

## Attention Deficit Hyperactivity Disorder (ADHD) and intrinsic motivation

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Researchers struggle to conceptualise Attention Deficit Hyperactive Disorder (ADHD), because the prevailing construct is constantly challenged by new research findings. However, the current focus of research has turned to the processes underlying the problem, such as motivational factors. The purpose of this paper is therefore to investigate whether there is a significant difference between children with ADHD and children without ADHD in terms of the components of their intrinsic motivation. A sound theoretical basis for the research was established and an empirical investigation was undertaken. Conclusions are discussed and strategies are recommended to address the motivational problems of children with ADHD.

### Aandagstekort-hiperaktiwiteitversteuring (ADHD) en intrinsieke motivering

Navorsers vind dit moeilik om Aandagstekort-hiperaktiwiteitversteuring (ADHD) te konseptualiseer, aangesien die heersende konstruk voortdurend verander as gevolg van nuwe navorsingsbevindinge. Die fokus van huidige navorsing het egter verskuif na die prosesse onderliggend aan die probleem, soos motiveringsfaktore. Die doel van hierdie artikel is derhalwe om te ondersoek of daar 'n beduidende verskil tussen kinders met ADHD en kinders sonder ADHD bestaan wat komponente van intrinsieke motivering betref. Die navorsing berus op 'n gesonde teoretiese basis en 'n empiriese ondersoek. Op grond van die bevindinge word gevolgtrekkings gemaak en strategieë voorgestel ten einde die motiveringsprobleme van kinders met ADHD aan te spreek.

*Prof M A J Olivier, Dept of Postgraduate Studies & Educational Research, University of Port Elizabeth, P O Box 1600, Port Elizabeth 6000; E-mail: ttamao@upe.ac.za; Dr D S Steenkamp, Education Support Centre, Dugmore House, c/o Dale Street & Park Avenue, Uitenhage 6230*

Teachers are often concerned about the particular content they have to convey, the effectiveness of their instruction and whether the learner can successfully grasp and master the work. They sometimes underestimate the importance of the learner's own interest in achievement. Kruger & Adams (2002: 139) point out that the teacher's most crucial task is to know how to assist learners "to want to learn, and how to ensure that they maintain an interest in learning". The teacher must take up the challenge of effectively motivating learners to work towards appropriate outcomes.

Motivation is defined as that process which stimulates interest, gives direction to it and helps to keep it up. It is crucial to all facets of education and can be seen as a tool to help a child to "feel more able, confident and willing to engage with learning" (Donald *et al* 2002: 122). Holding the learner's interest becomes a greater challenge than usual when learners cannot concentrate for long or respond to all stimuli, cannot sit still, and move about all the time, as in the case of learners with Attention Deficit Hyperactivity Disorder.

Attention Deficit Hyperactivity Disorder (ADHD) is a complex disorder displaying a persistent pattern of inattention, hyperactivity and impulsivity (Cherkes-Julkowski *et al* 1997: 27). The functional manifestation of ADHD is characterised by significant symptom variability (Du Paul & Barkley 1992: 178), occurring in varying degrees of intensity for each individual, and also depending on temporal and situational variability (Stormont *et al* 1999: 373).

What concerns professionals in the field of educational psychology is the alarming fact that increasing numbers of children are being identified as having ADHD, displaying symptoms that hamper their development and learning and have negative implications for their attainment of full adulthood. With the increasing emphasis on inclusion in the education system, more and more teachers are expected to manage children with ADHD within regular classrooms. Hence, the causes of the disorder, and factors related to it, remain an intriguing quest for researchers, in an attempt to help learners suffering from its symptoms.

