

- course/s meant to empower women;
- that women friendly issues should form the main basis of the content of the course/s that are meant to empower them;
- that flexible admission rules and policies be applied to allow women into such centres that are meant to empower them;
- that even part-time courses for working women be offered; and finally,
- that women-centred teaching approaches be applied so as to create an image of a female-model in the process.

In the end, the prevailing problems regarding women are of a national stature, or, an international one, therefore, no single person can succeed in solving them. Seen as such, they echo memories of the 'Bejing Conference on Women issues.' In summing up, let us learn from a famous idiom that says 'teach a man, and you teach only an individual, but teach a women, and you teach the nation.'

References

- Astrong M 1991. *How to be an even better Manager*. London: Biddles Limited.
- Badenhorst DC 1987. *School Management The Task and Role of the Teacher*. Pretoria: Haum.
- Barrel H 2000. *The Mail & Guardian*, 4 April 2000: If I Were President Mbeki.
- Baxter G 2001. *City Press*, 15 July 2001: To succeed you think like a woman.
- Blanchard RJ & Blanchard DC 1984. *Advances In The Study Of Aggression*. Orlando: Academic Press.
- Brauer H 2001. *Sunday Times Business Edition*, 15 July 2001: Happiness At Work.
- Buchel AJ 1992. *Practical School Management, Course II*. Arcadia: Via Africa.
- Camerer S 2000. *The Citizen*, 25 May 2000: You Still Have a Long Way to go Sisters.
- Cambell K 1992. *Critical Feminism: Argument In Disciplines*. Bristol: Edmondsbury Press.
- Dowling K 1995. Equality and Human Needs of Education. *Acta Academica*, 27.
- Duminy PA 1966. *Trends and Challenges in the Education of the South African Bantu*. Pretoria: Van Schaik.
- Education Renewal Strategy 1992. Department of Education, Pretoria.
- Gil DG 1992. *Unravelling Social Policy*. Vermont: Schenkman Books.
- Graig G 1994. *Human Development*. New Jersey: Prentice-Hall.
- Grogan M 1996. *Voices of Women Aspiring to the Superintendency*. New York: Univ. of New York.
- Gqubule D 2001. *The Sowetan Sunday World*, 20 July 2001: Paving The Way Ahead.
- Hart M 1997. *Mothers At Work*. London: Micael O'Mara Books Ltd.
- Lewis IM 1992. *Social Anthropology In Perspective*. Cambridge: University Press.
- Llewellyn-Jones D 1990. *Every Woman*. London: Faber & Faber LTD.
- Linton R 1964. *The Cultural Background of Personality*. Norwich: Routledge & Kegan Paul.
- Kichy NM 1996. *Human Resource Management*, 23. Michigan: Univ. of Michigan Press.
- Mbowane P 2001. *The City Press*, 8 July 2001: Equality For Women Is Her Life's Commitment.
- McCulloch J 1984. Assertive Women. In: *Women's Forum*, December. Durban: Retief Publishers.
- Morgan CT, King RA & Robinson NM 1981. *Introduction To Psychology*. London: McGraw-Hall.
- Murphy J 1963. *The Power of Your Subconscious Mind*. New York: Bantam Books.
- Ouston J 1993. *Women in Education Management*. London: Longman.
- Ramogoshi M 2001. *The City Press*, 8 July 2001: Society Has Different Rules For Men And Women.
- Salmon P 1995. *Psychology Of The Classroom*. London: Biddles Ltd.
- Schuitema E 1994. *Beyond Management*. Pretoria: Sigma Press.
- Smyth J 1993. *Critical Perspectives On Educational Leadership*. London: Taylor & Francis.
- Stephan PM 1983. *How You Can Achieve Mental, Physical And Sexual Rejuvenation*. London: Bio-Technology Ltd.
- Constitution of The Republic of South Africa 1996. Act 108 of 1996. Pretoria: Government Printer.
- Tichy NM 1996. *Human Resource Management*, 23. Michigan: Wiley & Sons.
- Torrington D & Weightman J 1989. *The Reality of The School Management*. London: Blackwell.
- Tsoka EM 1999. *Perceptions of Women as Management*. Vista Univ. Mamelodi.
- Van Niekerk WP 1993. *Contemporary Management*, Durban: Butterworth.
- Van Wyk JG 1983. *The Law of Education for the Teacher*. Pretoria: Academica.
- Van Velden G 1993. *Women's Forum*. Pretoria: Daan Retief Publ.
- Waitley D 1996. *The New Dynamics Of Goal Setting*. London: Biddles Ltd.
- Wisker G 1996. *Empowering Women In Higher Education*. London: Kogan Page Ltd.

