# THE INFLUENCE OF SELF REGULATION ON CREATIVE SELF EFFICACY AMONG STUDENTS IN INCLUSIVE GIFTED SCHOOLS IN SAUDI ARABIA: THE MEDIATING ROLE OF STUDENTS' CREATIVE THINKING SKILLS

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**by**

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## ABSTRAK

Pendidik bukan sahaja berperanan membentuk minda pelajar tetapi juga membentuk minda mereka, membina kemahiran dan persepsi mereka terhadap kebolehan mereka dan akhirnya meningkatkan prestasi mereka. Proses pembinaan bersama seperti itu dapat dicapai dengan mengembangkan efikasi kendiri dan regulasi kendiri pelajar serta dimediasi oleh kemahiran berfikir kreatif mereka dan dimoderasi oleh bakat mereka. Kemahiran berfikir kreatif ini berupaya meramalkan efikasi kendiri mereka apabila mereka dianggap 'berbakat'. Di Arab Saudi, minat terhadap pelajar berbakat mulai meningkat pada tahun 1998 seperti yang dapat dilihat dalam pengenalan program yang bertujuan untuk mengenal pasti pelajar yang berbakat dan mengembangkan kemahiran berfikir kreatif dan efikasi kendiri mereka. Kajian literatur mengenai kaunseling dan pendidikan pelajar berbakat telah didapati kurang memberi perhatian pada mekanisme yang mendasari kesukaran yang dihadapi oleh pelajar kreatif di Arab Saudi. Kajian ini mengkaji hubungan antara regulasi kendiri dan efikasi kendiri pelajar berbakat melalui pengantaraan kemahiran berfikir kreatif dan berbakat. Kajian ini juga mencadangkan satu kerangka kerja yang menghubungkan regulasi kendiri ini dengan efikasi kendiri kreatif mereka melalui intervensi kemahiran berfikir kreatif. Model hipotesis digunakan untuk mengkaji beberapa hubungan, termasuk pengaruh langsung dan tidak langsung kemahiran

berfikir kreatif terhadap pemboleh ubah. Kajian ini telah menggunakan teknik pensampelan rawak mudah yang memberikan setiap elemen dalam populasi yang mendasari kebarangkalian yang sama untuk dipilih. Borang soal selidik telah digunakan untuk mengumpul data kajian ini yang melibatkan seramai 400 pelajar berbakat di Arab Saudi. Hasil kajian menunjukkan bahawa regulasi kendiri secara signifikan berupaya meramal kemahiran berfikir kreatif dan efikasi kendiri pelajar berbakat serta mendapati bahawa kemahiran berfikir kreatif menjadi perantara hubungan antara regulasi kendiri dan efikasi kendiri kreatif dalam kalangan pelajar berbakat.

# THE INFLUENCE OF SELF REGULATION ON CREATIVE SELF EFFICACY AMONG STUDENTS IN INCLUSIVE GIFTED SCHOOLS IN SAUDI ARABIA: THE MEDIATING ROLE OF STUDENTS' CREATIVE THINKING SKILLS

## ABSTRACT

Educators not only shape the minds of students but also co-construct their minds, build their skills and perceptions towards their abilities and ultimately enhance their performance. Such a co-construction process can be achieved by developing students' self-efficacy and self-regulations in which is mediated by their creative thinking skills and moderated by their giftedness. The creative thinking skills of students can significantly predict their self-efficacy when they are considered 'gifted'. In the Kingdom of Saudi Arabia (KSA), interest in gifted students began to grow in 1998 as can be seen in the introduction of programmes geared towards identifying gifted students and developing both their creative thinking skills and self-efficacy. The counselling and gifted education literatures have devoted limited attention to those mechanisms that underlie the difficulties faced by creative students in KSA. This study examines the relationship between KSA students' self-regulation and self-efficacy through the mediation of creative thinking skills and giftedness. This study also proposed a framework relates these students' self-regulation with their creative self-efficacy through the intervention of their creative thinking skills. This study used a simple random sampling technique that give each element in the underlying population the equal probability to be selected. Questionnaire was used to collect the data which involved 400 gifted and

non-gifted KSA students. Results show that self-regulation is significantly predictive of students' creative thinking skills and self-efficacy, and also the creative thinking skills mediate the relationship between self-regulation and creative self-efficacy among gifted students.

CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

Early in life, people shape their identities based on their intellectual and physical characteristics. Educators and students show a unique relationship in their development of skills, abilities and performance. Arabic language educators not only shape content in the minds of students but also co-construct content with them, build their skills and perceptions towards their abilities and ultimately enhance their performance. The gap in the literature has motivated research into the moderating role of giftedness on the relationship between creative thinking skills and creative self-efficacy under the effect of self-regulation. As such, this thesis aims to examine the relationships that guide the interaction amongst various elements in the hypothesised model. This chapter presents the background of this research and the statement of the problem, based on which the research objectives are outlined. Several research questions are also designed for further investigation. This chapter also presents the theoretical and practical contributions of this research. After stating the research scope and limitations, the terms used in this study are defined. The chapter ends by presenting the organisation of the thesis.