## 1. Problem statement

Since the first clinical descriptions of ADHD, researchers have struggled to conceptualise the disorder, because the prevalent construct was constantly challenged by new research findings on its aetiology and symptoms (Schachar 1991: 155). ADHD was variously seen as a biologically based disorder (Barkley 1997a: 66) caused by brain damage (Lakoff 2000: 152) that involved a temperamental deficit in attention (Lakoff 2000: 160); represented poor behavioural inhibition (Dale & Baumeister 1998: 139); proceeded from an underlying failure to suppress inappropriate responses (Oosterlaan & Sergeant 1998: 161), and as caused by social and environmental circumstances (Cherkes-Julkowski *et al* 1997: 28). Questions concerning the neurological basis of ADHD remain an important field of research, with frontal lobe dysfunction being implicated (Barabasz & Barabasz 1995: 1) and it is almost universally agreed by researchers that the basis of ADHD is biological in nature (Grodzinsky & Barkley 1999: 12).

Steenkamp (2001: 3) observed a striking and “confusing” fact about ADHD, namely that a child “with an attentional disorder does not demonstrate across-the-board deficiencies in attention and impulse control”. In one situation the child may be inattentive and easily distracted, while the same child can be attentive and focused in another situation. Therefore, the focus of research has currently turned away from ADHD and attention, to the processes underlying the inattention and hyperactivity-impulsivity (Oosterlaan *et al* 1998: 162; Tannock 1998: 68), such as motivational factors.

To provide insight into the motivational factors underlying ADHD an investigation of the fundamental motivation of such children was required. This project was the first of its kind in South Africa. The purpose of this section of the research was to find answers to the following primary research problems: Do significant differences exist between children with ADHD and those without ADHD regarding components of their intrinsic motivation? Which strategies may be recommended to address possible intrinsic motivational deficits in children with ADHD?

The following statistical (nil) hypothesis was thus put to the test: no significant difference exists between children with ADHD and those without ADHD regarding components of their intrinsic motivation.

## 2. Concept clarification

### 2.1 Attention Deficit Hyperactivity Disorder

ADHD can be defined in terms of the essential behavioural features it displays. It is defined by Steenkamp (2001: 27) as

a chronic, neurologically-based, behavioural disorder, that is characterised by developmentally inappropriate levels of inattention, hyperactivity and impulsivity, which interfere with normal social, academic and occupational functioning.

It usually has its onset during early childhood and remains a problem through adolescence and into adulthood (Grodzinsky *et al* 1999: 12). The symptoms can vary over time and they depend on the situation (Barabasz & Barabasz 1995: 3).

Deficits in behavioural inhibition, motivation and reinforcement processes are believed to underlie the behavioural symptoms (Oosterlaan *et al* 1998: 161; Sagvolden & Sergeant 1998: 2; Barkley 1997b: 66). Although ADHD interferes with and impedes a child's learning, it cannot be described as a learning disability (Silver 1990: 394).

Not all children present with the same symptoms of ADHD. The DSM-IVTR (American Psychiatric Association 2000) differentiates between the following three sub-types of ADHD:

- ADHD combined type;
- ADHD predominantly inattentive type (more shy, anxious, dreamy, confused, withdrawn, depressed) (Stormont *et al* 1999: 367);
- ADHD predominantly hyperactive-impulsive type (more impulsive, distractable, disruptive, active, and aggressive) (Stormont *et al* 1999: 367).

### 2.2 Motivation

The concept of motivation derives from the Latin word *movere*, which literally means to move (Ryan & Deci 2000: 54). It suggests "an internal state that arouses, directs and maintains behaviour" (Woolfolk 1993: 336).

These inner forces are referred to as drives, spurring a person on to behave in a certain way and direction (movement), in order to sa-

tisfy his/her needs (goals/purpose) (Mwamwenda 1995: 259). This energy or impetus can be generated from within the person, if the motivation is associated with activities that are their own reward — actions related to one's own interest, curiosity, or need. This is known as intrinsic motivation (Mwamwenda 1995: 260; Woolfolk 1993: 337). Motivation from other sources, created by reward or praise, is known as extrinsic motivation (Gouws & Kruger 1994: 149).