Social isolation : a learning obstacle in the primary school

G. Bester

Department of Educational Studies, University of South Africa, P.O. Box 392, Pretoria, 0003 South Africa
besteg@unisa.ac.za

(To whom correspondence should be addressed)

R.S. Budhal

Cliffdale Primary School, P.O. Box 30045, Hammersdale, 3700 South Africa

The teaching methodology of Outcomes-based Education is mainly based on group work. For this reason it would be extremely difficult for social isolates to benefit from Outcomes-based Education because of their inability to form relationships or work together with others in groups. In the light of this obstacle the aim of the research was to determine the relationship between social isolation and academic achievement at primary school level and to determine which factors relate to social isolation in general. A sample of 180 primary school learners from three primary schools was used in the investigation. Academic achievement, loneliness, self-esteem, psychological well-being, perceived physical ability and physical attractiveness were measured. As much as 29% of the variance in academic achievement can be explained by social isolation making it an important variable when academic achievement is predicted at primary school level. Negative correlations were found between social isolation and all the other variables, especially self-esteem ($r = -0.81$; $p < 0.01$). The implications of the findings for possible intervention are discussed.

Introduction

To become a fully developed adult one has to actualise several developmental aspects, one being the social aspect. If a child's social development is hampered, it may not only result in social isolation, but

can also influence other developmental aspects. Broadly speaking, the whole self-actualisation process will be affected. According to Hancock (1986:3), "loneliness equals failure, having people around us equals success". Since social isolation hinders a person's psychological well being, learners who either form poor relationships or have difficulty in forming sound relationships with their parents, peers or teachers, will inevitably suffer developmental restraints while others progress towards adulthood normally.

Rubin, Chen and Hymel (1993:519) define social isolation as the lack of social interactive behaviour and rejection or isolation by the peer group. They draw a wider distinction between social isolates who are rejected and those who are neglected. According to them, rejected children are often characterised as aggressive, disruptive, bothersome and defiant, and are seen in a categorically negative light as misfits in the social matrix of the classroom. In contrast, the second group includes children whose isolation is not obvious. They are forgotten or ignored and have no friends, but few complaints are heard about them. These children are often referred to as withdrawn or neglected children. Lewis and Sugai (1993:61) define them as children who have a low frequency of social involvement with peers during activities when peer interaction opportunities are at their peak (for example, during recess).

From the available literature, "loneliness" seems to be the broad term that embraces all the other concepts, namely "positive solitude", "emotional" and "social isolation". According to Rae (1991:7), people experience loneliness differently and due to the inconsistency, the feeling of loneliness cannot be clearly identified. It is unlike an emotion with distinct feelings that have observable and consistent physiological reactions, such as anger, where people's blood pressure goes up, or they clench their fists. Loneliness has no consistent, unique physiological expression. Rae (1991:7) found that sufferers describe loneliness as anything from feelings of emptiness and boredom to the experience of anxiety and desperation.

At present there are a significant number of children at school who are socially isolated either through being neglected or rejected. According to Bullock (1992:92), research indicates that approximately 6 to 11% of elementary school age children have no friends or receive no friendship nominations from peers.

With the introduction of Outcomes-based Education in South Africa, the ability to form relationships and work with others is of paramount importance. The teaching methodology of this new curriculum is based mainly on group work. Thus, it would be extremely difficult for social isolates to benefit from this new type of education because of their inability to form relationships or work together with others in groups. According to Rosenthal (1993:112), there is both an emotional and cognitive necessity for friendship in every child. He stresses that any child who, for whatever reasons, is friendless, is at "risk" both emotionally and educationally.

Jeremy (1987:22) concurs and states that the stress and trauma of being alone and separated from the mainstream of society can be devastating. Applying this statement to the school situation, there is an urgent need for school teachers to identify and eliminate the factors contributing to the development of isolation among school learners. In this way teachers will create a conducive environment to help children build healthy relationships between peers and teachers. This will eventually help children in their self-actualisation process, and more especially in meeting the challenge of working in groups as required in outcomes-based education. To achieve this goal, Bullock (1992:92) stresses the need for more research on the consequences of peer rejection in order to provide teachers with the foundation and rationale for effective intervention.

Analysis and statement of the problem

Albrecht (1994:57) summarises the main social characteristics of the primary school children as follows:

- They begin to develop group (peer, gang) relationships — looking for belongingness.
- They learn discrete social skills like entering and leaving groups, exercising social planning skills like when to ask a friend to play and when to wait, anticipate how a friend might respond to an idea or suggested activity, considering the potential consequences of their actions for self and others and evaluating potential outcomes of actions and activities.
- They prefer to be friends of the same sex and same age.
- They affiliate with the same group most of the time.
- They conform to identified group norms and behaviours.
- They like to make and keep their own rules of conduct within the group.
- They reject the participation of the opposite sex in the group.
- They resolve some conflicts without adult intervention.

Socially isolated primary school children presumably lack these socially developmental milestones. They may, for example, lack important social skills needed for entering and leaving groups and are unable to anticipate how potential friends may react to their actions or viewpoints. Such deficiencies in socially isolated children may create conflict situations in a classroom or any learning situation where group work is required.

