Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.9, No.12, 2018

Importance of Promoting Self-Regulatory Abilities in Early Childhood Period

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Abstract
Self-regulation is defined as an individual's self-awareness, one's awareness about the environment and the determination of how to interact with the environment to achieve his/her own goals. Self-regulation, which has an important role in an individual's social relations and increasing his/her quality of life, starts developing after birth. Early childhood period is a period in which children start to use their mental strategies to control their impulses, emotions, and thoughts; to behave according to social and ethical values; and to direct their own thoughts and behaviors to meet their own goals and others' expectations. All of these abilities that are targeted to be acquired in early childhood are conceptualized as self-regulatory abilities. Self-regulation is a structure that keeps a balance between socio-cultural values and individual's needs. Self-regulation acquired in early childhood period also affects processes such as pro-social behaviors, school readiness, academic achievement and high levels of empathy. This study is a review research emphasizing the importance of self-regulatory abilities that should be promoted in early childhood period. In the study, literature is reviewed, self-regulatory abilities are defined, and suggestions are made regarding promoting children's self-regulatory abilities in early childhood period.
Keywords: Early childhood period, Self-regulation, Childhood

Self-regulation and Its Definition

There are many definitions of the concept of self-regulation. Because of its multi-faceted structure involving behavioral, cognitive, emotional and motivational processes, researchers have had different views on components and definitions of self-regulation.

While according to Kopp (1982) self-regulation is "to start and stop behaviors according to situational demands" and "to decide the duration and frequency of behaviors in the social environment"; according to Barkley (2004) self-regulation is a "deliberate attempt to regulate, change or inhibit actions and responses in order to achieve a better consequence." The cognitive aspect of self-regulation is defined as "the capacity of individuals to delay or inhibit emerging behaviors, tendencies, and desires; to comply with social rules; to control and regulate emotions; to focus on aim-oriented stimuli; and to sustain attention" (Posner & Rothbart, 2009).

Despite these various views, a general definition of self-regulation can be expressed as the ability of an individual to control and change his/her own behaviors, inner and mental states according to his/her cognitive, emotional and social desires in a particular situation (Blair & Diamond, 2008; Derryberry & Reed, 1996; as cited in Brownell & Kopp, 2010). On the other hand, Calkins (2007) indicates that self-regulatory abilities involves the whole of the control mechanisms. In the field of psychology, some theoretical approaches explain self-regulation by focusing on only one developmental domain while others explain self-regulation based on several theories (Bronson, 2000).

For example, behaviorist theory describes self-regulation as "learned self-control". Learned self-control is acquired in cycles of reward and punishment (Bronson, 2000). In the behaviorist theory, the opposite of self-control is impulsivity. To the extent an individual delays a gratification or a reward, the level of self-control increases (Logue, 1995). Self-control requires the use of some strategies and controlling them. In the acquisition of self-regulatory abilities, individuals are expected to learn to wait for delayed rewards, to follow instructions to solve problems and to reward themselves for demonstrating a behavior to follow instructions (Mischel & Shoda, 1989; as cited in Bronson, 2000).

Bandura (1977) defines self-regulation as monitoring of an individual's own emotions, thoughts, and behaviors and comparing them to his/her own criteria, and then making judgments and adapting his/her behaviors accordingly (as cited in Senemoğlu, 2013). On the subject of self-regulation, the social-cognitive approach focuses on an individual's perception of the environment and his/her effectiveness. They claim that there are differences between people's perceptions regarding causes and consequences of internal and external phenomena (Dweck, 1973; as cited in Bronson, 2000).

According to Freud's psychoanalytic theory, the development of self-regulation is explained as a natural consequence of emotional impulses and needs (Bronson, 2000). In psychoanalytic theory, personality consists of three elements. While “id” of the three elements works based on pleasure principle; on the contrary, “superego” is judgmental, strict, and in the tendency to obey social restrictions. "Ego" is responsible for balancing between these two elements (Freud, 1963; Freud, 1920; Freud & Erim, 2004). According to Freud, self-regulation lies between these three elements’ conflicting and tense relationships. Self-regulation is the mechanism which allow an individual to control the level of arousal and to fulfill the requirements of real life (Bronson, 2000, p. 12).

One of the most important researchers of constructivism, Piaget's views on self-regulation differ from Freud and behaviorist theory (Piaget, 1952; as cited in Wadsworth, 1971). According to Bronson (2000), Piaget establishes a similarity between the tendency towards re-equilibrium (homeostasis) and self-regulation. Self-regulation is important for an individual's cognitive development in terms of the relationship between the environment and the individual as much as the homeostasis is important for an organism in the biological processes. Because an individual’s relationship established with the environment is based on "adaptation" experiences with the environment (Keenan & Evans, 2009).

