploratory factor analysis

A principal component analysis was performed on the first sample ( $n = 284$ ) to examine the underlying structure of the 63 items of the ESCCI. Next, a maximum likelihood estimate was used to derive a common factor model. During the several repetitions of PCAs and MLs, 14 items which did not satisfy the criteria were dropped, and finally, a five-factor model with 46 items was selected. The eigenvalues were 20.06, 2.90, 2.33, 1.42, and 1.21 respectively. The five factors together explained 60.68% of the total variance of the ESCCI and 56.22% of the common variance.

**Table 1. Factor 1: Culture of respect (존중의 문화;  $n = 284$ )**

No.	Item	Loading	<i>M</i>	<i>SD</i>
54	Our community respects each other's opinions.	.80	4.38	0.79
55	Our community respects each other's feelings.	.80	4.35	0.79
53	Our community has an atmosphere of respect for each other	.79	4.36	0.79
56	Our community recognizes differences (personality, thoughts, feelings, conditions, etc.).	.76	4.38	0.77
61	Our community has an atmosphere of helping each other.	.72	4.35	0.77
57	Our community respects others even if they are of different races or have disabilities.	.70	4.40	0.78
62	Our community has an atmosphere that provides help to people who are in need.	.70	4.31	0.79
52	Members of our community believe that the community will help them when they ask for help.	.54	4.26	0.76
63	Our community has many people who dedicate themselves to the community.	.49	4.23	0.88
50	Members of our community believe that members of the community will empathize when others express their feelings.	.49	4.19	0.79
Eigenvalue			20.06	
Variance explained			15.29%	



Psychometric Properties of the Empathetic School Community Competency Inventory

The first factor included 10 items with loading values ranged from .49 to .80 and explained 15.29% of the total variance (see Table 1). This factor reflected characteristics of a school community, such as respecting other members' opinions, feelings, and differences and was labeled *Culture of Respect* (존중의 문화).

Factor 2 included 13 items and the loading values ranged from .47 to .76 (see Table 2). This factor accounted for 14.89% of the total variance and represented characteristics of a school community such as sharing visions and helping other members. This factor was labeled as *Community Identity* (공동체 정체성).

Table 2. Factor 2: Community identity (공동체 정체성; n = 284)

No.	Item	Loading	M	SD
20	There is a sense of cohesion among our community members.	.70	4.29	0.77
21	Our community members feel close to each other.	.67	4.34	0.78
18	Members of our community are satisfied with being community members.	.76	4.20	0.84
19	The members of our community want to continue to be together.	.74	4.12	0.88
24	Within our community, members feel comforted and secure	.56	4.21	0.83
17	Members of our community have the idea that they belong to the community.	.64	4.18	0.82
23	Our community members feel positive about each other.	.49	4.23	0.77
15	Our community members share the dreams and goals that the community considers important.	.54	4.13	0.85
16	When someone criticizes the community, each member of our community takes it as a personal criticism	.56	3.79	0.97
11	Our communities act actively to help each other.	.54	4.32	0.78
10	Our community knows the kinds of needs that others have.	.53	4.22	0.74
14	Our community tries to help without ignoring the weak.	.56	4.37	0.80
13	Our community knows each other's needs even if they are not expressed	.47	4.10	0.81
Eigenvalue			2.90	
Variance explained			14.89%	

Ten items were loaded on factor 3 with loading values from .41 to .72. Factor 3 accounted for 13.07% of the total variance (see Table 3). This factor represented characteristics of a school community such as a structure that allows community members to have constant communications with other members. This factor was labeled *Communication Structure* (의사소통 구조).

**Table 3. Factor 3: Communication structure (의사소통 구조; n = 284)**

No.	Item	Loading	M	SD
38	Our community has a process to share the feelings of the community as a whole (talking about emotional events with each other and as a group - revealing the level of intensity of feelings – giving the reasons for feelings).	.72	3.88	0.92
34	In addition to formal meetings (classroom meetings, department meetings, etc.), our community has informal meetings (talking together, exercising together, eating together, etc.) where members can share feelings together.	.70	4.01	0.86
35	Our community has physical spaces (class bulletin boards, suggestion boxes, etc.) where we can express our feelings.	.65	3.96	0.90
37	Our community actively supports small groups to share each other's feelings (such as school space use, use of materials, and cost support for meetings).	.63	3.91	0.92
36	Our community has an online system (that uses emoticons such as good, sad, or angry) to share the feelings of members at any time.	.57	3.91	0.97
40	Our community has a way to sincerely listen to and identify each other's emotional states.	.56	4.10	0.82
32	Our community often spends time together.	.50	3.97	0.88
30	There are regular means (class meetings, department meetings, etc.) for our community members to communicate.	.41	4.02	0.83
31	There are means of on-line communication (group SNS, class band, etc.) accessible to our community members anytime, anywhere.	.41	4.20	0.86
39	Our community has a process to hear, feel, and share feelings of members of the community	.65	4.04	0.80
Eigenvalue			2.33	
Variance explained			13.07%	