Primary school children are most susceptible to conformation to peer activities (Papalia & Olds 1993:448). Through conformity to peer

activities, children develop psychologically in three major ways. Firstly, they develop skills for sociability and intimacy, enhance relationships, and acquire a sense of belonging. Secondly, they are motivated to achieve and attain "integrity of the self" or a sense of identity. Thirdly, they learn. Socially isolated primary school children lack a sense of belonging, have a poor sense of identity and lack the opportunity to learn from the children around them.

Research has concentrated mainly on the treatment of social isolation (Jupp & Griffiths 1990:165; Sheridan, Kratochwill & Elliot 1990:33; Christopher, Hansen & MacMillan 1991:22; Wetchler 1990:29; Lewis & Sugai 1993:61; Rosenthal 1993:112), but little research is available on the factors affecting social isolation. According to Asher and Wheeler (1985:500) and Inderbitzen-Pisaruk, Clark and Solano (1992:152), more research is needed on the causal factors of social isolation. In addition, Asher and Wheeler (1985:500) found that considerable research exists on adult feelings of loneliness but relatively little research has been done with children.

The following are among the available research findings on the factors relating to social isolation:

Evans and Eder (1993:166) found that the three main areas in which negative valuations were made by learners who rejected their peers were clustered around appearance, gender, behaviour, and mental activity.

Sears, Peplau and Taylor (1991:292) found several personality factors to be linked to loneliness. Lonely people tend to be shy, more self-conscious and less assertive. Lonely people always have low self-esteem, and in some cases, poor social skills. Loneliness is also associated with anxiety and depression.

Newcomb and Brady (in Panella and Henggeler 1986:10) found that adolescents who have low social competence and low positive affect may either form unhealthy friendships or no friendships.

Hymel (1990:2018) found a positive correlation between negative self-perceptions and social isolation.

Evans and Eder (1993:141) found that both low academic achievement and low levels of perceived attractiveness are associated with lower social status.

Inderbitzen-Pisaruk *et al.* (1992:151) found that loneliness in mid-adolescent males could be predicted from three variables: low self-esteem, the perception of uncontrollability in non-interpersonal situations, and self-perceptions of poor social skills. In the case of mid-adolescent females, the best multiple predictions of loneliness were poor social skills and high social anxiety.

Apparently there is very little information on the relationship between social isolation and academic achievement, especially during the primary school years when group work is used in the learning situation. A more comprehensive approach, taking into account the causal factors of social isolation, the effects of social isolation on academic achievement and the methods of intervention would be useful. It was therefore the aim of the research to address the following two questions:

What is the nature of the relationship between social isolation and academic achievement at primary school level?

How do factors such as self-esteem, psychological well-being and physical development relate to social isolation and should these factors be taken into consideration for an intervention programme dealing with the problem?

In order to answer these questions, the following empirical investigation was carried out.

Method of the investigation

Selection of the sample

The sample consisted of 180 primary school learners from three primary schools. The subjects consisted of an equal number of male and female learners from the lower, middle and higher socioeconomic environments. Schools were randomly selected from a list of schools from the South Durban region. Only schools that applied a similar method of assessment, namely, where the final mark was made up of 50%

of continuous assessment and 50% of the examination mark, were used. This was done in order to ensure that the achievement mark which was used in the research was obtained in the same way. The primary school learners were selected randomly from Grades 6 and 7.

In each of the schools, 60 learners per school were selected. Learners were randomly selected from all the class registers of each grade. With regard to each primary school, 30 Grade 6 and 30 Grade 7 learners made up of 15 girls and 15 boys in each grade were selected. The average age of learners was 11 years and 7 months.

The distribution of learners in terms of school, gender and grade is given in Table 1.

Table 1 Distribution of learners in terms of school, gender and grade

School	Grade 6		Grade 7	
	Boys	Girls	Boys	Girls
1	15	15	15	15
2	15	15	15	15
3	15	15	15	15
Total = 180	45	45	45	45

Measuring instruments used in the investigation

Loneliness questionnaire

A 24-item questionnaire designed by Asher and Wheeler (1985:500-505) to assess children's feelings of loneliness, was used. The questionnaire focusses on children's feelings of loneliness (e.g. "I am lonely at school"), feelings of social adequacy versus inadequacy (e.g. "I am good at working with other children at school") and subjective estimations of peer status (e.g. "I have lots of friends in class"). Learners have to respond to each item on a 4-point scale (e.g. 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). A high score indicated a greater level of social isolation.

The scale was found to be internally consistent (Cronbach's alpha = 0.90) and internally reliable (Split-half correlation between forms = 0.83; Spearman-Brown reliability coefficient = 0.91 and Guttman split-half reliability coefficient = 0.91). Validity of the scale was determined through factor analysis (quartimax rotation). It was found that a primary factor included all of the loneliness items (Asher & Wheeler 1985:500-505).