No matter how much a child assimilates the stimuli from the environment; if his/her current schema are not adequate for the stimuli, disequilibrium occurs. Learning and development only occur when equilibrium is restored. Piaget describes self-regulation intertwined with "equilibrium". Equilibrium is an internal self-regulating system that can be observed during each reconstruction and shifting one state to another (Piaget & Inhelder, 1969; as cited in Wadsworth, 1971). With the help of disequilibrium due to external stimuli and re-equilibrium during adaptation processes, self-regulation also develops. Along with cognitive development; emotional, behavioral and attentional sub-components of self-regulation can also develop quantitatively and qualitatively (Bronson, 2000; Senemoğlu, 2010; Wadsworth, 1971).

On the other hand, Vygotsky points out the importance of cultural and historical factors in an individual’s mental development and learning (Bodrova & Leong, 2010). Self-regulation is the structure that balances between socio-cultural values and individual needs (Kopp, 2002a). Vygotsky, who points out that an individual learns interactively through social processes, emphasizes the importance of language as a social signs system in these interactions. Besides, language does not only play a role in social processes (Frawley, 1997). Vygotsky emphasizes that the development of self-regulation is related to language development.

As language abilities and thinking develop accordingly, a child starts to think and remember through tools he/she creates in his/her mind instead of external stimuli. These structures, which Vygotsky called "tools of the mind", are influential on a child's attention, recall, and thinking (Bodrova & Leong, 2010; Frawley, 1997).

Sub-component of Self-regulation

Self-regulation has been examined under four main components: emotional regulation, attention regulation, behavioral regulation and cognitive regulation.

Emotional Regulation

Emotional regulation is defined as the ability of a child to manage his emotions in anxious, tense, or stressful situations; to inhibit, to sustain, and to regulate his/her emotional stimulation in order to achieve goals (Smith-Donald et al., 2007; Saarni, Mumme & Campos, 1998; Eisenberg et al., 1997; Kopp, 1982, Eisenberg, Liew & Pidada, 2004). Children who experience difficulties in regulating their emotions are at risk for developing negative social and emotional behaviors (Eisenberg et al., 2001). Behaviors of children who can manage their emotions and emotion-related behaviors are more appropriate and socially more adequate (Eisenberg et al., 1997).

Attentional Regulation

Attention is defined as “the ability to regulate behaviors in a specific situation" regarding an individual’s cognitive, emotional and social components and is a large part of self-regulation (Ruff & Rothbart, 1996; as cited in Rueda, Posner & Rothbart, 2011, p. 285). Attention is a cognitive activity that is dispensed among information sources (Friedenberg & Silverman, 2012).

High-level attention abilities such as focusing attention and shifting attention when needed are related to "effortful control" and these abilities are called executive attention. One part of effortful control is executive attention (Eisenberg, Smith & Spinrad, 2011). It can be said that the executive attention is a part of executive functions. Executive functions are a structure that is influential in all sub-components of self-regulation and represents the cognitive processes of self-regulation. The working memory and attentional shifting sub-components of executive functions are directly related to attentional regulation processes (Blair & Ursache, 2011). Results of the study by Lemery, Essex, and Smider (2002) reveals that there is a strong relationship between children's inhibitory control abilities and attentional focusing.

According to Cultural-Historical Theory; just like all aspects of self-regulation and all of the meta-cognitive functions, attentional regulation cannot be considered as separated from social context (Bronson, 2000).

Behavioral Regulation

Wanless et al. (2011) have explained behavioral regulation in the following way: Behavioral regulation emerges through the integration of cognitive processes such as working memory and impulse control.

Behavior regulation is particularly related to demands of school works. For example, a child with a strong ability to regulate behaviors can remember and follow classroom rules. Attention, working memory and impulse control contribute to a child's behavioral regulation and school success.

Behavioral regulatory abilities are crucial especially when a child starts the school, so called the transition to social context. Because the child communicates with his/her peers for the first time independently. Poor behavior regulation abilities can cause socially negative consequences. Therefore, studies emphasize that behavioral control processes support children's adaptation in childhood period and protect children from failures in social contexts (Eisenberg et al., 2001; Brownell & Kopp, 2010).

Cognitive Regulation

The focus of researchers claiming that cognitive processes are influential in self-regulation has been "executive functions".

While Olson and Astington (1993) defined executive functions as an individual's ability to plan to achieve a solution in problematic situations; it can also be defined as the process of preserving an appropriate problem-solving setup in order to achieve a goal (Karakas & Karakas, 2000). Executive functions are important in the process of deciding which information is important and planning according to the importance of information; as well as carrying out the plan. Executive functions play a role in every single moment of human life, such as starting a task, sustaining attention, adapting to new situations, taking turns, reflecting thoughts, and thinking about the consequences of behaviors before acting.

