Learners' educational aspirations in South Africa: The role of the home and the school

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An extensive body of research exists on the background characteristics that predict learner achievement. However, in South Africa, little attention has been paid to the level of educational aspirations and the factors that shape the level of aspirations. Using a bio-ecological systems theory of development, we explored the role of gender, socio-economic status (determined by resources at home and school), parental involvement and school climate in determining educational aspirations. Using a nationally representative sample of 11,969 learners (females = 5,248; mean age = 15.7 years) from the Trends in International Mathematics and Science Study (TIMSS) and the statistical analysis technique of structural equation modelling (SEM), we investigated the relationships between parental involvement, school climate and learner educational aspirations. Our study showed that students from low socio-economic status (SES) homes and schools had lower educational aspirations. We also found positive relationships between both positive and negative school climate and learner aspirations. A surprising finding was that parental involvement did not have any influence on shaping learner aspirations. The findings indicate a need to improve educational resources at schools as well as the school climate, as schools matter for learners in low-income countries. Furthermore, it is important to inform learners of the requirements for tertiary education, so that they develop more realistic aspirations.

Keywords: home resources; learner educational aspirations; parental involvement; school climate; school socio-economic status

Introduction

Educational aspirations reflect the educational goals that individuals set for themselves (Fraser & Garg, 2011). Learner aspirations are key to the improvement of psychological well-being (Ryan & Deci, 2000), primarily because aspirations are related to the experience of self-esteem (overall evaluation of an individual's worth) and self-efficacy (belief in one's ability). The role of learner educational aspirations is a growing area of interest in the field of education and policy research, which is targeted at improving learner outcomes (Gore, Holmes, Smith, Southgate & Albright, 2015; Shumba & Naong, 2012). A number of variables including the school context, learner attitudes, parental involvement, social support (Wilson & Somhlaba, 2016), school commitment (Kisilu, Kimani & Kombo, 2012), peer interaction (Berzin, 2010), economic status, race, and gender all play different roles in the shaping of learner educational aspirations (Gemici, Bednarz, Karmel & Lim, 2014; Khattab, 2015; Shumba & Naong, 2012).

While there is a growing body of research related to understanding learner achievement (Cai, Mok, Reddy & Stacey, 2016), our understanding of learner expectations in South Africa is limited. The Trends in International Mathematics and Science Study (TIMSS) investigated learner educational expectations. The responses provided by Grade 9 learners reflected surprisingly high aspirations, with 54.8% aspiring to complete a post graduate degree; 11.2% aspiring to complete a bachelor's or honour's degree; 16.2% aspiring to complete a tertiary certificate or diploma; 14.2% aspiring to finish upper secondary school; and 3.7% aspiring to complete lower secondary school. South African learner aspirations are of the highest of all countries that participated in TIMSS 2015 (Mullis, Martin, Foy & Hooper, 2016) and worthy of further exploration of how such aspirations are shaped.

Conceptual Framework

Theoretical stances aimed at understanding learner educational aspirations have tapped into historical, environmental and personal variables that might influence aspirations (Berzin, 2010; Khattab, 2015; Korhonen, Tapola, Linnanmäki & Aunio, 2016). While historical theoretical lenses have looked at race and how learners from economically disadvantaged groups in South Africa differ from their counterparts (Khattab, 2015), personal variables also contribute to level of aspiration, including attitudes, gender roles and expectations (Korhonen et al., 2016). The interplay of personal and environmental factors within this historical system underlies the bio-ecological perspective of development (Bronfenbrenner, 1994; Rojas-Drummond, 2016). Individual attributes, the micro-system (home and school), and the interaction of these elements demonstrate the role that different systems play in the positive development of an individual. The main thrust of the bio-ecological systems theory is that there is a need to look beyond the individual and extend our understanding of human behaviour to environmental factors that may play a salient part in a person's health (McLaren & Hawe, 2005). This theory also espouses that there is a link and a form of interdependence between individuals and their context (McLaren & Hawe, 2005) as well as an interaction between time, person, and processes (Bronfenbrenner, 1994). These processes are dependent on the characteristics of the individual, the environment and the developmental outcomes.

In this study, we explore gender as an individual characteristic that interacts with environmental factors such as home resources and school climate. In line with Bronfenbrenner's (1994) theorising, we conceptualised learner aspirations as being determined by the individual's characteristics, the microsystems of the home and school, and the interaction of both systems.

Relatedly, the self-system theory suggests that there is interaction between contextual characteristics and an individual's feelings of autonomy and competence (Connell & Wellborn, 1991). Accordingly, feelings of competence (belief in one's ability) will determine the kind of aspirations learners set for themselves. Following from this theoretical framework, the home and school provide learners with an opportunity to engage in different educational activities. In addition, the experience of the activity and the quality of interaction between learners and their parents at home and with the school furnishes adolescents with information about themselves in terms of their competency to fulfil personal goals (Skinner & Wellborn, 1994). It is against this background that we sought to explore the role of the home and school in the development of learner educational aspirations in the South African context using the Trends in International Mathematics and Science Study South Africa dataset (TIMSS-SA).

Literature Review
Gender and home resources
Personal variables commonly associated with learner educational aspirations include gender and socio-economic status (Khattab & Modood, 2018; Korhonen et al., 2016). The TIMSS Hong Kong dataset showed that Grade 8 girls (aged 14 years) had higher educational aspirations than boys (Guo, Marsh, Parker, Morin & Yeung, 2015). Similar findings were found among rural adolescents in Grades 9 to 12 in the United States of America (Meece, Askew, Agger, Hutchins & Byun, 2014). Zuze, Reddy, Juan, Visser, Winnaar and Hannan (2015) found that girls generally expressed greater motivation about their academic prospects compared to boys. Girls in fee-paying schools were particularly optimistic about their educational prospects. Meece et al. (2014) suggest that the recent breakdown in social and structural barriers for girls might explain their higher level of aspirations. Watson, McMahon, Foxcroft and Els (2010) differentiate between various types of occupational aspirations along gender dimensions. The authors intimated that black South African boys between 11 and 13 years from low socio-economic backgrounds in the Eastern Cape aspired to more investigative type occupations, while girls were interested in more social occupations.

Apart from gender, SES has been identified as a predictor of learner educational aspirations. The TIMSS datasets on the demographic characteristics

of learners, measures (among other items) socio-economic status in terms of resources to which a learner has access at home and at school. Research in Australia has revealed that learners from low SES homes tend to be poorly represented at higher education institutions (Gale & Parker, 2013); this is because the life opportunities (that determine aspirations) available to learners from low SES homes tends to be lower. However, some authors argue that the role of SES in shaping aspirations in earlier schooling years is not clear (Gale, Parker, Rodd, Stratton & Sealey, 2013; Gore et al., 2015), and that further research in this area is required. Gale, Parker, Rodd, et al. (2013) found that there were no appreciable differences in educational aspirations between students from low SES and middle SES backgrounds. Gore et al. (2015) argue that SES is moderately related to views of occupational prestige (a measure of educational aspirations) with higher SES students in Australia expressing interest in more prestigious occupations. However, the difference between the mean scores for educational aspirations among both low SES and high SES groups was relatively small. The authors explained that the result does not suggest that SES is not important for aspirations, but rather that the financial status of learners from low SES could serve as a motivating factor to set higher aspirations.