Academic achievement

The March examination score of each learner was used as a measure of academic achievement.

Rosenberg's self-esteem scale (RSE)

Self-esteem was measured using Rosenberg's self-esteem scale. This 17-item self-report measure requires respondents to indicate their perceptions of themselves in positive or negative ways. Examples of items in the scale include are: "I am able to do things as well as most other people do" and "I can do anything I really set my mind to". Learners respond on a 4-point scale (4 = strongly agree, 3 = agree, 2 = disagree and 1 = strongly disagree) with higher total scores indicating a stronger self-esteem.

The test-retest reliability of RSE ranged from 0.85 to 0.88. A correlation of 0,0 was also found between the RSE and the CopperSmith Self-Esteem Inventory (Crandell in Brage, Meredith & Woodward, 1993:688), indicating concurrent validity. The scale was also found to have convergent and discriminant validity (Inderbitzen-Pisaruk *et al.*, 1992:156).

Psychological well-being scale

A scale developed by Dupuy (1970) was used to measure the emotional state of learners. It measures psychological mood over the past month; feelings of sadness or homelessness; stress; anxiety; depression and satisfaction with personal life. Learners had to respond on a 4-

point scale indicating the intensity of their feelings. (1 = Very much, 2 = Some — enough to bother me, 3 = A little bit, 4 = Not at all). Scale scores range from 6–30 with higher scores indicating stronger psychological well-being. An example of an item on the scale was: "During the past month, have you been anxious, worried or upset?"

Test-retest reliability of 0.85 and internal consistency reliability of 0.91 was established for the scale (Fazio in Doherty & Needle, 1991:331).

Physical attribute questionnaire

A questionnaire devised by Thornton and Moore (1993:475) provided an assessment of physical attractiveness. Examples of items are: "I am a physically attractive person" and "I have attractive facial features". Also included in the questionnaire are items to assess self-perceived social attractiveness. Sample items are: "I would be liked more if I were more attractive" and "I am uncomfortable when with others who are better looking". Both sets of items were embedded among other statements focusing on health, stress, physical abilities and reflexes. Item responses were made on a 5-point continuum (strongly agree to strongly disagree) where a higher score reflected greater self-perceived physical and social attractiveness.

Cronbach-alpha coefficients for the scale ranged from 0.82 to 0.90 indicating acceptable levels of reliability for the assessment of physical attractiveness.

Perceived physical ability scale (PPA)

A scale developed by Ryckman, Robbins, Thornton & Cantrell (1982) assessing self-perceived confidence in physical performance in the presence of others was used. Sample items are "I am not agile and graceful" and "Because of my agility I have been able to do things which many others could not do". Learners respond on a 4-point continuum ranging from strongly agree to strongly disagree. A high score reflected greater confidence in perceived physical ability.

Cronbach- alpha reliability coefficient of 0.85 was recorded for the scale which indicates that it is a reliable measure of perceived physical ability (Ryckman *et al.*, 1982:893). Validity of the scale was determined by correlating it with other similar scales. Correlations between the PPA and the Tennessee Physical Self-Concept scale and the Physical Self-Presentation Confidence Scale (PSPC) was 0.43 and 0.52, respectively (Ryckman *et al.*, 1982:893), indicating concurrent validity. According to Ryckman *et al.* (1982:898), the scale also has adequate discriminant validity.

Procedure used in the administration of the questionnaire

The questionnaires were administered with the assistance of the teachers and school counsellors. It was explained to the learners that the questionnaires were not tests, and as such, there were no right or wrong answers. Therefore, they were asked to respond to the items as honestly as possible. The instructions to be followed when responding to the items were explained to the learners.

The questionnaires took approximately 60 minutes to complete. Thereafter the achievement (March examination score) of each learner was obtained.

Results of the investigation

To determine the nature of the relationship between social isolation and academic achievement at primary school level a null hypothesis was formulated stating that no correlation exists. In order to test the null hypothesis a Pearson Product-Moment correlation was calculated between the scores of the loneliness questionnaire and the examination scores of the learners. See Table 2.

Table 2 Correlation between social isolation and academic achievement

	Academic achievement
Social isolation	$r = -0.54; p < 0.01; (n = 180)$

According to the results the null hypothesis can be rejected at the 1% level of confidence. A significant, negative correlation exists between social isolation and academic achievement. The higher the social isolation of the learner, the lower the academic achievement seems to be. From the results obtained, 29% (r^2) of the variance in academic achievement can be explained by social isolation.

Intelligence is usually considered one of the best predictors of academic performance. From previous research findings (Horn & Bruning 1993:464-478; Gustafsson & Blake 1993:407-437) the conclusion can be made that intelligence explains more or less 25%–30% of the variance in academic achievement. This proportion is very much the same as the proportion social isolation explains, namely 29%. Social isolation could therefore be considered an important variable predicting academic achievement at primary school level.

