Art. # 1177, 10 pages, doi: 10.15700/saje.v36n1a1177

Problem behaviours of kindergartners: The affects of children's cognitive ability, creativity, and self-esteem

Sung-Ae Chi
Department of Early Childhood Education, Faculty of Education, Chung-Ang University, Seoul, Korea
sachi0005@cau.ac.kr
Seong Hyun Kim
Director of ICS Child Psychology Development Education Research Center, Gyeonggi-do, Korea
HyunJin Kim
Department of Curriculum and Instruction, School of Education, Indiana University, Bloomington, United States of America

This study investigated the affects of cognitive ability, creativity, and self-esteem on kindergartners' problem behaviour. Participants were 203 children (mean age = 65.8 months) attending kindergartens in Korea. Data collection used the Korean version of Child Behaviour Checklist, the Kaufman Assessment Battery for Children, the Torrance Test of Creative Thinking, and the Children's Sense of Self-Esteem Inventory. Pearson's correlations and stepwise multiple regression analysis were used to analyse the data. There were four primary outcomes. First, there were negative correlations between children's problem behaviour (internalising and externalising problems) and cognitive ability. Second, there was a negative correlation between internalising problems and fluency in creativity. No correlation was found between children's externalising problems and creativity. Third, there were negative correlations between children's problem behaviour (internalising and externalising problems) and self-esteem. Fourth, sequential processing, emotional competence, and fluency were revealed to be predictors of children's internalising problems. Social competency and sequential processing were found to be predictors of children's externalising problems.

Keywords: cognitive ability; creativity; externalising problems; internalising problems; problem behaviour; self-esteem

Introduction

To date, there has been considerable concern about increasing problem behaviours and behavioural disorders in children. Problem behaviours in early childhood can accumulate and cause numerous problems in later childhood as well as in adulthood (Yoleri, 2014). Externalising problems, such as aggression, tend to gradually reduce during early childhood, but there are many cases where children continue to experience problem behaviour. In a four-year longitudinal study examining children's behavioural and emotional problems from preschool age to the fourth grade of primary school, Beyer, Postert, Muller and Furniss (2012) have argued that children's problem behaviour not only accumulates, but also combines with other problems. In South Africa, as elsewhere in the world, there is an increasing need to value and support the development and learning of children in the early years (Viviers, Biersteker & Moruane, 2013). Previous researchers have argued that early childhood is a critical period when an individual builds up basic competencies and self-concepts that influence their later developmental trajectory. Every child needs effective early childhood support—and at-risk children from disadvantaged environments are the least likely to get them (Heckman, 2008). Furthermore, investing in early childhood education for at-risk children is an effective strategy for reducing social costs (Heckman, 2008). Therefore, examining the variables that affect children's problem behaviour is important to discovering effective educational approaches that are appropriate for children.

Earlier studies have found that problem behaviour in early childhood causes low academic achievement and ineffective perspective taking skills, as well as low emotional competence, knowledge, and regulation (Trentacosta & Shaw, 2009). These disadvantages may occur in combination, causing a greater severity of problem behaviour.

As interest grows in finding interventions to prevent problem behaviour, the focus of research has recently shifted from a problem-focused perspective with an emphasis on risk factors, to a prevention-focused perspective with an emphasis on protective factors. Protective factors have been considered in many areas (e.g., education, psychology, and psychiatry). This shift in focus highlights the importance of structuring educational approaches for helping children by enhancing their internal ability to cope with adverse situations, and helping them to overcome internalising and externalising problems. Therefore, investigating protective factors and analysing their effects on problem behaviour would provide meaningful information that could be used to prevent problem behaviours that hinder holistic development and cause adjustment difficulties.

Children with limited experience may encounter particular difficulties in understanding psycho-emotional cues, and these difficulties may cause a higher incidence of problem behaviours. In this respect, cognitive ability can be a preventive factor for problem behaviour. Poor consequential thinking and poor alternative thinking are associated with children's impulsivity, over-emotionality, and low social and emotional competencies (Shure, 2001). Therefore, assessing children's cognitive strengths and weaknesses becomes necessary to planning and designing practices for understanding and dealing with children's problem behaviours. Likewise, researchers

have reported that cognitive competency can be associated with children's externalising and internalising problems (Pianta & Caldwell, 1990). For instance, children's cognitive task performance is related to problem behaviours, such as inattention and impulsivity (Giannopulu, Escolano, Cusin, Citeau & Dellatolas, 2008). Willcutt, Doyle, Nigg, Faraone and Pennington (2005) found a significant relationship between Attention Deficit Hyperactivity Disorder (ADHD) and one sub-concept of cognitive ability-working memory capacity. They suggested that ADHD appears due to a limited capacity of working memory.

