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TRENDS IN LEARNING STYLES AMONGST BLACK AND WHITE SOUTH AFRICAN LEARNERS IN A MULTICULTURAL CLASSROOM

by Lance Levinrad

DECLARATION

I declare that this dissertation is my own, unaided work. It has been submitted for the degree of Master of Educational Psychology at the University of the Witwatersrand, Johannesburg. It has not been submitted for any degree or examination at any other university.



13 day of March 2000

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ABSTRACT

There is a growing body of literature supporting the importance of recognising individual learning styles and teaching styles. Using More's model, this study explored the prevalence of learning style profiles amongst different racial groups within multicultural South African classrooms. Seven teachers at two multiracial, English medium schools completed the More Learning Style Inventory for 38 white learners and 30 black learners with a mean age of 11.4 years. In addition, each teacher completed the More Teaching Style Inventory. The findings suggested that learners from different racial groups showed a preference on certain learning style dimensions. In particular, white and black learners were found to differ significantly on the Global-Analytic and the Trial & feedback-Reflective dimensions. Furthermore, an investigation of teaching styles supported mismatches between teachers' teaching style and learners' learning style, especially where learning style differences emerged. This study highlights the possible usefulness of learning style research for addressing the challenges faced by teachers in facilitating racial integration in classrooms.

Keywords

Learning styles
Teaching styles
Multicultural education
Racial integration

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1. INTRODUCTION

This study examines the prevalence of learning styles and teaching styles in multicultural South African classrooms. It aims to highlight the growing support for difference in the way individuals learn, and the need for those different learning styles to be recognised and understood. In particular, the study sets out to investigate whether or not a trend exists with respect to preferred learning styles among a sample of white and black South African learners in multicultural classrooms. It also investigates the possible matches or mismatches between learning styles and teaching styles in such classrooms with the aim of informing future work in this regard.

A fundamental advantage of using a learning style approach is that it assists the teacher to identify and reinforce the strengths of the learner in relation to his or her cultural background and individual needs (More, 1997). The motivation for comparing a black and white sample of learners in South Africa is based on the concern that, since 1994, black learners have been increasingly integrated into schools that were previously reserved for white learners. Furthermore, the majority of teachers in these schools are white and have only been exposed to a multicultural learning environment since 1994. Therefore, this study is interested in determining whether or not the educational needs all learners in the multicultural classroom are being met by the teachers.

The study is drawn from past research which has demonstrated difficulties in the racial integration process in post-apartheid South Africa (Steiner, 1988). White teachers' attitudes in this regard have been found to be problematic and the implications of this are investigated further.

This is an exploratory study in that it seeks to identify trends in learning style and teaching style and make recommendations for further research.

2. LITERATURE REVIEW

2.1 The Origins Of Learning Styles Research

The concept of learning styles arises from the study of individual differences and research within cognitive psychology (Keefe, 1990). The link between an individual's personal traits and individual differences in mental faculties was already a subject of interest for the ancient Greek philosophers (Mann, 1979 in Frisby, 1993). It was however, only in the decade following the Second World War that psychological research associating personality constructs with cognitive processes received much attention (Kogan, 1989 in De Bello, 1989). Early research introduced the concept of cognitive or learning style which has developed with keen interest and enthusiasm over time, resulting in increasing numbers of conferences devoted to the topic. Cognitive style is usually defined in a very similar way to the definition of learning styles (Messick, 1976; Shipman & Shipman, 1985 in More, 1990) or used interchangeably (Kyllonen & Shute, 1989). Generally speaking, the term learning style is used with learning tasks and cognitive style, with broader cognitive tasks (More, 1990).

De Bello (1989) believes that learning style research has been a vital component in the development of American education. It is thought that learning styles vary with (i) age (Price, 1980), (ii) achievement level (Milgram, Dunn, & Price, 1993) and (ii) culture (Dunn & Griggs, 1995; Milgram, Dunn, & Price, 1993).

2.2 Models of Learning Styles

There are at least twenty one different models of learning styles in literature on the subject to date. However, a common theme in these definitions is the idea that people exhibit consistencies in their preferences for and processing of information in varying situations (Moran, 1991).

Hill (1976 in De Bello, 1989) is said to be one of the earliest theorists in the field of learning styles and defined the concept as being the way in which a person searches for meaning. For Hill, cultural determinants were of great value in the learning process. Dunn and Dunn's (1992) multidimensional model of learning styles is also amongst the earliest comprehensive research in the field of learning styles. The model incorporates environmental, emotional, sociological, physiological and psychological domains which the authors believe impact differently on all learners. According to De Bello (1989), the NASSP learning style model by Keefe and Monke (1986) is an advancement on Dunn and Dunn's model and incorporates an information processing perspective.

Messick (1976) appears to offer the most comprehensive definition of this concept. According to Messick, an individual's cognitive style reflects "stable attitudes, preferences, or habitual strategies determining a person's typical modes of perceiving, remembering, thinking and problem solving" (p.5). For Messick, cognitive styles reflect individual differences in how a person organises and processes information and experiences (Frisby, 1993). Schmeck (1983) defined learning style similarly, as being the cognitive style that a person demonstrates or manifests when confronted with a learning task. Schmeck later expanded his definition of learning style to include concepts that incorporate individual motives and personal experiences that influence perception (1988).

For Witkin et al. (1977) and Keefe (1979), learning style refers to a universal psychological characteristic that permeates intellectual, perceptual and interpersonal functioning. Some authors define learning style as the 'preferred' manner in which a learner learns (Hunt, 1979), yet many other authors have traditionally deemed the term to refer to "the 'usual' cognitive processes by which a learner perceives, codes, organises and remembers information" (Keefe, 1987; Schmeck, 1988 in More, 1990, p.2). Letteri (1980 in De Bello, 1989) views learning as information processing which involves the storage and retrieval of information and believes that educators should direct their efforts toward the development of teaching based on the analysis of learning styles needed for school achievement and success. More (1996) explains the term learning style to be the way the learner learns best, or the manner in which the student has a strength and shows more competence. For More, the term incorporates the individual differences and the different processes that students utilise to learn.

Learning styles are usually conceptualised as 'bipolar' or on a continuum with each opposite pole of a construct having more or less of that feature (Messick 1976, More, 1987; Kyllonen & Shute, 1989; Kolb, 1985).

