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APPLICABILITY OF MENTALIZING RESEARCH TO EDUCATION

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Abstract

Teachers are required to improve their qualifications and abilities and, accordingly, support children's mental development. In recent years, mentalizing— the ability to understand the mental state of oneself and/or others —has been expected in education, and the development of mentalizing in children and teachers has become the focus of research. However, mentalizing comprises complicated components. Furthermore, since it includes various proximity concepts, it is difficult to understand how it can be effective for both teachers and children, especially as it is not a well-known process in Japan's education system. Consequently, in this paper, we describe how mentalizing is regarded as one of a teacher's crucial abilities. In addition, the relationship between mentalizing and close proximity concepts is explained. Accordingly, mentalizing encompasses self-others, implicit-explicit, and cognitive-emotional understanding, as well as theory of mind to show cognitive understanding of others and empathic understanding of others. Moreover, emotional intelligence is considered to be almost synonymous with emotional mentalizing. In addition, metacognition is considered a fundamental ability in influencing the development of mentalizing. To a large extent, the ability of mentalizing is considered to overlap with theory of mind, empathy, and emotional intelligence. This concept is also believed to emphasize metacognitive introspection. Concepts that have seen as similar to mentalizing are imperative in children's mental development. Consequently, research on teachers and children has actively been conducted. The ability of mentalizing to consider the perspectives, thoughts, and emotions of others is an important skill for teachers that could significantly contribute to the mental development of children.

Key words: Mentalizing; theory of mind; empathy; emotional intelligence; metacognition

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1. Introduction

Teachers are required to possess an attitude of autonomous learning and the capacity to constantly maintain and improve their teaching qualifications and abilities. In addition, they are expected to respond to the children in their care based on each child's individual developmental issues and educational needs (Ministry of Education, Culture, Sports, Science and Technology, 2015). It is therefore essential that teachers understand themselves from an objective point of view and attempt to understand others, including children and their guardians, from a variety of perspectives; these skills are required as soon as they begin work. Akimitsu, Matsumoto, Fujiwara, and Arai (2009) held that a teacher's ability for self-understanding is vital, as the characteristics of teaching staff have a significant impact on children and classes. Teachers undergo self-reflection and growth through interactions with their students (Akimitsu et al., 2009), and an ability to reflect on and modify one's own behavior is linked to the ability to broadly understand the meaning of others' behavior. *Mentalizing* is an example of this kind of ability.

Mentalizing is strongly related to the empathy, theory of mind, metacognition, and affect regulation that are necessary for the stable mental development of children and young adults (Allen, Fonagy, & Bateman, 2008/2014). It should therefore be of value in various arenas where support is provided, such as education (Swan & Riley; 2012, 2015), school community (Bak, Midgley, Zhu, Wistoft, & Obel, 2015), and careers (Taubner, Müller, & Kotte, 2017). This is especially true in the area of teaching, in which mentalizing to understand others with different viewpoints and ways of thinking is considered an essential ability and applied research is advancing (Swan & Riley, 2012, 2015). Against this bakground, the term "mentalizing" has begun to draw attention in recent years and is being used by diverse researchers across various fields, including psychology. As a result, the concept is used in different ways by numerous researchers, causing confusion and a lack of clarity about mentalizing's relationship to closely related concepts.

This paper, focused on the value of mentalizing in educational practices and its applicability therein, adopts for its investigations the concept of mentalizing presented by Fonagy and colleagues, particularly their research covering the developmental perspective. Specifically, this paper relates the concept of mentalizing and developments in mentalizing research, introduces closely related concepts, and discusses the applicability of mentalizing to education.

