

**Combating the classroom imagination deficit: Increasing pre-service teachers' ideation self-  
efficacy for more creative teaching and learning**

**Abstract**

Ideation, the capacity to conjure and develop ideas is a crucial part of creativity, creative teaching and learning. However, one of the key impediments to teachers' creativity in the classroom is low ideation self-efficacy. Teachers with low ideation self-efficacy tend to avoid modelling the creative process of generating, developing and communicating ideas with their students. Therefore, an imaginative deficit pervades many classrooms. Like creativity, ideation does not happen in a vacuum and its development requires inspiration and scaffolding. Consequently, this practitioner research evaluates the effectiveness of a visual arts based ITE learning component with pre-service elementary school teachers with regard to developing skills and dispositions associated with ideation and increasing their ideation self-efficacy. It also investigates whether looking at artwork by another ideationist scaffolds original creation. The study adopts mixed methods including arts-based methods, qualitative content analysis and confidential online survey. Findings evidence that instead of producing pastiche, participants favoured *varying, combining and transforming* elements of what they saw to create *highly original* work. They also reveal perceived increases in all nine traits associated with ideationists and creative people and increased ideation self-efficacy. This study concludes that ideation development can increase with concerted scaffolding and dispels the notion that exposure to other ideas by impedes original creativity.

Key words: *creative teaching and learning; ideation; pre-service teachers; teacher self-efficacy; visual arts*

## **Introduction**

Generating ideas is a crucial component of creative thinking (Desailly, 2012; Howkins, 2012; Jesson, 2012). It is a precursor to creativity. Hence, the capacity to conjure and develop ideas, also known as ideation, is viewed as the driving force of creative teaching and learning (Agee & Welch, 2012; Barnes, 2015; Craft, 2005). However, one of the key impediments to teachers' creativity and creative teaching is low teacher ideation self-efficacy (Desailly, 2012; Jesson, 2012; O'Toole, 2012). The literature indicates that teachers with low ideation self-efficacy tend to avoid modelling the creative process of generating, developing and communicating ideas with their students (Agee & Welch, 2012; Garvis, 2009; Jesson, 2012; O'Toole, 2012). This avoidance of modelling specific modes of thinking and skills is echoed across many domains of learning (Plourde, 2002; Tosun, 2000). As a result, this absence stagnates learners' ideation development for creative work and partly explains why an imagination deficit pervades many elementary classrooms (Agee & Welch, 2012; Cunningham, 2015; QCA, 2004).

Consequently, this practitioner research (Burton, Brundett & Jones, 2014; Arthur et al, 2012; Wellington, 2015) entails the design, implementation and evaluation of a visual arts based initial teacher education (ITE) programme component aimed at increasing pre-service elementary school teachers' ideation self-efficacy so that they will feel more confident, capable and committed to modelling ideation in their classrooms. In addition, self-efficacy theory suggests that prior successes in ideation at pre-service level will graduate beginning teachers who will more likely value and infuse their planning and teaching with creative content, learning experiences and methodologies (Prendergast, Garvis, Keogh 2011).

### Study description

While this study is part of a larger piece of practitioner research concerning the development of pre-service elementary teachers' creative habits of mind (Lucas, Claxton & Spencer, 2012), this study specifically evaluates the effectiveness of a visual arts 'scaffold' used to support their ideation processing. *Scaffolding theory* was first introduced by Bruner in the late 1950s and was inspired by Vygotsky's concept of an expert assisting a novice, or an apprentice. Ideally, scaffolding works to maintain the learners' potential level of development in the so named zone of proximal development (ZPD) – the field between what a learner can achieve autonomously and what can be achieved with the support of a more knowledgeable peer or teacher.