2.3 Teaching Style

Teaching to the style of the learners represents a philosophical change from traditional teaching methods to an understanding of individual needs of each learner (Marshall 1990). "Teaching style is best defined as the provision of a teaching situation in which a particular way of learning is emphasised" (More, 1996, p.10). Marshall emphasises that the teacher is a dynamic disseminator of information constantly assessing the needs of the students and the way in which they learn, and furthermore, if one is taught how one learns, one can teach oneself . In order for this process to be effective, Marshall believes that the educator must renounce 'control' for leadership while carefully looking,

listening, thinking then planning instruction from the 'learner up' instead of from the 'system down' . This allows learners to value themselves and others, thus learning their ability to contribute to their own learning success. Bennett (1986) cautions that if teachers only teach according to the ways that they learn best, they will probably thwart successful learners whose learning styles deviate from their own. In general, interest in the field of learning styles is motivated by the need to discover optimal teaching and learning environments that are sensitive to the individual needs of each learner (Keefe, 1979).

2.4 The Relationship Between Culture and Learning Style

Anderson (1988) believes that the components of a culture are built upon a fundamental conceptual system or common world view. This conceptual system is a pattern of beliefs and values that defines the manner in which people judge, act, decide and solve problems and therefore differs from culture to culture (Matthews, 1973 in Anderson, 1988). Furthermore, Matthews believes that the conceptual system is transmitted to its members through socialisation practices where the member learns patterns of behaviour through role modelling and imitating.

Widespread research has revealed a strong link between culture and learning style (Berry, 1976; Cooper, 1980; Cole, Jay, Glick & Sharp, 1971; More, 1987, 1990). The experimental anthropological findings of Cole et al. (1971) reveal relationships between culture and how people think. More (1997), sees this as being closely linked to the phenomenon of cultural patterns and learning styles. Research suggests, that ways of learning and the learning style one favours, are fundamentally learned from caregivers such as relatives and close family friends. It is here that the child learns content and skills as well as how to learn (Berry, 1976; More, 1996).

Many research studies have been conducted on the effects of culture on learning and have reported a strong correlation between the learning styles of people within particular cultures (Dunn et al., 1989; More, 1987). Studies comparing cultural/cognitive styles have also noted marked differences amongst people of different cultures (Witkin, 1967; Allport & Pettigrew, 1957; Gagne & Gephart, 1968; Deregowski & Serpell, 1974 in Anderson, 1988; More, 1987). Messick (1976) found that ethnic groups display distinctive patterns of thinking styles that are strikingly different from one another.

2.5 Culture and Learning Styles in the Classroom

Guild (1994, p.16) notes that "Cultures do have distinctive learning style patterns, but the great variation among individuals within groups means that educators must use diverse teaching strategies with all students". This is to say that knowing the learning style of each student, especially his or her culture, is fundamental preparation for facilitating, structuring, and authenticating successful learning for all learners. Hickson, Land & Aikman (1994) are of the opinion that, although education is regarded as a right of all children, educators have not realised the extent to which ethnic and cultural differences influence learning and achievement.

More (1987) emphasises the need for educators to better their understanding of the significance of cultural background in learning. Bennett (1986 in Guild, 1994), More (1990) and Guild (1994) argue that neglecting the effects of culture on learning styles would hamper learning and contribute to low achievement and high drop-out rates in schools. Bennett further warns educators that "if classroom expectations are limited by our own cultural orientations, we impede successful learners guided by another cultural orientation" (p.18). Boyer (1983) notes the importance of altering the belief systems of educators that have supported academic racism through inservice

training programmes that address different understandings about the way in which people from diverse cultures communicate, behave and learn.

Cohen (1969 in Anderson, 1988) suggests that the majority of school environments reflect a learning system which is unfamiliar to non-white children. Work by McNeil and Phillips (1969) advocates that a school setting that is oriented towards whites, does not compliment the learning system of blacks. For Anderson, (1988) one of the most startling difficulties encountered by students of colour, is that teachers are not equipped to identify, interpret and respond to the differing learning styles of multicultural populations which ultimately impacts on the academic performance and motivation levels of the learners concerned.

Anderson (1988) emphasises the importance of recognising the existence of cultural assets and differences when dealing with non-white populations and believes that traditional instructional approaches will prove unsuccessful and disruptive. In these culturally diverse settings, Anderson adds, both students with special needs and students from cultures that differ from the cultural basis of the curriculum, are at a disadvantage since what is taught and the way in which it is taught may be inappropriate.

Many authors in the field of learning styles and culture conclude, that since ways of learning and learning styles are learned from the people who are important to us, as well as from our life experiences, culture must have a significant influence on learning styles (Guild, 1994; More, 1989; and Vernon, Jackson & Messick, 1988 in More, 1997).

2.6 Matching Learning Styles and Teaching Styles

Experimental research has documented that when students are taught with approaches that compliment their learning styles, the results they achieve are

statistically higher than when their styles are mismatched with their approach (Dunn et al., 1989 in Hickson et al., 1994). Many authors on the topic are in agreement of this finding (Cook, 1989; Lenehan, Dunn, Ingham, Murray, & Signer, 1994; Dunn, Deckinger, Withers, & Katzenstein, 1990; Dunn, Bruno, Sklar, & Beaudry, 1990; Clark-Thayer, 1987, 1988; Mickler & Zippert, 1987; Nelson, Dunn, Griggs, Primavera, Fitzpatrick, & Miller, 1993 in Dunn & Stevenson, 1997).

In a study conducted by Onwuegbuzie and Daley (1998), it was concluded that students who were most similar in learning style to their instructor obtained higher scores than those who deviated from it. The authors thus urge educators to be cognisant of their own learning styles which influence their teaching styles and the possible influence on their students' achievement. Furthermore, Hudak (1985 in Moran, 1991, p.241) states that "when students are matched with their preferred instructional mode, achievement and satisfaction with learning will be enhanced". Dunn et al. (1989, p.56) agree with this and claim that, "when permitted to learn difficult academic information or skills through their identified preferences, children tend to achieve statistically higher test and attitude scores than when instruction is dissonant with their preferences".

Schroeder (1993) is of the opinion that creating a better match between student learning styles and educators' instruction approaches, may mean switching to a more active mode of teaching and learning. For example, students who respond to experiential learning, small group discussions and team projects can be highly effective.

2.7 The South African Context

Since the political changes in South Africa in 1994, all previously white schools have become accepting of learners from all cultures and

discrimination on any grounds has been declared unlawful, thus creating a multicultural classroom environment (Steiner, 1998).