Factor 4 included eight items, and the loading values ranged from .47 to .71. This factor explained 9.95 % of the total variance and represented the culture that members can sense the common vision and goals of the community (see Table 4). This factor was named *Emotion Immersion* (감정 이입).

**Table 4. Factor 4: Emotion immersion (감정 이입; n = 284)**

No.	Item	Loading	M	SD
2	Our community understands how other members feel.	.71	4.16	0.77
4	Community members are familiar with each other's feelings.	.70	4.12	0.76
1	Our community knows what emotions the community is sharing.	.69	4.14	0.71
3	Our community easily recognizes emotional changes in community members	.66	4.14	0.77
6	Our community is sad when members have difficulties.	.47	4.18	0.85
7	Our community is delighted when something good happens to its members.	.51	4.30	0.80
8	Our community easily empathizes with each other's feelings.	.50	4.19	0.79
9	Our community understands the emotions behind the behaviors of community members.	.50	4.15	0.77
Eigenvalue			1.42	
Variance explained			9.95%	

**Table 5. Factor 5: Caring process(돌봄 프로세스; n = 284)**

No.	Item	Loading	M	SD
44	Our community has ways to know if anyone needs help (whether they need help, what can be done to help them, and how they can be helped.	.74	4.06	0.87
43	Our community has ways to prevent bullying and alienation (saying “stop” when violence occurs, establishing a one-on-one relationship, etc.).	.72	4.03	0.95
45	Our community has ways to ask for help from each other.	.66	4.19	0.81
46	Our community has a process to help each other (writing a talent donation list, choosing the talents that are necessary, planning the help, taking actions).	.55	3.95	0.88
47	Our community has a process for sharing its feelings with the members after providing help.	.50	3.93	0.89
Eigenvalue			1.21	
Variance explained			7.48%	

The last factor of the ESCCI included five items, and the loading values ranged from .50 to .74. This factor explained 7.48% of the total variance and reflected if a community had a caring process that members could take to provide other members with care, and it was labeled *Caring Process* (돌봄 프로세스). Loading values of the items and variance explained by this factor are presented (see Table 5).

### Results of confirmatory factor analysis

To achieve the research objective, a CFA with the proposed model of the ESCCI was conducted. Selected modeling information indices produced the following values: the chi-square goodness-of-fit test,  $\chi^2$  (980, n = 285) = 3080.169;  $p$ -value < .0001, RMSEA = 0.068; 90% CI [.059, .064],  $p$ -value < .0001; CFI = .88, which is considered quite good as an approximation; SRMR = 0.04, which is acceptable; and TLI = .88, which is acceptable (see Table 6).

Table 6. Model fit indices of the ESCCI (n=285)

$\chi^2(df)$	SRMR	TLI	CFI	RMSEA	90% CI
3080.169(980)*	.04	0.88	0.88	0.61*	0.059-0.064

Note. Number of items = 46. \* =  $p$ -value < .001.

The five-factor model of the ESCCI was also expressed in a diagram with 10 correlated factors and completely standardized robust maximum likelihood parameter estimates using the software AMOS 21 (see Figure 2). By constraining the correlation between the four factors to be one, the parameters of the five-factor model estimated were 52 error variances, 40 factor loadings, 51 variances, and 10 factor covariances. Thus, a total of 153 parameters were estimated.