2. What Is Mentalizing?

2.1. Mentalizing Research

British psychoanalyst Peter Fonagy advanced the concept of mentalizing from clinical

practice and developmental perspectives (Fonagy, 1989; Fonagy, 1991; Fonagy & Target, 1997). Mentalizing means understanding others using the ability to perceive and interpret the background of both one's own and others' behavior in terms of the mental states that are its drivers—needs, desires, emotions, beliefs, goals, purposes, and reasons (Allen & Fonagy, 2006/2011; Allen et al., 2008/2014; Fonagy & Allison, 2012)—and the ability, formed through reflection (including self-reflection) and connection with others, to understand the self and others (Fonagy & Target, 1997). This concept has been central to early research in clinical practice, including French psychoanalyst Marty's (1990) study of the treatment of psychosomatic diseases and Fonagy's (1991) research into the treatment of personality disorders. Meanwhile, Fonagy and colleagues also pursued the concept of mentalizing from a developmental standpoint in attachment research (Fonagy, Steele, Steele, Moran, & Higgitt, 1991; Fonagy & Target, 1991).

The term "mentalizing" has also extended into many other disciplines, including theory-of-mind research and brain and cognitive sciences (Baron-Cohen, 2003; Frith, 2001; Frith, Morton, & Leslie, 1991). Early studies in those fields measured mentalizing using theory-of-mind tasks and treated the two concepts almost synonymously. However, it has been demonstrated that tasks eliciting a personal emotional experience, such as tasks involving moral dilemmas or understanding sarcasm, activate the region of the brain associated with mentalizing (Frith & Frith, 2003). As theory-of-mind tasks do not target mental–emotional experiences, we can consider mentalizing and theory of mind to be separate. Developments in brain science are also contributing to changing opinions. In this way, the development of mentalizing research in various disciplines has resulted in different definitions and concepts in each field.

2.2. Mentalizing and Attachment

Bowlby (1976/1991) proposed the concept of attachment as the bonding system formed in early life between children and their caregivers, with the children using their attachment figures as a secure base from which to widen exploration and play. Further, children's interactions with their attachment figures lead to the formation of an internal working model (IWM) during infancy (Bowlby, 1977/1991), according to which they develop expectations of the behavior of others and the ability to plan their own behavior based on those expectations (Bowlby, 1976/1991, 1977/1991).

The IWM in attachment theory comprises two aspects: the model that applies to the self, which relates to whether one believes oneself worthy of love, and the model that applies to others, which considers whether they are trustworthy (Bowlby, 1977/1991). This has been described as an intersubjective model representing the relationship between the self and others (Fonagy, 2001/2008). According to Fonagy (1991) and Fonagy and Target (1997), mentalizing develops on the foundation of an attachment indicative of a warm, secure relationship with

an early object (caregiver); acquiring this ability allows children to internalize. Further, it is thought that mentalizing ability is transmitted generationally through caregivers' reflective connections with infants in the attachment–formation process (Fonagy et al., 1991; Fonagy & Target, 1997).

2.3. Mentalizing and Reflective Function

Mentalizing is defined as using one's imagination to capture and interpret the behavior of the self and others through perception of psychological states (Allen et al., 2008/2014). In mentalizing, questioning the self by means of reflection allows self-understanding and modification of one's behavior (Fonagy & Target, 1997). Further, reflection on the various possible psychological states that may be driving the behaviors of others allows the prediction of their behaviors as meaningful acts (Fonagy & Target, 1997). Fonagy et al. called the ability fundamental to the formation of this kind of interpersonal relation *reflective function* (Fonagy et al. 1991; Fonagy & Target, 1997).

According to Fonagy and his collaborators, reflective function is a psychological ability, indispensable to children's emotional development and affect regulation in infancy, that forms the foundation of internal observation of mental activities (Fonagy et al., 1991); it plays an important role in children's self-organization (Fonagy & Target, 1997). As a result, reflective function and mentalization are treated as synonymous abilities that allow understanding of others' behaviors and mental states (Fonagy & Target, 1997). Reflective function may be classed as a mentalizing ability developed in the relationship with attachment figures.

2.4. Facets of Mentalizing
2.4.1. Self–Other

Mentalizing requires an understanding of the inner aspects of the self and others as well as an external, objective understanding of both; without entirely separating these aspects, it focuses alternately on both self and other, deepens understanding, and aims at elaboration of the self and understanding of both the self and the other (Allen et al., 2008/2014). In mentalizing, self-understanding and understanding of the other reinforce one another (Allen & Fonagy, 2006/2011), and it is important to carefully balance the bias in understanding toward one or the other that may occasionally arise (Allen et al., 2008/2014).

