Studies in Learning and Teaching
Homepage: https://scie-journal.com/index.php/SiLeT
Email: silet@scie-journal.com

p-ISSN: 2722-399X; e-ISSN: 2722-1857
SiLeT, Vol. 3, No. 1, April 2022: 46-54

School-Related Irrational Beliefs as Predictor of Academic Motivation among Secondary School Learners

B M Diale[1], *V Victor-Aigbodion[1]
[1]Department of Educational Psychology, University of Johannesburg, 2006, South Africa

Article Info

Article history:

Received February 22, 2022
Revised March 12, 2022
Accepted March 29, 2022
Available Online April 30, 2022

Keywords:

Academic motivation
Irrational beliefs
Secondary school learners

ABSTRACT

Learners' thoughts are important for academic motivation and learning in secondary schools. Specifically, this study aims to determine the extent to which school-related irrational beliefs influence academic motivation among secondary school students. Using a multi-stage random sampling technique, 740 secondary school students of both genders were selected as a sample: 303 boys and 437 girls. The Irrational Beliefs Inventory (IBI) and the Academic Motivation Scale (AMS) were used for data collection. In order to answer research questions, mean scores, standard deviations, and Pearson product moment correlation analysis were used while the hypotheses were tested using regression analysis at 0.05 level of significance. A statistically significant relationship was found between irrational beliefs and academic motivation among secondary school learners. A key recommendation of the study is that secondary school psychologists should teach learners on the adverse impact of irrational beliefs.

https://doi.org/10.46627/silet

INTRODUCTION

As students progress through primary, secondary, and tertiary education, they are continually evaluated both formally and informally. A classroom serves as a place for students' intelligence and abilities to be displayed (Deemer, 2004). Amasuomo (2014) stated that one challenge for many students is not to be labeled as stupid. According to Martin et al. (2003), irrational belief is likely to be exacerbated in evaluative situations, particularly among secondary school students. Students in senior secondary schools are in-school adolescents, which means that they must deal with adolescence, which is a period of transition from childhood to adulthood. Adolescence is a time of change for secondary school students as they go through physical, cognitive, and social changes. According to Qidwai et al. (2010), adolescents are found in the period bounded by childhood and adulthood who are neither children nor adults. Furthermore, the authors note that adolescents are expected to have graduated from secondary school by age 18. In the context of this study, in-school adolescents are individuals who are still in secondary school and who are within the age range of 12 to early 18.

Among the critical indicators of achievement in the schooling system is academic motivation (Schulze & Lemmer, 2017). There is convincing evidence that students think about learning differently, which results in rational and irrational beliefs (Purdie & Hattie, 2002). These beliefs are shaped by how individuals interpret and reflect on their academic experiences (Lin et al., 2012). Despite this, school-related irrational beliefs have been found to negatively affect achievement among secondary school learners which indicates an early predisposition to making sense of the world around us (Vezzani et al., 2018).

A person is said to have irrational beliefs when they develop incorrect solutions to personal problems in their minds that ultimately impact their lives (Klatter et al., 2001). The rational emotive behavior theory was first used in literature to describe irrational beliefs and behaviors (Dryden, 2005). The rational emotive behaviour theory is about the personal problems of the individuals and the fundamental solutions they develop to deal with them. When creating these solutions, people get caught up with emotions they cannot exactly define (Ellis & Dryden, 1997). People's irrational thoughts about themselves, others, and the world they live in are mostly responsible for the emotional disturbances that they suffer (Dryden & Branch, 2008). It was noted in the literature that these irrational behaviours are characterized by individuals' negative emotions which, when related to specific situations, are not rational (Schulze & Heerden, 2015). These individuals believe that they can necessarily experience that negativity under the influence of emotions without knowing why. Therefore, these behaviors lead individuals to a failure that they cause (Ellis & Dryden, 1997). Also, Individuals with irrational behaviors are also more likely to experience emotional problems such as anxiety, depression and distress (Bortolotti, 2009). Ellis (1977) describes the stages of irrationality with the ABC process. The stages of this process are the Activating Experience (A): the state of experiencing the negativity which depicts the emotional Consequence (C): the emotional consequence caused by the individual herself in a negative situation; and the Irrational Belief (B): a process consisting of the creating of the emotional consequence between these two situations, i.e. after a situation is experienced. In stage B, the individual comes to an emotional conclusion due to a previous incorrect prejudice. In this stage, the prejudice dominates, and the individual draws an incorrect emotional conclusion as a result of their negative thoughts. Consequently, Irrational beliefs have as a result been formed (Burger, 2010).