It is also noted that in tasks where executive functions are assessed, performances of individuals differ according to the tasks and that significant relationships cannot be obtained among the tasks (Godefroy, Cabaret, Petit-Chenal, Pruvo & Rousseaux, 1999; Shallice, 1988; as cited in Miyake, Friedman, Emerson, Witzk, Howerter & Wager, 2000). For this reason, the view that executive functions cannot be conceptualized as an integrated structure has been dominant in the field.

Development of Self-regulation in Children

The development of self-regulation occurs in different ways based on children's ages. For example; changes in physical self-regulation (sleep regulation and wake time) and emotional regulation (self-calming) during infancy occur (Raffaelli, Crockett & Shen, 2005; Ekinci-Vural, 2012). In this period, family, peers and social environments of a child affects his/her development of self-regulation (Sameroff, 2009; Lin, Lai & Chang, 2016). The social-cognitive approach indicates that self-regulation is not a product of children's own discoveries based on their experiences, but rather a culturally transferred method to regulate and control learning in an optimum manner. This view is based on the assumption that the relationship between a child and the model for his/her socialization is important. Development of self-regulation is unlikely for students when there are not any role-models who knows self-regulated learning strategies and transfers information about the effective use of these strategies (Zimmerman, 1995).

According to Kopp (1982), the development of self-regulation starts in early ages as follows (Table 1). Kopp claims that after the 36th month, self-control ability that exists in a child is placed with self-regulation.

Table 1: Development of Self-regulation

Stage	Age	Characteristics	Cognitive Requirements
Neurophysiologic	0-3 month	Need for arousal, Examples of regular repetitive behavior	-
Sensorimotor	3-9 months and older	Responses to stimuli and incidents in the environment	-
Control		Communicating with the environment, demanding, continuing or changing the demand	Setting a goal, goal-oriented behaviors, conscious behavior
Self-control	24 months and older	Acting according to desires	Recalling, symbolic thinking, self-recognition
Self-regulation	36 months and older	Flexibility in demands based on changing situations	Developing strategies and making intentional self-observation

(Kopp, 1982).

From early childhood period, a child is adequate for the development of self-regulation. With the help of the social environment in the school, a child will become more capable to regulate his/her behaviors and emotions. A child who recognizes his/herself will also exhibit another form of self-regulatory development through expressing his/herself to others (Kopp, 1982; Bronson, 2000). A child who starts pre-school education will take the first step towards to regulate his/her own learning experience. Children's self-regulatory abilities during this

period will also contribute to their learning of metacognitive abilities (Anderson, Coltman, Page & Whitebread, 2003).

Early childhood period is particularly critical for the development of self-regulation although it has developed rapidly from the first moments of a child. The development of self-regulation during this period occurs through children's encountering academic processes, encountering problem-solving situations, exchanging ideas with their peers, and asking for help from their teachers or parents (İsrael, 2007; Hwang, 1998). These all show how important early childhood period is in the development of children's self-regulation.

Importance of Development of Self-regulation in Early Childhood Period

Early childhood covers the period from the first years of childhood to the primary school. This period is the time where mental and physical development is extremely rapid and where many building blocks related to an individual's future life are formed and shaped. Therefore, early childhood period is an important and a sensitive process.

Early childhood period is a critical period for children to acquire abilities and one of the most important abilities that should be promoted during this period is self-regulation. Self-regulation is defined as the ability to control one's own emotions, thoughts and behaviors. In this way, people can regulate their behavior according to certain conditions and adapt their emotions and thoughts with the existing situation. Thus, people develop more positive relationships with their environment while they can gain their own internal control and maintain their mental integrity.

Beginning from early years of life, a child develops a control system through his/her own internal resources, which becomes more systematic as the age progresses and then appears as a self-regulatory mechanism (Bronson, 2000). Therefore, first years which are the foundation of children's development of self-regulated learning are crucial (Aras, 2015; Vandevelde, Van Keer, Schellings & Van Hout-Wolters, 2015).

According to studies, children's academic achievement depends on the development of self-regulatory abilities during early childhood period. Children's abilities such as planning a task, controlling their impulses, following instructions, and focusing are abilities that get them to succeed in the academic field. It is also known that children who are good at self-regulatory abilities during early childhood period develop mathematics and literacy abilities in the future too. Self-regulation is crucial to succeed in many areas of our life.

Self-regulation is one of the most important features that distinguish people from other living beings. "Intentional and conscious self-regulation lies under an individual's planning their preferences, thoughts, and actions; and making decisions based on them." (Bronson, 2000, p. 1). Moreover, self-regulation has a key role for children to have a healthy development process in general (Shonkoff & Williams, 2000; as cited in Bitar, 2010).