2.4.2. Implicit–Explicit

Mentalizing requires both implicit and explicit understanding of the mental states of the self and the other. In other words, it requires the ability to understand the mental states of the self and others automatically and intuitively, to carefully consider the mental states of the self and others as understood, and to express this as a narrative (Allen et al., 2008/2014). While people frequently implicitly understand their own thoughts and feelings and those of others,

implicit comprehension is not enough to fully understand the self and others or to evaluate and modify one's own behavior. To look inward to one's implicit understanding of one's thoughts and feelings and those of others and to explain them explicitly according to context—thereby intermittently reflecting on whether one's interpretations are correct and considering other possibilities—is to properly mentalize. However, as it is difficult to distinguish conscious from unconscious processes, it is hard to draw a clear boundary in the relationship between implicit mentalizing and explicit mentalizing (Allen et al., 2008/2014).

2.4.3. Cognitive–Affective[2]

Mentalizing is the understanding of thoughts, emotions, desires, and other states on both sides of the self's relation with another, including understanding both the cognitive and the emotional aspects in both parties. It is therefore possible, when mentalizing, to become entangled in the powerful emotions that one holds regarding others or, conversely, in others' intense emotions. When mentalizing in relation to experiences of powerful emotion, it is essential to reflect on the emotions of the self and the other and to consider and acknowledge what is meaningful in the truth of those emotions; this closer understanding of one's own emotional experiences develops one's ability for affect regulation (Fonagy, 2002). As in the dimensions of self–other and implicit–explicit, understandings of cognitive and emotional aspects in mentalizing are intricately interrelated and cannot be clearly separated or distinguished.

3. Mentalizing's Closely Related Concepts

As discussed above, mentalizing requires understanding mental activity in terms of self–other, implicit–explicit, and cognitive–affective (Allen et al., 2008/2014). Thus, it is related to various concepts important to human mental development, including theory of mind, empathy, emotional intelligence, and metacognition. The following sections clarify the applicability of mentalizing to education by revealing its differences with these ideas, the relationships between mentalizing and these closely related concepts.

3.1. Theory of Mind
3.1.1. What Is Theory of Mind?

Theory of mind may be considered foremost among concepts charting our ability to understand others. Theory of mind is a concept proposed following Premack and Woodruff's

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2) "Affect" is translated as *jyōdō* in the Japanese version of Allen, Fonagy, & Bateman (2008). There are many interpretations of the difference between affect and emotion. This paper references Fukuda (2008), according to whom *affect* refers to temporary, powerful emotions accompanied by a physical response, such as anger, while *emotion* is a broad category that covers social emotion, intellectual emotion, and affect.

observational studies (1978) in which chimpanzees exhibited behavior akin to reading the minds of others, and it holds that an "individual has a theory of mind if he imputes mental states to himself and others."

It is thought that children generally acquire theory of mind between four and six years of age, with false-belief tasks[3] used to measure the acquisition or lack thereof (Wimmer & Perner, 1983). While prediction and explanation of another's behavior require knowledge of two among the three factors of their beliefs, desires, and actions, this is not sufficient to understand theory-of-mind tasks, which necessitate an understanding of the process of mental representation (Astington, 1993/1995). Moreover, once a theory of mind is acquired, it continues to develop, and its acquisition and normal development are considered indispensable requirements for communication in society (Koyasu, Hattori, & Gōshiki, 2000).

3.1.2. The Relationship Between Theory of Mind and Mentalizing

From his research with children with autism, who have difficulty acquiring theory of mind, Baron-Cohen proposed two terms related to mentalizing (Baron-Cohen, 1995/2002).

The first was *mindreading*. Baron-Cohen (1995/2002) posited the "mindreading system"[4] as the process by which children acquire theory of mind. While "mindreading" and "theory of mind" were treated as synonyms in this earlier work, they were distinguished in a later paper (Baron-Cohen, 2005) that added empathy to the system, following which mindreading was treated synonymously with mentalizing (Baron-Cohen, 2009). Frith and Frith (2005) gave a mechanistic account of mentalizing as an ability to understand others: the ability to "read" the psychological states that determine others' actions. This differs from the concept of mentalizing as proposed by Fonagy et al.