It is a widely accepted view that children's cognitive ability is closely associated with socio-emotional development. Zupančič and Kavčič (2011) argued that cognitive ability is a core factor leading children to develop effective self-control skills, the ability to interpret social cues, and successful conflict management techniques. Therefore, cognitive ability would help children to adjust better to their surrounding environment and to reduce problem behaviours. Masten (2007), and Rönnau-Böse and Fröhlich-Gildhoff (2009), studied resilience, arguing that cognitive ability may intervene in the occurrence of children's problem behaviour via mediation of resilience, and suggesting that above-average non-verbal cognitive ability can be an important protective factor for preventing children's internalising and externalising problems. This cognitive ability may be considered an essential factor not only for behavioral adjustment, but also for social problem solving ability, and this ability would help prevent problem behaviours from emerging following negative and stressful life events (Flouri & Panourgia, 2011).

In contrast, Torrance's (1990) work implies that creativity can be related to children's problem behaviour. Creativity generally refers to an individual's aptitude to find a new idea or make a unique and meaningful product. This is an individual characteristic, influenced by genetic factors and societal needs, and is present to some extent within every individual. As an example, the Torrance Test of Creative Thinking (TTCT) includes "resistance to premature closure" as one assessment of creativity. In this test, children are given lines and simple shapes and are asked to produce new figures. Children are required to maintain attention in order to be resistant to premature closure. Thus, if a child has a limited ability to concentrate and shows high impulsivity, that child would receive a low score on the TTCT.

Studies on creativity (e.g., Brower, 1999) have reported that it may be related to drug use, criminality, and mental disorders, and have noted this positive correlation between creativity and problem behaviour. DeMoss, Milich and DeMers (1993) explained that children with high figural and verbal creativity may be more sensitive than others; therefore, they can suffer from attribution bias and withdrawal behaviour. Moreover, some researchers have pointed out that teachers often perceive creative children as potential troublemakers and non-conformists (e.g. Chan & Chan, 1999). In contrast, Russ (1998) has argued that creative children have correspondingly creative problem solving abilities in social situations, and therefore show better coping strategies and adjustment patterns, suggesting a negative correlation between creativity and problem behaviour. In tandem with this, Kováč (1998) and Plucker, Beghetto and Dow (2004), presented the notion that creativity plays a crucial role in developing various strategies for peer conflict resolution. It is important for researchers and practitioners to be aware that peer conflict resolution can be associated with children's internalising and externalising problems (Denham, 2006). Moreover, Fox and Schirrmacher (2012) indicated divergent thinking as one feature of creative children, suggesting that fluent thinkers among creative children tend to have high cognitive ability, as well as high social problem solving abilities. The studies of both Fox and Schirrmacher (2012) and Kováč (1998) imply that creative children can generate various strategies, and solve problems when they experience social conflict. Their studies suggest a negative correlation between creativity and problem behaviour.

However, Gallucci, Middleton and Kline (1999) suggested that there is no correlation between children's creativity and problem behaviour. Likewise, earlier research (McNeil, 1971) analysed adults with mental illness and reported that some had high creativity in childhood, but others had low creativity. Overall, results of earlier studies analysing correlations between creativity and problem behaviour are divided: there exists research to suggest positive associations, negative associations, as well as no correlation at all. Therefore, the present study aimed to systematically analyse the relationship between creativity and children's problem behaviour.

Together with children's cognitive ability, high self-esteem is also considered a protective factor against problem behaviour. Researchers have argued that self-esteem to be the root of the way in which actions are displayed, and that healthy self-esteem is correlated with one's happiness, mental health, and positive adjustment. The influence of self-esteem on reducing internalising and externalising problems has also been emphasised (Sowislo & Orth 2013). Low self-esteem may amplify externalising problems such as aggression (Doumen, Buyse, Colpin & Verschueren, 2011), and can predict internalising problems such as depression and anxiety (Sowislo & Orth, 2013). Sowislo and Orth (2013) reported that the influence of self-esteem on depression and anxiety was greater than the influences of depression and anxiety on self-

esteem, and they supported a perspective in which self-esteem influences internalising problems. Similarly, Leary and MacDonald (2003) reported that self-esteem positively correlates with interpersonal relationship success, whereas it negatively correlates with problem behaviour. Moreover, Doumen et al. (2011) suggested that even if a child has a troubled relationship with a teacher, the child can be protected from committing aggressive behaviour by attaining and maintaining positive self-esteem. These results are in line with Rönnau-Böse and Fröhlich-Gildhoff (2009), who claim self-esteem to be a basic competency that enables children to manage internalising and externalising problems. Therefore, children's self-esteem could be seen as one of the most important factors for preventing their engaging in problem behaviour.