Both types of motivation are important and a balance between the two types is ideal. Intrinsic motivation arouses interest and gets the person going, while extrinsic motivation helps to maintain interest (Donald *et al* 2002: 128; Hamachek 1995: 281) The focus of this research was on intrinsic motivation alone. Our rationale was that in previous research focusing on external incentives or task-related motivation, a relationship between extrinsic motivation and ADHD could not be confirmed beyond doubt (Corkum *et al* 1996: 163; Kemner *et al* 1996: 522).

### 3. Research methodology

A quantitative research design was deemed most suitable to conduct this empirical study, since it maximised objectivity, enabled a large group of respondents to participate, and could facilitate accurate answers (McMillan & Schumacher 1993: 31).

#### 3.1 Research instrument

A standardised questionnaire, namely the Picture Motivation Tests (PMT) (Du Toit 1983), was administered to respondents. This test comprises 240 pictures, each accompanied by three statements, from which the respondent must select the most appropriate. Scores are calculated for twenty sub-tests, each comprising twelve items. Such a projective technique is effective because it is sensitive to the covert, unconscious or latent contents of inner drives or the intrinsic components of motivation. The validity and reliability of the instruments were confirmed in the research done by Du Toit (1983: 21).

### 3.2 Research sample

Two groups were involved in the investigation. The experimental group comprised 52 grade seven, eight and nine children with ADHD, 43 from special schools and nine from mainstream classrooms, 47 boys and five girls. They represented three of the then four provinces of South Africa, whose educational authorities had granted permission for the study. The control group comprised 255 grade seven, eight and nine children without ADHD, all from mainstream classrooms; 131 boys and 124 girls. They were randomly selected from eight mainstream schools in the same three provinces to provide a balanced sample in terms of the various biographical variables.

Only children who had been professionally assessed and diagnosed as presenting with ADHD (combined type), according to the DSM-IVTR-criteria (2000) were included in the experimental group. To allow for a greater degree of psycho-neurological maturity, as ADHD children's abilities are considered to be developmentally immature in comparison with those of other learners of the same chronological and mental age (Chelune *et al* 1986: 223), only those aged 12 to 15 (from the mentioned grades) formed part of the group.

An attempt was made to limit the variables that could have an impact on the findings. Therefore only children of normal intelligence ( $IQ > 90$ ), following the same curriculum (senior phase: grades seven to nine) of the departments of education of the relevant provinces were included. They were also requested to take no stimulant medication on the day they completed the questionnaires. Such medication has the effect of calming down ADHD individuals, and could therefore lessen the accuracy of the findings on the question under investigation. Both groups included white, coloured and Indian learners, conversant in English and Afrikaans.

### 3.3 Statistical analysis

The data obtained during the investigation were computer-processed and analysed by the Department of Mathematical Statistics at the University of Port Elizabeth. In addition to descriptive statistics, inferential procedures, eg the *Chi*-square test, were conducted to test the hypothesis.

### 3.4 Significance level

A 5% significance level ( $p < 0.05$ ) was used in interpreting the statistics and rejecting the statistical hypothesis. Where applicable, reference was also made to a 1% and a 10% level of significance. In the former case, the hypothesis was rejected; in the latter, it was not rejected, but the statistic was nonetheless considered reportable and noteworthy.

## 4. Results

Data obtained from the PMT (Du Toit 1983) provide insight into the components of intrinsic motivation demonstrated by children with ADHD, in comparison with children without ADHD. Since the tests were standardised only for white children in grades 8-12, and black and coloured children were also included in the investigation, raw scores were used to calculate categories of scores, to allow for comparison. The Grade 7 learners' tests were administered in the last quarter of the year, to ensure that their developmental level was comparable with that of Grade 8 children. Scores were divided into three categories, namely high (upper 25% of the sample), average (middle 50%) and low (bottom 25%).

A summary of the findings regarding ADHD and components of intrinsic motivation is presented in Table 1.