Generally, disadvantaged groups have lower aspirations (St Clair & Benjamin, 2011). In South Africa, the academic ambitions of learners in no-fee schools (a proxy for low socio-economic status) seem to lie at the extremes. On the one hand, one in five learners had low academic aspirations, with 5% planning to end their academic careers at Grade 9 level; 16% planning to complete their education at Grade 12 level. On the other hand, a surprising 34% of learners in no-fee schools aimed to complete a doctoral degree (Zuze, Reddy, Visser, Winnaar & Govender, 2017). To provide better insight, this preliminary analysis necessitates further exploration of the relationship between home resources (and school SES) and learner aspirations.

Parental involvement and school climate
Research has shown that learner educational aspirations are grounded in current learning experiences (Wilson & Somhlaba, 2016), with these being influenced by a number of factors, including school climate and parental involvement in the learner's life (Bojuwoye, Moletsane, Stofile, Moolla & Sylvester, 2014). The home and school environments are crucial because learners spend the majority of their time in both of these environments, and these are the primary environments where support for learning is needed. Mashau (2000) indicates that schools have a responsibility to create a supportive environment in which the uniqueness of each learner is appreciated, and the curriculum is designed to meet each

learner's specific educational needs. The school climate has implications for achievement, learning experiences, self-efficacy and the learner's outlook on their future trajectory, because it is not only instructional in nature, but also a social domain (Rubie-Davies, Peterson, Sibley & Rosenthal, 2015; Walkey, McClure, Meyer & Weir, 2013). Moreover, types of interactions with peers and teachers can motivate learners to be more engaged (Hynds, Averill, Hindle & Meyer, 2017), which could, in turn, predict aspiration level.

Mashau, Steyn, Van der Walt and Wolhuter (2008) argue that school support, including material resources, academic mentoring, and the school's psychological and social work services, should be directed towards specific learner needs to improve their school experience. Bojuwoye et al. (2014) confirmed these findings in a study done in the Western Cape province in South Africa, noting that the provision of books, teachers' supportive behaviour, and peer mentoring served as resources for learning among primary and high school learners. Supportive behaviour from fellow learners was also highlighted.

Using the TIMSS data for 14- and 15-year-olds across 12 countries, Buchmann and Dalton (2002) reveal that the individuals with whom learners interact play an important role in shaping their educational aspirations. Another TIMSS study done with 14- and 15-year-olds from 28 countries revealed that the school environment in which the young person develops also has an influence on educational aspirations (Dupriez, Monseur, Van Campenhoudt & Lafontaine, 2012). The institutional actions that remove barriers to learning have the potential to increase learners' self-esteem and aspirations in the educational domain (Bojuwoye et al., 2014, Mashau et al., 2008). This is because the support experienced has the potential to foster a sense of agency and to determine routes to achieving educational and career-oriented goals (Snyder, 2000).

As indicated, parental involvement in a learner's education tends to impact on their aspirations as a result of the experience of self-efficacy associated with parental support for education (Choi, Chang, Kim & Reio, 2015; El Nokali, Bachman & Votruba-Drzal, 2010). Parental involvement includes attending learners' extra-curricular activities, support for their educational development, and encouragement (Trusty, 1998). Trusty (1998) argues that parental support could mitigate the negative effect of a low SES background on aspirations. Moreover, parental involvement fosters positive attributes, a sense of responsibility and persistence through modelling (Choi et al., 2015). El Nokali et al. (2010) argue that parents' interactions with children have an impact on social and behavioural functioning, in addition to academic success. As such, parental involvement may improve socio-emotional skills, advance social skills and ensure fewer behav-

ioural problems (Iruka, Winn, Kingsley & Orthodoxou, 2011; Powell, Son, File & San Juan, 2010), which could, in turn, influence learners' self-belief about their aspirations.

In a related study, Wang and Sheikh-Khali (2014) conducted research among a group of 10th grade learners in the United States of America (USA) and found that school and home-based parental involvement and academic socialisation influenced learners' academic outcomes. These studies did not explore parental involvement and learner educational aspirations directly, but they highlight the crucial role that parents play in their child's education, which has implications for their aspirations. With a sample of Latino learners from low-income families in the USA, it was found that parental involvement in the form of sacrifices and the mother's educational aspirations predicted the educational expectations of learners (Ceballo, Maurizi, Suarez & Aretakis, 2014). Ceballo et al. (2014) argue that school-based parental involvement may be an important source of motivation and academic aspirations, because parental involvement reinforces learners' self-belief about their ability.

In attempting to explore the factors that influence life aspirations among learners in the Western Cape in South Africa, Hendricks, Savahl, Mathews, Raats, Jaffer, Matzdorff, Dekel, Larke, Magodyo, Van Gesselleen and Pedro (2015) indicate that the following were important in shaping the life aspirations of learners in low-income communities: hope, the ability to make the right decisions, academic progress, family functioning, support from school, and substance abuse.

The findings point to personal, interpersonal and environmental factors that impact on aspirations. Using the bio-ecological systems theory as a guiding framework, we explored a number of factors that impact on the level of learner educational aspirations in a nationally representative sample of Grade 9 learners in South Africa.

Schooling in South Africa

South Africa is still struggling to improve the quality of education: raising the achievement levels of all learners, decreasing inequalities between the affluent and the poor, and accelerating the rate of progress in achieving the set outcomes. The effects of the apartheid era still persist and manifest as a large income disparity across racial groups, a low level of education of the population, and poor infrastructure in low-income communities (Jarvie, 2014; McKeever, 2017; Salisbury, 2016). This has necessitated state involvement in the provision of resources for schooling to catch up on historical backlogs, as well as social grants to support families. Given the high level of income poverty and unemployment, the government subsidises school fees for just over two-thirds of school-going learners. There-

fore, South African public schools are categorised as either fee-paying or no-fee-paying schools. The general description of learners in no-fee-paying schools is that they come from low-income households, live in poorer communities, attend schools with fewer resources and have teachers with a lower level of specialist knowledge. One-third of learners attend fee-paying schools that are often better resourced; while the majority of these learners are from middleclass neighbourhoods. Besides government schools, South Africa also has independently governed schools. Independent schools are diverse in terms of conditions and some even receive a state subsidy, but they generally have access to significantly more private resources because of the tuition fees that parents pay (Mestry, 2017; Zuze et al., 2015). For the purpose of this study, we classified schools into fee-paying (independent and fee-paying public schools) and no-fee-paying public schools. This is taken as a proxy for the SES of the school. The TIMSS-SA 2015 sample comprised 65% learners who attended public no-fee schools and 35% who attended fee-paying schools (31% public fee-paying and 4% independent).