A large part of the development of self-regulation is completed from birth to the end of early childhood period and it is influential on many aspects regarding social life involvement of children such as social abilities, academic abilities, school readiness, eating habits (Akawi, 2011; Blair, 2002; Denham et al., 2003; Graziano, Calkins & Keane, 2010; Graziano et al., 2007; Izard et al., 2001).

One of the most important goals of early childhood education in which children start at 36-month-old during early childhood period is to get children to be ready for the primary education in the context of social and cognitive abilities (MEB, 2006). According to Bold et al. (2005), children need cognitive, social and motivational abilities to be successful in school. These abilities include understanding others' emotions, understanding instructions and focusing attention, controlling their own emotions and behaviors, organizing social relations with peers, and collaborating.

Attentional regulatory abilities such as focusing attention, following instructions; and social abilities such as collaborating, motivating oneself to succeed and expressing emotions ensure children's readiness to learn (Boyd et al., 2005). Children's ability to organize their learning experiences independently and to have self-regulatory abilities is an important step towards gaining higher-level cognitive abilities (Anderson et al., 2003). It is also obvious that cognitive abilities regarding school readiness are related to attentional regulation.

Socio-emotional abilities have an important role in children's school readiness (Gülay & Akman, 2009; Raver, 2002). There are studies showing that there are positive relationships between self-regulation and children's social abilities. The bases of emotional regulation such as children's awareness of their own emotion and their accurate perception of emotional signals from the environment have positive effects on future academic achievement and social abilities (Izard et al., 2001). Moreover, there is a reciprocal relationship between children's emotional and social abilities (Denham et al., 2003).

The development of children's emotional regulation systems also affects the behavioral regulation process positively (Posner & Rothbart, 1998). Behavioral regulation involves children's ability to delay gratification and to control their behaviors and impulses. It is found that early childhood children with less impulsive behaviors are more friendly and positive in their relationships with their peers, and have more friendships (Ramani, Brownell & Campbell, 2010). In this regard, it can be claimed that promoting the process of behavioral and

emotional regulation is important to provide a positive learning atmosphere for families and pre-school institutions.

Suggestions to Promote Self-Regulatory Abilities in Early Childhood Period

The role of parents and teachers in early childhood period, where great changes and developments in self-regulation occur, is quite effective. In this regard, it is important to provide the necessary support to improve children's self-regulatory abilities starting from early childhood period and to get parents and teachers to be aware of the importance of self-regulation.

Children need adequate monitoring and guidance by their parents and teachers while they also need psychological independence to be able to regulate themselves and to gain competences. This depends on the appropriate life experiences provided to a child to control his/her emotions, thoughts and behavior as well as on the attitudes and behaviors of parents and teachers towards the child. In this regard, a self-regulation training program including situations that prevent and promote the development of self-regulation can be prepared and conducted to parents and teachers.

The play is the most valuable tool to get children to acquire competence naturally. It is also fun. While playing, each child plans, solves problems, shares with friends and takes turns. A child who has learned to take turns has also learned to control his/her impulses and to delay gratifications. In the development of self-regulation, the play is very important because play consists of rules and stages. The child has to follow the instruction. On this sense, plays are necessary for the development of self-regulation. In this regard, it can be suggested that parents at home and teachers in classrooms should use plays which promote children's self-regulatory abilities.

Pre-school education programs should include activities that require emotional regulation and expression of emotions, and in order to raise children who can manage their emotions and emotion-related behaviors, activities related to recognizing and expressing emotions should be planned and implemented by teachers.

It can be also suggested that in early childhood period, self-regulatory abilities training programs should be implemented by teachers in their classrooms to get parent and teacher-dependent children to behave more independently, to get them to interact with their peers more and to promote self-regulatory abilities of these children with various social activities.

"Executive functions" which represent the cognitive processes of self-regulation and are influential in all sub-components of self-regulation play an important role in attentional regulation component. Attentional regulation is influential in all components of self-regulation and all higher-level cognitive processes. Therefore, with the help of tools such as language, thoughts, writing, art activities and with tasks and activities to regulate attention; children's self-regulatory abilities should be supported at home as well as at school.

In order for a child to be self-regulated, self-controlling, and emotional-regulated individual; parents and teachers themselves should be able to do these behaviors. First of all, parents and teachers should be good role models. Role modeling is important in the development of self-regulatory abilities. In this process, it will be beneficial for children if their parents and teachers review their own behaviors and recognize and change their negative attitudes. For this reason, teacher candidates may be trained to get them to be aware of behaviors and attitudes affecting the development of children's self-regulatory abilities. Moreover, they should be provided with opportunities to improve themselves if they feel inadequate about the development of children's self-regulation. Similarly, efforts should be made to increase awareness of parents on this topic.

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