As this study focuses on ideation in visual arts, in this study scenario, the scaffold comprises of looking at artwork by another professional artist/ idearist. Before participants create an individual mixed-media art cloth (figure 1 & 2) using basic techniques from the elementary school curriculum, they are afforded the opportunity to examine artwork by a particular professional artist whose personality and practice exhibits traits of an idearist or creative person (Craft; 2001; Csikszentmihalyi, 1996; Ingeldew, 2014; Spendlove, 2005). The artist in question selected for this case study is the Celtic Surrealist artist Leonora Carrington (figure 3). Informed by theories regarding self-efficacy, ideation and social constructivism, this study asks:

1. Is looking at artwork by a more knowledgeable artists/ idearist an effective *scaffold* for learner's ideation processing?
2. Does looking at such artwork stimulate *original creation*?
3. What specific motifs or techniques are *imitated, modified, combined* or *transformed* by participants in their resultant art cloth?

4. Does the ITE programme component increase preservice teachers' ideation self-efficacy?
5. If so, which specific ideation related dispositions and skills have increased as a consequence of the ITE programme component?

## **Methodology**

This practitioner research (Burton, Brundett & Jones, 2014; Arthur et al, 2012; Wellington, 2015) adopts mixed methods including arts-based methods, qualitative content analysis and anonymous online survey. Data is multi-modal including (i) personal artwork incorporating drawing, print, paint and textile elements, (ii) visual and textual ideation boards and (iii) confidential online survey. According to Gillham, 'the essence of content analysis is identifying substantive statements – statements that really say something' (2000, p.71). The visual content, motifs and techniques within their completed art cloth artifacts became substantive statements in a highly visceral and tangible way. Applying inductive qualitative content analysis (Arthur et al, 2012; Wellington, 2015) the researcher examines significant visual and textual statements regarding participants' ideation processing as manifested in their art cloth or illustrated/ described on their ideation boards (figure 4 & 5). With a focus on *interpretation* rather than quantification (Kohlbacher, 2006; Cresswell; 2014; Wellington; 2015), the researcher through open coding, reviews sixty art cloths and sixty related ideation boards and takes notes.

This process requires repeated 'reading' of material, after which the researcher transcribes the notes and headings onto a coding sheet. The next step involves grouping the data and reducing the number of categories by combining similar headings into broader categories. Through this process, key themes emerge from participants' work that were unequivocally inspired by Carrington's work. There is

no conjecture or speculation involved as the ideation boards clearly detail any inspiration from Carrington’s work through narrative collaged content (Ridut, 2014; Rose, 2001).



Figures 1 & 2. Images of art cloths created by participant pre-service teachers



Figure 3. Screen print of ‘Google images’ search of Carrington’s artwork



Figures 4 & 5. Images of four ideation boards that document participants’ ideation

Secondly, the study examines the *quality* of participants’ ideation using Nilsson’s taxonomy of creative design (2012). Nilsson’s taxonomy (Table 1) has five levels comprising of *imitation*, *variation*, *combination*, *transformation* and *original creation*. In this study, imitation refers to copying, tracing or merely replicating what they see. However, it is worth noting that others differentiate imitation from copying. For example, Bruce notes that “imitation is not copying. When we copy, we do exactly the same thing as the person or thing we are copying. When we imitate, we take an idea and incorporate it into our own ideas, using it as a resource” (2004, p. 68). The meaning perhaps rests in the intention and action as opposed to the outcome or final product. This study does bear in mind that participants are novice artists and might be intending to copy but have not the skill to do so. In contrast, *original creation* (Nilsson, 2011) in this context is when participants create something truly unique to them with respect to content, form and style but has been inspired by in some way by Carrington’s repertoire.

Table 1. Taxonomy of creative design (Nilsson, 2012)

Level	Description
Imitation	The replication of previous work
Variation	The modification of existing work
Combination	The mixture of two or more forms
Transformation	The translation of a work into another medium or mode
Original Creation	The creation of something previously unrecognisable

Finally, it investigates what impact, if any, does the ITE programme component have on participants’ ideation self-efficacy with respect to nine specific traits taken from descriptions of idearists (Ingledeu, 2012) or creative people (Craft; 2001; Csikszentmihalyi, 1996; Spendlove, 2005) using a confidential online survey tool titled *surveyhero*. These traits consist of imaginative thinking, daring to be different, stretching creative capabilities, creative risk-taking, persistence, looking more attentively, nurturing self-expression, trusting intuition and metaphorical thinking

## **Review of relevant literature**

To better understand the rationale for ideation development, a literature review was conducted to inform this study's theoretical framework and build on prior research regarding self-efficacy, ideation and scaffolding.