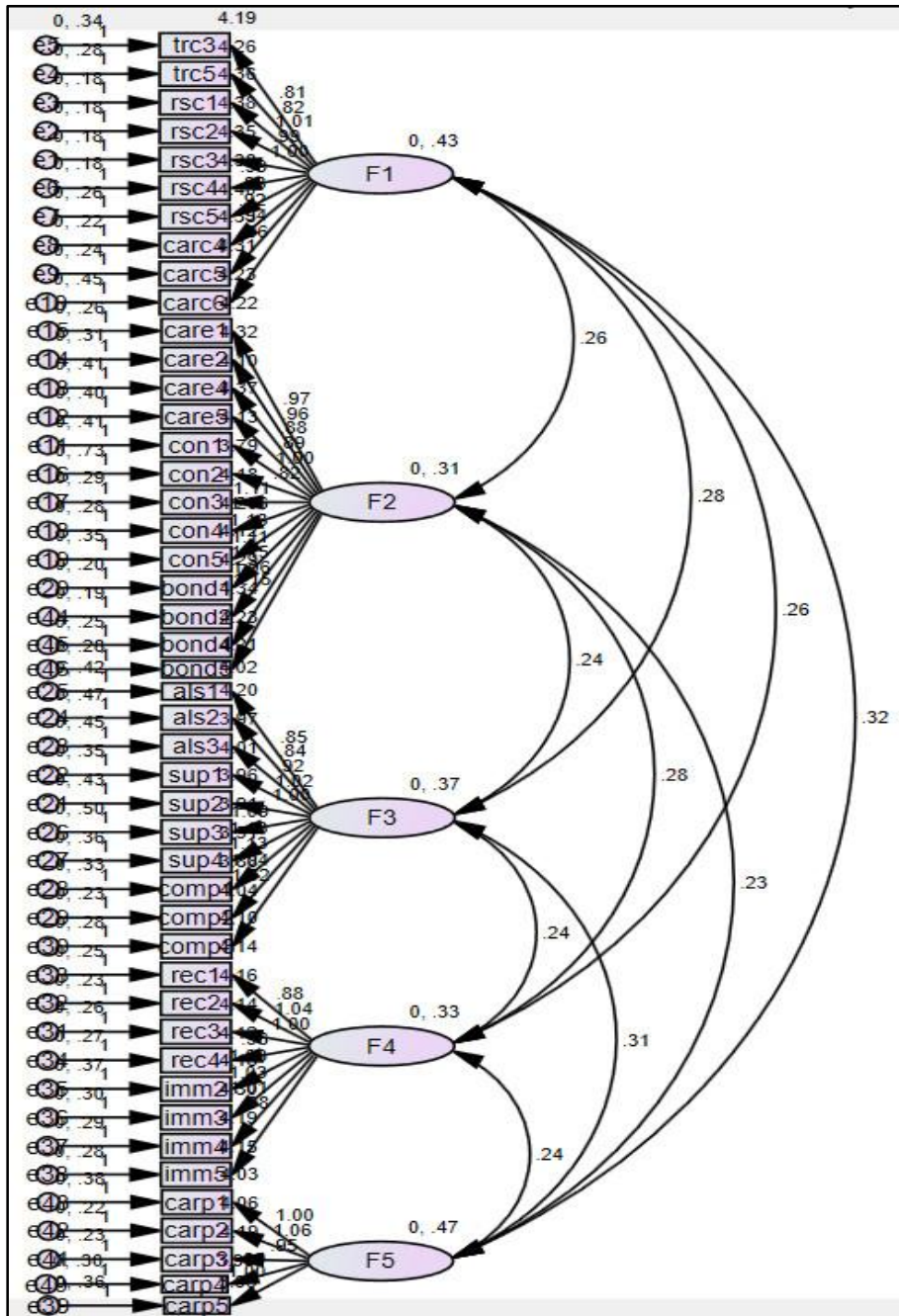


Figure 2. A diagram of confirmatory factor analysis model with five correlated factors and completely standardized robust maximum likelihood parameter estimates.

## Results of convergent validity

Convergent validity of the five common-factor model of the ESCCI was tested and all the values of a concept reliability of each fact were above .7, which we can interpret a convergent validity is established. The results of a concept validity and variance indices are presented (see Tables 7 & 8).

**Table 7. Concept reliabilities of the five factors of the ESCCI (n=569)**

Factor	$\Sigma S.E.$	$(\Sigma S.E.)^2$	$\Sigma_{measurement\ error}$	C.R.
Culture of respect	7.71	59.51	2.52	.96
Community identity	9.20	84.55	4.60	.95
Communication structure	7.05	49.66	3.30	.94
Emotional immersion	5.85	34.16	2.38	.94
Caring process	3.93	15.47	1.68	.90

Note. S.E. = standardized estimate, M. E. = measurement error, C.R. = concept reliability.