## 1.2 Research Background

Recently, new social reforms started in the Gulf countries, and research and educational institutions as a modern economic system and is consonant with oil, according to economies strategy. In Saudi Arabia, the manifestation of these alterations contract can be seen from the restructuring of the existing educational

system (Merge, service, and education for the ministry of higher education), the opening of new universities and research institutes, and the establishment of innovation centers, as well as innovation, and creativity.

The concept of giftedness is too broad and tends to be controversial when the author tries to define it. Intelligence, especially IQ, has traditionally been viewed as the most critical variable in defining giftedness. This includes other variables related to motivation, personality, or creativity in the description of high performance. and high performance. Gifted Saudi students have the same experience as other Gifted students around the world.

Offering the appropriate provisions to gifted students is crucial in the development of any functioning society. These students are considered valuable future resources, which may explain why developing countries are devoting much effort in offering these students the appropriate provisions. In the Kingdom of Saudi Arabia, interest in gifted students began to grow from 1998 as reflected in the introduction of programmes geared towards identifying these students. For instance, the General Administration for Gifted Students was established by the Ministry of Education of Saudi Arabia in 2000 (Bondagjy, 2000; Alqefari, 2010; Alkhannani, 2016). However, despite these efforts, research in student giftedness remains scarce.

Only 2% or 80,000 of the Saudi Arabian student population (around 40 million) have been classified as gifted (Bondagjy, 2000; Al-Sahafi & Ghani, 2015b, 2015a). However, the existing specialised programmes in the kingdom for enhancing creative thinking skills can only accommodate half of these gifted students (King Abdul Aziz and His Companions Foundation for the Gifted Journal, 2015). The number of these gifted students is also expected to rise, as the identification efforts

are intensified. However, the increasing number of graduate students poses a concern. In Saudi Arabia, According to (Bondagjy, 2000)

> *"The programmes of creative thinking skills can only deal with approximately half of that number, which comes down to around 40,000 students. The number of gifted students is expected to increase at a rate of 5%, the same rate of increase in the population. The present foundation cannot handle the increasing numbers of gifted pupils".*

The programmes for developing creative thinking skills are thought to be exclusive to a handful of schools in the kingdom (Ministry of Education of Saudi Arabia, 2014). Amongst the 200,000 gifted students identified in the kingdom, these programmes only target 5% of this population (Ministry of Education of Saudi Arabia, 2014). However, the number of gifted students who receive benefits from these programmes is believed to be much less than what is reported (Alqefari, 2010). Therefore, schools may need to implement additional specialist programmes, services and facilities to develop the creative thinking skills of gifted students.

Several scholars (e.g., Ziegler & Heller, 2000; Sternberg, 2006; Al Qarni, 2010) argue that a consensus is yet to be reached on the definition of the term of 'giftedness'. Accordingly, several researchers have established criteria of what constitutes giftedness, including creativity, motivation, task commitment, self-efficacy and problem solving. For instance, (Renzulli, 1999) and (Moon, 2000), as cited in (Moon, 2002), defined giftedness as the 'exceptional ability to select and achieve difficult goals that are a good fit with a person's unique profile of interests, abilities, and social contexts'. From this view, personal giftedness is an expertise developed by enhancing one's creative thinking skills. Therefore, giftedness can be defined as a continuum, in which those in the middle can be described as personally

competent, whereas those at the high end can be classified as creative thinkers and performers (Renzulli, 1999; Moon, 2002).

Masten and Reed (2002) argued that resilient individuals learn how to overcome obstacles to achieve their anticipated goals and described the ability to overcome such obstacles as a personal gift. Bland, Sowa, and Callahan (1994) defined resilience as an indicator of the exceptional abilities of children coming from poor backgrounds. Based on this definition, Maker and Nielson (1996) suggested that differentiating the curricula for gifted learners can encourage the development of thinking skills. However, studies on giftedness have been biased as they mainly concentrate on IQ-related abilities related to one's academic skills and ignore other basic skills, such as creative thinking (Bals, 1999; Hidayat, Susilaningsih, & dan Cepi, 2018), creative self-efficacy (Sternberg, 2000; Alzoubi, Al Qudah, Albursan, Bakhiet, & Abduljabbar, 2016) and creative performance (Hon, Bloom, & Crant, 2014).

Students' skills of creativity generated through their own ingenuity of the human being. Creativity, innovation, and quality are at the heart of successful systems adopted by the art of modern economies.