### **Self-efficacy**

Self-efficacy refers to an individual's beliefs about his or her capabilities to exercise control over his or her own level of functioning and over events that affect their lives (Bandura, 1994). Beliefs regarding one's efficacy determines how one thinks, feels and behaves. Therefore, self-efficacy affects and shapes motivation, confidence and dispositions. Self-efficacious individuals have both a sense of agency and confidence in their ability to succeed with their ideas and overcome obstacles (Catterall & Peppler, 2007). With respect to creativity, those with high ideation self-efficacy have the confidence to take creative risks, experiment and are more likely to produce an original creation.

Research suggests that level of self-efficacy is influenced by four sources. *Mastery experiences* serve as an indicator of capability. *Verbal persuasion* refers to verbal influences or feedback on one's perceived capability. *Vicarious experiences* refer to modelling and observation of techniques and *emotional arousal* is associated with the perceived capability that influence the process and outcomes of the task attempted (Pendergast, Garvis & Keogh, 2011). Of the four, *mastery experiences* are considered the most powerful influence as they provide authentic evidence of one's performance in a particular situation (Bandura, 1994; Mulholland & Wallace, 2001). Therefore, a more successful performance increases self-efficacy, while a perceived failure creates a decrease in self-efficacy (Grencer & Cakiroglu, 2007; Lemon & Garvis, 2015). As one develops mastery experience, this leads to accumulating increases in self-efficacy (Tschannen-

Moran, Woolfolk Hoy & Hoy, 1998). Consequently, the ITE programme component for this study begins with a vacarious experience of looking at, and learning from Carrington's work followed through with a mastery experience of related ideation and creativity.

Unfortunately, research indicates that once formed, self-efficacy beliefs are difficult to change (Barrett et al, 2017). However, in light of the responsibility an elementary teacher must do with regard to modelling ideation for his or her learners and several studies that find teachers with low self-efficacy negatively impacting children's self-efficacy levels in the same domain (Garvis, 2011; Oreck, 2004; Welch, 1995), it behooves initial teacher education to explore every creative ways and means to graduate pre-service teachers with high ideation self-efficacy.

### **'Idearists' and ideation self-efficacy**

Ideation is synonymous with imagination. There is a plethora of theory and research demystifying imagination with respect to types, indicators, processes, outcomes and imaginative education (Egan, 2002; Heath, 2008; Hunter, 2012; Liang, Chang, Chang & Lin, 2012). Other studies have theorised and investigated the essential skills and dispositions that idearists share in order to be successful with respect to creativity and innovation within their field (Craft, 2001; Cskiszentmihalyi, 1996; Inglewdeu, 2014; Winner et al 2006) (Table 2).

Table 2. Traits of idearists and creative people

Idearists (Ingledeu, 2014)	Creative people (Spendlove, 2005; Craft; 2001 & Csikszentmihalyi, 1996)
Hunger for information	Strong sense of self
Thirst for knowledge	<b>Self-control</b>
<b>Rule-breakers and rewriters</b>	Self-confident
<b>Risk-takers</b>	<b>Original in thought</b>
Tide-turners and table-turners	Original in action
Game-changers and goal-post movers	Independent
Match-winners	<b>Have courage to be different</b>
Questioning	<b>Risk-taker</b>
Provocative	Open to experience
Versatile	Enjoy experimenting
Improvisers	<b>Persistent</b>
Spontaneous	Capable of strong intrinsic motivation
Dogged and obsessive	Passionate and committed
Sense of humour and the absurd	Attracted to complexity
<b>Curious</b>	Attracted to obscurity
<b>Observers</b>	<b>Sensitive</b>
Open-minded	<b>Emotionally involved in their work</b>
<b>Free, forward and big thinkers</b>	Sense of humour
<b>Visionary</b>	Playfulness
Do not watch the clock	

Table 3. Assessing Creative work (Jesson, 2012)

Process involved	Assessment
Copies	Replicates given ideas. No reflection.
Develops	Uses given ideas and adds some of their own, and those of others. Little reflection.
Extends	Working from a given starting point, adds many ideas to their own. Work shows some reflection.
Innovates	Does something completely unexpected and different from everyone else. High degree of reflection.