A multicultural learning environment aims to mediate the diverse needs of all learners while promoting social tolerance, cohesion and the expression of cultural diversity (Steiner, 1998). Furthermore, Steiner (1998, p.11) states that there is agreement amongst authors that "teachers in heterogenous classrooms may experience 'culture shock' if they are insufficiently prepared for the differences in students' values, attitudes, behaviours and learning styles". Research demonstrates that teachers express feelings of being overwhelmed by different sets of values and beliefs and have been made to feel helpless, alienated and isolated as a result (Gay, 1978; Lowden, 1985; Cannella & Reiff, 1994 in Steiner, 1998).

Steiner's (1998) study on sixteen South African schools revealed that teachers in the more culturally integrated schools were more positive regarding the experience of integration when compared to those from less integrated schools. This confirms the belief of Skuy and Vice (1996), that the actual cultural integration experience itself promotes positive attitudes towards the process. Furthermore, Steiner notes that teachers from all schools reported that the integration experience has improved race relations among students.

The current South African education policy promotes a system of inclusive education. Inclusive education has been defined as: a warm, embracing attitude that accepts and accommodates other human beings unconditionally, thus promoting the expression of individual differences (Department of Education, 1999). The philosophy underlying inclusive education incorporates the fact that all people form part of a society and therefore should be accepted. Inclusion's point of departure is the belief that every human being has the ability to learn within their own learning style, which shall be catered for in the South African classroom (Engelbrecht et al., 1999).

2.8 More's Model of Learning Styles

In an attempt to address and overcome disparities between learning style and teaching style in individual learners, More (1996) developed a learning style/teaching style approach. This approach aims at assisting the educator to identify and strengthen aspects of learners' individual needs which have been shaped by their cultural background.

More (1997) focuses on four learning style dimensions, Global-Analytic, Verbal-Imaginal, Concrete-Abstract, and Trial & Feedback-Reflective, which he believes have the closest link to cultural differences. The dimensions are represented as continuums, which correspond to combinations of process. Each continuum represents different combinations of processes. One student may for instance, have a learning style at a particular point on the continuum, representing a particular combination of the processes represented by the continuum. On the other hand, another student may have a learning style at a different point on the continuum, representing a different combination of the processes represented by the continuum (More, 1996). This model differs from many other learning style models in that it is based on the premise that no learning process is entirely one sided.

2.8.1 Research on the Global-Analytic Dimension

Das, Kirby & Jarman's (1979) model of 'simultaneous/sequential' cognitive processing closely resembles that of More's 'global/analytic' continuum. Simultaneous processing is defined by these authors as the integration or synthesis of separate elements or stimuli into a whole or group, while successive processing refers to processing information into a temporary organised serial or sequential order.

In research conducted by Kaufman & Kaufam (1983) using the K-ABC assessment instrument, it was found that Simultaneous scores were higher than Sequential scores for Navajo children, but not the case for a group of more assimilated Sioux children. More (1988), Krywaniuk (1974), and Bryant (1986 in More, 1990) assessed a sample of Native Indian children and a sample of white children, and found that the Native Indian learners scored higher on simultaneous tasks than the white students, eventhough both groups attained equivalent general ability scores. More's (1988) research with Native Americans revealed a greater trend towards a global (simultaneous) style of learning over analytic (sequential) processing when compared with their non-Native counterparts.

2.8.2 Research on the Verbal-Imaginal Dimension

Within the Native American culture, it was found that the use of imagery as a tool for understanding complex concepts, was an important part of the learning process (Tafoya, 1982; John, 1972 in More, 1990). An example of this trend is illustrated in the culture's systems of legends. More (1984, 1987), together with other researchers, has found that Native students tend to use imagery as a learning process considerably more than non-Native students who employ verbal coding more often. It should also be noted that imagery refers to more than visual imagery, it may also be related to any of the senses (More, 1996).

2.8.3 Research on the Concrete-Abstract Dimension

According to More (1987), interviews with teachers indicated that Indian students who used concrete as opposed to abstract processing learned more effectively. Interesting research related to this continuum has been conducted in South Africa. A study by Bam (1982 in Meyerowitz, 1999)

involved exploring the performance of Basutho children in Lesotho on Piagetian orientated tasks. The grasping of Piagetian concepts may reflect a movement from concrete to abstract thought. Urban and rural children were assessed on the understanding of the concepts; mass, weight, liquid and quantity. The urban sample scored higher on all of the concepts than the rural sample, indicating a trend towards abstract thinking for the former and concrete thinking for the latter.

2.8.4 Research on the Trial & Feedback-Reflective Dimension

More (1987) reports that in a study he conducted, teachers and parents noticed differences between Indian and non-Indian learners during classroom question-and-answer sessions, where Indian students reflected on their thoughts before responding more than the non-Indian students. More (1987) attributes this to the encouragement of Indian culture to learn before doing by watching or listening to others first. This is in contrast to the trial-and-error learning often promoted by teachers in the classroom (More, 1987).

2.9 Conclusion

This study aims to expand on the current body of work and utilise More's learning style model to investigate the prevalence of preferred learning styles and teaching styles in multicultural South African classrooms.

3. THE STUDY

3.1 Rationale and Aims

3.1.1 Rationale for the Study

There is a growing body of literature which demonstrates individual differences in learning style. Past research has suggested that learning styles are to a large degree culturally specific. Furthermore, there are suggestions in the literature that for optimal learning to occur, there should be a complimentary relationship between the learning style of the learner and the teaching style of the teacher. In the multicultural South African classrooms of today, it is therefore essential that educators are aware of these cultural differences and employ teaching methods that compliment the learning styles of the learners.

The interaction between teaching style, learning style and cultural patterns has particular interest for South African classrooms. The demise of apartheid has resulted in widespread racial integration in previously segregated schools. Owing to the difficulties inherent in the process of racial integration, combined with the challenges that educators have to face in understanding the variety of cultural needs, the context is created whereby the teaching style of the teacher may not compliment the learning style of the learner. In a multicultural setting, it becomes necessary for teachers to be aware of the impact of cultural differences on learning style in order to adapt their teaching style and address individual differences.

The predominant feature of racial integration in South African schools is that black learners are entering schools which were previously reserved for whites. Despite this transformation, the majority of teachers in these schools continue to

be white. Owing to the past racial segregation, these teachers have only recently been exposed to the cultural diversity of the South African learner population. Due to the infancy of post-apartheid education, it is believed that these teachers are still struggling to adjust to multicultural differences in the classroom. This difficulty in gaining an understanding of the needs of culturally diverse learners has the potential to have a negative effect on the learners' progress. It is thus vital that teachers be made aware of cultures that differ from their own, in order to accommodate the individual differences of the learners sufficiently. This will help to ensure that all learners receive equitable instruction that will optimise their learning potential.