In general, terms, Creativity is meant for the creation of new knowledge to improve the adoption of important values, processes, and services delivered to society. Creative and gifted students recognized as a source of competitive advantage policymakers from around the world.

Thus, Creativity is widely considered an important concept in the field of education. However, researchers have yet to reach a consensus on how to define and recognise creativity (Ma, 2017). In addition, very few studies have examined how

gifted students perceive creativity. Developing creative thinking skills, nurturing creative self-efficacy and promoting creative performance in amongst gifted students in Arabic classes are the central aims of the current endeavour.

Nurturing and developing creativity amongst gifted students can shape their career interests, and including creativity in the academic curricula can promote their creative careers. These careers are on the rise, and society tends to laud those leaders and entrepreneurs whose creative work brings about new products, technologies and methodologies. Bowler (2014) posited that training creativity through education can lead to economic development. Promoting creativity purely for economic means also lends technological value to the creative act (Bowler, 2014).

Whilst the importance of fostering the career readiness of students by promoting their creative development has been acknowledged, their creative thinking skills and abilities also warrant attention (Atenas, Havemann, & Priego, 2015). In his concept of 'creative quality of living', Bohm (2004) argued that mankind would not have witnessed any development in every spectrum if not for their creativity (Gillam, 2018). In other words, the development of humanity is driven by creativity (Gillam, 2018). Each person displays a certain level of creative potential. If one is not afraid to harness or explore such potential, then creativity can become an important aspect of his/her identity.

Each educational programme values creativity differently. These programmes contribute to the development of students' efficacy beliefs, and technology is expected to influence how these students develop their creative thinking skills, self-efficacy and performance. Many countries advocate for creativity as an educational aim, and educators play key roles in promoting creativity and preparing students for

creative careers (Gibson, 2005; Chien & Hui, 2010). Furthermore, each student has the right to claim creativity for himself/herself. Without understanding how an individual can practice creativity in his/her daily life, many students may be unable to view their actions as creative. They need to learn how to recognise their daily creativity and should not be given an inflated self-view. As Beghetto (2016) suggested, students can become great thinkers if they are taught on how to recognise and practice their creativity across different contexts.

The surrounding discussions often distinguish creativity in eminent individuals from that in less eminent individuals. These two types of creativity can be referred to as 'big' and 'little' creativity (Kaufman, Beghetto, & Dilley, 2016). Further studies on creative thinking skills and self-efficacy should be conducted given that too much emphasis has been placed on big creativity, whereas little, mini or everyday creativity is ignored in society (Kaufman et al., 2016).

Creative thinking skills are the ability to introduce new ideas that are amazing and beneficial in different ways. Creative thinking is connected with modernization, the capability to make something, carry out new forms, bring into being lots of fantastic skills, or convert the existing things into something new.

Creative thinking skills are part of the overall concept of creativity. Two variables examined in this research, namely, creative self-efficacy and creative performance, are also pivotal elements of this concept (for review see, Tierney & Farmer, 2002; Gong, Huang, & Farh, 2009; Zabelina & Robinson, 2010b; Tierney & Farmer, 2011; Wang, Tsai, & Tsai, 2014; Malik, Butt, & Choi, 2015). Creativity reflects a pervasive phenomenon that encompasses a variety of dimensions, including

but not limited to creative thinking skills, creative self-efficacy and creative performance.

To this end, creative thinking may be viewed as an ambiguous yet important facet of our daily lives. Whilst resources and procedures serve as the foundations for the achievement of any task, the outcomes of any endeavour may be improved via creative or lateral thinking. Individual-based skills are believed to enhance the overall levels of productivity across various spectrums. The concept of creative thinking can be traced back to Barron (1969), whose core concepts of meaningfulness and originality have formed the genesis of models and definitions that have proliferated over time. However, some ambiguities surround this concept, that is, whether creativity is innate to an individual or something that is taught and nurtured. If creativity is innate, then its positive attributes should be highlighted. Otherwise, schools should offer curricula that foster the creativity of their students. Hinging on the previous argument, several scholars assert that creative thinking plays an important role in curriculum development (Tyler, 2013; Voogt, Erstad, Dede, & Mishra, 2013; Wyse & Ferrari, 2015). Therefore, creativity should be defined and measured, its effects on children should be analysed by using various teaching methods and the findings of such endeavours should be used in developing creative pedagogy.