According to DiGiuseppe (2010), irrational beliefs occur when two negative conditions exist. The first scenario occurs when certain events in an individual's life result in emotional-behavioural disorders and settle in their lives as irrational beliefs. In the second circumstance, an irrational belief arises in response to an adverse event that resulted from irrational behavior in the past. As a result of the individuals' experiences, along with the adverse events that take place, new irrational beliefs may emerge in a negative environment created by the individuals. As a result, the environment in which secondary school learners spend a large and important part of their lives becomes conducive to the occurrence of these situations, indicating irrational beliefs are rooted in the socio-cultural context of the individual (David & DiGiuseppe, 2010)
Irrational thoughts that occur at school result from learners developing the belief that a belief about an academic situation that is incorrect is right over the belief that it is wrong and that it cannot be countered or easily handled (Gert, 1998). Studies have shown that students' irrational beliefs are high and negatively affect their motivation and learning in secondary school (Purdie & Hattie, 2002). According to the research conducted by Flett et al. (1991), high self-expectations, which constitutes a dimension of irrational belief, are positively correlated with academic motivation.

In another study conducted by Dilmac et al. (2009), they also found that the more irrational beliefs one possesses, the more demands one makes for success, and also found that excessive demands increase students' fear of failure, which results in a decrease in their success achievement. Academic motivation is a critical aspect of academic achievement, which is why school related irrational beliefs can also be adversely affected (Pajares & Urdan, 2002). In a study conducted by Bridges and Roig (1997) with 195 university students, it was found out that students' irrational beliefs increased their tendency to procrastinate academically. Such an effect is critical to uncovering its connection to academic motivation. Academic motivation' refers to the student's attitude, perseverance, and level of interest for academic subjects as it is reflected in their approach, persistence, and level of interest (Eccles & Wigfield, 2002). Research on gender-based stereotypes has consistently supported the notion that women are more likely to hold irrational beliefs than men (Allen & Haccoun, 1976). There is typically a difference between men and women in terms of their overall irrational beliefs, such as intensity of belief or

level of expressivity, and in terms of the specific ways in which they express their emotions. The belief that women are more prone to irrational belief is widespread, but researchers disagree over whether there is empirical support for gender differences in irrational belief expression and experience. Research evidence suggests that women demonstrate irrational belief more verbally and non-verbally than men. Women express their fear with greater intensity, more frequently express fear with facial expressions, and are more likely to cry and freeze when frightened (Kring & Gordon, 1998).

Research Purposes

The main purpose of this study was to determine the extent to which school-related irrational beliefs influence academic motivation among secondary school students. Specifically, the study sought to examine:

1. The predictive influence of school-related irrational belief on academic motivation among secondary school learners.
2. The extent to which gender moderate the predictive influence of school-related irrational belief on academic motivation among secondary school learners.

Hypotheses

$H0_1$: School-related irrational belief has no predictive influence on academic motivation among secondary school learners.

$H0_2$: Gender does not moderate the predictive influence of school-related irrational belief on academic motivation among secondary school learners.

RESEARCH METHOD

A correlational research design was used in the study. It was considered appropriate to use the correlational design in this study because it investigated the predictability of school-related irrational beliefs on secondary school learners' academic motivation. Study participants were 6 373 Junior Secondary II (JSSII) students from Kontagora/Mashegu Education Zone in Niger State, Nigeria. In this study, the sample consist of 303 boys and 437 girls from 10 government-owned coeducational secondary schools in Kontagora Local Government Area were enrolled in JSSII classes. Researchers initially stratified secondary schools by gender. The simple random sampling technique was used to randomly select 10 schools from the 48 coeducational secondary schools in the Education Zone. A purposive sampling procedure was used to sample all the JSSII students from each sampled school.