It is within this context that this study hopes to demonstrate the prevalence of learning style and teaching style differences within multicultural classrooms and provide a basis for addressing the individual needs of learners. While this study may not provide definitive evidence for the entire learner population of South Africa, it hopes to extend the field for further investigations into learning and teaching styles amongst the black and white South African learner population and increase awareness of these individual differences.

3.1.2 Aims and Hypotheses of the Study

Based on the rationale provided above, the aims of the study are therefore as follows:

1. To assess the learning style of a sample of South African learners within multicultural classrooms.

2. To investigate whether or not differences occur between the learning style of learners from different racial groups.

3. To assess the teaching style of a sample of white teachers in multicultural schools and draw a comparison between the teaching style and learning style in order to identify mismatches.

4. To investigate whether or not there is a greater prevalence of mismatch between teaching style and learning style amongst teachers and learners from different racial groups than amongst teachers and learners from the same racial group.

Considering these theoretical issues, as well as findings of past research in this field, it is hypothesised that:

1. South African learners from different racial groups will present with differences in their learning style.

2. This difference in learning style will manifest in a preferred learning style profile for different racial groups.

3. There is a prevalence of mismatch between teaching style and learning style amongst teachers and learners from different racial groups.

3.2 Method

3.2.1 The Sample

A) The schools

Two schools participated in this study. Both are mainstream, co-educational, English-medium government schools situated in the north-eastern vicinity of

Johannesburg, within close proximity to the township of Alexandra and serve socioecenomically and culturally diverse communities.

B) The learners

The sample of learners consisted of sixty eight (68) respondents. The biographical details of the learners are represented in Table 1 below.

Table 1: Biographical details of the learner population

	School 1	School 2	Total
Learners	40	28	**68**
Sex			
Male	25	14	**39**
Female	15	14	**29**
Race group			
Black	19	12	**31**
White	21	16	**37**
Age (mean)	11.5 years	11.2 years	

As can be seen in Table 1, fifty nine percent (59%) of the learners originated from school 1 and the remaining forty one percent (41%) from school 2. More males than females formed part of the study, however the race group samples between the two schools was relatively well matched in number. The mean age of the sample is 11.4 years old.

The black learners generally reside in the nearby Alexandra Township or with their mothers who are domestic workers in the predominantly white suburbs surrounding the schools. These black learners have originated from an educationally impoverished background, which is characteristic of the past political regime. Having grown up in a township environment, many of the

learners may have been exposed to inadequate amenities during their development years, often having to go without basic needs being met, such as good nutrition, privacy, electricity and running water. Many of their parents are not highly educated owing to the apartheid education, and may therefore not be able to adequately guide their childrens' learning. The political isolation of the past has also led to the existence of a language barrier between black and white race groups, hindering communication between white and black learners and between learners and teachers of differing races.

With the inception of racially integrated schools such as those used in this study, black learners have had to adapt not only to a new learning environment which was before solely white, but also to the challenge of an English medium teaching environment. Since the racial integration process is still relatively new, racial tension often exists in these multiracial schools.

Unlike the black learners, the white learners originate from advantaged backgrounds and have grown up in the suburbs surrounding the schools. Their parents are mostly middle to upper-middle income group earners. These learners have had formal schooling from school going age and continue to be educated in the environment and medium to which they are accustomed.

C) The teachers

Seven (7) teachers were involved in the study, all of whom are white females. Their experience in the education field ranges between newly qualified and twenty-two years experience. They also form part of a wide age band ranging from mid 20's to 50's. The teachers generally live within close proximity to the school and have only since 1994 had exposure to a multiracial learner population.

3.2.2 Procedure

Permission to assess the sample of children was granted by each school's principal. The teachers were randomly assigned and asked to select ten (10) learners on average from their respective classes. Each teacher was handed a package consisting of : an information sheet introducing the research and the researcher; instructions on how to conduct the study and complete the questionnaires; the time in which they had to observe the learners and complete the relevant data; as well as the personal details and contact numbers of the researcher in case of any uncertainties regarding the study. Additionally, the package also consisted of More Learning Style Inventories and a More Teaching Style Inventory. The data collection was conducted in the third term of the school year which was hoped to enhance the familiarity between teacher and learner and thus add to the validity and reliability of the observations.

Biographical information pertaining to age, cultural group, and grade level as well as a More Learning Style Inventory was completed for each learner by each teacher. Each teacher was then asked to complete a More Teaching Style Inventory to assess their teaching style.

The time span for the completion of the data was four weeks on average, after which the information was collected for analysis.

3.2.3 Measures

The **More Learning Style** and **Teaching Style Identification Inventories** (More, 1996) were utilised in the study, and are individually administered questionnaires which are designed to be used simultaneously to gain an understanding of:

- The learning style(s) of a learner or group of learners.
- The teaching style of the teacher.
- The degree to which teaching style and learning style(s) match.

The Inventories were constructed by Arthur J More in conjunction with classroom teachers who first noted a list of behaviours which indicate each learning style in More's model. Later, the list of behaviours was shortened to the thirty two best indicators to maximise validity and reliability for use in the current Learning Style Inventory. Completion of the inventory produces scores on each of the four learning style dimensions shown below.

Dimension 1

Global ---------- Analytic

'Global ' refers to a learning process which emphasises a holistic or gestalt-like approach to synthesising many components of a learning task. Global learners tend to understand a concept best when it is first presented in its entirety. 'Analytic', at the other extreme of the continuum, refers to a learning process which emphasises learning the individual components that constitute a learning task. Analytic learners learn better when the task is presented in small sequential parts which are gradually built up into the whole concept.

Dimension 2

Verbal ---------- Imaginal

'Verbal' indicates a learning process which emphasises particular instances which are directly perceived by one or more of the five senses. These learners learn best from dictionary-like definitions of concepts or labels rather than from examples or analogies. 'Imaginal' indicates a learning process which emphasises the manipulation and coding of images (concrete or abstract and related to any of the five senses). Imaginal learners learn best from images (concrete or abstract), symbols or diagrams .

Dimension 3

Concrete ---------- Abstract

'Concrete' reflects a learning process which emphasises particular instances which can be directly perceived by one ore more of the senses. These learners learn best if concrete examples are presented initially, followed by the concept using materials that can be seen, touched or heard. In contrast, 'Abstract' describes a learning process which emphasises concepts, principles or thoughts independent from their concrete instances. These learners benefit most if the concept is presented first in an abstract form, followed by examples.