Early childhood is a critical period that influences the entire course of life. Izard, Trentacosta, King and Mostow (2004) recommended a systematic approach to providing preventative measures for problem behaviour, and to facilitate positive behaviour in the field of early childhood education. In order to reduce children's problem behaviour and to foster positive behaviour, it is necessary to understand the factors affecting children's problem behaviour and the relationship between those factors. Three of the key factors revealed to influence children's problem behaviour are: cognitive ability, creativity, and self-esteem. The present study aims to identify the relationship between those three factors and problem behaviour, and to analyse the predictive power of each factor in relation to problem behaviour. Consequently, the aims of the present study were: (a) to analyse the relationships between problem behaviour (internalising problems, externalising problems) and psychometric variables pertaining to children (i.e., cognitive ability, creativity, self-esteem); and (b) to determine the degree to which the three variables can predict children's problem behaviour.

Methods

Participants

Two hundred and sixty-two children were initially recruited from 15 kindergartens located in urban areas of Korea. Two hundred and three finally participated in the study. Parental consent was provided and verbal assent was also obtained from children on behalf of whom consent was given, before beginning the procedures. At the onset of the study, participating children were 65.8 months old (*SD* = 3.93), on average. The gender distribution was approximately equal (51.0% boys).

Measures

Children's problem behaviour

To assess children's behaviour, the Child Behaviour Checklist (CBCL/1.5-5; Achenbach & Rescorla, 2000) was adopted. In the present study, the Korean standardised version of the CBCL was used (K-CBCL/1.5-5; Oh & Kim, 2008). The K-CBCL has been standardised by Oh and Kim (2008) for use with Korean children (1.5–5). The internal consistencies (Cronbach's alpha) were substantial for the set of CBCL in the Korean sample; the entire scale was .94, and the reliabilities for each subscale was .87 for Internalising Problems and .89 for Externalising Problems (Oh & Kim, 2008).

The K-CBCL/1.5-5 comprises 100 items, of which 99 assess specific problem behaviours, with one item left blank for parents' notes (Oh & Kim, 2008). Items are scored from 0 to 2 based on the occurrence of the behaviour during the preceding six months: zero if "not true of the child," one if "somewhat or sometimes true," and two if "very true or often true." High scores represent severe problem behaviour.

By adding the scores together, seven narrow-band syndrome scales, two broad-band scales (i.e. internalising and externalising), and a total score can be calculated. The seven syndrome scales are: emotionally reactive, anxious/depressed, somatic complaints, withdrawn, sleep, attention problems, and aggressive behaviour. The former four narrow-band syndromes constitute the internalising syndrome, and the latter two syndromes constitute the externalising syndrome.

Children's cognitive ability

To assess children's cognitive ability, the Kaufman-Assessment Battery for Children (K-ABC; Kaufman, AS & Kaufman, NL 1983) was adapted. The K-ABC was designed to assess the cognitive ability of two-and-a-half to twelve-and-a-half year olds. In the present study, the Korean standardised version of the K-ABC was used (K-ABC-K; Moon & Byun, 1997) to fit the cultural and linguistic considerations of the Korean early childhood setting.

Like the K-ABC, the K-ABC-K consists of 16 subtests: three sequential, seven simultaneous, and six achievement; although 13 subtests is the maximum number administered to any particular age group. Age-appropriate tests were chosen, namely: hand movement, number recall, and word order from the sequential subtests; gestalt closure, triangle, pattern reasoning, and block counting were chosen from simultaneous subtests in the present study. No achievement subtests were chosen, since the present study aimed to explore the processes that children follow during problem solving situations.

The K-ABC follows standardised procedures. All raw points given to a child were summed and used in the analysis. High scores on the K-ABC are interpreted as denoting high cognitive abilities.

For the K-ABC-K, the internal consistency of the subscales ranges from .87 to .92 (Moon & Byun, 1997).

Children's creativity

To assess children's creativity, the TTCT (Torrance, 1990) was adopted. The TTCT is a standardised test measuring different aspects of creativity in children. In the current study, the Figural Form A was used. The Figural Form A has three parts: picture construction, picture completion, and parallel lines. Each part has a 10-minute time limit for completion.

The TTCT is scored based on five subscales measuring different aspects of creativity: fluency, originality, abstractness of titles, elaboration, and resistance to premature closure. All raw score given to a child were summed and used in the analysis.

For the present study, Cronbach's alpha of the total scale was .90 and of each subscale was as follows: fluency (.84), originality (.81), abstractness of titles (.83), elaboration (.86), resistance to premature closure (.83).

Children's self-esteem

To assess children's self-esteem, the Pictorial Scale of Perceived Competence and Social Acceptance for Children (PSPC; Harter & Pike, 1984) was adopted. The PSPC was designed to assess how children perceive their own competencies. In this study, the Korean modified version of the PSPC was used to fit the Korean educational setting. This modified version is called the Children's Sense of Self-Esteem Inventory (CSSI), and contains five subscales: cognitive competence, physical competence, social competence, emotional competence, and family acceptance.