Creative thinking can be defined based on the attributes or dimensions of one's ability to produce valuable ideas or novel, workable tasks or based on his/her unique talent and productive imagination (Rogers, 1959; Ausubel, 1968; Rogers, 1975, 1976; Onda, 1986; Lubart, 1994a; Amabile, 1996; National Advisory Committee on Creative and Cultural Education UK (NACCCE), 1999; Boden, 2001;

Al-Silami, 2010; Zabelina & Robinson, 2010a; Latt, 2012). Studies on creative thinking can be traced back to Guilford and Torrance (Sternberg, 2006), who extrapolating on Guilford's assessment, Torrance designed Torrance Test of Creative Thinking (TTCT) in the 1960s. Specifically, creativity is treated as a measure of divergent thinking, which in turn is predictive of an individual's creativity. TTCT has been revisited and revised several times over the years, with the latest revision issued in 1998 (Sternberg, 2006). According to (Kim, 2006), 'TTCT appears to be a measure, not only for identifying and educating the gifted, but also for discovering and encouraging everyday life creativity in the general population'.

Creativity thinking skill is a psychological construct that has long received much attention from researchers given the value that modern societies ascribe to creative achievements (Kern, 2010; Mueller, Goncalo, & Kamdar, 2011). Employers prefer to recruit those individuals who possess creative thinking skills (Choi, Anderson, & Veillette, 2009; Pace & Brannick, 2010), high confidence (Bungay & Vella-Burrows, 2013) and special traits (García-Ros, Talaya, & Pérez-González, 2012). Apart from the external outputs of creative thinking skills, creativity has also been linked to psychological well-being. For instance, those individuals with better creative thinking skills show greater psychological resilience in the face of tragedy (Metzl, 2009; Coholic, Eys, & Lougheed, 2012; Greene, Hantman, Sharabi, & Cohen, 2012; Lynch, Sloane, Sinclair, Bassett, & Health, 2013). Creative thinking has also been linked to flexibility and adaptation to daily life demands (Czikszentmihalyi, 1996; Reiter-Palmon, Mumford, & Threlfall, 1998) and to entrepreneurial success (Amabile, 1997; Kern, 2010). Given the relationships of creativity with performance and other psychological strengths, finding new ways to foster the creative thinking skills of students represents an important research area.

This study mainly focuses on the mediating role of creative thinking in the relationship between self-regulation and creative self-efficacy.

Several individual and contextual factors, such as self-regulation, can also influence creative performance (e.g., Barron & Harrington, 1981; Oldham & Cummings, 1996; Gheydar & Amiri, 2014). Researchers have begun to closely examine those mechanisms through which these factors promote creativity, and by doing so, they try to open the 'black box' (Zhou & George, 2001; Choi, 2004). One relevant concept in this regard that has received much research attention is creative self-efficacy, which is defined as 'the belief one has the ability to produce creative outcomes' (Tierney & Farmer, 2002). Creative self-efficacy is derived from the more general concept of self-efficacy introduced by Bandura (1997), who defined such concept as a person's belief that s/he can successfully perform in a particular setting. Bandura (1997) also argued that a relationship is likely to be formed between self-regulation and self-efficacy.

Early studies in the area of creative self-efficacy provide conceptual and empirical support for the assertion that creative thinking skills and self-efficacy are related to creative performance. For instance, Schack (1989) found that creative self-efficacy is an important predictor of students' initiation of independent class projects (e.g. individual-based assignment). Similarly, Choi (2004) highlighted a positive relationship between students' creative self-efficacy and teachers' evaluations of their students' creative performance. Choi added that creative self-efficacy completely mediates the effects of individual's creative thinking skills and contextual (social influences from leaders and peers) variables, thereby underscoring the

importance of creative self-efficacy in explaining how and why specific individual and contextual variables are related to creative performance.

Carmeli and Schaubroeck (2007) found that creative self-efficacy predicts self-reported creative work involvement in a sample of two financial service organisations. Studies in school and work contexts highlight creative self-efficacy as an important precursor of one's creative effort and performance. Students need to develop self-efficacy given that such concept focuses not only on their feelings but also on their beliefs about their abilities (Shelp, 2009).

Self-regulation has been defined as the 'modulation of thought, affect, behaviour, or attention via deliberate or automated use of specific mechanisms and supportive meta-skills' (Karoly, 1993). Temperamental controls in immediate contexts (i.e. short-term self-regulation) and goal-oriented efforts over a long period both contribute to long-term self-regulation (Demetriou, 2000; Moilanen, 2007). Self-regulation can also predict increased levels of academic achievement, school engagement, peer social acceptance and risk aversion (Muraven & Baumeister, 2000; Baumeister, Gailliot, DeWall, & Oaten, 2006). Duckworth and Seligman (2005) found that the effect of self-regulation on academic achievement exceeds that of intelligence. Therefore, examining the relationship between the creative potential and self-regulation of gifted individuals may expand our understanding of the difficulties that these individuals face when adapting to social and academic contexts.