The second term proposed by Baron-Cohen was *mindblindness*[5] (1995/2002). Mentalizing is considered the antithesis of mindblindness (Allen & Fonagy, 2006/2011; Allen et al., 2008/2014). Japanese research with children with autism has theorized that a lack of mentalization ability is behind the difficulties that children with autism have in understanding the thought processes of others (Kondō, Kobayashi, & Miyazawa, 2013; Yoshida, Takata, & Inui, 2005).

3.1.3. Differences Between Theory of Mind and Mentalizing

When understanding the minds of others, children consider both their own experiences

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3) False-belief tasks are tests used to investigate development (acquisition or lack thereof) of theory of mind. Typical tasks including the Maxi test, Sally-Anne test, and Smarties task, all of which aim to discover whether participants recognize the divergence of belief between people who observed a particular phenomenon and those who did not.

4) *Mindreading* is defined in Baron-Cohen (1995/2002) as the ability to imagine the meaning of others' behavior and, in a revised edition (Baron-Cohen, 2005), as "the ability to interpret one's own or another agent's actions as driven by mental states."

5) Baron-Cohen (1995/2002) proposed the term "mindblindness" to refer to the inability of children with autism to understand others' beliefs, which he believed to be a mindreading deficit.

and the intentions of others (Tomasello, 1999/2006), and theory of mind and mentalizing both must be understood from a developmental perspective. However, theory of mind and mentalizing have differences. For example, theory of mind is used to understand the other, while mentalizing requires an understanding of the mental states of both oneself and the other in relation to a particular event. The false-belief and perspective-taking tasks[6] used to index theory of mind investigate whether the thoughts and feelings of the other have been correctly understood and measure whether participants have acquired theory of mind. In contrast, mentalizing refers to understanding the self and the other through reflection; rather than measuring the correctness of this understanding, the dimensions of mentalizing (e.g., the balance of emphasis between understanding of the self and of the other, flexibility of thought) and quality of reflection (e.g., its depth and breadth, whether reflective or ruminative) are considered important processes and measured.

Baron-Cohen (2005) distinguished between empathy and theory of mind. Likewise, Mizokawa and Koyasu (2015) stated that the theory-of-mind ability to understand others is not necessarily linked to empathy, whereas mentalizing requires an empathetic understanding gained from putting oneself in the position of the other. Further, the subjects of theory-of-mind research have primarily been infants, and the focus has been on whether it has been acquired, while mentalizing has no age limit and develops and changes over a lifetime.

3.2. Empathy

3.2.1. What Is Empathy?

The term "empathy" is said to have been first used in 1909 by British psychologist Edward Titchener. Empathy is considered to have two subcategories: *cognitive empathy,* by which one infers and understands the emotional state of the other, and *emotional empathy,* which involves not only understanding the emotional state of the other but sharing in it, an experiential reaction that induces a physical response of one's own (Umeda, 2014). Although the definition of empathy varies according to the perspective of the researcher, it refers broadly to the response of one individual to the observed experiences of another (Davis, 1983). Eisenberg and Strayer (1987) distinguished empathy from sympathy, presenting the former as covering emotional experiences corresponding to the emotions of others, but the cognitive and emotional sides of empathy were later combined, along with sympathy, into one broad concept.

Moreover, as the concept of empathy is linked to prosocial behavior, numerous studies have explored its relation to, for example, helping behavior, morality, interpersonal competence, and self-efficacy (Eisenberg & Lennon, 1980; Davis, 1983; Hoffman, 1963). Currently

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6) For example, the (revised) Eye Test devised by Baron-Cohen, Wheelwright, Hill, Raste, and Plumb (2001), shows participants photographs of various faces in which only the expression in the eyes is visible and asks them to interpret each individual's emotions.

favored is a multidimensional approach that recognizes individual variation and development (Davis, 1980, 1983; Hoffman, 1987).