Given the negative relationship between social isolation and academic achievement, intervention to overcome social isolation becomes inevitable. In order to plan such a programme, it is necessary to know which factors relate to social isolation. Several variables were measured and in each instance a null hypothesis was formulated stating that no correlation exists between the variable and social isolation. To test the null hypothesis, Pearson Product-Moment Correlation coefficients were calculated. The results are given in Table 3.

Table 3 Correlation between social isolation and other variables (n = 180)

	Social isolation	
Self esteem	$r = -0.81;$	$p < 0.01$
Psychological well-being	$r = -0.62;$	$p < 0.01$
Perceived physical ability	$r = -0.62;$	$p < 0.01$
Self-perceived physical attractiveness	$r = -0.60;$	$p < 0.01$

The null hypothesis can be rejected in all instances at the 1% level of confidence.

There appears to be a high negative correlation between social isolation and self-esteem indicating that a high level of social isolation is associated with a low level of self-esteem. As much as 66% of the variance in social isolation can be explained by self-esteem. The result supports previous research findings such as that of Page (1992:150) and Hartup (1993:12) showing that children with stronger self-esteem have stable friendships and are less likely to become social isolates.

A high negative correlation ($r = -0.62$) was found between social isolation and the psychological well-being of primary school learners. Psychological well-being is an indication of a person's emotional state. Persons with a healthy psychological well-being are those who are not anxious, depressed or aggressive. They have a stable emotional make up and can easily relate to others in social situations. According to the results such a healthy state can be associated with a low level of social isolation. This is in accordance with other researchers who focused on aspects of psychological well-being, such as Sears *et al.* (1991:292), Inderbitzen-Pisaruk *et al.* (1992:151) and Samter (1992:213), who showed that the level of anxiety has a significant effect on social isolation. Studies done by Kovacs and Goldston (1991:388), Maag and Forness (1991:6), Rice (1992:429) and Koenig, Isaacs and Schwartz (1994:27) show that there is a relationship between depression and social isolation. Sears *et al.* (1991:292) also concluded that loneliness is associated with depression and that depression could be both a cause and consequence of loneliness. For example, depressed children may be less willing to form friendships and thereby increase their loneliness. On the other hand, the experience of being lonely for a long time, may lead children to see themselves as social failures and that might give rise to depression.

Perceived physical ability is an indication of the perception children have of their physical capabilities. Learners with a strong perception of their physical ability are usually confident to take part in

sports and games while those with a lower perception are usually pessimistic of taking part because they feel that they don't have the physical ability to enable them to succeed in such games. According to the results a significant negative correlation ($r = -0.62$) was found between social isolation and learners' perception of their physical ability. The higher the perception of physical ability the learner has, the less isolated he/she seems to be. This finding corresponds with previous research findings of Rice (1992:192) and Evans and Eder (1993:148) showing that children who have higher perceptions of their physical ability are less likely to be socially isolated since they are able to participate more frequently in extra curricular activities and sports. In general, children who participate in sports are more popular among their peers and are less likely to be rejected.

A significant negative correlation ($r = -0.60$) was also obtained between social isolation and self-perceived physical attractiveness. The higher the self-perceived physical attractiveness, the less isolated the person seems to be. Primary school children think concretely and that might be the reason why they consider physical appearance to be an important characteristic of a friend. They might also openly tease someone who is unattractive since they have not as yet mastered sophisticated social skills. The result is in accordance with that of Lau (1990:113), Lerner *et al.* (1991:300), Evans and Eder (1993:166), and Rubin *et al.* (1993:53) who found that children who are attractive are generally more popular with their peers.

To ascertain whether a significant difference in isolation exists between male and female learners, a null hypothesis was tested stating that no significant difference exists. The results are reported in Table 4.

Table 4 The difference between the average social isolation scores of male and female primary school learners

Gender	N	Mean	S	<i>t</i>	Df	<i>P</i>
Male	90	31.22	11.26			
Female	90	28.20	11.23	1.79	178	$p > 0.05$

There were 90 male and 90 female learners in each group. According to the *t*-value of 1.79 ($p > 0.05$) the null hypothesis cannot be rejected. No significant difference exists between the means indicating that primary school girls do not differ from primary school boys with regard to social isolation.

Conclusion and recommendations

The results show that learners' academic achievement is related to social isolation. Learners who perform well, are more confident and have higher social status among peers. Learners who perform poorly in school are at greater risk of becoming social isolates. This phenomenon implies that teachers and parents should ensure that children experience some success in academic activities. In this instance, Outcomes-based Education might be of help. Although Outcomes-based Education demands greater social abilities, it can also be applied to develop social skills. For example, self-discovery while working in groups will be more stimulating for learners since knowledge is acquired in a pragmatic way rather than by rote learning. Furthermore, assessment of learners done practically rather than by written tests will assist the weaker learners to attain some degree of success. The experience of a minimum level of success is of at most importance since that will to some extent support the development of a positive self-esteem. From the results of the empirical investigation self-esteem accounts for a large proportion of the variance in social isolation of primary school learners. One can accept that continuous failure in tasks and social settings will lead to the development of a negative social self-esteem, which will ultimately lead to withdrawal from social interaction.