Table 4. Assessing creative abilities (Desailly, 2012)

Creative abilities
<b>Generate new ideas</b>
<b>Apply ideas in different contexts</b>
<b>Take other peoples ideas and move them on or personalise them</b>
<b>Communicate ideas in interesting and varied ways</b>
<b>Put different or disparate ideas together to make something new</b>
Work towards a goal or set of goals
Evaluate their own work and others' work
Adapt and improve on their work in the light of their own or others' evaluations

Like creativity, ideation does not take place within a vacuum (Jesson, 2012). It builds on other people's ideas and fresh input (Fisher and Williams, 2004). Similarly, Ingldew (2014) links ideation with *external* inspiration asserting that "imagination is the part of the mind where ideas are sparked and received to transform inspiration into something new" (2014, p. 11). She asserts that imagination needs and feeds on inspiration including looking at work by other idearists. Notwithstanding that, looking at work by other professional artist is the least embraced curriculum 'practical starting point' for creating visual arts in Irish elementary schools (Flannery, 2012). While this is partly because of low teacher self-efficacy with regarding to mediating learners' engagement with art, it also stems from a misconception among many teachers with expressionistic epistemologies that somehow exposing younger learners to other artists' work curtails their creativity and fosters copying (Barnes, 2015; Flannery, 2012). Consequently, this study also aims to debunk this fallacy and evidence that the *vicarious experience* of exposure to Carrington's artwork instigates rather than impedes participants' ideation. This study hypothesizes that learners *need* to look at work by other idearists to improve their ideation capability just as learners are encouraged to read other work to improve their writing.

### **Social constructivism, scaffolding and ideation self-efficacy**

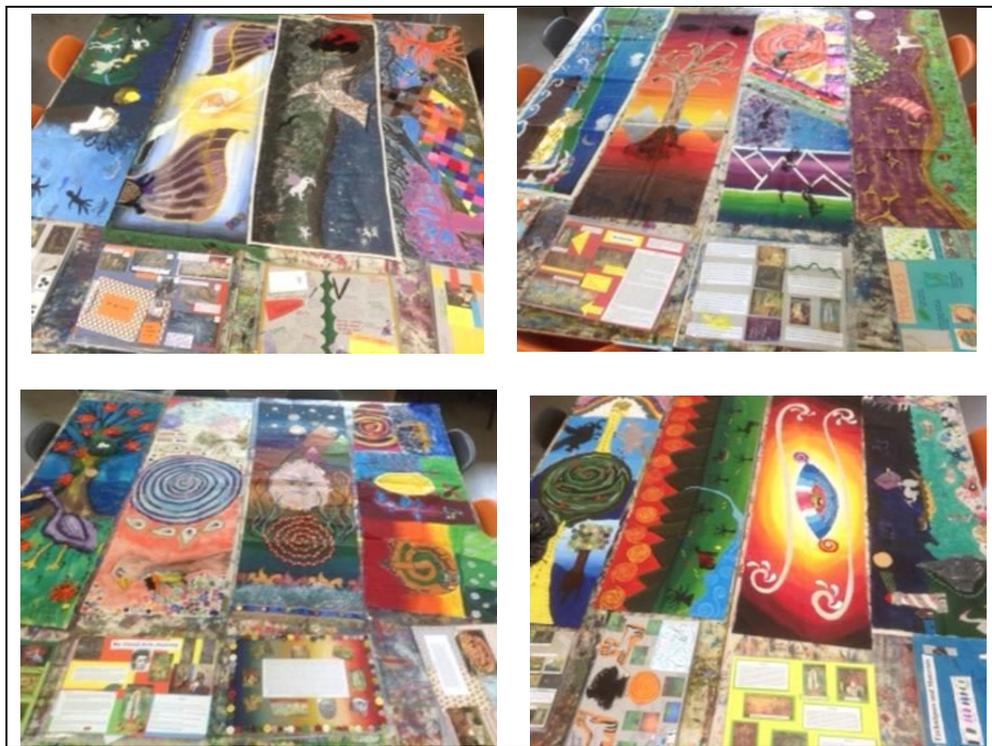
The term "constructivism" first appeared in educational literature in the early 1970s. Since then, it has been connected to a diverse range of pedagogical perspectives and practices. However, core to the constructivist educator is the desire and commitment to produce learners with high self-efficacy to become moral, cultural and discerning contributors to society. In addition, "the desire of the constructivist teacher is to 'scaffold' children's learning process in such a way that the teacher becomes a 'co-constructor' of knowledge, creating a partnership between the [learner] and the teacher" (Cook 2006, p.3). A scaffold refers to any support offered to learners that enables them enter the zone of