3.2.2. The Relationship Between Empathy and Mentalizing

Prerequisites for empathy are the ability to see the perspectives of both self and other and the ability to separate and detach the mental states of the two (Katō, 2014). The ability to imagine the emotions and thoughts of others by putting oneself in their position is called *role-taking* (Hoffman, 1977) or perspective-taking (Davis; 1980, 1983), and it is considered a subtheory of empathy. Davis (1980, 1983) created the Interpersonal Reactivity Index (IRI) to measure various facets of empathy; it uses subscales of perspective-taking and fantasy (cognitive empathy) and empathic concern and personal distress (emotional empathy). As mentalizing requires adopting another's perspective in addition to one's own and fluidly switching between them, perspective-taking is also an important tool in assessing mentalizing (Luyten, Fonagy, Lowyck, & Vermote, 2012).

3.2.3. Differences Between Empathy and Mentalizing

A strong link between mentalizing and empathy is suggested by the attitude of empathetic understanding of the self and the other that forms part of mentalizing (Allen & Fonagy, 2006/2011; Allen et al., 2008/2014). Allen et al., referencing Preston and de Waal (2002), stated that empathy and mentalizing resemble one another: both comprise a broad range of responses from automatic (implicit) to conscious (explicit), and both entail mental elaboration (Allen & Fonagy, 2006/2011; Allen et al., 2008/2014). Further, both require attention to the mental state of the other and the other's representations, the understanding of which is believed to change based on individuals' experiences (Allen et al., 2008/2014; Preston & de Waal, 2002). However, attention and orientation in empathy, while directed at both the self and the other, are chiefly used to understand others' mental states. Mentalizing requires that attention be directed at one's own and others' emotions and emotional states, that these be understood, and that their reasons be identified (Allen et al., 2008/2014).

3.3. Emotional Intelligence
3.3.1. What Is Emotional Intelligence?

Salovey and Mayer (1990) proposed emotional intelligence as a subtheory of social intelligence, defining it as "the ability to monitor one's own and others' feelings, to discriminate among them, and to use this information to guide one's thinking and action" (p. 189). Mayer, DiPaolo, and Salovey (1990) considered emotional intelligence to be a type of information processing that allows people to improve their daily lives by perceiving and evaluating their own and others' emotions. In contrast, Boyatzis (2009) called this ability *emotional competence* and emphasized that it is a capability or characteristic that leads to

superior results, particularly in work-related arenas.

Indicators of both emotional intelligence and emotional competence are separated into self and other, each measured by five subscales. Of these, four are common to both concepts: emotional understanding, identification, regulation, and expression; the remaining subscale for emotional intelligence is emotional awareness, and for emotional competence, it is using emotions (Brasseur, Gregoire, Bourdu, & Mikolajczak, 2013; Mayer, Caruso, & Salovey, 1999). While there are various opinions on both concepts, competence is generally held to be a learned ability rather than a mental capacity (Boyatzis, 2009). Whereas Mayer et al. (1999) distinguished emotional intelligence and emotional competence, Allen et al. (2008/2014) presented emotional intelligence as a concept closely related to mentalizing.

3.3.2. The Relationship Between Emotional Intelligence and Mentalizing

Emotional intelligence comprises various facets—awareness, understanding, identification, regulation, expressing emotions, and perceiving others' emotions. These facets cover mentalizing's implicit and explicit aspects of perception and response of emotions (one's own and those of others) as well as its regulation of one's own emotions; this means that multifaceted emotional intelligence presents several areas of overlap with emotional mentalizing. Further, evaluations of emotional intelligence can be divided into verbal and nonverbal (Mayer et al., 1990). On the nonverbal side, emotions can be communicated by not only people's expressions and movements but also through colors, designs, and art, including photographs. While mentalizing assessments include story tasks that use photographs (Dziobek et al., 2006; Valle et al., 2016), the authors found no current studies on mentalizing assessments using inanimate objects or colors.