The current study
Although there has been some exploration of the factors that impact on learner achievement in the South African context (Cai et al., 2016; Zuze et al., 2015), there is a gap in the research in terms of factors that could predict aspirations. In this study we used the TIMSS-SA 2015 national dataset to explore the impact of gender, home resources, school SES and climate, and parental involvement on shaping learners' educational aspirations. Our findings might be of interest to local policy and scholarly audiences interested in understanding how the level of educational aspiration of learners are shaped using a contextually-relevant lens. These findings point to the need to incorporate environmentally driven factors in both home and school interventions to enhance educational aspirations.

We applied a bio-ecological systems theory of development, which tapped into the relationship between the individual and the context in terms of enhancing learner educational aspiration. Therefore, we aimed to determine the relationship between gender, parental involvement, socio-economic status (at home and school), school climate, and learner educational aspirations in the South African context. Using SEM, we tested the overall fit of the model of the hypothesised relationships across the observed and latent variables (see Figure 1). SEM is a multivariate statistical analysis that is used to determine the structural relations among a number of observed and latent variables simultaneously, while also taking error variance into account. SEM allows us to estimate the fitness of structured relationships (model) across variables and to test theoretical propositions with non-experimental data, which cannot be done using a multiple regression model.
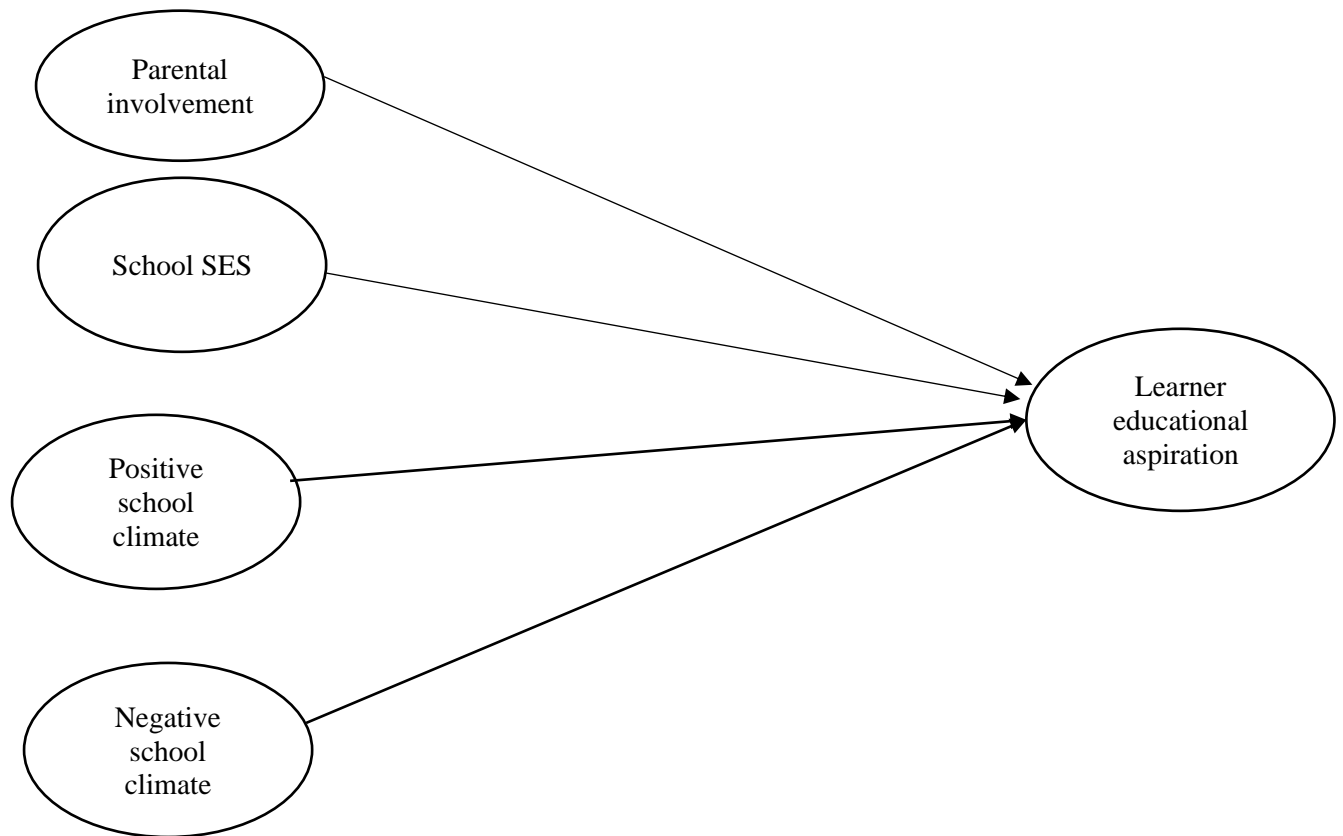
Figure 1 Hypothesised relationship across variables

Hypotheses
1) Male and female learners differ in terms of the level of educational aspirations.
2) Parental involvement is positively related to the learner's educational aspirations.
3) Learners with more home resources have a higher level of educational aspirations.
4) School climate is related to the learner's educational aspirations, with a positive school climate influencing aspirations positively.
5) School SES has a direct effect on learner educational aspirations, with learners at fee-paying schools having a higher level of educational aspirations.

Methodology
Sampling and Participants
The Department of Basic Education's schools database served as the sampling frame for schools selected for the study. Of the 298 schools sampled randomly, 285 participated in the study. We used a two-stage stratified cluster design to select a sample of eligible schools. Stratification was by province, language of learning and teaching (LOLT) (English, Afrikaans and both), and school type (public and independent schools). The sample was also implicitly stratified by the school poverty index and location (rural and urban). This was followed by randomly selecting an intact mathematics and science class from each sampled school. A total of 11,969 learners participated in the study (5,248 females and 5,181 males) with an average age of 15.7 years.

Procedures and Ethical Considerations
The TIMSS 2015 data were gathered as part of a trend study involving 39 countries. Prior to administration of the questionnaires, we contacted schools to seek permission, to obtain class lists and to arrange an appointment with the school to administer the study. The main survey was administered by an external fieldwork company that had the appropriate qualifications and experience in the field of educational assessment. The TIMSS-SA team worked with the Department of Basic Education and provincial coordinators to ensure that the study was successfully administered. All data were captured using a software program developed by the International Association for the Evaluation of Educational Achievement (IEA), called the Data Management Expert (DME), and data were double-captured by the TIMSS-SA team to verify against original capture. Ethical clearance was obtained from the Human Sciences Research Council's Research Ethics Committee. Clearance was also obtained from the Department of Education and each of the participating schools. Prior to data collection the learners provided informed assent through the principals.

Instruments: TIMSS and PIRLS International Study Centre (Mullis et al., 2016)
TIMSS is a cross-national assessment of the mathematics and science knowledge of fourth and eighth grade learners; it has been conducted by the IEA

since 1995. The TIMSS and PIRLS International Study Centre in Boston, USA, is responsible for the study. It uses the results from achievement tests to estimate achievement scores, and questionnaires completed by principals, teachers and learners to determine contextual factors that predict or explain achievement.