proximal development, where learning takes place. Very simply, the zone of proximal development (ZPD) is the difference between what learners can do without help and what they can't do. Crucially, as Holzman's chapter title states "without creating ZPDs there is no creativity' (2012). The strategy of scaffolding is directly connected to ZPD as it provides the just enough temporary supports to enable learners perform tasks successfully within their ZPD. Too little or few supports can deflate learner self-efficacy. Because, imagination is not an automatic consequence of maturation, ideation as a skill and disposition requires nurturing through modelling and scaffolding (Agee & Welch; 2012, Barnes, 2015 & Pound, 2008). Many international studies evidence the negative impact teachers with low self-efficacy have on student achievement in different subject areas (Ashton & Webb 1986; Cakiroglu, Cakiroglu & Boone, 2005; Colson et al 2017). Similarly, the quality of arts teaching by pre-service teachers is subject to their perceived confidence (Eddles-Hirsch, 2017). Consequently, it is not uncommon to encounter young children who have already become convinced that they have no ideas to progress a creative task (Barnes, 2015; Desailly, 2012). Therefore, there is a need to investigate and evaluate effective scaffolds in ITE programmes to foster pre-service teachers' ideation self-efficacy so when they graduate they feel equipped and confident to demystify, deconstruct and demonstrate ideation in their classrooms.

### **Participants and procedures**

Sixty pre-service elementary teachers in three different class groups from the one higher education institute partook in the study. They completed thirty hours of foundational pedagogical content knowledge concerning visual arts education prior to the study. Notwithstanding that, their subject connoisseurship (Eisner, 2002) would still be deemed foundational. Ethical approval was obtained from the higher education institute's ethics in research review board. Having been presented the challenge of creating a personal mixed media art cloth, each class group appraised artwork by

Carrington and discussed an exemplar ideation board during a double lecture. Participants designed and created their art cloth over a ten-week period (Figure 5). Participants were provided with media and materials and an open studio space at set times during each week to progress their work in a self-directed manner. The design of their art cloth was open-ended. They were asked to document their ideation processing using a narrative collage approach (Kostera, 2006) including text, illustrations and images. Sixty participants volunteered both their art cloth and ideation board at the end of the process for analysis. All data was confidential and anonymous. Participants denoted all work with a four digit number. A few weeks later, they were invited to complete a brief confidential online survey regarding any perceived increases in ideation self-efficacy. Thirty participants completed the survey.



*Figure 6: Random sample of arts cloths and ideation boards on display*

### **Key findings and discussion from qualitative content analysis**

Inductive qualitative content analysis of sixty art cloths and ideation boards revealed that five constructs threading Carrington's work were abstracted by participants. These include hybridity, juxtaposed landscapes, allegory and symbolism, mystic mood using colour and tone, and direct quotations attributed to the artist. Analysis indicates that looking at, and learning from her work fueled their ideation. It acted as effective scaffold. All five themes and responses from participants are now described.