When arranging learners for group work in an Outcomes-based context, teachers can pair off socially competent learners with social

isolates. This will encourage socially isolated to communicate and respond to social stimuli (such as greetings, conversing and sharing ideas) initiated by socially competent learners. Gradually the socially isolated ones may develop a sense of competence in relating to others and might be able to transfer these experiences to new situations. This will eventually facilitate a progressive development of a positive self-esteem. It is also important that each learner in the group, especially the socially isolated one, should feel that his/her contribution to the project has been noted. According to Bergstrom (1994:48), by allowing children to finish their work and praise their efforts, adults enhance children's natural inclination to take pride in their activity and accomplishments as they work to achieve a group goal.

Adalbjarnardottir (1994:409) notes that classroom discussion on interpersonal relationships and conflict resolution is a constructive strategy in promoting children's social growth. Presenting learners with hypothetical interpersonal conflicts and asking them to discuss various possible solutions and their consequences will enable children to provide various alternatives during interpersonal dilemmas which they may experience.

From the foregoing, it is evident that social skill training is an intervention designed to improve the behaviours which predict social outcomes. Social skills are learned behaviours and can therefore be taught, using structured teaching methods. Ogilvy (1994:77) mentions four main approaches to social skill training namely; contingency management, modelling, coaching and cognitive problem solving. *Contingency* management relies on the behaviouristic principle of using contingencies to shape behaviour, reinforcing desirable behaviours while ignoring undesirable ones. This cannot be used to teach a new skill, only to encourage the performance of an existing skill. *Modelling* derives from social learning theory and can be used to teach new skills and to enhance existing social competencies. Both modelling and contingency management follow an inductive approach, letting the child infer the principles of effective social interaction from a number of reinforced or demonstrated behaviours. *Coaching* follows a deductive approach. The principles of effective social interaction are explicitly provided in the form of rules or instructions, with behavioural examples and the child is expected to use these general principles to generate appropriate social behaviour. Feedback and further coaching are given when necessary. *Cognitive problem solving* is based on teaching interpersonal cognitive problem-solving skills, otherwise known as social problem-solving skills. This approach is similar to coaching in that both assume that cognitions mediate social behaviour. Interpersonal cognitive problem-solving differs from coaching in that it focuses on training thinking processes rather than on teaching specific content. It emphasises the need for children to be able to identify difficult situations, to generate a range of possible responses to predict the likely outcomes of each alternative and then to select the response most likely to lead to a successful outcome. This technique is usually part of preventive social curricular packages and can be used with a whole class. The aim is to teach children a set of coping or "life skills" which will generalise across a range of everyday situations.

According to the results a high negative correlation was obtained between social isolation and learners' perception of their physical ability. Learners with a strong perception of their physical ability are usually confident to take part in sports and games while those with a lower perception are usually avoiding sport participation. From the results it seems that learners who have a high perception of their physical ability and participate in sports are less likely to become social isolates. It seems as if sport participation could be used as a technique to overcome the problem of social isolation. However, sporting activities should then be structured in such a way that children with different physical abilities are catered for. Whenever possible, sport activities should be designed in such a way that learners are grouped according to their physical ability. This will ensure that learners achieve some success when participating.

The empirical findings show that children who perceive them-

selves as physically more attractive in social situations have higher social status within the group than those who perceive themselves as unattractive. Confidence in physical appearance in social settings may be related to extroversion, a significant personality trait in social relationships.

Teachers and parents need to change the perception in children. Children must understand that one does not have to be physically attractive to be successful in social relationships. Children must be made aware that social competence and appropriate social skills contribute more to group acceptance than being physically attractive. Children who feel that they are physically unattractive and may be rejected should be made to believe that the development of good moral values, social skills and a sense of confidence can make them easily accepted. Both teachers and parents should also impress on children who look for physical attractiveness in friends that such a perception is incorrect and that true friendship lies beyond physical attractiveness.

Finally, it was shown that the average social isolation of boys does not differ from that of girls. Gender is therefore not an important factor. What is more important is to realise that any child at primary school level may experience social problems and this will probably have a negative effect on his self-esteem and academic achievement. Social isolation could therefore be considered a learning obstacle, especially in a learning context where group work is required.