Data were collected using the irrational belief inventory (IBI) and Academic motivation scale (AMS). In the IBI, a total of 15 items were developed by Türküm (2003), and they were prepared on a five-point Likert scale. Scores were assigned between 15 and 75. According to the scale, an increase in the score also indicates an increase in irrational beliefs. The scale's reliability was assessed by calculating its internal consistency coefficient and test-retest reliability. The item-scale correlations in the scale are between .50 and .52, and the internal consistency coefficient is .75. When retested, the reliability coefficient increased to .81. This indicates that the item scales are more reliable. The AMS scale was developed by Bozanoğlu (2004), it consists of 28 items graded from 1 to 7 in the Likert-type scale ranging from 1 not at all to 7 exactly.

Two experts in educational psychology and one expert in measurement and evaluation from the Faculty of Education at the University of Nigeria, Nsukka face-validated both instruments. Afterwards, the validated instruments were trial tested on 20 secondary school students outside the study area. Students' scores were compiled and analysed for internal consistency using Cronbach's alpha statistics. There were reliability coefficients of 0.81 alpha and 0.67 alpha for school-related irrational belief and academic motivation, respectively. These scores were considered high enough for the instruments to be considered reliable for the study. The data was analyzed using mean scores, standard deviation, and Pearson's product moment

correlation analysis. Mean scores above 2.50 were considered high while scores below 2.50 were considered low for irrational beliefs and academic motivation. Using the t-test of equality of mean and ANOVA, the null hypothesis of no differences in irrational belief and academic motivation among secondary school students was also tested, while Pearson's r and multiple regression analysis were used to test the hypothesis that sought to find a relationship between irrational belief and academic motivation at 0.05 significance level. A 0.05 level of significance was used as the decision rule. Accordingly, any item whose calculated t-value was less than its critical t-value at 0.05 level of significance was not rejected, while items whose calculated t-value was greater than the critical t-value at 0.05 level were not accepted as significant.

RESULTS AND DISCUSSION

Research Question 1

What is the predictive influence of school-related irrational belief on academic motivation among secondary school learners?

Table 1: Pearson's Product Moment correlation analysis (r2) of school-related irrational belief and academic motivation

Model	Variable	$\bar{X}$	SD	N	1	2
1	School-related irrational belief	2.11	0.13	740	1	0.66
2	Academic motivation	2.85	0.19	740	0.66	1

r2= coefficient of determination

In order to answer research question 1, the responses of the respondents on school-related irrational beliefs were correlated with their responses on academic motivation. According to the results, the correlation coefficient obtained between school-related irrational belief and academic motivation was .66. This indicates that there is a direct but moderate positive relationship between school-related irrational belief and academic motivation. The results indicate that 66% of students' irrational beliefs predict their academic motivation. In other words, the level of academic motivation is responsible for 66% of students' irrational beliefs about school.

Hypothesis 1

$H0_1$: School-related irrational belief has no predictive influence on academic motivation among secondary school learners.

Table 2: Regression analysis of school-related irrational belief and academic motivation

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.466	1	2.466	115.61	0.00
Residual	3.178	149	0.021		
Total	5.644	150			

$\alpha = 0.05$

Hypothesis 1 ($H0_1$) was tested using linear regression analysis. Table 2 shows an F-ratio of 115.61 with an exact probability value of .00. This probability was compared with .05 as the level of significance for testing the hypothesis, and it was found to be significant since .00 was less than .05 This rejects the null hypothesis that school-related irrational beliefs cannot significantly predict academic motivation among secondary students. It was concluded that school-related irrational beliefs predict academic motivation among secondary school students. In other words, school-related irrational beliefs predict academic motivation in secondary school students.

Research Question 2

To what extent does gender moderate the predictive influence of school-related irrational belief on academic motivation among secondary school learners?