Creative self-efficacy is an activity that demands time and effort. Given the high risk of failure involved in pursuing creative self-efficacy, persistence plays a key role in maintaining creativity in the face of hindrances. Considering these demands, self-regulation may be a necessary precursor of creative self-efficacy

(Tierney & Farmer, 2011). Given that creative self-efficacy is a vital outcome of creative thinking skills and self-regulation, efforts to enhance one's belief in his/her creative abilities should be a central component of creativity. Having positive creative self-efficacy beliefs can also help gifted students understand the interdisciplinary nature of creative thinking. Creative self-efficacy beliefs and self-regulation are useful to gifted students from different learning domains and disciplines.

However, to the best of the researcher's knowledge, only three studies have examined the role of students' creative thinking skills in fostering their creative self-efficacy (Locke, Frederick, Lee, & Bobko, 1984; Gist, 1987, 1989; Spardello, 2012). Apart from the lack of research on those factors that influence creative self-efficacy, the mediating effect of self-regulation under the moderation of giftedness has also been ignored.

## 1.3 Problem Statement

The educational policy of Saudi Arabia is based on Islamic principles (Al-Kasi, 2000; Al-Enezi, 2003). Islamic education focuses on Muslim culture and value and fosters the development of creative students for the sake of societal advancement and development (Al-Said, 2000). The Ministry of Education of Saudi Arabia argued that teachers should identify and nurture creative students (Maajni, 1996). However, creative thinking can only be nurtured in appropriate environments, such as families, neighbourhoods and schools. Students begin to develop their creativity when they are given the appropriate psychological, social and scientific care (Al-Issawi, 1994). Previous studies reveal that Saudi Arabia has achieved some progress in identifying

and nurturing creative students and argue that these students' creative skills should be developed to enhance their academic performance (Al-Attas, 2005).

Creative students are expected to play an important role in the kingdom's development. Accordingly, the Saudi Arabian government has invested millions of riyals in cultivating student creativity by establishing the necessary institutions and programmes (Al-Akder & Hussein, 1993; Al-Silami, 2010). The Ministry of Education of Saudi Arabia started introducing such programmes in 1998 at the Prince Sultan Educational School Centre in Riyadh (Tuwaijri, Abdulmajed, & Mohammad, 2000), an institute that specifically aims to encourage studies on creativity and formulating programmes that enhance one's creativity. Even though the centre only accommodates 1% to 2% of the kingdom's student population, more schools around the country have begun to introduce their own programmes for enhancing the creative skills of their students.

In a highly globalised environment where technology and information are ever changing, creative thinking skills and abilities are becoming increasingly potent. (Cropley, 2001) commented,

> *'The knowledge and skills needed in the future may not even be known at the time a person attends school'.*

As such, educators have acknowledged the central role of improving children's skills in enhancing the educational quality of their schools. Nevertheless, a general consensus on methods that improve one's creative thinking skills, self-regulation and creative self-efficacy is yet to be reached.

Understanding the difficulties that creative students face when adapting to their social and academic contexts presents an important issue in serving the gifted

and talented population. However, previous studies on counselling and gifted studies have ignored the mechanisms underlying such difficulties. The concept of self-regulation has been proposed to address such gap. Researchers often depict creative students as having 'poor self-control' (Betts & Neihart, 2010) and 'behaving unpredictable' (Davis, 2003) and suggest an association between creative potential and some personality traits, such as high impulsivity and low conscientiousness, both of which have been reported to be related to self-regulation (Rothbart & Bates, 1998; Baumeister et al., 2006) and self-efficacy.

In sum, examining the relationship amongst the creative thinking skills, creative self-efficacy and self-regulation of intellectually gifted students may also contribute to our understanding of the difficulties they face when adapting to social and academic contexts. Although practitioners have already discussed the self-regulation difficulties faced by creative individuals, empirical studies have rarely examined the relationship between creative thinking skill and self-regulation. One recent empirical study did not find a significant correlation between dispositional self-control and creative potential (Chang, Huang, & Choi, 2012). However, the dispositional self-control measure used in this study (Tangney, Baumeister, & Boone, 2004) evaluated self-regulation as a trait without differentiating short- and long-term self-regulation (Chang et al., 2012). Given the limited number of studies on the relationship between creative potential and self-regulation variables, future empirical studies should direct their attention towards this topic.

The behavioural patterns of creative students also warrant a careful analysis. On the one hand, misinterpreting the relationship between creative potential and self-regulation can reinforce negative stereotypes that may damage the self-efficacy of

these students, which in turn is associated with damaging their potential. On the other hand, if the issues faced by creative students are ignored, then educators will be unable to nurture the creative potential of these students. In this sense, the relationships amongst creative thinking skills, self-regulation and creative self-efficacy need to be investigated. Identifying the moderating influence of giftedness can contribute to such pursuit.