Dimension 4

Trial & Feedback ---- Reflective

'Trial & Feedback' is a learning process which emphasises an initial trial response followed by feedback, which is used to refine the learning process. Such learners prefer to respond impulsively and learn from the teacher's evaluation. At the other end of the continuum is 'Reflective' learning, which is a learning process that emphasises reflecting upon the new concepts before using it. These learners take more time to think their answers through before responding than the Trial & Feedback learners.

The same behaviours were translated into parallel teaching behaviours for the Teaching Style Inventory which allow the teacher to identify his/her own teaching styles. These styles can then be compared with the learning styles of the learners. The two inventories are thus parallel in nature and allow for the comparison between the learning style(s) of the learner and the teaching style of the teacher.

3.2.4 Design and Statistical Analyses Used

This research study is comparative in nature and focuses on the similarities and differences in learning styles between racial groups. A One Way Analysis of Variance (ANOVA) was used to compare the responses of the teachers for the black and the white race group with the different learning style dimensions representing the dependent variable. This analysis was aimed at establishing whether or not there was a difference on the teachers rankings of the learning style dimensions of the two race groups. Furthermore, independent sample t-tests were performed to compare the mean scores of the two race groups within each

learning style dimension. The aim of this analysis was to establish whether or not either of the race groups significantly favoured one pole over another within each learning style dimension.

A bivariate correlation using Spearman's correlation coefficients was conducted for each race group independently, in order to establish the level of correlation between the poles within learning style dimensions. The purpose of this analysis is to establish the extent to which the teachers' ratings of the two groups provide a significant correlation between the poles, which would indicate the absence of preference for one pole over the other. In addition, a further correlation analysis was conducted using Spearman's correlation coefficients to compare the learning styles and teaching styles for each group on each learning style dimension. The purpose of this analysis was to establish whether or not there occurred a significant match between the learning style and the teaching style for each race group.

4. RESULTS

4.1 Results of Learning Styles Analysis

4.1.1 Differences in Learning Style Dimensions

The means and standard deviations for the group of learners (n=68) on the learning style dimensions are represented in Table 1 below.

Table 2: Means and standard deviations of learning style dimensions for the black and white group

Dimension		White group (n=38)		Black group (n=30)	
		Mean	SD	Mean	SD
1	Global	13.37	3.09	11.67	2.55
	Analytic	12.74	3.04	12.53	2.70
2	Verbal	12.42	2.70	10.47	2.62
	Imaginal	14.05	3.23	12.27	2.79
3	Concrete	13.82	2.39	14.00	1.53
	Abstract	11.71	2.69	10.3	1.76
4	Trial & Feedback	12.57	2.82	10.63	2.72
	Reflective	12.45	3.86	11.70	3.04

Table 2 indicates, that with the exception of the Concrete pole of dimension three, the mean scores of the white group were higher in all areas than the black group. Furthermore, the results suggest that both groups demonstrate a similar trend with respect to dimensions two and three, that is, Imaginal is higher than Verbal, and Concrete is higher than Abstract. However, on

dimension one, the black group seems to favour Analytic over Global while the white group seems to demonstrate a preference for Global over Analytic. On dimension four, the white group does not seem to show any notable difference between Trial & Feedback and Reflective learning styles. However, the black group seems to demonstrate a preference for the Reflective pole.

A One Way Analysis of Variance (ANOVA) was performed on each learning style dimension using race as the independent variable. The ANOVA found significant differences between the black and white group on the Global dimension ($F(1.67) = 5.92$, $p<0.05$); Verbal dimension ($F(1.67) = 9.02$, $p<0.01$); Imaginal dimension ($F(1.67) = 5.77$, $p<0.05$); Abstract dimension ($F(1.67) = 6.15$, $p<0.05$); and Trial & Feedback dimension ($F(1.66) = 8.03$, $p<0.01$). All these findings were in favour of the white group. No significant differences were yielded between the two groups on the Analytic, Concrete and Reflective dimensions. The results suggest that the Verbal dimension and Trial & Feedback dimension demonstrate a higher level of significance.

On analysis of gender, no significant differences between males and females were found with regards to preferred learning style.

4.1.2 Differences within Learning Style Dimensions

The results discussed above were investigated in more detail for each of the groups. A t-test comparison of each dimension was conducted for each race group to determine whether or not the means of the groups differed significantly. Table 3 below contains the results of this analysis.

Table 3: t-values of learning style dimensions for the black and white group

Dimension		White group (t-values)	Black group (t-values)
1	Global - Analytic	1.20	-2.36*
2	Verbal - Imaginal	-4.92***	-4.38***
3	Concrete - Abstract	3.63**	9.15***
4	Trial & Feedback - Reflective	0.08	-1.39

*p< 0.05

**p< 0.01

***p< 0.001

Based on the ratings of the teachers, Table 3 shows that both groups differ significantly on the Verbal-Imaginal and Concrete-Abstract dimensions. As revealed in Table 2, these differences are in favour of the Imaginal pole on dimension two and the Concrete pole on dimension three. Furthermore, the t-test indicates that the teachers rate the black group as being significantly higher on the Analytic than on the Global pole of dimension one. The results also suggest that both groups have a significant preference for the Imaginal over the Verbal learning style and the Concrete over Abstract learning style. The results of the ANOVA previously cited, demonstrated a significant difference between the two race groups on the Imaginal pole. This suggests that while both groups significantly favour the imaginal learning style over the verbal one, the white group significantly demonstrates a higher preference for the imaginal style.

In addition, the ANOVA provides evidence that the two groups did not differ significantly on the Concrete pole, therefore suggesting that while both race

groups favour the concrete style over the abstract, the race variable does not provide evidence of a greater preference for the concrete style, for either race group.

When considering dimension one, the black group demonstrated a significantly higher preference for the analytic learning style over global. The ANOVA showed a significant result for the Global pole in favour of the white group but no significant result for the Analytic pole. This suggests that while the white group does not significantly favour the Global pole over the Analytic pole, there is a higher tendency for this group to have a preference for the global style than the black group.

While neither group demonstrated a significant preference for either trial & feedback or reflective learning styles, there is a tendency in the black group to be more reflective, whilst the white group demonstrates a balanced learning style in this dimension.

The mean differences between poles on the learning style dimensions for each race group were investigated. The results are displayed in Table 4.

Table 4: Mean differences between poles on learning style dimensions

	white group (n=38)		black group (n=30)	
Dimension	**Mean**	**SD**	**Mean**	**SD**
Global-Analytic	0.63	3.24	-0.87	2.01
Verbal-Imaginal	-1.63	2.05	-1.80	2.25
Concrete-Abstract	2.11	3.58	3.70	2.22
Trial & Feedback-Reflective	0.12	4.29	-1.07	4.21

It is evident that the differences on the Concrete-Abstract poles are more notable with the black group, demonstrating a higher preference for a concrete style over an abstract style.