#### **Theme one: *Hybridity and composite creatures***

Carrington's work is synonymous with fantastic hybrid figures and creatures. Nearly all sixty art cloths incorporated hybridity. Several participants wrote how they were inspired to design their own hybrid creatures. One participant explained that at first she 'planned to include a variety of hybrid animals...but in the end, opted to create one hybrid animal in the top corner'. Another wrote that she 'took inspiration from the sculpture "Hija Minotaura" meaning female minotaur'. Another participant documented how she 'used foam shapes of different animals, cut them up, and combined them to make my own hybrid creatures'. Other participants explored themes of transformation and transition or included well-known Irish children's folklore about hybridity such as the *Children of Lir*.

#### **Theme two: *Juxtapositions and tonal contrast***

Nearly all participants juxtaposed landscapes. Many contrasted seascapes or skiescapes. Others analogised nightscapes with dayscapes or reality with dreamscapes. All were 'bridged' by liminal objects such as windows, bridges or arches. Several juxtaposed dark to light using a variety of hues. Numerous participants specifically wrote about juxtaposing on their ideation board. One participant

wrote how she ‘felt really inspired’ by Carrington ‘to create a cloth that had both dark and light colours to portray the idea of a contrasting world’. Another participant explained how she ‘mirrored the shades of white and purple’ to portray an icy barren landscape against a night sky. Another based her art cloth on ‘dark versus light; life versus death’ inspired by Carrington’s ‘dark themes’. A few other participants wrote specifically about their tonal contrast to portray light to dark inspired by Carrington’s work.

### **Theme three: *Allegory and symbolism***

The majority of participants wrote how they adopted symbolic content from Carrington’s work. The most predominant symbols imitated were the golden egg, the bird, the moon and symbolic trees. Other codes as the arch, the window, the rainbow and cauldron were also used. Interestingly, there was little sign of copying. Instead, participants modified them, or invented their own symbols. One participant wrote that she was ‘largely inspired by the many eyes in Carrington’s paintings’ and chose to have three eyes as the focal points of her cloth; ‘one representing light and life, one representing darkness and death and one showing the relationship between the other two’. Another wrote how she placed a golden egg ‘at the heart of her cloth’ to represent ‘something within the egg that is about to be unleashed, but yet unknown’.

### **Theme four: *Mystic moods using colour and tone.***

Numerous participants wrote about their appreciation for Carrington’s use of colour and tone to create a mystical atmosphere. Many were inspired by the sense of mysticism, mystery and whimsy within her work and explored dark tones, a particular hue, or colour contrast or harmony to conjure similar moods. One participant wrote how Carrington’s use of dark colours blended together caught her eye and she tried to adopt that technique into her work. Another noticed the eerie colour orange in

Carrington's work and subsequently, explored different shades of orange to convey a similar mood. Another described how she couched pink thread to complement the blue in her work, inspired by the magical pink tree in one of Carrington's paintings.

### **Theme five: *Artist quotations***

Interestingly and unexpectedly, some participants were inspired by quotations attributed to the artist to inform their work. One participant wrote that Carrington herself was the inspiration behind the piece despite the fact that Carrington stated she 'had no time to be anyone's muse...learning to be an artist'. This quotation prompted the participant to express her own individuality in her work. A second participant explained how she found herself transfixed by Carrington's phrase 'the hour of silence'. She ideated about what could happen during that hour in her work. Another participant described how Carrington's quote 'I've always had access to other worlds. We all do because we dream' was a 'thought-provoking basis' for her art cloth.

### **Key findings regarding *original creation***

Analysis of art cloths and ideation boards using Nilsson's taxonomy of creative design (2011) reveal that there was little *imitation* of Carrington's work. Some participants borrowed motifs such as her inclusion of golden eggs, mermaids, arches and windows. However, there was far more *variation* present as many participants modified the aforementioned objects' characteristics in personal ways. Many adopted the metaphorical meaning underpinning Carrington's motifs but personalised the characteristics, location, scale, frequency and style of the object in an imaginative manner. Instead of copying from her work, or producing pastiche, participants also favoured *combining* and *transforming* elements of what they saw, which culminated in highly *original creations*. No two art cloths looked