References

- Adalbjarnardottir S 1994. Understanding children and ourselves: Teacher's reflections on social development in the classroom. *Teaching and Teacher Education*, 10:409-421.
- Albrecht K 1994. On the Rocky Road to Friendship: Emerging Peer Relationships. *Child Care Information Exchange*, 1:43-61.
- Asher SR & Wheeler VA 1985. Children's Loneliness: A Comparison of Rejected and Neglected Peer Status. *Journal of Consulting and Clinical Psychology*, 53:500-505.
- Bergstrom JM 1994. Building Friendships in School Age Programs. *Child Care Information Exchange*, 1:43-61.
- Brage D, Meredith W & Woodward J 1993. Correlates of loneliness among Midwestern Adolescents. *Adolescence*, 28:685-694.
- Bullock JR 1992. Children without Friends. Who are they and how can teachers help? *Children Education*, 69:92-96.
- Christopher JS, Hansen DJ & MacMillan VM 1991. Effectiveness of a peer helper intervention to increase children's social interactions: Generalization, maintenance, and social validity. *Behaviour Modification*, 15:22-50.
- Doherty WJ & Needle RH 1991. Psychological Adjustment and Substance Use Among Adolescents Before and After a Parental Divorce. *Child Development*, 62:328-337.
- Evans C & Eder D 1993. "No Exit" — Processes of Social Isolation in Middle School. *Journal of Contemporary Ethnography*, 22:139-170.
- Gustafsson J & Blake G 1993. General and specific abilities as predictors of school achievement. *Multivariate Behavioral Research*, 28:407-434.
- Hancock BW 1986. *Loneliness: symptoms and social causes*. Lanham: University Press of America.
- Hartup WW 1993. Adolescents and Their Friends. In: Laursen B (ed.). *Close Friendships in Adolescence*. San Francisco: Jossey-Bass Publishers.
- Horn C & Bruning R 1993. Paths to success in the college classroom. *Contemporary Educational Psychology*, 18:464-478.
- Hymel S 1990. Children's Peer Relationships: Longitudinal Prediction of Internalizing and Externalizing problems from Middle to Late Childhood. *Child Development*, 61:2004-2021.
- Inderbitzen-Pisaruk H, Clark ML & Solano CH 1992. Correlates of Loneliness in Midadolescence. *Journal of Youth and Adolescence*, 21:151-167.
- Jeremy J 1987. Raising the quality of life for young children living in isolated circumstances. *Early Child Development and Care*, 28:21-36.
- Jupp JJ & Griffiths MD 1990. The Self-Concept changes in shy, socially isolated adolescents following social skills training emphasising role plays. *Australian Psychologist*, 25:165-177.
- Koenig LJ, Isaacs AM & Schwartz JAJ 1994. Sex Differences in Adolescent Depression and Loneliness: Why are boys lonelier if girls are more depressed? *Journal of Research in Personality*, 28:27-43.
- Kovacs M & Goldston D 1991. Cognitive and Social Cognitive Development of Depressed Children and Adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30:388-392.
- Lau S 1990. Crisis and Vulnerability in Adolescent Development. *Journal of Youth and Adolescence*, 19:111-131.
- Lerner RM, Lerner JV, Hess LE, Schwab J, Jovanovic J, Talwar R & Kucher JS 1991. Physical Attractiveness and Psychosocial Functioning Among Early Adolescents. *Journal of Early Adolescence*, 11:300-320.
- Lewis TJ & Sugai G 1993. Teaching communicative alternatives to socially withdrawn behaviour: An investigation in maintaining treatment effects. *Journal of*

- Behavioral Education*, 3:61-75.
- Maag JW & Forness SR 1991. Depression in Children and Adolescents : Identification, Assessment, and Treatment. *Focus on Exceptional Children*, 24:1-19.
- Ogilvy CM 1994. Social Skills Training with Children and Adolescents: A review of the evidence on effectiveness. *Educational Psychology*, 14:73-83.
- Page RM 1992. Feeling of Physical Unattractiveness and Hopelessness Among High School Students. *High School Journal*, 75:150-155.
- Panella D & Henggeler SW 1986. Peer Interactions of Conduct-Disorder, Anxious-Withdrawn and Well-Adjusted Black Adolescents. *Journal of Abnormal Psychology*, 14:1-11.
- Papalia DE & Olds SW 1993. *A Child's World-Infancy through Adolescence*. 6th edn. USA: McGraw-Hill.
- Rae A 1991. *Positive solitude: A practical program for mastering loneliness and achieving self-fulfillment*. New York: Harper Collins Publishers.
- Rice FP 1992. *The Adolescent: Development, Relationships, and Culture*. 7th edn. Massachusetts: Allyn and Bacon.
- Rosenthal H 1993. Friendship groups: An approach to helping friendless children. *Educational Psychology in Practice*, 9:112-120.
- Rubin KH, Chen X & Hymel S 1993. Socioemotional Characteristics of Withdrawn and Aggressive Children. *Merrill-Palmer Quarterly*, 39:518-534.
- Ryckman RM, Robbins MA, Thornton B & Cantrell 1982. Development and Validation of a Physical Self-Efficacy Scale. *Journal of Personality and Social Psychology*, 42:891-900.
- Samter W 1992. Communicative Characteristics of the Lonely Person's friendship Circle. *Communication Research*, 19:212-239.
- Sears DO, Peplau LA & Taylor SE 1991. *Social Psychology*. 7th edn. New Jersey : Prentice-Hall.
- Sheridan SM, Kratochwill TR & Elliot SN 1990. Behavioral consultation with parents and teachers : Delivering treatment for socially withdrawn children at home and school. *School Psychology Review*, 19:33-52.
- Thornton B & Ryckman M 1991. Relationship between physical attractiveness, physical effectiveness, and self-esteem : A cross-sectional analysis among adolescents. *Journal of Adolescence*, 14:85-98.
- Thornton B & Moore S 1993. Physical attractiveness contrast effect: Implications for self-esteem and evaluations of social self. *Personality and Social Psychology Bulletin*. 19:474-480.
- Wetcler JL 1990. Family treatment of a fifteen year old social isolate. *Journal of Family Psychotherapy*, 1:29-38.