Each subscale contains eight items. For each item, the participant is given a picture plate with two pictures and four circles drawn underneath each picture. Each circle represents the score the participant would obtain. The participant's first task is to choose which of the two pictures with which he or she finds a greater affinity. Subsequently, the participant is to think only about the chosen picture, and to indicate how much he or she is like that picture by pointing to the big circle or smaller circle (Harter & Pike, 1984). Each item is scored from 1 ("least likely") to 4 ("most likely").

The internal consistency of the entire questionnaire for this study was .83, and the reliabilities for each of the subscales were: cognitive competence (.73), social competence (.76), physical competence (.79), family acceptance (.76), and emotional competence (.76).

Inter-rater reliability

Apart from problem behaviour, which was measured by means of a parent report, the data for cognitive ability, creativity, and self-esteem were collected by means of a direct report from children. Children were interviewed by three researchers Prior to actual data collection, the researchers participated in workshops regarding each variable. To ensure inter-rater reliability, rater training sessions were also provided for two weeks regarding the procedure of each test (i.e., K-ABC, TTCT, and CSSI). In order to collect data with high reliability, intra-class correlation coefficients (ICC) were checked. Based on our pilot study, ICCs were .98 for cognitive ability, .95 for creativity, and .98 for self-esteem.

Data Analysis

The data analysis was performed using the Statistical Package for the Social Sciences (SPSS) 18.0. First, Pearson's correlation coefficient was calculated between all measures. Next, stepwise multiple linear regressions were performed to analyse each variable's contribution to problem behaviour.

Results

Correlation Analyses

Correlations between variables are presented in Table 1.

Stepwise Multiple Linear Regression Analysis

Internalising problems

Sequential processing, emotional competence, and fluency together explained 24% of the total variance in internalising problem scores (R^2 = .24, p < .001; Table 2). Sequential processing contributed 14%, emotional competence contributed 5%, and Fluency contributed 5% of the total variance (F = 11.78, p < .001). Other variables did not predict internalising problem scores.

Externalising problem

Social competence and sequential processing together significantly predicted externalising problems scores (R^2 = .29, p < .001; Table 3), explaining 29% of the total variance in externalising problem scores. Social competence alone accounted for 23% of the variance, and was the best predictor of externalising problem scores (Table 3). Sequential processing explained an additional 6% of the variance with a statistically significant F value (F = 21.93, p < .001).

Table 1 Correlations between measures of cognitive ability, creativity, self-esteem and problem behaviour (N = 203)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Problem behaviour														
1. Internalising	1													
2. Externalising	.80**	1												
Cognitive ability														
3. Sequential	-.39**	-.39**	1											
4. Simultaneous	.01	-.06	.57**	1										
Creativity														
5. Fluency	-.36**	-.22*	.32**	-.01	1									
6. Originality	-.18	-.19	.04	-.04	.43**	1								
7. Abstractness of titles	.04	-.04	.05	.06	-.02	.42**	1							
8. Elaboration	.03	.00	.04	-.02	.18	.37**	.42**	1						
9. Resistance to premature closure	.15	.15	-.17	.02	-.19	.40**	.54**	.45**	1					
Self-esteem														
10. Cognitive	-.26*	-.36**	.30**	.25*	.15	.09	.09	.09	-.11	1				
11. Social	-.33**	-.47**	.31**	.42**	.14	.19	.04	.07	-.02	.65**	1			
12. Physical	-.29**	-.36**	.29**	.26*	.21	.14	.06	.01	-.06	.77**	.62**	1		
13. Family acceptance	-.32**	-.46**	.22*	.26*	.25*	.22*	.07	.13	-.02	.68**	.81**	.71**	1	
14. Emotional	-.35**	-.43**	.27**	.35**	.14	.15	.06	.10	-.06	.71**	.84**	.67**	.82**	1

Note: * $p < .05$, ** $p < .01$.

Table 2 Predictors of internalising problems (N = 203)

Dependent variables	Models	Independent variables	B	*SE*	T	R^2	$\triangle R^2$	*F*
Internalising problem	1	Sequential processing	-.39	.06	-4.25***	.14	.14	18.07***
	2	Sequential processing	-.32	.06	-3.41***	.19	.05	13.38***
		Emotional competence	-.25	.10	-2.74**			
	3	Sequential processing	-.23	.06	-2.45*	.24	.05	11.78***
		Emotional competence	-.26	.09	-2.89**			
		Fluency	-.24	.05	-2.67**			

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3 Predictors of externalising problems (N = 203)

Dependent variables	Models	Independent variables	B	*SE*	T	R^2	$\triangle R^2$	*F*
Externalising Problem	1	Social competence	-.48	.15	-5.56***	.23	.23	30.94***
	2	Social competence	-.39	.16	-4.45***	.29	.06	21.93***
		Sequential processing	-.28	.09	-3.18**			

Note: ** $p < .01$, *** $p < .001$.

Discussion

The current study analysed the relationships between children's problem behaviour and cognitive ability, creativity, and self-esteem, and determined the predictive powers of the three variables on children's problem behaviour.