In this study, we included the following variables and indices from the learner questionnaire: gender (Question 1); home resource scale (Question 6); school SES (HR and SS, with both serving as socio-economic indices); parental involvement (Question 28 - PI); school climate (Question 15 - SC). Items on the home resource scale included the presence or absence of learning materials and other amenities in the home. We also determined whether school SES (fee-paying and no-fee-paying) was a predictor of learner educational aspirations. Parental involvement was measured using items that tap into the extent to which parents show interest in learners' homework and assist with school assignments; this was scored on a Likert-type scale ranging from 1 (*Agree a lot*) to 4 (*Never or almost never*). We reverse coded to ensure that a higher value corresponded to a positive response.

Regarding the school climate, we assessed the extent to which learners were eager to be at school and the extent to which they experienced support from their peers (positive school climate – PSC). We also assessed the negative school climate (NSC), which involved bullying and a lack of peer support. Both school climates were reverse coded to ensure that a higher value reflected a higher response. School climate was also scored on a Likert-type scale ranging from 1 (*Agree a lot*) to 4 (*Never or almost never*); in one case, a higher response reflected a positive climate and the other a negative climate.

Long-term educational aspirations (Question 8) required of learners to indicate the highest level of education they expected to attain on a scale ranging from 1 (*Finish Grade 9*) to 8 (*Complete doctoral degree*). We used a single-item measure of learner educational aspiration, because this was the only item on the TIMSS questionnaire that was used to test this variable.

Data Analysis

Analysis of the data was performed using the Statistical Package for Social Sciences (SPSS) and Mplus software (Muthen & Muthen, 1998-2015). In order to understand the level of aspirations, we developed a theoretical model, based on previous research, and hypothesised that learner educational aspirations are influenced by school climate, parental involvement and school SES. We did not include gender and home resources in the model, because our preliminary analysis resulted in poor model fit indices. Instead, we explored gender and home SES group differences in level of educational aspirations using analysis of variance (ANOVA). The poor fit indices

imply that the hypothesised model does not fit accurately with the data or reflect what is going on in the sample. Moreover, this finding on poor fit indices is linked to the lack of theoretical support for the model when testing relationships across gender, home resources, school climate, parental involvement and school SES; therefore, it was necessary to explore group differences (gender and home resources) and levels of aspirations. It is important to mention that we limited our analysis to the above-mentioned items because the scope of this paper was to test some and not all variables that might impact directly on learner aspirations.

Structural equation modelling is a multivariate statistical analysis technique used to analyse structural relationships across variables. This technique is a combination of factor analysis and multiple regression analysis, which is used to analyse the structural relationship between measured variables and latent constructs. As part of the structural equation modelling, we tested a measurement model that looked at how observed variables reflect the overall construct being measured. Using the ultimate structural model we aimed to test the direct association between parental involvement, school climate, school SES, and learner educational aspirations. The best measurement model for parental involvement and positive and negative school climate was determined. The observed variables for each of the above-mentioned variables were used to create latent variables to depict relationships across the variables.

We took two steps to determine if the observed data fitted the sample. We ran a measurement model to determine the extent to which the observed variables of each latent variable loaded strongly on their respective latent variables. After testing the measurement model, we estimated a structural model comprising parental involvement, school climate, school SES, and learner educational aspirations. Learner educational aspirations served as the outcome variable. The criteria for determining whether a model had good fit indices was determined by the following cut-off points: comparative fit index (CFI) = > .90; Tucker-Lewis index (TLI) = > .90; root mean square error of approximation (RMSEA) = < .08; standardised root mean square (SRMR) = < .08. These fit indices determine the extent to which the model that is tested fits well with the data. We did not report on the chi square due to its sensitivity to sample size (Satorra & Bentler, 2001).

The internal reliability of the home resource scale (.71), parental involvement (.93), positive school climate (.91), and negative school climate (.94) were determined using Cronbach's alpha coefficient.

Results

The ANOVA results show that female learners in Grade 9 had significantly higher levels of aspirations compared to their male counterparts: $F(1, 11{,}714) =$

32.193, $p < .05$. The results also reveal that learners at fee-paying schools had higher levels of aspirations: $F(1, 11{,}716) = 205.27$, $p < .05$. Learners with fewer home resources had a significantly lower level of educational aspiration than their counterparts: $F(1, 11{,}614) = 131.83$, $p < .05$ with greater resources. Together, these findings show that socio-economic status – reflected in either school SES or home resources – is related levels of aspiration.

Table 1 below is a summary of the inter-correlations using existing indexes on school climate, parental involvement, and learner educational aspirations created in the TIMSS data set. As expected, there was a positive correlation between positive school climate and learner aspirations. However, contrary to the hypothesised direction of the relationship, there was a negative correlation between parental involvement and learner educational aspiration, and a positive correlation between negative school climate and educational aspirations. This implies that, irrespective of a negative school climate, aspirations are high.

Table 1 Inter-variable correlations

	LA	PSC	NSC	PI
LA	1			
PSC	.09*	1		
NSC	.12*	.18*	1	
PI	-.12*	-.03*	-.04*	1

Note. *$p < .01$; LA = learners' educational aspirations.