Baron and Kenny (1986) argued that a moderator can 'partition a focal independent variable into subgroups that establish its domains of maximal effectiveness in regard to a given dependent variable'. In other words, moderating variables may increase or decrease the strength of a relationship or even change its direction depending on their level. Identifying those moderating variables that affect the relationship between creative thinking skills and their outcome variables may provide a highly sophisticated understanding of the topic of interest and a better rationale for offering intervention to creative students.

The variation of students between the gifted and non-gifted students should be a critical consideration. Students' creative thinking skills that are diverse among the students need conditional learning to develop the learning experience, thus the prospect of creative thinking can improve (Yusnaeni, Corebima, Susilo, & Zubaidah, 2017). Creative thinking can be integrated into learning and investigated by educators, so educators must be capable to perform developing students' creative thinking skills.

The problems that motivate this study lie in the ambiguity of how different levels of students' creative thinking skills affect their self-regulation and creative self-efficacy. As mentioned above, creative learning centres are not available to the

entire student population or to all identified gifted students in Saudi Arabia, thereby reinforcing the need to conduct this study in the kingdom's educational context. The mediating role of self-regulation on the relationship between creative thinking skills and creative self-efficacy, particularly in Saudi Arabia, has also been ignored in the creativity literature. The moderating role of giftedness in the relationship between creative thinking skills and their outcome variables and the mediating role of self-regulation mediation in the relationship between creative thinking skills and creative self-efficacy also warrant further study.

From prior description, four variables examined in this research, namely, Self-regulation which considered as independent variable, Creative self-efficacy is a dependent variable, Giftedness a moderator variable, and Creative thinking skills is a mediator variable.

## 1.4 Research Objectives

From the aforementioned problems, the following objectives are set for this research:

i. To examine the level of creative thinking skill, self-regulation and creative self-efficacy levels of gifted and non-gifted students in Saudi Arabia.
ii. To examine the relationship between the self-regulation and creative thinking skills of gifted and non-gifted students in Saudi Arabia,
iii. To examine the relationship between self-regulation and creative self-efficacy of gifted and non-gifted students in Saudi Arabia,

iv. To examine the mediating role of creative thinking skills on the relationship between their self-regulation and creative self-efficacy of gifted and non-gifted students in Saudi Arabia

v. To examine the moderating role of giftedness on the relationship between creative thinking skills and creative self-efficacy of gifted and non-gifted students in Saudi Arabia.

## 1.5 Research Questions

The following questions are formulated based on the aforementioned objectives:

i. What is the current level of creative thinking skills of gifted and non-gifted students in Saudi Arabia?

ii. What is the current level of self-regulation of gifted and non-gifted students in Saudi Arabia?

iii. What is the current level of creative self-efficacy of gifted and non-gifted students in Saudi Arabia?

iv. Is there a significant relationship between self-regulation and creative thinking skills of gifted and non-gifted students in Saudi Arabia?

v. Is there a significant relationship between self-regulation and creative self-efficacy of gifted and non-gifted students in Saudi Arabia?

vi. Do creative thinking skills mediate the relationship between self-regulation and creative self-efficacy of gifted and non-gifted students in Saudi Arabia?

vii. Does giftedness moderate the relationship between creative thinking skills and creative self-efficacy of gifted and non-gifted students in Saudi Arabia?

## 1.6 Research Hypotheses

i. There is no significant relationship between self-regulation and creative thinking skills of gifted and non-gifted students in Saudi Arabia.

ii. There is no significant relationship between self-regulation and creative self-efficacy gifted and non-gifted students in Saudi Arabia?

iii. Creative thinking skills mediate the relationship between self-regulation and creative self-efficacy of gifted and non-gifted students in Saudi Arabia.

iv. Giftedness moderate the relationship between creative thinking skills and creative self-efficacy of gifted and non-gifted students in Saudi Arabia.

## 1.7 Research Significance

The primary goal of this research is to determine the effect of self-regulation on creative self-efficacy and creative thinking skills to investigate the mediating influence of self-regulation on the relationship between creative thinking skills and creative self-efficacy. . By achieving these goals, this study has both theoretical and practical significance and contributes to the education and creativity literature. The findings of this study can also guide educators in Saudi Arabia in fostering the creative thinking skills, creative self-efficacy and self-regulation of their students. The following sections discuss the theoretical and practical significance of this research.

This research contributes to theory of creativity and extends the findings of previous studies by seeking evidence on the interaction amongst the selected variables. This study also aims to build the present knowledge on creative thinking skills, creative self-efficacy and self-regulation, all of which are ‘crucial for the knowledge economy; it is essential that education serves its purpose in improving

this important aspect' (Horng, Hong, ChanLin, Chang, & Chu, 2005). Whilst some studies have already examined the relationship between creative thinking and self-efficacy (Spardello, 2012), none of them has tested the mediating effect of self-regulation and the enhancing role of giftedness, let alone in Saudi Arabia. By addressing these dimensions, this study contributes to the extant body of knowledge and extends the findings of empirical studies on creative thinking skills to the experiences of developing nations.