First, the significant negative correlation between children's problem behaviour and cognitive ability suggests that higher cognitive ability may lead to less problem behaviour. Other researchers previously argued that cognitive task performance is negatively associated with problem behaviour (Giannopulu et al., 2008). In this study, sequential processing ability was negatively correlated with both internalising and externalising problems. Sequential processing ability refers to an aptitude to interpret various parts and features in a systematic way. This can be interpreted as children with low sequential processing ability having difficulties in interpreting other's emotionality and social cues, and having a higher possibility of displaying problem behaviours.

This finding supports earlier claims that deficiencies in cognitive ability cause internalising problems. According to Koglin and Petermann (2011), children with internalising problems tend to have difficulties in understanding and interpreting other's emotions, and tend to be selectively attentive to threatening situations. Ale, Chorney, Brice and Morris (2010) claimed that a poor ability to interpret other's emotions based on facial expressions is a significant factor in predicting internalising problems. Since cognitive ability is closely related to the development of emotional ability, children would improve their ability to perceive and understand their own and other's emotionality if they had an ability to understand the causality of a given situation. That is, children with low sequential ability would not be able to interpret other's emotions accurately, and thus would tend to be selectively attentive, and reactive to negative situations. Therefore, low sequential ability would trigger internalising problems.

Giannopulu et al. (2008) indicated that children's behavioural problems are related to cognitive liquidity, visual and perceptive working memory, reaction time, and inhibition of preceding responses. Findings of the current study are in line with Giannopulu et al.'s (2008) work, where sequential processing, which requires the ability to remember a given stimulus and ignore preceding responses, had a negative correlation with externalising problems. Sequential processing ability, predominately based in the left hemisphere of the brain, refers to the ability to follow directions and rules. This suggests that low cognitive ability can cause children to act in a problematic way (i.e., breaking social rules, interrupting peers, and attacking others).

Second, there was a significant negative correlation between children's internalising problems and creativity, while no significant correlation was found between children's externalising problems and creativity. This result partly supports previous claims (Kováč, 1998; Plucker et al., 2004; Russ, 1998) that creativity affects children's prosocial behaviour. In particular, Plucker et al. (2004) have argued that creativity plays a pivotal role in developing strategies for resolving peer conflicts. Educators need to pay attention to the relationship between children's internalising problems and conflict resolution between peers (Denham, 2006). Russ (1998) has argued that creative children can effectively deal with problematic situations in day-to-day life. Specifically, a negative correlation between fluency and internalising problems suggests that creative children can generate ideas of how to understand themselves and others, and how to creatively solve problematic situations. When facing problematic social situations, children with high fluency would utilise various and flexible solutions, and cope with the situations appropriately, and are therefore expected to have a lower chance of indulging in problem behaviours. However, no correlation was found between children's externalising problems and creativity. This result supports Gallucci et al.'s (1999) findings.

Third, children's problem behaviour negatively correlated with every area of self-esteem. This result is consistent with earlier studies (Doumen et al., 2011; Sowislo & Orth, 2013), which reported that positive self-esteem reduces problem behaviour, and assists in children's successful adjustment. That is, children with positive self-esteem tend to develop stable self-confidence, and therefore have a relatively low chance of being overwhelmed by external difficulties, and can cope with difficult situations in an appropriate way.

Inspecting sub-areas of self-esteem, cognitive competence is a concept that relates to how children feel or evaluate themselves concerning their own knowledge. The present study found negative correlations between cognitive competence, and both the internalising and externalising of problems. This means that children with low cognitive competence would not be able to participate in class activities actively, instead feeling inhibited, experiencing failure, and therefore exposing problem behaviour.

A negative correlation was also found between children's social competence and their internalising and externalising problems. This is in line with Graham and Coplan (2012), who reported that children who have difficulties in forming peer relationships tend to have an increased chance of presenting problem behaviour when experiencing social fears and anxiety. Low self-esteem often am-

plifies externalising problems such as aggression. Doumen et al. (2011) explained that when social competence is low, children would exhibit not only internalising problems due to their anxiety regarding peer-relationships, but also externalising problems as a means to compensate for their low self-esteem.

Physical competence is concerned with self-evaluation of how children view and use their bodies. In the present study, a negative correlation was found between children's physical competence and their internalising and externalising problems. This result suggests that early childhood educational practitioners need to explore effective approaches for facilitating children's positive physical competence to prevent problem behaveiours.

Family acceptance is how children view their relationship with family members. The current study demonstrated a negative correlation between family acceptance and problem behaviour. This finding is consistent with earlier studies, which have highlighted the importance of family support in preventing children's problem behaviours. For instance, Koglin and Petermann (2011) have indicated low empathy as one of the characteristics of aggressive children, and have reported that children who receive little attention or ignored tend to exhibit low empathy and experience externalising problems. That is, experiences of not being accepted, and treated with ignorance by family members, often hinders the development of empathy, which may eventually increase the risk of exhibiting externalising problems. This finding sheds light on the importance of building home-school partnerships when developing a programme aimed at preventing children's problem behaviour.