Table 1: Findings on components of intrinsic motivation

Component	X2 Statistic
Cognitive structure	8.034**
Aggression	8.448**
Scholastic achievement	14.079***
Affiliation	1.635
Endurance	1.375
Understanding	6.145**
Exhibition	2.593
Order	5.719*
Achievement (general)	11.755***
Play	0.030
Nurturance	11.974***
Dominance	1.283
Impulsivity	2.704

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Component	X <sup>2</sup> Statistic
Social recognition	6.805**
Succourance	4.626*
Avoidance of harm	3.691
Abasement	0.906
Sentience	2.138
Change	1.986
Defendance	0.048

Degrees of freedom: 2      Critical value (5% significance level): 5.991  
 (A *chi*-square statistic higher than the critical value of 5.991 indicates that the hypothesis is rejected)

- \* 10% significance value: reportable, but hypothesis not rejected
- \*\* 5% significance value: significant, hypothesis rejected
- \*\*\* 1% significance level: significant, hypothesis rejected

A summary of the findings on the relationship between the components of intrinsic motivation of ADHD, gender, residential area and home language is presented in Table 2.

Table 2: The relationship between ADHD, the components of intrinsic motivation, gender, residential area and home language

Components of intrinsic motivation	ADHD p-value	Gender p-value	Residential area p-value	Home language p-value
Cognitive structure	0.7994	0.0000***	0.0577*	0.2996
Aggression	0.6848	0.0001***	0.0009***	0.2067
Scholastic achievement	0.0358**	0.0001***	0.0007***	0.2984
Affiliation	0.9728	0.0001***	0.3153	0.6707
Endurance	0.8797	0.0002***	0.2959	0.6257
Understanding	0.4548	0.0585*	0.0001***	0.3509
Exhibition	0.4353	0.0581*	0.1483	0.2589
Order	0.5608	0.0000***	0.0050***	0.8215
Achievement (general)	0.0716*	0.0002***	0.2782	0.8139
Play	0.7626	0.1132	0.1343	0.2257
Nurturance	0.6036	0.0000***	0.0793*	0.3327
Dominance	0.8759	0.0009***	0.5979	0.0955*
Impulsivity	0.7373	0.1257	0.6624	0.7930
Social recognition	0.0877*	0.0175**	0.7674	0.0582*
Succourance	0.2337	0.0018**	0.0684*	0.5000
Avoidance of harm	0.7336	0.0808	0.7868	0.868
Abasement	0.1936	0.1374	0.3297	0.5310
Sentience	0.7176	0.0001***	0.1765	0.7918

Components of intrinsic motivation	ADHD p-value	Gender p-value	Residential area p-value	Home language p-value
Change	0.7176	0.0001***	0.1765	0.7918
Defendance	0.5220	0.000***	0.1457	0.0757*

\* 10% significance value: reportable, but hypothesis not rejected

\*\* 5% significance value: significant, hypothesis rejected

\*\*\* 1% significance level: significant, hypothesis rejected

#### 4. Findings

The following findings were made on the basis of the results (Du Toit 1983):

- The ADHD group demonstrated significantly lower intrinsic motivation in respect of cognitive structure than the control group (cf Table 1). By implication this means that they are less interested in having their questions answered fully and that they do not place a high premium on cognitive precision, accuracy, certainty or clarity about facts (Steenkamp 2001: 154).
- The ADHD group displayed significantly higher intrinsic motivation toward aggression than the control group, meaning that they tend to be more aggressive, quarrelsome, irritable, touchy, antagonistic and moody (cf Table 1; Steenkamp 2001: 154).
- A lower intrinsic motivation for scholastic achievement was confirmed for the ADHD group, in comparison with the control group (cf Table 1). This means that they are less likely to strive to achieve good marks in school, master new material, do their homework well, or be ambitious and hard-working (Steenkamp 2001: 154).
- The ADHD group displayed lower intrinsic motivation in terms of understanding than the control group (cf Table 1). This means that they are not intellectually inquisitive, do not think logically, do not explore or examine or analyse things and do not seek explanations of knowledge or theory (Steenkamp 2001: 155).
- The ADHD group were also slightly less intrinsically motivated than the control group to put things in order, organise, be methodical, disciplined or punctual (cf Table 1; Steenkamp 2001: 155).