**Table 8. Test of convergent validity of the five factors of the ESCCI (n=569)**

Factor	C.R.	V. I
Culture of respect	.96	.70
Community identity	.95	.59
Communication structure	.94	.60
Emotional immersion	.94	.64
Caring process	.90	.65

Note. C.R. indicates concept reliability, and V. I means variance index.

## Reliabilities

Using coefficient alphas, a reliability analysis was performed on the combined data set (n = 569) to examine the internal consistency of each factor of the ESCCI.

The coefficient alphas ranged from .89 to .94, which were found to be highly reliable (see Table 9).

**Table 9. Reliabilities of the five factors of the ESCCI (n=569)**

Factor	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$
Culture of respect	10	4.32	0.79	.94
Community identity	13	4.19	0.82	.93
Communication structure	10	4.00	0.88	.91
Emotional immersion	8	4.17	0.78	.90
Caring process	5	4.03	0.88	.89

## Conclusion and Discussion

This article presents a measurement instrument to assess empathetic school community competency (ESCCI). Initially, 76 items of the ESCCI were developed based on the literature related to the school community, empathy, and group level competencies. Next, to establish the content validity, five experts participated in judging the initial items and items were reduced to 63 items. Next, pilot tests were conducted several times to refine the 63 items. And then, data were collected from secondary school students and teachers, instrumenting the ESCCI. On the data collected, an EFA and a CFA were performed to validate and confirm the instrument. Coefficient alphas to test the internal consistency of each factor of the ESCCI were calculated. It was concluded that the ESCCI is multi-dimensional with a five-factor model. The five factors combined accounted for 60.68 % of the total variance and 56.22% of the common variance. The five factors were labeled culture of respect ( $\alpha = .94$ ), empathetic community identity ( $\alpha = .93$ ), communication structure ( $\alpha = .91$ ), emotion immersion ( $\alpha = .90$ ), and caring process ( $\alpha = .89$ ).

It was hypothesized that community competency would consist of identity, communication structure, caring process, and culture. The results of the study

suggested that items designed to measure characteristics of the culture of a school community were loaded on one factor with some items dropped through factoring analyses. Identity and culture were supported by the theoretical model, and communication structure and caring process were restructured. Items designed to measure characteristics of emotion response and identity were loaded on one factor, empathetic community identity. This result can explain that identity which was supposed as one of the four key elements of community competency can be also a key element of empathetic community.

When members of a school community feel that they are accepted in their school community, members show responses to their community. Also, depending on members' experiences of responses from other members, their feelings of inclusion can be enhanced or decreased and then lead to the formation of their identity. The result implies that emotion inclusion and emotion response are bi-directionally interwoven to produce the identity of members of an empathetic community. Items developed to assess the characteristics of emotion recognition and emotion immersion merged into one factor, emotion immersion. This supports that emotion recognition proceeds emotion immersion to make emotion immersion occur as we stressed in the literature review.

It was hypothesized that elements of the process of community competency would have two sub-factors: communication process and caring process. However, the result showed that items developed to measure characteristics of communication process were loaded on one factor, communication structure, with items designed to assess characteristics of communication structure. This explains that repetitions of a process that enables members of a school community take to communicate can be perceived a structure by members. Communication structure can be formed via regular meetings or voluntary small groups, allowing members to communicate their ideas and feelings naturally and actively (Colquitt et al., 2015).

Items designed to measure caring process loaded on one factor, caring process, as hypothesized. This result supports that members of a school community can



distinguish caring process from communication process, which emerged into communication structure.

Based on the results of the study, a conceptual model of the empathetic school community competency was developed. This model has five domains. Two domains can explain empathy and the other three domains can reflect community competency. The figured model is presented (see Figure 3).