Teachers who area working with students in classroom settings can also benefit from this research. Specifically, this study provides them additional knowledge on the creative thinking skills, self-regulation and creative self-efficacy of students in the Saudi Arabian education system. Testing the moderating influence of giftedness and the relationships that guide the interactions amongst the variables in the research framework is expected to generate insights that are critical in improving the education programmes of the kingdom and in helping researchers understand the available means of enhancing creativity.

## 1.8 Scope and Limitation

This research aims to determine the effect of technology-based methods on the creative thinking skills, creative self-efficacy and self-regulation of individuals and to examine the mediating influence of self-regulation on the relationship between creative thinking skills and creative self-efficacy. The moderating effect of giftedness is also tested to understand the differences across groups of students in Saudi Arabia. Whilst the topic at hand has received limited attention in empirical research, previous studies have produced comprehensive findings that link a range of creativity attributes to positive scholarly outcomes (Brown, 1989; Fan & Zhang, 2009). Whilst

its primary purpose is to contribute to an extant body of knowledge, this study seeks evidence that connects giftedness in Saudi Arabia to the available resources in selected schools within the kingdom. Due to religious and cultural considerations, male and female students in Saudi Arabia attend separate schools, with male students prohibited from entering schools exclusive to females, and vice versa. This study is limited to public schools for males in the kingdom.

## 1.9 Definition of Related Terms

The terms used throughout this research are defined as follows.

### 1.9.1 Self-Regulation

Self-regulation refers to the self's ability to control thoughts, emotions, and actions. Self-regulation refers to many processes, by which the human psyche exercises control over its functions, states, and inner processes (Vohs & Baumeister, 2016). Some researchers referred to self-regulation as the exercise of control over oneself, especially with regard to bringing the self into line with preferred (thus, regular) standards. Others described self-regulation in terms of people regulating their thoughts, emotions, impulses or appetites, and task performances. Based on this volume, we amend that list to include attentional processes as another domain of regulated responses. (Vohs & Baumeister, 2016).

Self-regulation in this study refers to ‘the ability to flexibly activate, monitor, inhibit, persevere and/or adapt one’s behaviour, attention, emotions and cognitive strategies in response to direction from internal cues, environmental stimuli and feedback from others, in an attempt to attain personally-relevant goals’ (Moilanen, 2007).

### 1.9.2 Creative Self-Efficacy

Creative self-efficacy, defined as ‘‘the belief one has the ability to produce creative outcomes’’ (Tierney & Farmer, 2002). Mathisen and Bronnick (2009) argued that creative self-efficacy is derived from Bandura’s (1997) more general concept of self-efficacy, explained as a person’s belief that he or she can successfully perform in a particular setting. Bandura recognized a likely relationship between self-efficacy and creative performance. ‘‘Innovativeness requires an unshakable sense of efficacy to persist in creative endeavours when they demand prolonged investment of time and effort, progress is discouragingly slow, the outcome is highly uncertain, and creations are socially devalued when they are too incongruent with pre-existing ways.’’ (Bandura, 1977) Thus, creative effort is usually a demanding activity requiring time and effort. Since it has a high risk of failure, it is paramount to maintain persistence in order to allow continuous creative action in the face of various hindrances. Given these demands, creative self-efficacy may be a necessary precursor of creative effort (Tierney & Farmer, 2002).

This study define Creative self-efficacy is defined as ‘the belief one has the ability to produce creative outcomes’ (Tierney & Farmer, 2011).

### 1.9.3 Creative Thinking Skills

Creative thinking was defined as the entire set of cognitive activities used by individuals according to a specific object, problem and condition, or a type of effort toward a particular event and the problem based on the capacity of the individuals (Birgili, 2015). Individuals with creative thinking skills try to use their imagination, intelligence, insight, and ideas when they face to such situations (Birgili, 2015). In addition, they try to suggest an authentic and new design, generate different

hypotheses, solve the problem with the help of discovering and finding new applications (Glass, 2004; Young & Balli, 2014). They realizes his/her knowledge deficits and tries to bridge this gap while obtaining new viewpoints by looking at the problem from multiple perspectives with the help of making unusual connections and taking risks based on their insights to produce alternative solutions toward the problem or situation with great patience and determination (Birgili, 2015).

The present study define creative thinking in terms of the attributes or dimensions of an individual's ability to produce valuable ideas or novel and workable tasks, unique talent and productive imagination (Boden, 2001; Zabelina & Robinson, 2010b).