4.1.3 Correlations within Learning Style Dimensions

Spearman's correlation coefficients were calculated in order to determine the consistency of performance of the subjects across the poles of the dimensions. Tables 5a and 5b below contain the results of the analysis.

Table 5a: Spearman's correlation coefficients of learning styles for the white group

	Global	Verbal	Concrete	Trial & feedback
Analytic	0.28			
Imaginal		0.68*		
Abstract			-0.14	
Reflective				0.16

*p< 0.01

Table 5b: Spearman's correlation coefficients of learning styles for the black group

	Global	Verbal	Concrete	Trial & feedback
Analytic	0.74*			
Imaginal		0.71*		
Abstract			0.17	
Reflective				-0.06

*p< 0.01

Tables 5a and 5b reveal a statistically significant correlation for both groups on the Verbal-Imaginal dimension ($p<0.01$). Table 5b shows a statistically significant correlation between the Global and Analytic rankings for the black group ($p<0.01$). On the Concrete-Abstract and Trial & Feedback-Reflective dimensions, no significant correlation was found between scores for both groups. These results therefore imply that teachers consistently reported similar rankings for both the Global and Analytic poles of dimension one for the black group, but not so for the white group. Furthermore, the teachers consistently reported similar rankings for both groups on both poles of the Verbal-Imaginal dimension.

4.2 Results of Teaching Style Research

4.2.1 Differences in Teaching Style Dimensions

The means and standard deviations for the group of teachers (n=7) on the teaching style dimensions are represented in Table 6 below.

Table 6: Means and standard deviations of teaching style dimensions for the black and white group

Dimension		Teachers group (n=7)	
		Mean	SD
1	Global	15.86	2.67
	Analytic	15.00	1.83
2	Verbal	11.43	2.07
	Imaginal	15.57	2.15
3	Concrete	16.00	1.41
	Abstract	12.14	1.77
4	Trial & Feedback	13.29	2.75
	Reflective	17.14	1.86

The results in Table 6 indicate that teachers showed a noticeable preference for imaginal, concrete and reflective teaching styles. There is no noticeable preference reported for global or analytic styles, although global is slightly higher than analytic.

4.3 Results of Comparisons Between Learning Style and Teaching Style Dimensions

A correlational analysis was performed on the results of the learning styles and the teaching styles in order to determine whether there were matches between them. Tables 7a and 7b represent the results of the analysis for each race group respectively.

Table 7a: Spearman's correlation coefficients for learning styles & teaching styles of the white group

Teaching dimensions	Learner dimensions							
	Global	Analytic	Verbal	Imaginal	Concrete	Abstract	Trial & Feedback	Reflective
Global	0.64**							
Analytic		-0.30						
Verbal			0.58**					
Imaginal				0.68**				
Concrete					0.30			
Abstract						0.08		
Trial & Feedback							-0.28	
Reflective								-0.02

**p < 0.01

On the white group, significant positive correlations between teaching style and learning style were found for the following poles: Global (p< 0.01); Verbal (p<0.01) and Imaginal (p< 0.01). No significant correlations were reported on

the Concrete, Abstract, Trial & Feedback, and Reflective poles. This indicates that on the Global, Verbal and Imaginal poles, the teaching styles and learning styles compliment each other. The implication of this is that where there is a prevalence of a global, verbal and imaginal learning style amongst the white learners, the teacher is catering for that learning style which should enhance the learning process.

Table 7b: Spearman's correlation coefficients for learning styles & teaching styles of the black group

Teacher dimensions	Learner dimensions							
	Global	Analytic	Verbal	Imaginal	Concrete	Abstract	Trial & Feedback	Reflective
Global	0.73**							
Analytic		-0.67**						
Verbal			0.73**					
Imaginal				0.47**				
Concrete					-0.43*			
Abstract						0.00		
Trial & Feedback							-0.26	
Reflective								0.23

*p< 0.05

**p < 0.01

Table 6b above shows a significantly high positive correlation on the black group between teaching style and learning style for the following poles: Global ($p<0.01$); Verbal ($p<0.01$) and Imaginal ($p<0.01$). A significantly negative correlation was found for the Analytic and Concrete poles. No significant correlations were reported on the Abstract, Trial & Feedback and reflective poles. This implies that, for the black group, where there is a prevalence of these learning styles, it appears that they are complimented by the teacher's teaching style. However on the Analytic and Concrete poles, it appears that when there is evidence of an analytic or concrete learning style,

there is a significant mismatch with the teacher's teaching style and the learners learning style, which could negatively influence the learning process.

The results present some interesting insights into the learning styles and teaching styles of a multicultural classroom. Findings suggest that the hypotheses for this study are justified.

5. DISCUSSION

5.1 Introduction

South African society can be described as a pluralistic one, since it is populated by disparate ethnic groups and cultures. At present, however, South African classrooms largely continue to employ education techniques that are based upon an Anglo-European world view which benefits white learners and disadvantages black learners. Within this context, it is believed that learning style differences between racial groups might give direction as to the needs of the learners. This has implications for the level of awareness needed by educators in order to meet the individual needs of learners in a multicultural classroom.

More's model of learning styles has been applied to learners in various multicultural societies. For South Africa, this study suggests that More's model can offer educators and learners insight into facilitating the educational needs of learners who were separated as a result of the past apartheid regime. Since multicultural classrooms are on the increase in South Africa, it is vital that educators and learners become more aware of learners' individual learning processes and thereby their needs. This research reveals prevalent learning styles amongst South African learners from different racial groups and the degree of match between learners and their teachers' styles of teaching.

5.2 Interpretation of Results

While analysis of the results indicate differences amongst the racial groups on certain dimensions, findings on the Global-Analytic and Verbal-Imaginal dimensions should be considered with caution. The Spearman's correlation coefficients analysis suggests that the reliability of the teachers' rankings on

the Global-Analytic dimension for the black learners is questionable, owing to a significant correlation between the Global and Analytic poles. This implies that there was a low level of variation amongst the teachers' rankings of the black learners on this dimension, suggesting a possible lack of understanding on the part of the teachers of the black learners' preference in this regard.

The teachers' understanding of the learning style preferences for both groups on the Verbal-Imaginal dimension may also be questionable, owing to a high level of similarity amongst the teachers' rankings on the poles of this dimension.