Emotional competence refers to viewing oneself as worthy of respect, and being able to retain emotional stability. A child with a negative self-perspective tends to be less objective, and more focused on his or her weak points, rather than strengths. Thus, the child forms low self-esteem, easily exposes emotional problems, and has a greater risk of experiencing internalising problems. In contrast, all children, but especially those with high emotional competence, might benefit from learning means to avoid dysregulated coping, and to respond to peers' emotions prosocially, instead of antisocially (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major & Queenan, 2003). These benefits would lead children to protect themselves from experiencing internalising and externalising problems. Further, Koglin and Petermann (2011) claimed that aggressive children tend to experience negative emotions more frequently. That said, children who fail to retain emotional stability, and who have negative emotions, would be more likely to encounter internalising and externalising problems.

The current study analysed predictors of internalising and externalising problems. For internalising problems, sequential processing ability was the most influential negative variable, and emotional competence and fluency were additional negative variables. These findings are consistent with Weitlauf and Cole (2012), who analysed depression based on an attribution model, reporting that there is a difference in the severity of depression according to cognitive ability, which suggests that internalising problems are related to cognitive ability. That is, children who have difficulties in systematic and consequential thinking would also have difficulties in understanding and interpreting other's emotions, and these deficiencies would lead to internalising problems. The findings of the current study support this perspective, by revealing sequential processing ability as the most influential variable for predicting internalising problems.

Emotional competence was also a predictor of internalising problems. Thompson (2001) pointed out that deficiencies in internal emotional regulation strategies are related to negative emotions, such as anxiety and depression, which frequently appear in early childhood. Thompson's (2001) claim suggests that children who lack emotional regulation strategies would have low emotional competence, and thus a greater risk of exhibiting problem behaviour. Therefore, providing sufficient opportunities for self-acceptance could be a starting point for the development of positive self-esteem. Preparing and providing environments that promote successful experiences can help children to build emotional competency, which in turn reduces the risk of their exhibiting problem behaviour.

Fluency also was a predictor of internalising problems. Fluency measures the number of appropriate ideas that can be generated to solve problems. This finding suggests that fluency can protect against the occurrence of internalising problems. Fox and Schirrmacher (2012) have asserted that fluent thinkers choose the best alternative, by producing numerous ideas in social problem-solving situations, therefore they have superior social problem solving skills, as compared with those with low fluency. Plucker (2000), who developed a programme for promoting children's social problem solving skills, reported that creativity can play an important role in problem solving situations, and can help children to become better interpersonal and intrapersonal problem-solvers.

For externalising problems, social competence was the strongest predictor, followed by sequential processing ability. Children with high social competence tend to have better adjustment, form positive relationships with peers and adults, have high academic achievement, and feel confidence and happiness (Denham, 2006). Children with low social competence, however, tend to have

low perspective taking ability and difficulties in understanding others' emotions (Hughes, White, Sharpen & Dunn, 2000), be easily rejected by peers, and have low self-esteem (Denham & McKinley, 1993). Because of these issues, low social competence often leads children to behave in an inappropriate way. Ostrowsky (2010) asserted that children with low social competence tend to use aggression as a mean of self-protection. Furthermore, Doumen et al. (2011) found that the solid formation of positive social competency can protect children from venting anger and aggression in a negative way. These claims suggest that children, who form negative social competency due to peer rejection, can vent their anger in the form of externalising problems.

Social competency was the strongest predictor of children's externalising problems, but sequential processing ability was an additional predictor. This finding suggests that the formation of negative self-esteem, in which one perceives oneself as being rejected by others, contributes to the emergence of externalising problems. Moreover, the emergence of externalising problems can become even more severe when a deficit in sequential processing reinforces a negative perception of a given situation. Children with externalising problems demonstrate hostile attributions to ambiguous situations, which is associated with their emotional over-reactivity, and with more severe behavioural problems (Denham & Weissberg, 2004). Logical deficiencies due to differences in sequential processing ability increase the possibility of hostile attribution bias, which in turn leads to externalising problems. Hostile attribution bias is associated with poor anger management, impulsivity, peer rejection, and greater severity of externalising problems. When sequential processing ability is limited, the scope of logical understanding also becomes narrower (Kaufman, AS & Kaufman, NL 1983). Thus, children with limited sequential processing ability would easily feel rejected, and their deficits in understanding would result in externalising problems (e.g., not following rules and interrupting others).

The results of the current study suggest that it is necessary to consider children's cognitive ability, self-esteem, and creativity when developing and implementing programmes to prevent children's problem behaviour in early childhood education setting.