Measurement Model

The hypothesised measurement model that shows the extent to which the various latent variables (positive and negative school climate, and parental involvement) are represented by their indicators, presented a good fit with the data. Each of the latent variables were tested as unidimensional measures. We tested whether or not the observed variables on the scales actually measured their intended latent construct. The following fit indices emerged: CFI = .951; TLI = .944; RMSEA = .034 [90% CI: .033, .036]; SRMR = .030. The criteria for an acceptable model fit for these goodness-of-fit indices were defined as CFI $\geq$ .90; RMSEA < .08; SRMR < .08 (Hu & Bentler, 1999). Emerging standardised factor loadings were significant and considered high for the indicators (see Figure 2). Our findings show that the observed variables on each scale actually reflected the intended construct.
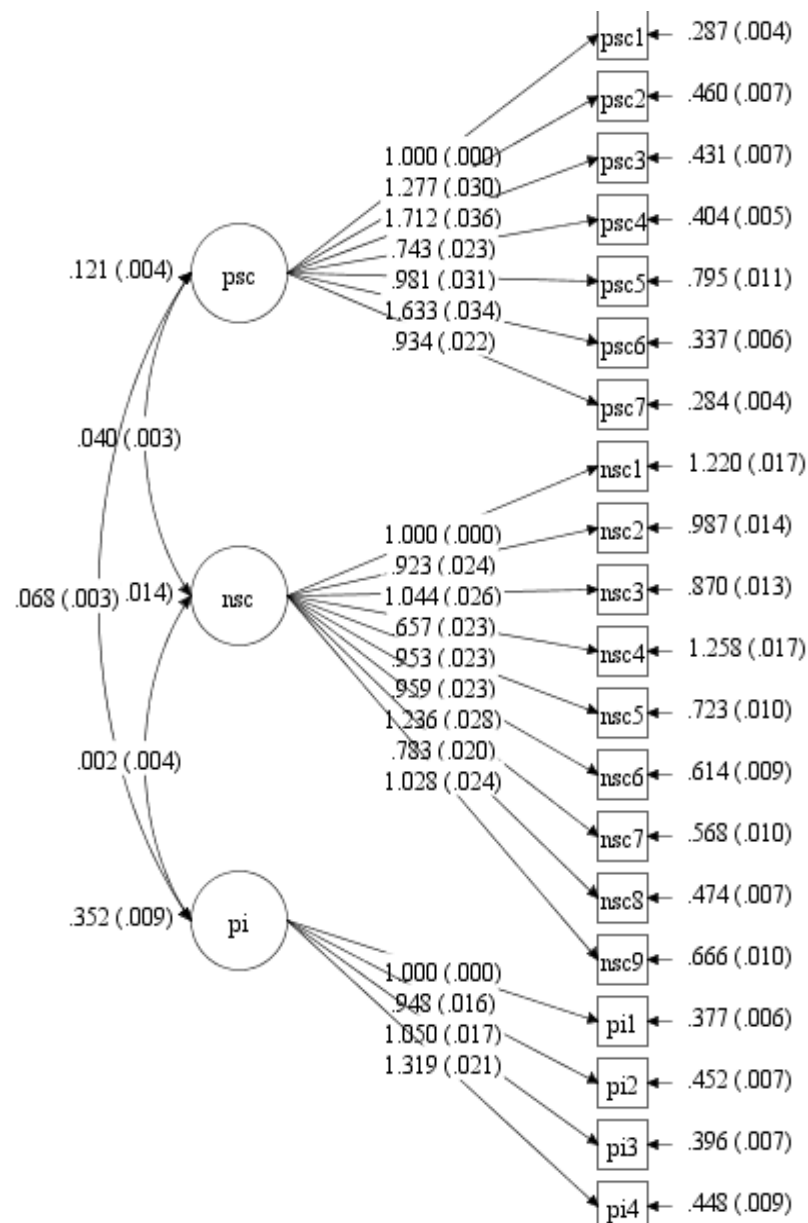
Figure 2 Measurement model

Structural Model

A structural model that shows the hypothesised relationships between the latent constructs of parental involvement, school SES, positive and negative school climate, and learner educational aspiration, was tested. Before the direct effects could be tested, inter-variable correlations were computed (see Table 1). The hypothesised model had the following fit indices: CFI = .931; TLI = .921; RMSEA = .038 [90% CI: .037, .039]; SRMR = .03.

The findings indicate that, in order to determine the predictors of learner aspiration, it is important to consider how parental involvement, school SES, and positive and negative school climate shape these aspirations. The model shows that a significant direct relationship existed between learner educational aspirations and a positive school climate: b = .01, [95% CI: .01, .01], p < .05. A significant positive relationship also existed between learner aspiration and negative school experiences: b = .05, [95% CI: .04, .04], p < .05 (see Figure 3). The relationship between parental involvement and learner educational aspiration was not significant. School SES was found to have a direct effect on learner educational aspirations: b = .04, [95% CI: .04 .04], p < .05.

We also compared the hypothesised relationships across different school SES and found similar patterns of structural relations between parental involvement, school climate, and learner educational aspirations for both fee-paying and no-fee-paying schools. This implies that the socio-economic status

of a school does not impact on the extent to which school climate and parental involvement influence learner educational aspirations.

Discussion

The aim of this study was to explore some determinants (gender, school climate, parental involvement, and home and school SES) of learner educational aspirations in the South African context using a nationally representative dataset comprising a sample of Grade 9 learners who participated in the 2015 international TIMSS study. Overall, South Africa's achievement was one of the lowest of all participating countries, but educational aspirations (which is arguably linked to achievement) were very high.

Given that there is evidence of a relationship between aspirations and achievement (Khattab, 2015; Yu, Frempong & Winnaar, 2015), and that the high aspirations among Grade 9 learners do not seem to be reflected in levels of achievement, it is worthwhile to try to understand how these aspirations were formed in the first place. In this context, we looked at the different predictors of learner aspiration. The following variables were predicted to have a direct effect on learner educational aspirations: parental involvement, school climate and school SES. We found that despite the home and school contexts of learners, learners generally had a high level of educational aspirations. This is in line with previous TIMSS-SA studies (Zuze et al., 2017).
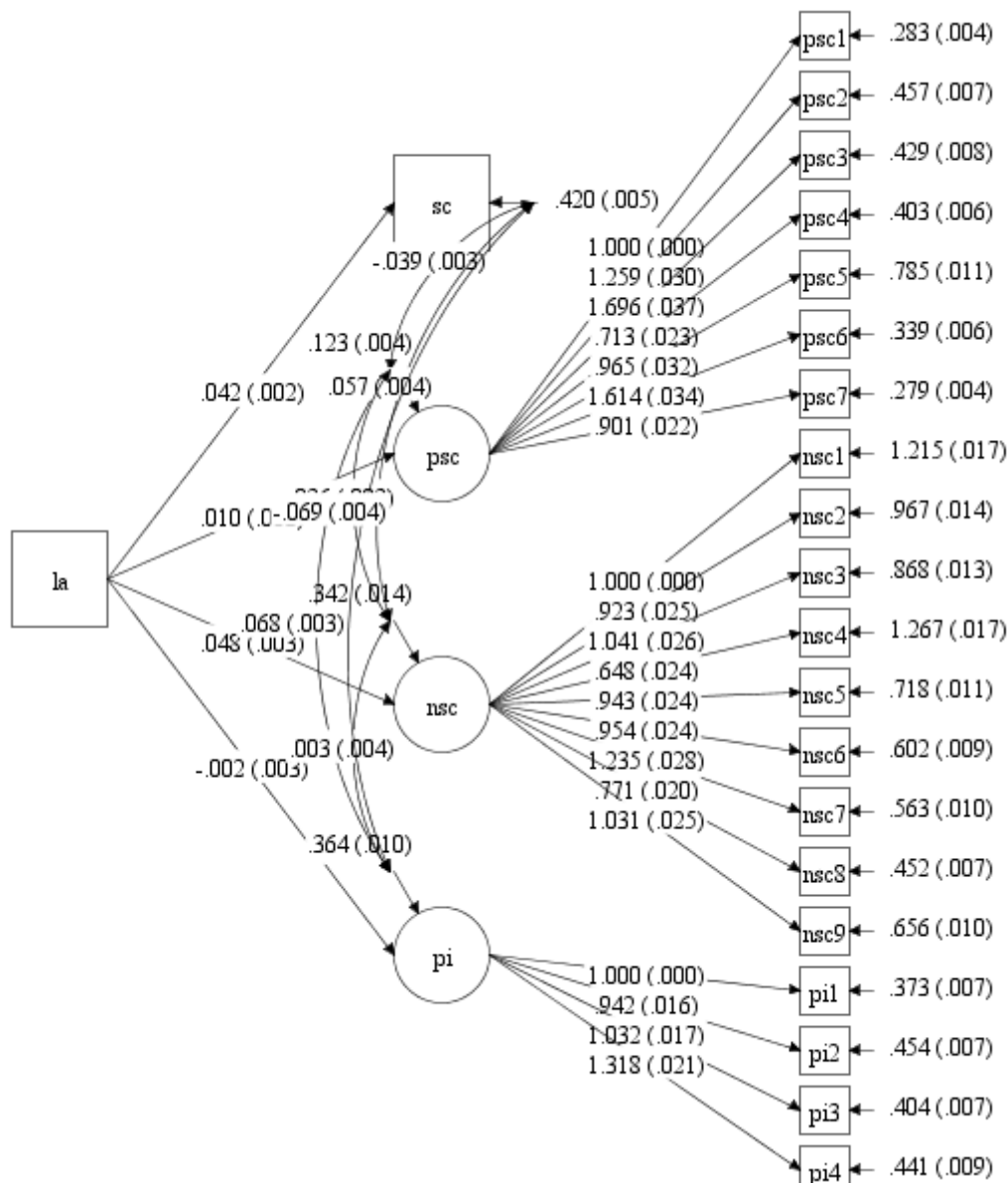