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- The results also indicated lower intrinsic motivation for general achievement among the ADHD group than among the control group (cf Table 1). They are less inclined to strive to accomplish something difficult, to overcome obstacles or to attain a high standard of performance. They are also less determined, resourceful, purposeful or productive; they do not try to rival, compete with or surpass others, and they do not demonstrate mastery orientation (Steenkamp 2001: 155).
- The findings also indicated that the ADHD group manifested lower intrinsic motivation toward nurturance (cf Table 1), which means that they are less supportive and sympathetic than others towards people in need. They are also less likely to help, comfort, encourage, console or protect others (Steenkamp 2001: 156).
- The ADHD group displayed lower intrinsic motivation for social recognition than the control group (cf Table 1). They seem less concerned about their own reputation or gaining the approval of others, and they lack sensitivity to social cues. They are less concerned about being well-mannered, polite, respectable or socially correct (Steenkamp 2001: 156).
- The ADHD group also demonstrated relatively lower intrinsic motivation towards succourance (being dependent and helpless) than the control group (cf Table 1). This indicates that they are slightly less likely to seek sympathy, advice, guidance or reassurance from others. They are also less likely to become attached to or depend upon the protection of another person (Steenkamp 2001: 156).
- The ADHD group did not differ from the control group in respect of the following components of intrinsic motivation (Steenkamp 2001: 154-7): affiliation (attachment to, or being close to others; making friends); endurance (stamina, bearing hardship, perseverance); exhibition (seeking to be the centre of attention; making an impression); play (fooling around; seeking pleasure, enjoyable relaxation and fun); dominance (assertiveness; a tendency to control the environment and being a leader); impulsivity (being rash, indiscreet or acting on the impulse of the moment; being spontaneous or seeking sensation); avoidance of harm (seeking to avoid pain or physical injury; ensuring personal safety); abase-

ment (inferior, submissive, apologetic behaviour; being humble, accepting what happens); sentience (perception and awareness; appreciation of beauty); change (being inconsistent; seeking new experiences; disliking routines), or defendance (self-justifying; self-defensive) (cf Table 1).

- With regard to gender differences among children, ADHD boys demonstrated less intrinsic motivation than girls in terms of cognitive structure, scholastic achievement, affiliation, endurance, order, general achievement, nurturance, social recognition, succourance, sentience, change and defendance as well as a higher need for aggression, defence and dominance. ADHD girls displayed the highest need for cognitive structure of all children (cf Table 2).
- With regard to the relationship between ADHD and residential area, ADHD children from larger residential areas (major towns and cities) revealed higher intrinsic motivation for aggression and lower intrinsic motivation with respect to scholastic achievement, understanding and order (cf Table 2).
- With regard to home language and ADHD, the study indicated only that English-speaking ADHD children displayed lower intrinsic motivation regarding sentience (perception and awareness) (cf Table 2).

These findings have implications for children's academic progress, and can give rise to disciplinary problems, negative attitudes and unrealistic expectations on the part of parents and teachers, as well as insensitivity from society at large.

## 5. Discussion and recommendations

According to Goldstein & Goldstein (1990: 213), treatment interventions with ADHD children have shown mixed results. Thus, the challenge remains to come up with strategies to manage the syndrome as well as possible. An improvement in a child's intrinsic motivation might alleviate the ADHD-symptoms that hamper learning and development.