Table 3: Pearson's Product Moment correlation analysis (r2) of school-related irrational belief and academic motivation of boys

Model	Variable	$\bar{X}$	SD	N	1	2
1	School-related irrational belief	2.10	0.12	740	1	0.63
2	Academic motivation	2.85	0.14	740	0.63	1

r^2 = coefficient of determination

To answer the research question, the scores from the respondents on school-related irrational belief of boys were correlated with their responses on academic motivation. Results indicate that a correlation coefficient of .63 existed between irrational belief of boys and their academic motivation. Therefore, there is a moderately positive relationship between boys' irrational beliefs and their motivation to learn. This indicates that boys' academic motivation is predicted by 39% of secondary school students' irrational beliefs. Thus, 39% of boys' academic motivation is accounted for by their irrational beliefs.

Table 4: Pearson's product moment correlation analysis (r^2) irrational belief and academic motivation of girls

Model	Variable	$\bar{X}$	SD	N	r^2
1	School-related irrational belief	2.10	0.12	740	
2	Academic motivation	2.87	0.11	740	0.68

Note. r^2 = coefficient of determination.

In order to answer this research question, the scores from the respondents' responses on irrational beliefs of girls were compared with those on academic motivation. According to the result, there is a moderate positive relationship between irrational belief of girls and their academic motivation. Thus, irrational beliefs of girls are positively correlated with their academic motivation in a moderately positive manner. Students' irrational beliefs are associated with 68% of their academic motivation in females. Therefore, 68% of female students' academic motivation can be explained by their irrational beliefs.

Hypothesis 2

$H0_2$: Gender does not moderate the predictive influence of school-related irrational belief on academic motivation secondary school learners.

Table 5: Regression analysis of school-related irrational belief and academic motivation of boys

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.040	1	1.040	43.749	0.00
Residual	1.593	67	0.024		
Total	2.632	68			

$\alpha = 0.05$.

In order to test hypothesis 2 ($H0_2$) concerning boys, linear regression analysis was also used. The result in Table 5 shows an F-ratio of 43.74 and an associated exact probability of .00. The probability of .00 was compared with .05 as the significance level, and it was determined to be significant because .00 is less than .05. Therefore, the null hypothesis is rejected. Based on the findings, it was concluded that school-related irrational belief significantly predicts academic motivation in male secondary school students. In other words, irrational beliefs are significantly associated with academic motivation in boys.

Table 6: Regression analysis of school-related irrational belief and academic motivation of boys

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.423	1	1.423	71.83	0.00
Residual	1.585	80	0.020		
Total	3.008	81			

$\alpha = 0.05$

A linear regression analysis was also used to test hypothesis 2 ($H0_2$) about girls. Based on Table 6, the F-ratio is 71.83, and the exact probability is .00. This probability value was compared with .05, the significance level for testing the hypothesis, and it was found to be significant since .00 is less than .05. Therefore, the null hypothesis is rejected. In line with the results, it could be inferred that school-related irrational beliefs significantly predict academic motivation among female secondary school students. In line with hypothesis 2, the results of the study showed that school-related irrational belief significantly predicted academic motivation in male and female secondary school students.

The study found a moderate correlation between school-related irrational beliefs and academic motivation. Irrational beliefs and academic motivation were statistically associated. Furthermore, the study found that a direct but moderate positive correlation exists between boys' school-related irrational beliefs and their academic motivation as well; a direct but moderate positive correlation exists between girls' school-related irrational beliefs and their academic motivation. The results of this study confirm the observation of Bortolotti (2009) who showed that irrational beliefs were prominent in those with high levels of academic motivation, but insignificant in those with low levels. The study results are also consistent with that of Ozer and Akgun (2015) who demonstrated that students' irrational beliefs were positively related to their academic motivation. Also, Atkinson (2011) had noted that students' irrational beliefs are related to their school behaviour. The finding aligns with Allen et al. (2017) who observed that students' irrational beliefs impact their academic behaviour. Sapp (1996) had stated that irrational beliefs can result in students' failure in academic work. Tittle (1997) observed that students' irrational beliefs affect their academic life. Harju and Eppler (1997) also documented that students' irrational beliefs have an effect on their level of academic motivation. Kufakunesu (2015) also showed that students' irrational beliefs influence the extent to which they are motivated to achieve academically. Consistent with our findings, Fasciani (2015) showed that students' irrational beliefs and academic motivation are interconnected. Stanciu et al. (2014) also found a similar result of irrational beliefs in relation to students' academic life. According to Davies (2008), one of the issues affecting students' academic life is irrational beliefs. The implication of this study is that it is important to develop and implement cognitive behavioral interventions to combat irrational beliefs of secondary school learners. In this instance, Şahin and Türk (2021) recommended the use of cognitive-behavioral group psycho-education program which they found to be effective in the reduction of irrational beliefs. Another implication of this study is that in view of students' irrational beliefs, critical and problem solving skills need to be developed in these students to help them overcome such beliefs and become better motivated to pursue their academic work. In this regard, Ahaddin et al. (2020), Cindikia et al. (2020), and Fadilah et al. (2020) suggested the use of inquiry-based learning models to assist students in the development of critical and problem solving skills.

