

One considered as
the basis for problem-
solving ability,



One of the most important developmental periods is the transition from early childhood to formal education (Duncan, McClelland, & Acock, 2017), it can be very challenging because of cognitive abilities, learning context and individual experiences change (Lo, Chen, & Lin, 2017). In this period academic achievement has a huge impact on self-concept, motivation, and diligence of children (Jayanthi, Balakrishnan, Ching, Latiff, & Nasirudeen, 2014). Some preconditions must exist for the children's success in educational textures, For example, the ability to deal with conceptual and abstract problems, as well as critical thinking, are important academic preconditions (Luong, et al.

, 2017). Researchers are very interested in determining the factors impressing academic performance. Many findings have documented the influence of social and contextual factors. The economic and social situation is one of the factors that can indirectly affect the educational achievement of children. Researchers also examine the effects of children's characteristics, they focus on how children learn. Instead of studying the specific fields of knowledge (such as letters or numbers), they examine general mental processes (Nesbitt, Baker-Ward, & Willoughby, 2013).

In this situation, executive functions help students to take advantage of educational opportunities in classrooms (Duncan, et al., 2017). Executive function can play an important role in the further successes in learning (Brock, Rimm-Kaufman, Nathanson, & Grimm, 2009). Although there are many doubts about the nature of executive functions (Best, Miller, & Naglieri, 2011), they have been defined as the basic cognitive abilities that provide

for planning, flexibility, self-regulation, and purposeful behavior (Munro, Weyandt, Marraccini, & Oster, 2017).

Executive functions are the abilities that organize, order and handle necessary information for daily functioning (McCloskey, 2015). Executive functions commonly coordinate higher level thought processes which considered as the basis for problem-solving ability, they are necessary for conditions that require active control over thoughts and actions (Brock, et al., 2009). The executive function is defined as a multidimensional structure that facilitates cognitive regulation (Nesbitt, et al., 2013). Although the constructive components of the executive functions are highly interrelated they are often defined as distinct components (Becker, Miao, Duncan, & McClelland, 2014). Executive function includes skills such as working memory, set shifting, and inhibit controlling (Baptista, Osório, Martins, Verissimo, & Martins, 2016; Becker, et al., 2014; Duncan, et al.

, 2017; Verdejo-Garcia & Manning, 2015). The working memory allows the person to keep the information in mind for a period of time. This is an essential component for success in doing assignments (Lan, Legare, Ponitz, Li, & Morrison, 2011).

Self-regulation is an important factor teacher frequently consider when assessing student's performance. Regarding the executive function, self-regulation can be reflected in some of the areas, for example properly pacing and planning tasks in the given limited time (McCloskey, 2015).

Attention shifting is considered as the ability to change activities based on situational requests. Inhibition means the ability to control the response or

ignore the information that impedes the completion of tasks (Nesbitt, et al., 2013).

Although studies show executive functions have traditionally been linked with the prefrontal cortex (Becker, et al., 2014; Moriguchi & Hiraki, 2013), Current studies suggest other brain areas, including the parietal lobes, temporal lobes and cerebellum (Munro, et al., 2017).

In past years, many studies have studied executive function in children and examined its relationship with different variables such as functional outcomes (Bull & Lee, 2014), academic readiness (Baptista, et al., 2016), social-behavioral functioning (Diamantopoulou, Rydell, Thorell, & Bohlin, 2007), behavioral regulation (Duncan, et al., 2017), mathematics achievement (Blankson & Blair, 2016; Cragg, Keeble, Richardson, Roome, & Gilmore, 2017; Dulaney, Vasilyeva, & O'Dwyer, 2015), visuomotor skills (Becker, et al., 2014), reading comprehension (García-Madruga, Vila, Gómez-Veiga, Duque, & Elosúa, 2014) and problematic behaviors (Munro, et al., 2017). Academic performance is one of the issues that are considered in relation to executive function (Best, et al., 2011; Brock, et al., 2009; Lan, et al.

, 2011). Children without proper executive function abilities have difficulty in controlling impulsive behaviors and regulating their emotions which hinder their participation in the classroom activities and subsequently affect academic performance (Baptista, et al., 2016). In the classroom, Children should be able to use executive functions to shift between assignments, follow orders and communicate with peers; For example, when a child moves

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from play to math class he must be able to inhibit his desire to continue the playing, must be able to listen to the teacher's instructions, hold them in the mind and start a new activity (Becker, et al., 2014). Children when working on abstract concepts must use executive functions or cognitive problem-solving. Children can take the path of success through strong working memory, inhibit, and attention capabilities. Children should be able to remember the instructions and lessons in the classroom (working memory), and pay attention to the important features of the learning environment (attention), also they should be able to stay on assignment for a sufficient time (impulse control), therefore the executive function is an essential component for the student's progress (Brock, et al.

, 2009). Research conducted in the field of academic performance has produced contradictory results; In addition, these studies only have measured some aspects of executive functions. Brock and et al. (2009) studied hot and cold executive functions, math achievement and learning behavior in kindergarten children; the results showed that cold executive functions predict math progress and learning-related behaviors but hot executive functions cannot predict any of this variables. Study of Lan and et al. (2011) demonstrated that working memory, inhibit and attentional control predicted academic achievement in preschool children. Best and et al.

(2011) measured complex performance functions including completion time and accuracy in children ages 5 to 17 years old. They showed that the relationship between the components of executive function and academic domains varies in different ages. We used two type of cognitive function assessment in this study, tasks that directly assessed cognitive functions
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(coding and Rey-Osterrieth complex figure test) and behavioral rating inventory of executive function (BRIEF) which fills by the teacher. We use multiple evaluation methods to get the comprehensive understanding of children's cognitive abilities in the learning environment. Also BRIEF is a comprehensive tool that can measure eight executive function scales including initiate, working memory, plan/organize, the organization of materials, monitor (metacognition index), inhibit, shift, and emotional control (behavioral regulation index) (Toplak, West, & Stanovich, 2013). Method1. 1. Participants This was a cross-sectional study.

The statistical population included all of the children 6 to 13 years old in Jajarm city. The sampling method was the multistage clustering. 289 students 6 to 13 years old and their teachers participated in this study, 49.1% were males and 51.9% were females.

The inclusion criteria included: not having any physical, neurological diseases and developmental disorders; having Age range 6 to 13 years