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Various theories approach motivation from different points of view, focusing on either intrinsic or extrinsic motivation or a combination of the two:

- the behavioural perspective (eg Skinner, who reinforces and rewards learning);
- the humanistic perspective (eg Maslow's needs hierarchy for self-actualisation of the person);
- the cognitive or constructivist perspective (eg Piaget, who refers to the natural, internally driven need to develop, understand and act in relation to knowledge and to restore equilibrium), and
- the social learning perspective (eg Bandura, who explains motivation by integrating behavioural and cognitive approaches, such as combining the child's expectations with his valuing of the goal) (Donald *et al* 2002: 122; Kruger *et al* 2002: 140).

Intrinsic motivation forms an integral and critical dimension of a child's learning and education. It can be enhanced by the ideas of the abovementioned perspectives: the child's inner needs can spur him on towards self-determination and personal growth (the humanistic approach); to become competent, self-directed and active in coping with his situation (the cognitive approach), and believe in his own self-efficacy (the social learning approach) (Woolfolk 1993: 337), while positive reinforcement can contribute towards improved "on-task" conduct (the behavioural approach) (Barabasz *et al* 1996: 12; Oosterlaan *et al* 1998: 162).

In order to counteract the deficiencies of the ADHD child in this regard, some strategies derived from the research findings have been suggested which may facilitate better progress and achievement. We took cognisance of the suggestions of Donald *et al* (2002: 130): to involve the principles of challenge, timing, social interaction and co-operative learning, as well as success, competence and confidence as motivators. Furthermore, the suggestions of other authors, such as Kruger *et al* (2002: 145), Hamachek (1995: 283) and Steenkamp (2001: 266) regarding motivational factors are incorporated into the following recommendations on the problematic components of intrinsic motivation. These recommendations apply to all children with ADHD, regardless of gender, residential area or language.

### 5.1 Cognitive structure

If a child's interest is engaged and the activity or material appeals to him, it will be intrinsically motivating at the same time. The child will become more interested in having his questions answered, in order to gain clarity on the facts and produce more accurate work.

The child with ADHD will become more interested in having his questions fully answered and he will place a higher premium on cognitive precision, accuracy, certainty and clarity on facts if he is exposed to these aspects at the right time developmentally (Donald *et al* 2002: 129). It is of vital importance for his intrinsic motivation that critical events occur at critical times in his development. Therefore, the child should be presented with the right activities and learning material when he is ready to respond to their challenge and can benefit optimally from them (Donald *et al* 2002: 129).

Further practical suggestions in this regard include seating the child away from distractions, helping him to complete a task, not making excessive demands of him, and rewarding accurate work, eg with praise.

The teacher can achieve all of this only if he understands the various levels of child development, and must therefore obtain a thorough knowledge of educational psychology during his teacher training.

### 5.2 Aggression

The teacher is responsible for creating a classroom context or climate that appeals to the child and is conducive to learning. This includes using a variety of appropriate teaching methods, reducing pressure on the child, and setting interesting, challenging, meaningful tasks for the child (Kruger *et al* 2002: 145). The teacher should remain calm and non-critical, accept the child, and be consistent but firm at all times. A child who is kept actively busy, who enjoys his learning encounters and works in a relaxed class atmosphere will be less aggressive, hostile, quarrelsome, irritable, touchy, antagonistic or moody.

The child should also be allowed self-regulation of his learning in order to reduce frustration and ensure that he can eventually work independently. The teacher should assist him in monitoring and assessing

his own understanding and learning, and in modifying his approach to his work (Kruger *et al* 2002: 142).

Social skills training can also effectively help a child to develop non-aggressive associations with other people and to become sensitive to social cues (Geuvremont & Dumas 1994: 164).

### 5.3 Scholastic achievement/general achievement

The experience of success results in a sense of competence and confidence, which increases the child's sense of agency (Donald *et al* 2002: 130; Kruger *et al* 2002: 141). This in turn will encourage him to strive to achieve good marks in school, master new material, do his homework well, complete tasks, and to be more ambitious and hard-working. Gradually he will strive to accomplish something difficult, to overcome obstacles and to attain a higher standard of performance. He will become more determined, resourceful, purposeful and productive, try to rival or compete with or surpass others, and show a mastery orientation.