CONCLUSION

This study shows that the level of school-related irrational beliefs was responsible for secondary school learners' academic motivation. Additionally, school-related irrational beliefs are associated with boys' and girls' academic motivation. Girls, however, hold more irrational beliefs about academic motivation in relation to school than boys. It was determined that there is a moderately positive correlation between the academic motivation and self-sufficiency of the students. As a result of these findings, learners' beliefs that they can succeed academically motivate them to achieve moderate success. A major implication of this research is that irrational beliefs are not necessarily gender-specific. Another implication of the study is that students irrespective of their gender should be included in interventions aiming to reduce irrational beliefs in student population as both male and female students are prone to irrational beliefs which impact their level of academic motivation. It is clear that there may be other factors affecting the academic performance of the learners. One weakness of this research is that correlation results are not enough to determine cause and effect. In light of this, further research

is needed to fully understand the positive cause-and-effect relationship between irrational beliefs and academic motivation.

ACKNOWLEDGEMENTS

The authors wish to thank all the secondary school students who participated in this study and their respective principals for granting us permission to conduct the study in their schools.

REFERENCES

Ahaddin, M. A., Jatmiko, B., & Supardi, Z. A. I. (2020). The improvement of critical thinking skills of primary school students through guided inquiry learning models with integrated peer instructions. *Studies in Learning and Teaching*, *1*(2), 104-111. https://doi.org/10.46627/silet.v1i2.39

Allen, M. S., El-Cheikh, S., & Turner, M. J. (2017). A longitudinal investigation of irrational beliefs, hedonic balance and academic achievement. *Learning and Individual Differences*, *58*, 41-45. https://doi.org/10.1016/j.lindif.2017.07.003

Allen, J. G., & Haccoun, D. M. (1976). Sex differences in emotionality: A multidimensional approach. *Human Relations*, *29*(8), 711-722. https://doi.org/10.1177/001872677602900801

Amasuomo, J. O. M. (2014). Academic performance of students admitted with different entry certificates to the Nigerian Certificate in Education Programme at the Federal College of Education (Technical), Omoku. *Journal of Technology and Science Education*, *4*(1), 39-47. https://doi.org/10.3926/jotse.107

Atkinson, P. B. (2011). Exploring correlations between writing apprehension, academic rational beliefs, and stress and coping behaviors in college students. *Proceedings of the New York State Communication Association*, *2010*(1), 1-24.

Bortolotti, L. (2009). *Delusions and other irrational beliefs*. Oxford University Press.

Bozanoğlu, İ. (2004). Academic motivation scale: Development, reliability, validity. *Ankara University Journal of Faculty of Educational Sciences*, 37(2), 83-98.

Bridges, K. R., & Roig, M. (1997). Academic procrastination and irrational thinking: A re-examination with context controlled. *Personality and Individual Differences*, *22*(6), 941-944. https://doi.org/10.1016/S0191-8869(96)00273-5

Brown, T. (2016). Rationality and belief in learning mathematics. *Educational Studies in Mathematics*, *92*(1), 75-90. https://doi.org/10.1007/s10649-015-9670-7

Burger, J. M. (2010). *Kisilik* [Personality]. Kaknus Psikoloji.