5.2.1 Results of Global-Analytic Dimension

The results from the learning style and teaching style inventories suggest some important differences between the white group of learners and the black group. The More Learning style inventory revealed that the white learners in the study favoured a global learning style, while the black learners favoured an analytic learning style. This implies that while white learners place emphasis on context and tend to understand a concept best when it is presented in its entirety, for black learners context is less important and these learners tend to learn better when information is presented in stages and built up to a whole. These findings are contrary to those of More's who reported that children who come from a culture that mostly uses noncontextual learning (as in Western classrooms) tend to be more analytic in learning style. Similarly, More (1996) found that if children originate from a culture in which they learn skills in their usual context, (as in marginalised/disadvantaged cultures) their learning will be more effective with a global style. In the South African context, the marginalised culture that More refers to are the black people.

These findings need to be explored further. Possible explanations for these findings are offered. Owing to factors such as cultural differences and

language barriers between teachers and learners, black learners could be misperceived by teachers, resulting in a misunderstanding of the learners' needs. Teachers may perceive black learners to prefer an analytic learning style since the contextual clues presented to the learners might be inappropriate to their culture. Also, since black learners have been integrated into previously white schools, in predominantly white areas, the novelty of the environment may cause them added pressure to grasp concepts and perform well. Therefore, these learners may tend to focus on the details of the tasks rather than the broad understanding of the concepts. The white learners, being more secure in their environment, may react more positively to the teachers' global teaching style and may be more comfortable with contextual clues being offered.

The findings suggest that black learners may be spending more time on details to make sense of information presented to them, which may impede them from gaining a holistic understanding of concepts and cause them to miss important information about the concepts presented to them.

For white learners, the implication is that they seem to have a greater aptitude to grasp concepts in a holistic manner which possibly makes learning more efficient and gives way to understanding overall process rather than individual details. This may allow them to proceed through concepts more quickly, but miss out on important details. This development may be explained in terms of exposure to technology. With advantaged white learners having more access to technology, like television and computers, they have perhaps become more familiar with complex stimuli, which may allow for a more advanced global learning style development than the black learners.

When comparing the match between learning style and teaching style, the teachers in the study showed a preference towards a global teaching style. This implies that the more analytic black learners were not benefiting optimally from the learning process. The implications of teachers not displaying a balanced Global-Analytic teaching style may include the fact that

they are not promoting attention to detail. This could affect learners when attempting to grasp more complex concepts which require analytical skills as well as global skills, as required by outcomes based education approaches.

Furthermore, this may suggest that black learners may be finding it difficult to derive as much benefit from the teachers approach as white learners. Also, white learners and teachers may be more comfortable with each other than black learners, which can potentially lead to further marginalisation for the black learners. Perhaps elements of cultural bias may compel teachers to cater more for white learners than black.

5.2.2 Results on the Verbal-Imaginal Dimension

On the Verbal-Imaginal learning style dimension, both groups of learners favoured the imaginal learning style, showing that these learners learn more effectively when the information is presented in images or diagrams. All learners and teachers in the study showed a preference for an imaginal style, resulting in a match between the teaching and learning style of the total sample. This match may optimise learning especially for the black learners who are often at a language disadvantage. Research has shown that the imaginal learning style is more likely to develop amongst those from a background in which images are regularly used as in the case of many indigenous cultures (More, 1996). The literature further suggests that since the background of learners from a Western culture is characterised by using the spoken or written word more than images, it is expected that a more verbal learning style will develop.

If More's findings are applied to this study in a South African context, it would seem that black learners could be imaginal in learning style owing to the language barrier that exists between them and the teachers. This may cause the learners to rely more on imagery to understand concepts than on verbal cues. With regard to white learners, More suggests that they would tend to

be more verbal owing to their Western culture, being one that places emphasis on spoken language. The findings of this study confound with this expectation. Once more, it may be suggested that the lengthy engagement that white learners have had with technology, such as television and computers, has inspired an imaginal learning style and a possible decrease of interest in reading, which may lower the focus on verbal content.

Since on this dimension the favoured teaching style is the imaginal style, perhaps the teachers may perceive that all learners are reacting favourably to this style. More investigation is necessary to establish whether or not this perception is in fact correct.

Despite these possible contradictions, it seems as though the teachers perceive their teaching style to match the learning style of their learners, so that in this dimension, learners are responding favourably to their cues of an imaginal style. However, the reasons behind why such a learning style might develop for the two groups could be different, due to environmental and cultural factors.

Implications for not having a balance on the Verbal-Imaginal style for both learners and teachers may be due to not enough emphasis being placed on verbal cues for learning. This could negatively affect learners' language development, especially that of the newly integrated black learners. A decrease on tasks incorporating the spoken word may also inhibit communication, which may be a result of overinvolvement with technological devices such as computers.

5.2.3 Results on the Concrete-Abstract Dimension

On the Concrete-Abstract dimension, the study found that for the black and the white learners, the concrete learning style was predominant. This implies that both group of learners benefit most from having a concept taught to them with actual or definite examples. For the black learners, again, difficulty with

the English language may result in them needing to experience concepts being applied to real, tangible examples. They can then duplicate and apply the rule to other similar situations, perhaps without needing to understand the context or the concept itself. For both white and black learners, preference for the concrete learning style may be attributed to the fact that in the classroom, they have not been motivated to generalise concepts and apply them to other contexts.

Teachers often seem to examine information in a way that does not foster abstract thinking, but rather promotes thinking on a concrete level and of a rote learning nature. The dominant teaching style in this dimension proved to be concrete which matches with the learning style of the learners of both race groups, therefore reinforcing the concrete style of learning and not a more generalised style of transferring knowledge from one context to another. This may result in learners' experiencing difficulty with abstract concepts in, for example, the area of life skills development, which includes problem solving and decision-making in adolescence and early adulthood.

5.2.4 Results on the Trial & Feedback-Reflective Dimension

Within the Trial & Feedback-Reflective learning dimension, the white learners favoured the trial & feedback style while the black learners favoured the reflective style. This suggests that white learners are more inclined to learn by trying various options and evaluating them by the feedback from them, while the black learners are more inclined to think new concepts through before using them. Trial & feedback learning encourages impulsivity and unforced errors. Owing to their advantaged background, white learners may not have had to often contemplate the consequences of their behaviour, whereas the black learners' environment demands that they take greater responsibility for their actions, due to the limited availability of resources .