Figure 3 Structural model

The overall model fit indices for both the measurement and structural model showed an acceptable

model fit. Our findings suggest that the tools used for measuring each of the latent variables have

sound psychometric properties. In addition, the hypothesised model was a good representation of the pattern of relationships across the variables. The rest of the results of the study are discussed in depth below.

We found that males and females differed in terms of level of aspiration, with females displaying a significantly higher level of educational aspiration. Our findings are in line with those of previous studies that show that females tend to have higher educational aspirations (Guo et al., 2015; Meece et al., 2014; Zuze et al., 2015). Meece et al. (2014) argue that the structural barriers that were previously preventing females from aspiring to higher educational pursuits had been addressed by new policies. The gender differences point to the need to consider group differences when planning programmes that are targeted at building higher levels of educational aspiration among learners.

We hypothesised that an increase in home resources would result in higher educational aspirations. Confirming our hypothesis, the data showed that learners with fewer home resources had lower educational aspirations. Given that the economic landscape of South Africa is relatively fragile compared to high-income countries, it was expected that SES would impact on learner educational aspirations. In line with our findings, Cosser (2016) demonstrates that among a sample of Grade 12 learners in South Africa, higher SES predicted higher aspirations, and that these learners with high aspirations tended to enrol in degree programmes, while low SES students with lower aspirations were more likely to drop out or enrol in diploma programmes. The study shows that home SES remains an important determinant of aspiration and its fulfilment. Stevens (2018) further argues that SES serves as a background characteristic that determines aspirations and the attainment level of young people. Related to the low educational aspirations among low SES learners based on their home resources, we found that learners attending fee-paying (high SES) schools had slightly higher levels of aspirations. This is line with Zuze et al. (2017) who found that although a certain percentage of no-fee paying learners had high levels of aspirations, a greater proportion of learners with higher educational aspirations emerged from the fee-paying group. Together, these findings point to the considerable importance of home and school resources in determining educational aspirations. The absence of resources seems to affect learners' self-belief in their abilities and this, in turn, affects the aspirations they set for themselves.

Our findings on gender differences and home resources being related to learner aspirations provides support for the bio-ecological systems theory. Based on the findings of the study, it is plausible to indicate that developing aspirations as a developmental outcome and proximal process for learners is dependent on the interaction between gendered characteristics and the resources available in the home as a micro-system. Bronfenbrenner (1994) argues that the micro-system has the most direct influence on proximal processes, because the child interacts directly with players in this system. Our study shows that interactions based on the number of resources is key for aspirations, because these resources determine the opportunities by which learners can shape their aspirations for the future.

We also hypothesised that a positive school climate characterised by a sense of belonging would influence learner educational aspirations positively. This hypothesis was confirmed. We found that a positive school climate resulted in higher levels of educational aspiration. Our findings are supported by a number of studies that indicate that school support, teachers' behaviour, peer interactions, and the overall school environment influence educational aspirations (Bojuwoye et al., 2014; Dupriez et al., 2012; Mashau et al., 2008). This is because significant others and structural factors create the context for learners to develop ideas about their capability and what they can achieve in life. This is in line with well-being research that highlights the importance of school-related support for mental health, which includes ideas of self-efficacy and learners' ability to succeed in their educational pursuits (Wilson & Somhlaba, 2018). However, the unexpected direction of the relationship between learner educational aspiration and negative school climate might imply that negative circumstances could motivate learners to set higher aspirations to escape their current conditions. There is a passionate public discourse on the importance of education for upward mobility and breaking out of the cycles of poverty, which could have shaped the somewhat unrealistic expectations, even in non-supportive school climates.

Schools also serves as micro-systems for learners, as they have frequent interactions with peers and teachers who provide mental and social space for thinking about the future. Learner educational aspirations seem to be influenced by the school climate also because processes such as teacher-learner relationships and peer-to-peer relationships that enhance a sense of belonging provide learners with ideas about their abilities and fosters positive self-evaluation (Wilson & Somhlaba, 2018) that might predict educational aspirations.

Implications of the Study
Overall, our findings show that SES, in the form of home and school resources, as well as school climate, are important for developing aspirations. Given that the need to experience a sense of belonging at school increased aspirations, schools in South Africa should ensure that they serve as both a learning space and a social one where learners are continuously developing ideas about who they are and what their capabilities are. Interventions targeted at

improving learner aspirations should include programmes that foster a sense of belonging and building of social skills by learners. This is in line with the work of Wilson and Somhlaba (2018) who note that, among adolescents in deprived contexts in Ghana, support from peers and teachers was more crucial than support from home. This was because those adolescents had come to terms with the lack of resources at home and seemed to rely on the school for emotional, material and social support. This also implies that government subsidies are required, not only to meet material needs, but also to provide a psychological space where learners can set higher aspirations for themselves. Therefore, as a long-term goal, greater efforts need to be geared towards reducing unequal resources in schools while also improving the school climate. The school is an important institution, especially for learners from low-resourced home environments, therefore, it is important to strengthen schools for them to play a positive role in shaping learners' educational aspirations.

To the best of our knowledge, this was the first South African study in which a model that predicts learner aspirations using a nationally representative dataset was tested. A unique contribution of this study is the finding that in order to see tangible improvement in learner educational aspirations, the combined contribution of home and school SES, as well as positive school climate, must be considered. Previous studies have explored these factors in isolation and provided only some information on the antecedents of learner aspirations. Our study shows that learners require resources at home and at school to set realistic aspirations and strive towards achieving these aspirations. Additionally, our study also demonstrates that the impact of a positive school climate on learner educational aspiration might be more substantial compared to parental interaction and negative school climate. This could be because of the positive self-evaluation that a sense of belonging fosters over and above the absence of support.