However, one of the significant limitations of the present study is that children's problem behaviours were measured by their parents, and individual parent variables were not controlled. This may create a bias that could impact the results of the study, so there may be a limitation to the generalisability of the findings. In the future, children's problem behaviours will need to be measured from multiple angles, with the application of peer nomination and observation, in addition to parent rating. Furthermore, more studies are needed to explore children's problem behaviours from multiple angles, and to analyse their relationships with other important human developmental aspects.

References

Achenbach TM & Rescorla LA 2000. *Manual for the ASEBA preschool forms & profiles: An integrated system of multi-informant assessment; Child behavior checklist for ages 1 1/2-5; Language development survey; Caregiver-teacher report form.* Burlington, VT: University of Vermont.

Ale CM, Chorney DB, Brice CS & Morris TL 2010. Facial affect recognition and social anxiety in preschool children. *Early Child Development and Care*, 180(10):1349–1359. doi: 10.1080/03004430903059318

Beyer T, Postert C, Muller JM & Furniss T 2012. Prognosis and continuity of child mental health problems from preschool to primary school: Results of a four-year longitudinal study. *Child Psychiatry & Human Development*, 43(4):533-543. doi: 10.1007/s10578-012-0282-5

Brower R 1999. Dangerous minds: Eminently creative people who spent time in jail. *Creativity Research Journal*, 12(1):3-13. doi: 10.1207/s15326934crj1201_2

Chan DW & Chan LK 1999. Implicit theories of creativity: Teachers' perception of student characteristics in Hong Kong. *Creativity Research Journal*, 12(3):185-195. doi: 10.1207/s15326934crj1203_3

DeMoss K, Milich R & DeMers S 1993. Gender, creativity, depression, and attributional style in adolescents with high academic ability. *Journal of Abnormal Child Psychology*, 21(4):455-467. doi: 10.1007/BF01261604

Denham SA 2006. Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development*, 17(1):57-89. doi: 10.1207/s15566935eed1701_4

Denham SA, Blair KA, DeMulder E, Levitas J, Sawyer K, Auerbach-Major S & Queenan P 2003. Preschool emotional competence: Pathway to social competence? *Child Development*, 74(1):238-256. doi: 10.1111/1467-8624.00533

Denham SA & McKinley M 1993. Sociometric nominations of preschoolers: A psychometric analysis. *Early Education and Development*, 4(2):109-122. doi: 10.1207/s15566935eed0402_3

Denham SA & Weissberg RP 2004. Social-emotional learning in early childhood: What we know and where to go from here. In E Chesebrough, P King, TP Gullotta & M Bloom (eds). *A blueprint for the promotion of prosocial behavior in early childhood*. New York: Kluwer Academic/Plenum Publishers.

Doumen S, Buyse E, Colpin H & Verschueren K 2011. Teacher-child conflict and aggressive behaviour in first grade: the intervening role of children's self-esteem. *Infant and Child Development*, 20(6):449-465. doi: 10.1002/icd.725

Flouri E & Panourgia C 2011. Gender differences in the pathway from adverse life events to adolescent emotional and behavioural problems via negative

cognitive errors. *British Journal of Developmental Psychology*, 29(2):234-252. doi: 10.1348/0261-510X.002002

Fox JE & Schirrmacher R 2012. *Art and creative development for young children* (7th ed). Belmont, CA: Wadsworth.

Gallucci NT, Middleton G & Kline A 1999. Intellectually superior children and behavioral problems and competence. *Roeper Review*, 22(1):18-21. doi: 10.1080/02783199909553992

Giannopulu I, Escolano S, Cusin F, Citeau H & Dellatolas G 2008. Teachers' reporting of behavioural problems and cognitive-academic performances in children aged 5-7 years. *British Journal of Educational Psychology*, 78:127-147. doi: 10.1348/000709907X204372

Graham AA & Coplan RJ 2012. Shyness, sibling relationships, and young children's socioemotional adjustment at preschool. *Journal of Research in Childhood Education*, 26(4):435-449. doi: 10.1080/02568543.2012.711802

Harter S & Pike R 1984. The pictorial scale of perceived competence and social acceptance for young children. *Child Development*, 55(6):1969-1982. doi: 10.2307/1129772

Heckman JJ 2008. Schools, skills, and synapses. *Economic Inquiry*, 46(3):289-324. doi: 10.1111/j.1465-7295.2008.00163.x

Hughes C, White A, Sharpen J & Dunn J 2000. Antisocial, angry, and unsympathetic: "Hard-to-manage" preschoolers' peer problems and possible cognitive influences. *Journal of Child Psychology and Psychiatry*, 41(2):169–179. doi: 10.1111/1469-7610.00558

Izard CE, Trentacosta CJ, King KA & Mostow AJ 2004. An emotion-based prevention program for Head Start children. *Early Education and Development*, 15(4):407-422. doi: 10.1207/s15566935eed1504_4

Kaufman AS & Kaufman NL 1983. *K-ABC: Kaufman assessment battery for children: Interpretive manual*. Circle Pines, MN: American Guidance Service.