Cindikia, M., Achmadi, H. R., Prahani, B. K., & Mahtari, S. (2020). Profile of students' problem solving skills and the implementation of assisted guided inquiry model in senior high school. *Studies in Learning and Teaching*, *1*(1), 52-62.

Çoban, A. E., & Hamamcı, Z. (2008). Stresle başa çıkma programının psikolojik danışmanların mesleki tükenmişlik düzeyleri üzerine etkisi. *İlköğretim Online*, *7*(3), 600-613.

David, D., & DiGiuseppe, R. A. (2010). Social and cultural aspects of rational and irrational beliefs: A brief reconceptualization. In D. David, S. J. Lynn & A. Ellis (Eds.), *Rational and irrational beliefs: Research, theory, and clinical practice* (pp. 49-62). Oxford Press.

Davies, M. F. (2008). Irrational beliefs and unconditional self-acceptance. III. The relative importance of different types of irrational belief. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *26*(2), 102-118. https://doi.org/10.1007/s10942-007-0061-6

Deemer, S. (2004). Classroom goal orientation in high school classrooms: Revealing links between teacher beliefs and classroom environments. *Educational Research*, *46*(1), 73-90. https://doi.org/10.1080/0013188042000178836

DiGiuseppe, R. A. (2010). Rational-emotive behavior therapy. In N. Kazantzis, M.A. Reinecke & A. Freeman (Eds.), *Cognitive and behavioral theories in clinical practice* (pp. 113-207). Guilford Press.

Dilmac, B., Aydogan, D., Koruklu, N., & Deniz, M.E. (2009). The explication of primary school students' perfectionist properties with irrational beliefs. *İlkogretim Online*, *8*(3), 720-728.

Dryden, W. (2005). Rational emotive behavior therapy. In A. Freeman (Ed.), *Encyclopedia of cognitive behavior therapy* (pp. 321-324). Springer.

Dryden, W. & Branch R. (2008). *The fundamentals of rational emotive behaviour therapy: A training handbook*. Wiley.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*(1), 109-132. https://doi.org/10.1146/annurev.psych.53.100901.135153

Ellis, A. (*1977*). The basic clinical theory of Rational-Emotive Therapy. In A. *Ellis* & R. Grieger (Eds.), *Handbook of Rational-Emotive Therapy* (pp. 3–34). Springer Publishing.

Ellis, A. & Dryden, W. (1997). *The practice of rational emotive behavior therapy* (2nd ed.). Springer.

Fadilah, S., Jatmiko, B., & Prastowo, T. (2020). Validity and effectiveness of argument-driven inquiry model with contextual approaches to improve critical thinking skills in science learning. *Studies in Learning and Teaching*, 1(2), 66-75. https://doi.org/10.46627/silet.v1i2.32

Fasciani, L. M. (2015). *The interrelations between academic motivation, irrational beliefs, and test anxiety in predicting achievement among high school students*. [Unpublished doctoral dissertation]. St. John's University.

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Koledin, S. (1991). Dimensions of perfectionism and irrational thinking. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *9*(3), 185-201. https://doi.org/10.1007/BF01061229

Gert, B. (1998). *Morality: Its nature and justification*. Oxford Press.

Hamamcı, Z., & Coban, A. E. (2008). Stresle Basa Cıkma Programının Psikoloji Danısmanların Mesleki Tukenmislik Duzeyleri Uzerine Etkisi. *Turk Psikolojik Danısma ve Rehberlik Dergisi*, *3*(27), 161.

Harju, B. L., & Eppler, M. (1997). Achievement motivation, flow and irrational beliefs in traditional and nontraditional college students. *Journal of Instructional Psychology*, 24(3), 147.

Hattie, J. A. C., & Yates, G. R. (2017). *Visible learning and the science of how we learn*. Routledge.