Teachers can accomplish this in practical terms by means of incentives and rewards for effort or improvement in performance, which will enable the child to understand and appreciate his own ability. Incentives should be carefully chosen, to be sustainable.

### 5.4 Affiliation (being close or attached to others) and social recognition (being socially sensitive and correct)

Social interaction and co-operative learning are strong intrinsic motivational factors. Most children enjoy social interaction and they gradually recognise that they need it in order to develop. Co-operative learning is a relatively formal way of arranging for social interaction to take place in the learning situation. It takes the spotlight and the pressure off the individual child because responsibility is shared and the risk of failure is reduced. By means of such strategies the child's satisfaction and self-worth are enhanced in both social and academic terms; he develops more positive attitudes, enjoys being with friends, accepts others more readily, and spends more time learning, while his general academic achievement improves (Donald *et al* 2002: 130).

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Fostering the child's belief in self-efficacy has a strong positive effect on his intrinsic motivation (Kruger *et al* 2002: 142). He will become more concerned about his own reputation, strive to gain the approval of others and grow in sensitivity to social cues. He will also become more concerned about being well-mannered, polite, respectable and socially correct. He will also learn to value and appreciate being close to others.

### 5.5 Endurance (perseverance)

A child who constantly receives positive feedback and encouragement from the teacher will start believing in himself, become more intrinsically motivated to learn, set realistic goals for himself, apply more effort and persevere, even if the work becomes harder (Kruger *et al* 2002: 142). Therefore, rewards and positive acknowledgement must follow success, to reinforce attempts and promote endurance.

Practical suggestions in this regard include the following: the child should be given only one task at a time to focus on and should be directed and guided throughout. Each task can be broken up into manageable segments. The more effectively the child can master each challenge he faces, the more intrinsically motivated he will be to adapt to future difficult situations.

### 5.6 Understanding (intellectual inquisitiveness and seeking explanations)

Teachers face the challenge of meeting the child with ADHD at the level of his understanding at any specific moment. This will stimulate him to ask questions in order to grasp an idea better. He should gradually be assisted to start thinking differently and more logically, to explore, examine or analyse things and to seek explanations for anything he doesn't understand. Thus the teacher enhances the child's construction of knowledge.

This can be accomplished in practical terms by connecting with the current problem and restoring equilibrium in order to facilitate coping in the situation (Donald *et al* 2002: 128).

Once again, the teacher should be given a good grounding in theoretical knowledge on child development during teacher training and in-service training.

### 5.7 Order (arranging, organising and classifying)

By means of organised everyday activities in school and routines such as a fixed timetable, allowing for periods of learning interspersed with breaks, a child is exposed to order (Pretorius 1998: 80).

Furthermore, it is suggested that specific responsibilities, such as helping a weaker child, tidying the classroom, acting as a class prefect, preparing for a school activity or looking after a group in the absence of the teacher be allocated to the child. This teaches him to organise his own life and obey certain rules.

The teaching environment (eg the classroom) should also be kept uncluttered and well organised. The child with ADHD thrives in a structured environment. He eventually becomes intrinsically motivated to be more organised, methodical, disciplined and punctual himself.

### 5.8 Nurturance (being helpful and supportive of others)

A warm, responsive, flexible and consistent teaching style will help the child to become supportive and sympathetic towards others in need (Teeter 1991: 275).

The use of peer “buddies” can contribute in this regard (Fachin 1996: 439). The child with ADHD can in turn be given the responsibility for acting as a buddy to a less able child. He should be purposefully involved in classroom activities. Through this active involvement he will become more motivated to help, comfort, encourage, console and protect others.

### 5.9 Dominance (the need to be in control and assertive)

The child has to be encouraged to express his needs. According to Maslow’s theory of self-actualisation everyone has certain needs intrinsically motivating him to move towards certain goals in order to satisfy them (Kruger *et al* 2002: 140; Hamachek 1995: 45). The hierarchy of needs implies that one will not be motivated to strive for a higher order need if a lower order need remains unmet.