3.3.3. Differences Between Emotional Intelligence and Mentalizing

As stated above, emotional intelligence may be considered a concept closely related to emotional mentalizing as the ability to understand, identify, and express emotions and understand those of others. However, emotional intelligence is limited to emotional psychological states, while mentalizing can extend beyond the emotional to cover all psychological states, including intention or thought (Allen et al., 2008/2014). Moreover, mentalizing does not include any ability to regulate the emotions of others. Even in terms of one's own affect regulation, experiencing one's emotions with clarity is deemed prerequisite to reflecting on them with clarity, such that feeling emotions is given more attention than regulating them (Allen et al., 2008/2014). Further, while emotional intelligence does not cover general self-awareness and appraisals of others (Salovey & Mayer, 1990), mentalizing covers the innate and general senses of the self, as self-image acquisition and development of the self are thought to influence the development of mentalizing (Fonagy & Target, 1997). In addition, correspondence between appraisals of others and the extent of one's own self-understanding

and the understanding of others is one measure of adequate mentalizing and is evaluated in clinicians' assessments in clinical practice (Bateman & Fonagy, 2006).

3.4. Metacognition

3.4.1. What Is Metacognition?

Metacognition is a concept proposed by Flavell (1979) and defined as "cognition about cognitive phenomena." Flavell separated metacognition into "metacognitive knowledge" and "metacognitive experiences" and understood that the two interact. *Metacognitive experiences* were later referred to as *metacognitive activity*. Flavell (1979) described *metacognitive knowledge* as knowledge and beliefs about how the processes and outcomes of cognitive enterprises are affected, and he divided it into the three categories: knowledge of person variables, knowledge of task variables, and knowledge of strategy variables. These can be simplified as knowledge about people's cognitive characteristics, tasks, and strategies, respectively (Sannomiya, 2018). Flavell (1979) posited that metacognitive experiences are the cognitive and emotional experiences produced before, during, or after undertaking a cognitive enterprise, regardless of its duration or content.

Metacognitive activity involves metacognitive monitoring, whereby information flows from object-level to meta-level, and metacognitive control, in which information flows from meta-level to object-level (Nelson & Narens, 1990). Cognition of external objects is carried out at object-level, while only cognitive processes relating to the context of the object-level are carried out at the meta-level (Nelson & Narens, 1990, 1994; Nelson, 1996). Sannomiya (2018) summarized metacognitive monitoring as "the perception, prediction, inspection, evaluation, etc., of cognition" and metacognitive control as "the establishing of aims and plans relating to one's cognition, and their modification."

3.4.2. The Relationship Between Metacognition and Mentalizing

Of the three characteristics into which metacognitive knowledge can be divided, "knowledge about people's cognitive characteristics" connects most closely with mentalizing. People unconsciously store various experiences—including things that they have seen, thought, and felt—as knowledge, and these metarepresentations[7] are referenced to understand one's own mental state and those of others. This corresponds to Fonagy and Target's statement (1997) that knowledge of mental states gained by experience leads to improved reflective function (mentalizing).

However, as indicated by Sannomiya (2016), if metacognitive knowledge is skewed, metacognitive activity will also be skewed. This is relevant to the attachment formation that

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7) This is the representation of another representation. Perner (1991) theorized that children around four years of age acquire the ability (metarepresentational capacity) to understand that the mind is not reality itself but a representation (reflection of reality), and this understanding allows them to acquire a theory of mind.

is the basis of mentalizing: metacognitive monitoring of experiences with attachment figures and the metacognitive knowledge thereby formed are believed to be vital to the appropriate development of mentalizing (Main, 1991). Mentalizing therefore involves modification of skewed metacognitive knowledge through investigating various possibilities concerning one's own mental state and those of others by means of reflection.

In metacognition, processing is carried out at two levels: object-level and meta-level (Nelson & Narens, 1990, 1994; Nelson, 1996); these correspond, respectively, to cognition and metacognition. Further, in the metacognition process, metacognitive monitoring and metacognitive control are carried out based on self-reflection. A similar process is carried out in mentalizing: when understanding the mental state of the self and others, monitoring thoughts and feelings and self-regulation are undertaken consciously, in the metacognitive mode, and as are modifications to that understanding (Allen et al., 2008/2014).