## 1.10 Summary

This chapter presents the research background, problem, objectives, questions, significance, scope and limitations. The operational definitions of the terms and concepts used throughout this research are also presented. The following chapter reviews the related literature and presents the conceptual framework and theoretical underpinnings of this work to bridge the research gaps.

CHAPTER 2

# LITERATURE REVIEW

## 2.1 Introduction

This chapter reviews the related literature before conceptualising the relationships presented in the hypothesised model. This chapter starts by discussing self-regulation, creative self-efficacy and creative thinking skills, in detail. The research framework, hypotheses the theoretical framework are then presented. This chapter ends by summarising its flow and presenting an overview of the next chapter.

## 2.2 Self-Regulation

Control theory of self-regulation suggests that pursuing a task requires one to keep track of his/her task progress through repeated cycles of feedback loops (Carver & Scheier, 2012). Information about task progress is gathered by monitoring the execution of the task. A full feedback loop includes the following sequence of behaviours (Carver & Scheier, 2001; Vancouver & Day, 2005): (a) evaluating, prioritising and selecting tasks for completion, (b) planning for action, (c) executing the task and (d) monitoring the task progress (after which progress is evaluated and new decisions with regard to task pursuit are made). This feedback loop can help individuals reflect on what they have accomplished and develop plans for what still needs to be done. Through this feedback loop, individuals can manage the task execution process and adjust their course of action as necessary. Self-regulation can be seen as a within-person process that occurs over time (Lord, Diefendorff, Schmidt, & Hall, 2010), but individuals may show differences in the extent they engage in such behaviour (Beeftink, Van Eerde, Rutte, & Bertrand, 2012).

### 2.2.1 Defining Self-Regulation

Self-regulation refers to thoughts, feelings and actions that are planned and employed by an individual to achieve his/her personal aims (Zimmerman, 2000). Generally, self-regulation has broad implications and covers several interdependent factors, such as affective (emotions and feelings) and cognitive capacities (beliefs, perceptions and knowledge). According to Schunk and Ertmer (2000), self-regulation involves the setting of learning goals, instruction, effective use of strategies (including ideas) and resources, monitoring performance, time management and high perception of abilities. Self-regulated learning represents the way learners improve their academic achievements in the meta-cognitive, motivational and behavioural aspects (Zimmerman & Schunk, 2012). In other words, those learners who engage in self-regulation can plan, evaluate and monitor themselves in a meta-cognitive manner at different levels of the learning process whilst perceiving themselves to be competent, self-efficacious and independent individuals who devote much of their effort towards achieving their academic objectives. Behaviourally, these learners choose a certain structure and even create an environment that is conducive to optimum learning (Zimmerman & Pons, 1986). Therefore, to understand the self-regulation of students' learning, researchers have examined their motivational, self-efficacy and control beliefs (Jdaitawi, 2015).

Self-regulation has been understood as aversion to risk and delay of gratification in the struggle between impulse and restraint (Duckworth & Seligman, 2006). Previous studies show that self-regulation plays a critical role in human functions related to various mechanisms, such as emotion, mental illness, aggression, decision making, academic management and social development (Forgas, Baumeister, & Tice, 2009). Posner and Rothbart (2000) noted that self-regulation is

the single most important factor in understanding human development. Shonkoff and Phillips (2000) added that self-regulation is connected to all aspects of adaptation in the academic, social and career domains given that such concept denotes alterations to one's behaviours and modulation of one's reactivity to his/her environment. Contemporary studies on the concept of self-regulation have employed the operational definition of self-regulation due to its various content emphases of each field (Karoly, 1993). In this study, self-regulation is defined as 'the ability to flexibly activate, monitor, inhibit, persevere and/or adapt one's behaviour, attention, emotions and cognitive strategies in response to direction from internal cues, environmental stimuli and feedback from others, in an attempt to attain personally-relevant goals' (Moilanen, 2007). Such definition encompasses the multiple domains of self-regulation, including attention, emotion and behavioural regulation, and emphasises the developmental perspective.

Previous studies show that the self-regulation process takes place at both the conscious and unconscious levels (Forgas et al., 2009). Obviously, self-regulation has a voluntary, effortful, motivated and conscious component. In studying the conscious component of self-regulation, scholars have frequently used the term *self-control* (Forgas et al., 2009). Recent empirical studies have shown that resources related to conscious self-control can be exhausted (Muraven & Baumeister, 2000; Baumeister et al., 2006). For example, some people deplete their mental energy or strength when they exert control over their responses by engaging in tasks that demand self-regulation (Muraven & Baumeister, 2000). Therefore, an excessive exertion of energy on these tasks can lead to a temporary state of ego depletion as reflected in various behavioural patterns, such as weakened reasoning, highly impulsive behaviour or poor management of self-presentation (Muraven &