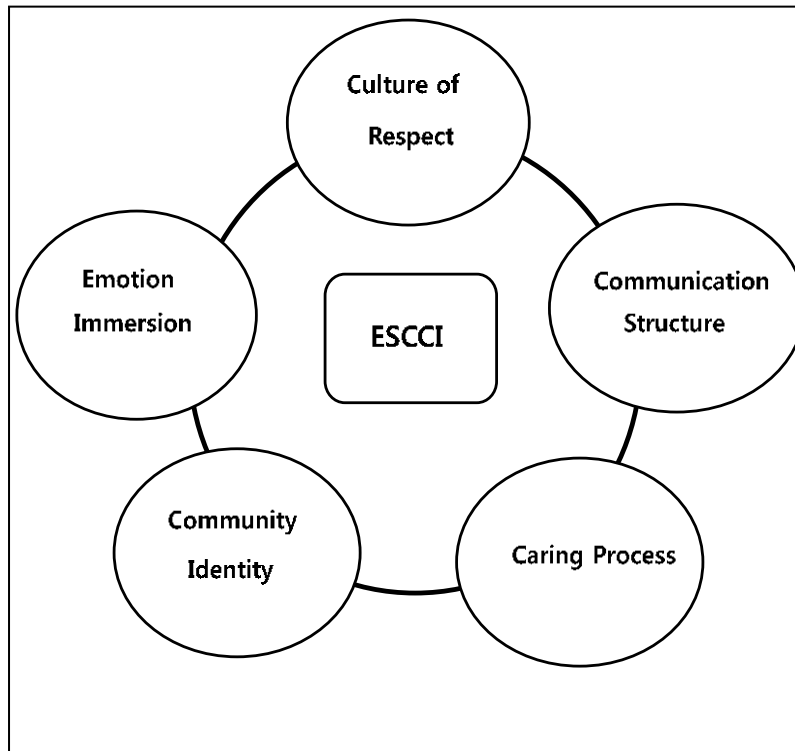


Figure 3. A model of the Empathetic School Community Competency

The first domain is *culture of respect*. Culture is an indispensable competency in that it can impact all other competencies without the need for community members to be aware of its influence. If a culture of trust, respect, and caring is established, the ESCCI will be more effective in attaining the vision of school community

(Noddings, 1992; Sergiovanni, 1994).

The second domain is *emotion immersion*. This domain is to assess the characteristics of emotion recognition and emotion immersion such as perceiving other members' emotions and recognizing emotional changes of other members.

The third factor is *community identity*. This domain is to measure characteristics of emotion response and identity as a part of community competency. Identity can be a fundamental competency in that it enables a school to form a school community and maintain it. Community identity enables community members to feel belongingness as members of the community and devote themselves to a school community (Marquardt, 1996).

The fourth is *caring process*. This factor is to measure if a school community has a process for school community members to help other members, stop bullying, ask for help, and share feelings.

The last domain is *communication structure*. This domain is to measure if a school community has a structure that allows school community members to have constant communication activities. School community competency includes communication activities such as formal and informal meetings, online and off-line social networking systems, and support such as finance and space for communication activities at a school level.

School plays a key role to enhance students' social and emotional learning and school community has a fundamental influence on students' "mental, social, and emotional well-being" (Grover, Limber, and Boberiene, 2015, p. S80). When a school plays a role as a community with empathetic competencies, challenges such as social isolation and suicide rates that South Korea has faced would be reduced and resolved. The results of this study suggest that secondary schools in South Korea need to make an endeavor to make programs and/or an environment that can cultivate students' empathetic school community competencies in the areas of emotion immersion, community identity, and communication structure.

## Limitations and implications for future studies

This study revealed that the ESCCI is a good model to measure members' empathetic school community competency at secondary schools in South Korea. However, there are a few limitations identified as well. First, considering that factor analysis is subjective in its nature (Park & Hill, 2016), different factor models of the ESCCI can be derived depending on different researchers. Also, different samples could produce different factor models and different psychometric properties of the ESCCI. Second, the findings of the current study were based on the specific context that data were collected from Korean secondary school teachers and students, so it is difficult to generalize the results to other contexts. Despite the limitations, the current study can serve as a basis for future researchers on school community and competency in South Korea. This research can serve to help educators, educational policymakers, and evaluators of school communities understand schools' community competency when they develop programs and curricula needed. If the ESCCI is appropriately applied to members of different types of secondary schools such as special purpose high schools, specialized high schools, and autonomous high schools, researchers can compare empathetic school community competency of school members and serve to better understand empathetic school community competency of various secondary schools in South Korea. Finally, if the ESCCI were translated into other languages such as Chinese and Japanese languages, meaningful comparative research studies in culturally different contexts could be conducted.

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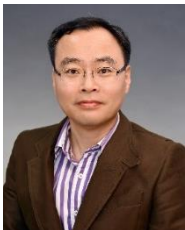


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