The teacher is thus challenged to meet the needs of the child at any given time, before he can successfully motivate the child to become involved in higher-order activities. In practical terms, the teacher can foster the child's physiological and safety needs (a warm classroom, enough rest from work, support and a feeling of security); belonging needs (working in a group and getting on with peers); esteem needs (allowing the child to experience success, acknowledging his efforts and progress), and self-actualisation needs (allowing for creativity and development). The teacher can thus plan to control the child's environment in such a way that the child can gradually take command of it, and becoming more willing to take risks and experiment, and more assertive (Kruger *et al* 2002: 141).

#### 5.10 Succourance (dependence; seeking help and advice from others)

Realistic expectations from the teacher will co-determine the child's intrinsic motivation to seek advice, guidance or reassurance from others.

In the case of attainable and realistic goals the child will gradually become attached to and depend upon the protection and assistance of the teacher, who will help him to set goals to strive for. The teacher should not make excessive demands and goals should be defined in terms of achieving success rather than avoiding failure. Goals should focus on task orientation — learning for the sake of the satisfaction obtained from the task — as well as ego orientation — learning in order to perform better than others (Kruger *et al* 2002: 143).

The child should also be helped to handle failure positively by reassuring him of his ability to achieve success. In such a case a task should initially be made less challenging and the amount of work reduced, otherwise he may become discouraged and give up.

#### 5.11 Sentience (perception, awareness and appreciation of beauty)

The use of illustrative visual aids promotes attentive behaviour. Furthermore, the child with ADHD can be encouraged to become more observant by means of appropriate placement in a small class group with a teacher who can deliver structured supervision and close attention (Greenhill 1991: 268).

Care should be taken to develop the child's perception and consciousness, eg by challenging him to make practical use of his senses, appreciate beauty, and be observant. However, in the inclusive setting of South African education this remains an ideal, because it is difficult to restrict class numbers.

### 5.12 Change

The teacher must set challenging tasks at the developmental level of the child with ADHD, intentionally exposing him to original experiences and encouraging him to try out new things, in order to motivate him intrinsically. This will determine which tasks he will choose to become involved in, how his interest is maintained and whether he becomes curious about investigating new possibilities (Kruger *et al* 2002: 145).

### 5.13 Defendance (self-protection)

The teacher must at all times be a role model with whom the child can easily identify. He must act calmly, be composed, firm and assertive, and exhibit self-control. This will help the child to emulate conduct, to guard and protect himself, and to gain control over his own situation in life.

All the abovementioned components of intrinsic motivation imply life-skills development (Jude 1998), such as the development of self-worth and a positive self-concept; forming relationships; communicating with others; managing stress and frustration, as well as time; assertiveness; problem-solving; self-control; sound study habits; realistic goal-setting and planning towards achieving them. Life-skills education should be included as a crucial element of all teaching in order to assist the child to cope with and live life.

## 6. Conclusion

The findings of this paper confirm the view that children with ADHD have difficulty with components of intrinsic motivation. Eventually a vicious circle arises: each negative aspect aggravates the child's problems, eg cognitive deficits and frustration lead to negative feelings, leading to failure to focus or remain "on task", leading to

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avoidance of specific situations or quitting without any development of mastery skills. Eventually such children are less intrinsically motivated and make less significant academic progress. They develop a low opinion of their own competence, which further undermines their intrinsic motivation and seriously impedes their wellbeing, personal health and ultimate self-actualisation.

Children with ADHD are less intrinsically motivated to achieve, and under-achievers are often marginalized and negatively judged in society. It is hoped that this article will contribute to a better understanding of the deficits of children with ADHD in terms of intrinsic motivation as well as to implement the recommended strategies in order to intrinsically motivate them to become achieving, well-adjusted and worthy members of society.

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