Research by More (1996) supports this finding and proposes that learners from a culture in which listening without interrupting is encouraged (like many

First Nations cultures) are likely to develop a reflective learning style. If the learner originates from a background where interruption, question, trial, error and feedback are encouraged (as in Western, middle-class cultures), learners are likely to develop a trial & feedback learning style.

A possible explanation for this may be that since the black learners in this study are only newly integrated into their learning environments, they might be timid to offer responses in the classroom and as a result, teachers may interpret this as a preferred learning style rather than an emotional factor. The white learners on the other hand, who are familiar with the learning environment and who share a similar culture to the teacher, may feel less inhibited to offer responses to classroom situations and therefore seem to employ more of a trial & feedback learning style. For the black learners, the language barrier may add to their hesitation to speak out in class.

The preferred teaching style within this dimension was reflective, which implies that the white learners were not being taught according to their learning preference, whereas the black learners learning style was matched with the teaching style of the teacher. It may be noted, that if teachers encourage their learners to think concepts through before answering questions, the white students' inclination to be impulsive may be lessened. This may encourage teachers to teach using a reflective style in order to reinforce this belief. An outcome based education system (OBE) encourages a reflective teaching style.

5.3 Implications of the Findings

This study reinforces the widespread belief that certain differences in learning styles of learners from different racial groups does exist. This implies that teachers should be cognisant of individual learners' differing needs in the multicultural classroom as well as similarities in learning styles within racial groups. Frequent assessment of both the teachers' methods of teaching and the individual differences of their learners should be conducted in order to

deliver a learning experience that compliments the varying styles of the learners and therefore optimises learning for all of those involved in the process. Therefore, teachers' teaching strategies need to be adaptive, including the use of multimodal approaches that can compliment the varying learning styles in the class. This, according to More (1996), is particularly important with respect to difficult or novel learning tasks.

With the transformation in South African society over the last few years and the increase in classroom 'cultural mix', it has become essential for educators to understand the diversity of learners' needs in multicultural classrooms that are now the norm in all government controlled schools. With the integration of black learners into previously white schools, educators should be especially sensitive to the fact that black learners have either originated from isolated rural areas or deprived residential areas. The educational resources in these areas have been below acceptable standards, resulting in the majority of these learners being inadequately equipped to compete favourably with the better educated, more affluent suburban white children.

It is therefore of vital importance that teachers recognise the existence of cultural assets and differences when dealing with multiracial learners, and adhere to the fact that traditional instructional approaches will prove unsuccessful and disruptive. Furthermore, this will disadvantage many learners from cultures that differ from the cultural basis of the curriculum, since what is taught and the way in which it is taught may be inappropriate.

Perhaps, if teachers were to become more self-aware and monitored their teaching methods, they could evaluate whether or not they are accomplishing their educational goals and therefore meet the needs of the learners. Awareness of the interactive effects of their teaching styles and the learners' learning styles will also allow the teacher to be more reflective in his or her teaching, thus enhancing his or her teaching skills.

5.4 Limitations of the Study

Caution should be taken when attempting to generalise the findings of this study owing to limitations including the following:

1. It may have been beneficial to familiarise teachers with the theoretical model behind More's inventories, which may have facilitated accurate observation and judgement of learning behaviours whilst completing the inventories.

2. A larger sample may have been a better representative of the South African learner population. The fact that the sample of learners was drawn from two schools in close proximity, within the Johannesburg area, may further confound results, since the sample may not be representative of the general learner population.

3. The absence of a criterion variable against which to measure the results of the mismatches between learning styles and teaching styles, and the differences in learning style between learners, limits the explanation of how these phenomena impact on school performance.

4. Since the respondents were chosen by the teachers, their choices may have been influenced by the teachers' own attitude towards certain learners, which may imply that the choice of learners was not completely random. This could reinforce the belief that the findings may not be broadly representative of all learners in the classroom.

5. Owing to the fact that teachers report to be having difficulty with racial integration and that attitudes are not always positive, the teachers' assessment of some of the learners might have been confounded by personal beliefs.

6. It may also be noteworthy that since many of the black learners whose home language is not English, may have difficulty understanding classroom instruction in their newly integrated English medium environment, and may, as a result, be wrongly judged by the teachers to be unable to fulfil a particular task or grasp a particular concept.

5.5 Suggestions for Further Research and Practice

Owing to the limitations within this study, as identified above, it may be useful to replicate the study using a larger sample of learners and teachers from a number of multicultural schools in different geographic locations in South Africa.

A study such as this one may form the pretest stage of a larger pretest-posttest study in which interventions with teachers may be carried out, followed by classroom observations and posttest inventories. This may determine possible differences in results after teachers have applied what they gained from the interventions. These interventions may take the form of workshops centred around teaching strategies, self-awareness, learning styles awareness and understanding racial differences and how to cater for them.

It may also be beneficial in the future to compare black teachers to white teachers, to determine whether or not there are discrepancies in meeting the needs of the learners. Furthermore, it may prove interesting to investigate possible differences between the teaching styles of black teachers from traditional township schools and multicultural suburban schools.

The extent to which the teachers' assessment of learning styles matches an objective measure of learning styles could also be investigated. This may be done, for example, by administering a learning style assessment instrument to the learners.

5.6 Summary and Conclusion

> " If instructional decisions were based on an understanding of each individual's culture and ways of learning, we would never assume that uniform practices would be effective for all. We would recognise that the only way to meet diverse learning needs would be to intentionally apply diverse strategies. Ideas about culture and learning styles can be of great help to teachers as they pursue such intentional instructional diversity. A teacher who truly understands culture and learning styles and who believes that all students can learn, one way or another, can offer opportunities for success to all students." (Guild, 1994).

While there is a large body of literature providing evidence for individual differences in learning style amongst learners, there is also evidence that teachers need to become increasingly more aware of these differences in order to provide a learning experience that caters for the array of learning styles in a multicultural classroom. This research has revealed a possible preferred learning style trend amongst white and black learners, as well as mismatches in learning style and teaching style amongst the black and white learners in multicultural South African classrooms, and highlights some of the implications of this.

Teachers who formed part of this study have stressed their need to become better informed about cultural trends in learning styles as well as individual differences in learning styles. These teachers further maintain, that many black learners' needs are not being met with their current traditional teaching methods. This they believe, is contributing to a lowered academic performance amongst these learners. They have also stressed the need for ongoing support in this field in order to facilitate the varied learning styles in their multiracial classrooms.

It is hoped that this research can make a valuable contribution to the introduction of new education practices by developing an understanding of teacher/learner interactions. It is further anticipated that this research will contribute to the debate around the importance of recognising individual differences in a multicultural context.

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