Limitations of the Study
The cross-sectional nature of the study makes it difficult to draw conclusions regarding causality. Some unexpected findings included the non-significant relationship between parental involvement and learner educational aspirations, and the positive relationship between negative school climate and aspirations. Although we have explained some of these findings, we suggest that a need exists for future research to further examine how school climate, especially a negative school climate, might affect educational aspirations. It is also likely that complimentary qualitative research, which seeks an in-depth understanding of how these variables are related, would add more knowledge to this area of study. Given that the study included only one measure of aspirations, future studies could include other measures, such as occupational aspirations.

Authors' Contributions
AWF wrote the manuscript and conducted all statistical analyses. AWF and VR conceptualised the manuscript and VR wrote the methodology section while providing guidance on discussion of the findings. All authors reviewed the final manuscript.

References
Berzin SC 2010. Educational aspirations among low-income youths: Examining multiple conceptual models. *Children & Schools*, 32(2):112–124. https://doi.org/10.1093/cs/32.2.112

Bojuwoye O, Moletsane M, Stofile S, Moolla N & Sylvester F 2014. Learners' experiences of learning support in selected Western Cape schools. *South African Journal of Education*, 34(1):Art. # 750, 15 pages. https://doi.org/10.15700/201412121002

Bronfenbrenner U 1994. Ecological models of human development. In U Bronfenbrenner (ed). *International Encyclopedia of Education* (2nd ed., Vol. 3). Oxford, England: Elsevier.

Buchmann C & Dalton B 2002. Interpersonal influences and educational aspirations in 12 countries: The importance of institutional context. *Sociology of Education*, 75(2):99–122. https://doi.org/10.2307/3090287

Cai J, Mok IAC, Reddy V & Stacey K 2016. *International comparative studies in mathematics: Lessons for improving students' learning*. Cham, Switzerland: Springer. https://doi.org/10.1007/978-3-319-42414-9

Ceballo R, Maurizi LK, Suarez GA & Aretakis MT 2014. Gift and sacrifice: Parental involvement in Lationo adolescents' education. *Cultural Diversity and Ethnic Minority Psychology*, 20(1):116–127. https://doi.org/10.1037/a0033472

Choi N, Chang M, Kim S & Reio TG Jr 2015. A structural model of parent involvement with demographic and academic variables. *Psychology in the Schools*, 52(2):154–167. https://doi.org/10.1002/pits.21813

Connell JP & Wellborn JG 1991. Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In MR Gunnar & LA Sroufe (eds). *The Minnesota symposia on child psychology* (Vol. 23). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cosser MC 2016. Differential pathways of South African students through higher education: Settling for less, but learning to like it. PhD thesis. Johannesburg, South Africa: University of the Witwatersrand. Available at http://wiredspace.wits.ac.za/bitstream/handle/10539/19604/Cosser%20thesis%20final%20November

%202015%20%282%29.pdf?sequence=1&isAllow
ed=y. Accessed 6 May 2020.

Dupriez V, Monseur C, Van Campenhoudt M & Lafontaine D 2012. Social inequalities of post-secondary educational aspirations: Influence of social background, school composition and institutional context. *European Educational Research Journal*, 11(4):504–519. https://doi.org/10.2304/eerj.2012.11.4.504

El Nokali NE, Bachman HJ & Votruba-Drzal E 2010. Parent involvement and children's academic and social development in elementary school. *Child Development*, 81(3):988–1005. https://doi.org/10.1111/j.1467-8624.2010.01447.x

Fraser M & Garg R 2011. Educational aspirations. In RJR Levesque (ed). *Encyclopedia of Adolescence*. New York, NY: Springer. https://doi.org/10.1007/978-1-4419-1695-2_147

Gale T & Parker S 2013. *Widening participation in Australian higher education* (Report submitted to HEFCE and OFFA). Leicester, England: CFE Research. Available at http://hdl.handle.net/10536/DRO/DU:30064915. Accessed 15 May 2018.

Gale T, Parker S, Rodd P, Stratton G & Sealey T 2013. S*tudent aspirations for higher education in central Queensland: A survey of school students' navigational capacities*. Melbourne, Australia: Centre for Research in Education Futures and Innovation (CREFI), Deakin University. Available at http://dro.deakin.edu.au/eserv/DU:30064916/gale-studentaspirations-2013.pdf. Accessed 15 May 2018.

Gemici S, Bednarz A, Karmel T & Lim P 2014. *The factors affecting the educational and occupational aspirations of young Australians* (Longitudinal Surveys of Australian Youth Research Report 66). Adelaide, Australia: National Centre for Vocational Education Research. Available at https://www.ncver.edu.au/__data/assets/file/0021/9516/factors-affecting-aspirations-2711.pdf. Accessed 15 May 2018.

Gore J, Holmes K, Smith M, Southgate E & Albright J 2015. Socioeconomic status and the career aspirations of Australian school students: Testing enduring assumptions. *The Australian Educational Researcher*, 42:155–177. https://doi.org/10.1007/s13384-015-0172-5

Guo J, Marsh HW, Parker PD, Morin AJS & Yeung AS 2015. Expectancy-value in mathematics, gender and socioeconomic background as predictors of achievement and aspirations: A multi-cohort study. *Learning and Individual Differences*, 37:161–168. https://doi.org/10.1016/j.lindif.2015.01.008

Hendricks G, Savahl S, Mathews K, Raats C, Jaffer L, Matzdorff A, Dekel B, Larke C, Magodyo T, Van Gesselleen M & Pedro A 2015. Influences on life aspirations among adolescents in a low-income community in Cape Town, South Africa. *Journal of Psychology in Africa*, 25(4):320–326. https://doi.org/10.1080/14330237.2015.1078089

Hu LT & Bentler PM 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling: A Multidisciplinary Journal*,

6(1):1–55. https://doi.org/10.1080/10705519909540118

Hynds A, Averill R, Hindle R & Meyer L 2017. School expectations and student aspirations: The influence of schools and teachers on indigenous secondary students. *Ethnicities*, 17(4):546–573. https://doi.org/10.1177/1468796816666590

Iruka IU, Winn DMC, Kingsley SJ & Orthodoxou YJ 2011. Links between parent-teacher relationships and kindergartners' social skills: Do child ethnicity and family income matter? *The Elementary School Journal*, 111(3):387–408. https://doi.org/10.1086/657652

Jarvie G 2014. *Class, race and sport in South Africa's political economy*. London, England: Routledge.

Khattab N 2015. Students' aspirations, expectations and school achievement: What really matters? *British Educational Research Journal*, 41(5):731–748. https://doi.org/10.1002/berj.3171

Khattab N & Modood T 2018. Accounting for British Muslim's educational attainment: Gender differences and the impact of expectations. *British Journal of Sociology of Education*, 39(2):242–259. https://doi.org/10.1080/01425692.2017.1304203

Kisilu J, Kimani E & Kombo D 2012. Factors influencing occupational aspirations among girls in secondary schools in Nairobi region - Kenya. *Prime Research on Education*, 2(4):244–251. Available at https://ir-library.ku.ac.ke/bitstream/handle/123456789/7741/Factors%20influencing%20occupational%20aspirations%20among.pdf?sequence=5&isAllowed=y. Accessed 10 May 2018.