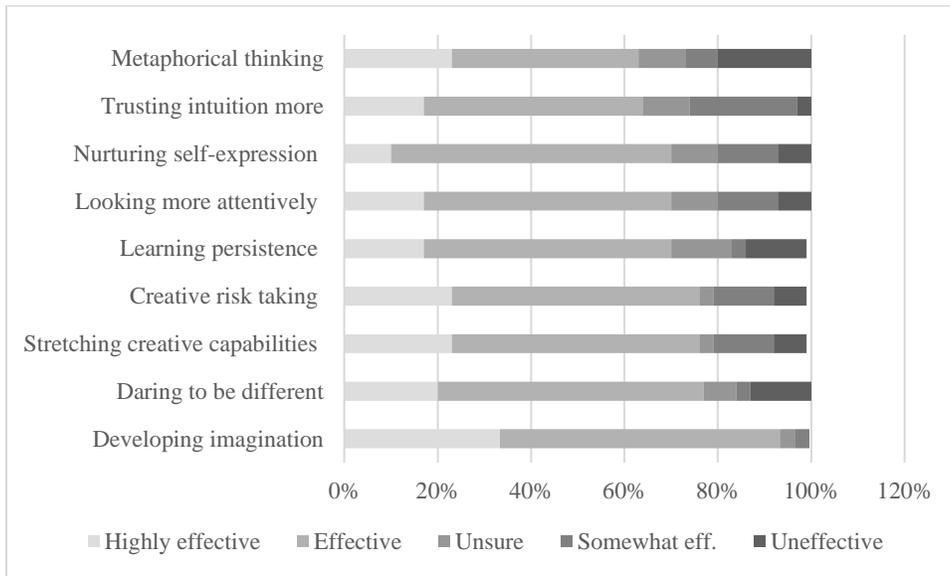
alike. Each of the sixty cloths and related ideation boards were unique with respect to content, form, mood and meaning. For example, no two participants *combined* elements from the same Carrington paintings to create their art cloth. Only a few participants sought inspiration from a single Carrington painting. *Transformation* was also prevalent as participants recreated Carrington's maze, spiral and solar motifs using different media to paint such as print or creative textile effects. Crucially, from the study's perspective, the vast majority of participants depicted *creative* and *original* hybrid figures or composite animals which threaded Carrington's work and situated them in *creative* and *original* surreal settings conjured by their own imaginations resulting in work that surpassed their expectations. The findings dispel the misconception shared among many practising teachers that exposure to other work somehow curtails learner's creativity. Instead it acted as a springboard for creativity and originality.

### **Key findings and discussion from online survey**

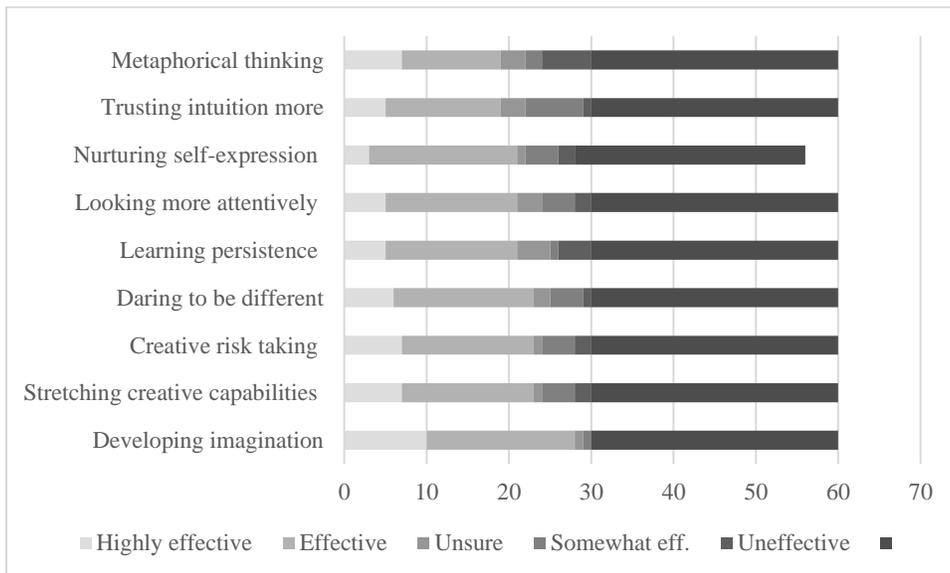
The results from the confidential online survey completed a few weeks later indicates that participants (n30) perceived the ITE programme component to be effective to highly effective across all nine traits associated with idearists and creative people (Table 1). Over ninety per cent of respondents perceived the learning experience to be effective in relation to developing their imagination (Tables 5 & 6). Just over three quarters of respondents thought the learning experience to be effective regarding creative risk-taking, enabling them go beyond their perceived creative capabilities and daring to be different. Seventy per cent of respondents recorded that it was effective in strengthening persistence, looking more attentively and nurturing their self-expression. Finally, just over sixty per cent replied that it was effective regarding developing metaphorical thinking and trusting intuition. A key limitation of this methods component is not gleaning detail regarding their positive feedback. Time constraints and participant fatigue were the underlying reasons for not asking more of them. However, the researcher