Koglin U & Petermann F 2011. The effectiveness of the behavioural training for preschool children. *European Early Childhood Education Research Journal*, 19(1):97-111. doi: 10.1080/1350293X.2011.548949

Kováč T 1998. Creativity and prosocial behavior. *Studia Psychologica*, 40(4):326-330.

Leary MR & MacDonald G 2003. Individual differences in self-esteem: A review and theoretical integration. In MK Leary & JP Tangney (eds). *Handbook of self and identity*. New York, NY: The Guilford Press.

Masten AS 2007. Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology*, 19(3):921-930. doi: http://dx.doi.org/10.1017/S0954579407000442

McNeil TF 1971. Prebirth and postbirth influence on the relationship between creative ability and recorded mental illness. *Journal of Personality*, 39(3):391-406. doi: 10.1111/j.1467-6494.1971.tb00050.x

Moon SB & Byun CJ 1997. *Interpretation manual for the Kaufman Assessment Battery for Children-Korean*. Seoul, Korea: Hakjisa.

Oh KJ & Kim YA 2008. *CBCL 1.5-5 Korean version of the Child Behavior Checklist for ages 1.5-5: parental*. Seoul: Huno-Consulting.

Ostrowsky MK 2010. Are violent people more likely to have low self-esteem or high self-esteem? *Aggression and Violent Behavior*, 15(1):69-75. doi: 10.1016/j.avb.2009.08.004

Pianta RC & Caldwell CB 1990. Stability of externalizing symptoms from kindergarten to first grade and factors related to instability. *Development and Psychopathology*, 2(03):247-258. doi: http://dx.doi.org/10.1017/S0954579400000754

Plucker JA 2000. Positive approaches to preventing school violence: Peace building in schools and communities. *NASSP Bulletin*, 84(614):1-4.

Plucker JA, Beghetto RA & Dow GT 2004. Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research. *Educational Psychologist*, 39(2):83-96. doi: 10.1207/s15326985ep3902_1

Rönnau-Böse M & Fröhlich-Gildhoff K 2009. The promotion of resilience: A person-centered perspective of prevention in early childhood institutions. *Person-Centered & Experiential Psychotherapies*, 8(4):299-318. doi: 10.1080/14779757.2009.9688495

Russ SW 1998. Play, creativity, and adaptive functioning: Implications for play interventions. *Journal of Clinical Child Psychology*, 27(4):469-480. doi: 10.1207/s15374424jccp2704_11

Shure MB 2001. *I can problem solve (kindergarten and primary grades): An interpersonal cognitive problem-solving program for children* (2nd ed). Champaign, IL: Research Press.

Sowislo JF & Orth U 2013. Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, 139(1):213-240. doi: 10.1037/a0028931

Thompson RA 2001. Childhood anxiety disorders from the perspective of emotion regulation and attachment. In MW Vasey & MR Dadds (eds). *The developmental psychopathology of anxiety*. New York: Oxford University Press.

Torrance EP 1990. *The Torrance tests of creative thinking norms-technical manual figural (streamlined) forms A & B*. Bensenville, IL: Scholastic Testing Service, Inc.

Trentacosta CJ & Shaw DS 2009. Emotional self-regulation, peer rejection, and antisocial behavior: Developmental associations from early childhood to early adolescence. *Journal of Applied Developmental Psychology*, 30(3):356-365. doi: 10.1016/j.appdev.2008.12.016

Viviers A, Biersteker L & Moruane S 2013. Strengthening ECD service delivery: Addressing systemic challenges. In L Berry, L Biersteker, H Dawes, L Lake & C Smith (eds). *South African Child Gauge 2013*. Cape Town: Children's Institute, University of Cape Town. Available at http://www.ci.org.za/depts/ci/pubs/pdf/general/gauge2013/SouthAfricanChildGauge2013.pdf. Accessed 20 October 2015.

Weitlauf AS & Cole DA 2012. Cognitive development masks support for attributional style models of

depression in children and adolescents. *Journal of Abnormal Child Psychology*, 40(6):849-862. doi: 10.1007/s10802-012-9617-8

Willcutt EG, Doyle AE, Nigg JT, Faraone SV & Pennington BF 2005. Validity of the executive function theory of attention-deficit/hyperactivity disorder: a meta-analytic review. *Biological Psychiatry*, 57(11):1336-1346. doi: http://dx.doi.org/10.1016/j.biopsych.2005.02.006

Yoleri S 2014. The relationship between temperament, gender, and behavioural problems in preschool children. *South African Journal of Education*, 34(2), Art. # 818, 18 pages, doi: 10.15700/201412071206

Zupančič M & Kavčič T 2011. Factors of social adjustment to school: child's personality, family and pre-school. *Early Child Development and Care*, 181(4):493-504. doi: 10.1080/03004430903507175