3.4.3. Differences Between Metacognition and Mentalizing

The concept of mentalizing holds that reflective-function constructs affect regulation and self-monitoring and enable mentalizing (Fonagy & Target, 1997). Therefore, the perception and control of cognitive processes involved in metacognitive monitoring and metacognitive control are thought to have a considerable effect on the attention to one's own and others' mental states; they are also thought to significantly affect the ability to fluidly control and switch between the emotions involved in mentalizing. As a result, metacognition is a necessary feature of mentalizing, and metacognitive activity plays a vital role in the development of mentalizing. Further, the task-level control system of metacognition is thought to be a precursor to mentalizing (Proust, 2003), and metacognition may be considered a metarepresentation system comprising the attention and control necessary for self-mentalizing and an essential ability for mentalizing.

However, while the domain of mentalizing is centered on one's own and others' emotions, metacognition is used in cognition as a whole and so covers a broader area.

4. Mentalization and Its Possibilities in Education

Thus far this paper has explored mentalizing and its closely related concepts, and it has examined the relationships among them. As described above, mentalizing has multiple dimensions (i.e., self–other, implicit–explicit, and cognitive–affective) and requires objective understanding of the self and empathetic understanding of others. Mentalizing therefore encapsulates theory of mind, which refers to a cognitive understanding of others, and empathy, which indicates an empathetic understanding of others. Further, emotional intelligence, the ability to understand the emotions of both the self and others, is nearly synonymous with emotional mentalizing. However, emotional intelligence has a goal-oriented dimension

and deals only with emotions, so the two may be considered similar concepts presenting areas of overlap. Finally, metacognition (meta-level thinking) entails attention, observation, reflection, and control, which make it a fundamental ability that influences the development of mentalizing. Metacognitive ability related to understanding the self and others supports not only mentalizing but also theory of mind, empathy, and emotional intelligence.

Japan's Ministry of Education, Culture, Sports, Science and Technology (2016) called for the capacities of "proactive, interactive, and deep learning" to be cultivated in children. With this recommendation, the ministry extolled the need for a "zest for life" in children's future social and professional lives; these capacities are thought to support both the ability to form effective interpersonal relationships and the creative thinking that allows flexible responses. As theory of mind and empathy are considered vital for children's mental development, teachers are asked to make educational interventions tailored to each child (Mizokawa & Koyasu, 2015). Moreover, current research includes investigation into classes that promote metacognitive thinking to improve students' communication skills (Sannomiya, 2017) and the relationship between emotional intelligence and school adjustment (Toyota & Yoshida, 2012). Mentalizing, considered to be strongly related to these concepts, appears to be an essential ability for teachers and children alike.

Mentalizing research has been developed primarily in clinical settings related to psychoanalysis and developmental research, but the value of mentalizing in educational settings has garnered increasing attention in recent years. For example, research intended to teach mentalizing has been carried out in projects targeting elementary schools to reduce bullying and aggressive behavior (Fonagy et al., 2009; Twemlow et al., 2005a, 2005b; Valle et al., 2016). Mentalizing is an important factor in coping in interpersonal relationships, allowing thoughts to be flexibly transferred to suitable subjects (Bak, 2012), and the ability to put oneself in the places of others with different perspectives and thoughts is considered a vital skill for teachers (Swan & Riley, 2015).

5. Conclusion

Attachment figures, who are considered important for children's stable mental development, can be found beyond the household during and after childhood; attachments are formed with figures other than caregivers (Murakami & Sakurai, 2014). Children whose experiences are adequately mirrored and understood by caregivers with highly developed mentalizing abilities are thought to engage their own mentalizing abilities in attempts to understand others beyond their caregivers (Fonagy & Target, 1997). The transmission of mentalizing ability through interaction is also thought to be present in connections among teachers and children, and it is presumed to work effectively in the formation of other attachments throughout childhood.

Each study of the mind presents various positions and outlooks. Mentalizing is closely related

to the variously interpreted concepts of theory of mind, empathy, emotional intelligence, and metacognition, and mentalizing is itself a complex concept with multiple constituent parts. Thus, the authors do not claim to have fully explored the relationships among these concepts for this study. However, as children's relationships with important adults are considered to have a significant impact on their mental development, their mentalizing connections with teachers and support workers encountered daily at kindergarten, school, support facilities, and elsewhere are surely significant. It is hoped that this study will be a catalyst for further investigations into the value and applicability of mentalizing in education and front-line support.

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