intends to obtain further and richer written explanation in the second iteration of this study, when other participants will complete the same ITE programme component but using a very different artist/ idearist for comparison.

*Table 5. Online responses in percentages*



*Table 6. Online responses in numbers*



## Conclusion

This study has illuminated the value of utilising other artist's work to scaffold learners' ideation for creativity in visual arts. Firstly, it has debunked a common misconception that showing work by other artists/ idearists to learners somehow curtails learners' ideation and creativity. Instead, the study concludes that this *vacarious experience* of look at, and learning from other more expert work is an effective *scaffold* for learner's ideation processing. The study determines that looking at, and learning about a more knowledgeable or experienced person also stimulates *original creation*. While a few learners *imitated* specific motifs or techniques; from an arts and an ideation perspective this is not necessarily a bad thing as there is value in observational drawing. In addition, the study finds that while learners may borrow or 'steal like an artist' (Kleon, 2012. Title of book), they still have the strong desire to self-express their ideas and imaginings in personal ways. The study also concludes that the vast majority *modified, combined* or *transformed* motifs in their own signature style. In other words, they exercised the creative abilities (Nilsson, 2012) to take other peoples' ideas and move them, personalise them or put different or disparate ideas together to make something new. The study determines that the ITE programme component was *effective* to *very effective* from a teacher ideation development perspective as it did increase preservice teachers' ideation self-efficacy across nine related idearist's skills or dispositions. Participants responded that it developed their imagination. It dared them to be different and it stretched their creative capabilities. They also responded that it was effective in enabling them to take creative risks, look more attentively and trust their intuition more. In addition, the ITE programme component was also effective in terms of teaching them persistence, nurturing self-expression and exercising metaphorical thinking, which the literature suggests are all critical to ideation processing.

**Recommendations**

Notwithstanding the limitations of this study with regard to its context, specificity and scale, multiple implications or recommendations arise from this research. Firstly, ideation requires nurturing and monitoring in initial teacher education to qualify graduates with high ideation self-efficacy. Not doing so will continue to negatively impact future learners' ideation development and achievement. Not doing so means the imagination deficit will continue to pervade many classrooms. Secondly, it behooves those involved in continuing professional development to model and teach ideation processing with practicing teachers as opposed to merely showcasing and sharing a repertoire of other people's ideas. Thirdly, there should be opportunities for teachers to join professional learning communities (PLOs) to co-ideate resources, activities and strategies for more creative teaching and learning.

From a learners' ideation development perspective, the study shows firstly, that learners prefer to modify, combine, transform or originate as opposed to merely imitate ideas of others irrespective of their perceived abilities. Secondly, that it is important to afford learners the opportunity to look at other idearists' work as it acts as a scaffold and motivator for learners to generate their own ideas. Thirdly, while the terms 'creativity' and 'innovation' have been embraced by all domains of learning, this study recommends that ideation, a precursor to creativity requires greater presence in any contemporary curriculum embracing innovation and change.

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