Klatter, E. B., Lodewijks, H. G., & Aarnoutse, C. A. (2001). Learning conceptions of young students in the final year of primary education. *Learning and instruction*, *11*(6), 485-516. https://doi.org/10.1016/S0959-4752(01)00002-0

Kring, A. M., & Gordon, A. H. (1998). Sex differences in emotion: Expression, experience, and physiology. *Journal of Personality and Social Psychology*, *74*(3), 686-703. https://doi.org/10.1037/0022-3514.74.3.686

Kufakunesu, M. (2015). *The influence of irrational beliefs on the mathematics achievement of secondary school learners in Zimbabwe*. [Doctoral dissertation, University of South Africa]. Unisa Institutional Repository. https://uir.unisa.ac.za/handle/10500/20072

Lin, Y. H., Liang, J. C., & Tsai, C. C. (2012). Effects of different forms of physiology instruction on the development of students' conceptions of and approaches to science learning. *Advances in Physiology Education*, *36*(1), 42-47. https://doi.org/10.1152/advan.00118.2011

Martin, A. J., Marsh, H. W., Williamson, A., & Debus, R. L. (2003). Self-handicapping, defensive pessimism, and goal orientation: A qualitative study of university students. *Journal of Educational Psychology*, *95*(3), 617-628. https://doi.org/10.1037/0022-0663.95.3.617

Ozer, E. A., & Akgun, O. E. (2015). The effects of irrational beliefs on academic motivation and academic self-efficacy of candidate teachers of computer and instructional technologies education department. *Procedia-Social and Behavioral Sciences*, *197*, 1287-1292. https://doi.org/10.1016/j.sbspro.2015.07.401

Pajares, F., & Urdan, T. (2002). *Academic Motivation of Adolescents*. Information Age Publishing.

Purdie, N., & Hattie, J. (2002). Assessing students' conceptions of learning. *Australian Journal of Educational and Developmental Psychology*, *2*, 17-32.

Qidwai, W., Ishaque, S., Shah, S., & Rahim, M. (2010). Adolescent lifestyle and behaviour: A survey from a developing country. *PloS one*, *5*(9), e12914. https://doi.org/10.1371/journal.pone.0012914

Şahin, H., & Türk, F. (2021). The impact of cognitive-behavioral group psycho-education program on psychological resilience, irrational beliefs, and well-being. *Journal of Rational-*

Emotive & Cognitive-Behavior Therapy, *39*(4), 672-694. https://doi.org/10.1007/s10942-021-00392-5

Sapp, M. (1996). Irrational beliefs that can lead to academic failure for African American middle school students who are academically at-risk. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *14*(2), 123-134. https://doi.org/10.1007/BF02238186

Schulze, S., & Van Heerden, M. (2015). Learning environments matter: Identifying influences on the motivation to learn science. *South African Journal of Education*, *35*(2), 1-9. http://dx.doi.org/10.15700/SAJE.V35N2A1058

Schulze, S., & Lemmer, E. (2017). Family experiences, the motivation for science learning and science achievement of different learner groups. *South African Journal of Education*, *37*(1), 1-9. http://dx.doi.org/10.15700/saje.v37n1a1276

Stanciu, M. M., Dumitru, H., Mocanu, D., Mihoc, A., Gradinaru, B. G., & Panescu, C. (2014). The connection between gender, academic performance, irrational beliefs, depression, and anxiety among teenagers and young adults. *Romanian Journal of Cognitive Behavioral Therapy and Hypnosis*, *1*(2), 1-13.

Tittle, M. (1997). The effects of foreign and second language students' irrational beliefs and anxiety on classroom achievement. https://files.eric.ed.gov/fulltext/ED411674.pdf

Türküm, A. S. (2003). Akılcı olmayan inanç ölçeğinin geliştirilmesi ve kısaltma çalışmaları. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 2(19), 41-47.

Vezzani, C., Vettori, G., & Pinto, G. (2018). Assessing students' beliefs, emotions and causal attribution: Validation of learning conception questionnaire. *South African Journal of Education*, *38*(2), 1-18. https:// doi.org/10.15700/saje.v38n2a1453

Author (s):

Boitumelo Molebogeng Diale
Department of Educational Psychology,
University of Johannesburg,
Auckland Park Campus, 2006, South Africa
Email: tumid@uj.ac.za

* Vera Victor-Aigbodion (Corresponding Author)
Department of Educational Psychology,
University of Johannesburg,
Auckland Park Campus, 2006, South Africa
Email: verav@uj.ac.za