Korhonen J, Tapola A, Linnanmäki K & Aunio P 2016. Gendered pathways to educational aspirations: The role of academic self-concept, school burnout, achievement and interest in mathematics and reading. *Learning and Instruction*, 46:21–33. https://doi.org/10.1016/j.learninstruc.2016.08.006

Mashau S, Steyn E, Van der Walt J & Wolhuter C 2008. Support services perceived necessary for learner relationships by Limpopo educators. *South African Journal of Education*, 28(3):415–430. https://doi.org/10.15700/saje.v28n3a183

Mashau TS 2000. Relevant support services in the education system of the Northern Province. MEd dissertation. Potchefstroom, South Africa: Potchefstroomse Universteit vir Christelike Hoër Onderwys. Available at https://repository.nwu.ac.za/handle/10394/10410. Accessed 3 May 2020.

McKeever M 2017. Educational inequality in apartheid South Africa. *American Behavioral Scientist*, 61(1):114–131. https://doi.org/10.1177%2F0002764216682988

McLaren L & Hawe P 2005. Ecological perspectives in health research. *Journal of Epidemiology & Community Health*, 59:6–14. https://doi.org/10.1136/jech.2003.018044

Meece JL, Askew KJS, Agger CA, Hutchins BC & Byun SY 2014. Familial and economic influences on the gender-related educational and occupational aspirations of rural adolescents. *Journal of Educational and Developmental Psychology*, 4(1):238–257. https://doi.org/10.5539/jedp.v4n1p238

Mestry R 2017. Empowering principals to lead and manage public schools effectively in the 21st century. *South African Journal of Education*, 37(1):Art. # 1334, 11 pages. https://doi.org/10.15700/saje.v37n1a1334

Mullis IVS, Martin MO, Foy P & Hooper M 2016. *TIMSS 2015 international results in mathematics*. Chestnut Hill, MA: TIMMS & PIRLS International Study Center, Lynch School of Education, Boston College. Available at http://timssandpirls.bc.edu/timss2015/international-results/wp-content/uploads/filebase/full%20pdfs/T15-International-Results-in-Mathematics.pdf. Accessed 7 May 2020.

Muthen LK & Muthen BO 1998-2015. *Mplus user's guide: The comprehensive modeling program for applied researchers*. Los Angeles, CA: Muthen & Muthen.

Powell DR, Son SH, File N & San Juan RR 2010. Parent–school relationships and children's academic and social outcomes in public school pre-kindergarten. *Journal of School Psychology*, 48(4):269–292. https://doi.org/10.1016/j.jsp.2010.03.002

Rojas-Drummond SM 2016. Explaining literacy development from a bioecological systems framework: Affordances and challenges. *Human Development*, 59:188–194. https://doi.org/10.1159/000449263

Rubie-Davies CM, Peterson ER, Sibley CG & Rosenthal R 2015. A teacher expectation intervention: Modelling the practices of high expectation teachers. *Contemporary Educational Psychology*, 40:72–85. https://doi.org/10.1016/j.cedpsych.2014.03.003

Ryan RM & Deci EL 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1):68–78. https://doi.org/10.1037/0003-066X.55.1.68

Salisbury T 2016. Education and inequality in South Africa: Returns to schooling in the post-apartheid era. *International Journal of Educational Development*, 46:43–52. https://doi.org/10.1016/j.ijedudev.2015.07.004

Satorra A & Bentler PM 2001. A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, 66:507–514. https://doi.org/10.1007/BF02296192

Shumba A & Naong M 2012. Factors influencing students' career choice and aspirations in South Africa. *Journal of Social Sciences*, 33(2):169–178. https://doi.org/10.1080/09718923.2012.11893096

Skinner EA & Wellborn JG 1994. Coping during childhood and adolescence: A motivational perspective. In DL Featherman, RM Lerner & M Perlmutter (eds). *Life-span development and behavior* (Vol. 12). Hillsdale, NJ: Lawrence Erlbaum Associates.

Snyder CR 2000. Hypothesis: There is hope. In CR Snyder (ed). *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic Press.

St Clair R & Benjamin A 2011. Performing desires: The dilemma of aspirations and educational attainment. *British Educational Research Journal*, 37(3):501–517. https://doi.org/10.1080/01411926.2010.481358

Stevens S 2018. Predicting the aspirations of vocational learners: A pilot study. *Practice and Evidence of the Scholarship of Teaching and Learning in Higher Education*, 13(1):74–99. Available at http://www.pestlhe.org/index.php/pestlhe/article/view/188. Accessed 14 April 2020.

Trusty J 1998. Family influences on educational expectations of late adolescents. *The Journal of Educational Research*, 91(5):260–271. https://doi.org/10.1080/00220679809597553

Walkey FH, McClure J, Meyer LH & Weir KF 2013. Low expectations equal no expectations: Aspirations, motivation, and achievement in secondary school. *Contemporary Educational Psychology*, 38(4):306–315. https://doi.org/10.1016/j.cedpsych.2013.06.004

Wang MT & Sheikh-Khalil S 2014. Does parental involvement matter for student achievement and mental health in high school? *Child Development*, 85(2):610–625. https://doi.org/10.1111/cdev.12153

Watson M, McMahon M, Foxcroft C & Els C 2010. Occupational aspirations of low socioeconomic black South African children. *Journal of Career Development*, 37(4):717–734. https://doi.org/10.1177/0894845309359351

Wilson A & Somhlaba NZ 2016. Dynamics and perceptions of social support and their impact on well-being: A qualitative study of adolescents in Northern Ghana. *International Journal of Mental Health Promotion*, 18(5):263–275. https://doi.org/10.1080/14623730.2016.1243485

Wilson A & Somhlaba NZ 2018. Gender, age, religion and positive mental health among adolescents in a Ghanaian socio-cultural context. *Child Indicators Research*, 11:1131–1158. https://doi.org/10.1007/s12187-017-9495-2

Yu K, Frempong G & Winnaar L 2015. Improving learner achievement in South Africa: A policy proposition for a growth mindset approach to enhance learner support at basic education level. *HSRC Policy Brief*, February. Available at http://repository.hsrc.ac.za/handle/20.500.11910/2079. Accessed 14 April 2020.

Zuze TL, Reddy V, Juan A, Visser M, Winnaar L & Hannan S 2015. Have we reached gender equity in mathematics education?: Evidence from TIMSS South Africa 2011. *HSRC Policy Brief*, October.

Zuze L, Reddy V, Visser M, Winnaar L & Govender A 2017. *TIMSS 2015 Grade 9 national report: Understanding mathematics and science achievement amongst Grade 9 learners in South Africa*. Cape Town, South Africa: Human Sciences Research Council Press. Available at https://www.iea.nl/sites/default/files/2019-04/TIMSS%202015%20Grade%209%20National%20Report%20South%20Africa.pdf. Accessed 8 May 2020.