Science achievement determinants: factorial structure of family variables

Elias Oupa Mashile

Faculty of Education, University of South Africa, P.O. Box 392, Pretoria, 0003 South Africa

In this article I report on how family variables can be included in an analysis of the determinants of science outcomes (science achievement and attitude). The family latent factor is regarded as an essential determinant of science outcomes. The problem arises in connection with what constitutes the family factor and which variables to use in its measurement. The problem is particularly prevalent when structural equation modelling is used to analyse the determinants of science outcomes. Three aspects to this problem are presented in this article. Firstly, the identification of variables used in the literature for measuring the family latent factor. Secondly, the use of confirmatory factor analysis to test the factorial structure of the family latent factor. Thirdly, the use of the factorial structure in structural equation models of science achievement and attitude. The emphasis is on the first two aspects. The third aspect is reported elsewhere.

The research problem

The family plays an important role in determining the academic achievement (Castejon & Vera-Munoz, 1996:22) and attitudes (Simpson & Oliver, 1990:6) of children. Researchers have identified family variables that could possibly explain how the family influences certain aspects of the child's functioning. These family variables include family structure, parents' occupation and education, parental socio-economic status, parenting styles, parental beliefs, parental involvement and support in school-related matters and the perceptions children themselves have about such involvement and support. Most researchers only ascribe a few of these variables to familial influence in their studies. Also, since most studies do not use the same set of family variables, their findings often do not yield consistent results.

Furthermore, variables used by researchers to measure the family are numerous. It therefore becomes impractical to include most known family variables in a single investigation. The large number of observable variables used to measure aspects of the 'family' gives an indication of the abstract nature of this concept. The family is therefore a latent (abstract) factor that can be measured through the use of a number of observable variables. In order to measure the family latent factor properly, main dimensions need to be included in a measurement scale. In structural equation modelling, factors that do not include most dimensions of the latent factor causes problems in the estimation of the theoretical model. This article therefore focuses on determining which dimensions best represents the family latent factor, that is, the factorial structure of the family latent factor.

Literature review

Researchers (Tamir, 1989:30; Welch, Anderson & Harris, 1982:50) have shown that the effect of the family on achievement is dependent on specific subjects. Areas such as reading are more related to the family environment whereas others such as science are more affected by schooling. In this regard, Tamir (1989:33) reports that not a single family variable (parents' country of birth, parents' occupation, parents' education, family size, number of books at home) accounts for more than 5% of the variance in science achievement. A limitation of Tamir's study, however, is that it failed to include other equally important aspects of the family environment such as parenting styles, family interactions, perceptions children have concerning family support, and the like. Omission of other dimensions in variables that constitute a latent factor is common in the literature and results in inconsistent results pertaining to the latent factor under consideration. This article attempts to address this issue in connection with the family latent factor.

In other studies, however, Tamir found that home background exerts a significant but small influence on science achievement (1987: 92) and that a science-oriented home background affects positively functional knowledge and understanding in science courses (1991:27). Ma and Kishor (1997:99) found a statistically significant relationship between perception of family support and achievement in mathematics. Perception of family support was defined as students' perceptions of parental attitudes and behaviours towards mathematics, including parents' assistance, expectation, and encouragement in their children's mathematics learning. Similarly, Simpson and Oliver (1990:6) found that family support of science and attitude toward science of same sex parent accounted for thirty nine percent of the total variance in students' attitudes toward science. Simpson and Troots (1982:765) found that family commitment correlated strongly with students' science affective measures.

Parental socioeconomic status

Parental socioeconomic status, as an aspect of the child's family background, has repeatedly been shown to influence scholastic achievement (Mau, 1997:272; Castejon & Vera-Munoz, 1996:22; de Jong, 1993:203; Anderson, 1987:52; Gordon, 1986:72-73). Hobbs (cited in Caldwell & Ginther, 1996:141) asserts that socioeconomic status is the single best predictor of academic achievement, with low socioeconomic status predicting low achievement. According to Brantlinger