Determinants of career development self-efficacy: The role of self-directed learning among students at a rural campus in South Africa

Zandile Stywayi

Department of Business Management, University of Fort Hare, Alice, South Africa
201503336@ufh.ac.za
https://orcid.org/ 0000-0001-8665-2613

Willie Chinyamurindi

Department of Business Management, University of Fort Hare, Alice, South Africa
wchinyamurindi@ufh.ac.za
https://orcid.org/0000-0002-4139-4224

Herring Shava

Department of Management, Walter Sisulu University, Butterworth, South Africa
hshava@wsu.ac.za
https://orcid.org/0000-0002-2094-9585

Abstract

There is a call for studies that explore the concept of career development self-efficacy among people in rural contexts. In this study, we explored the determinants of student career development self-efficacy in a rural context. We were guided by the literature and explored the role of self-directed learning consisting of three sub-scales, namely a) self-management, b) desire for learning, and c) self-control. We sought to ascertain how the three elements of self-directed learning influence student career development self-efficacy. We adopted a quantitative research approach and designed our study as survey research. We used a convenience sample of 150 students enrolled at a rural campus in the Eastern Cape Province of South Africa. Data was analysed in our seeking to generate descriptive and inferential statistics. For the latter, we used simple linear regression tests. The findings show that self-management, desire for learning, and self-control influence career development self-efficacy. We therefore recommend, based on the findings of this research, the implementation of interventions that assist the students and those working in institutions of higher learning to develop competencies and environments in which career development self-efficacy thrives.

Keywords: self-management, self-directed learning, desire for learning, self-control, career development self-efficacy

Introduction

There is a call for career development self-efficacy in rural contexts to be explored. The making of career decisions is an important phase in the life of an individual (Chinyamurindi, 2016; Maree, 2013). Through this work of making a career decision, an individual develops a sense of self in relation to who they are (Oosthuizen, et al., 2014). This identity work is arguably complex and presents challenges for the individual (Vilhjálmsdóttir & Arnkelsson, 2013). Coupled with this are barriers in the environment that impede the making of career decisions (Chinyamurindi, 2016). One such barrier is the aspect of rurality. A number of South African researchers have dedicated effort to understanding what is faced by students in rural communities. These studies have shown how the aspect of rurality acts as a challenge not only in how career decisions are made but also in relation to employability (Harry et al., 2018; Harry & Chinyamurindi, 2019, 2020). The presence of these barriers appears to pose a limitation to the individual in terms of their access to career information and services (Pettipas et al., 2016). Some scholars have argued that we need to understand the barriers affecting career decision-making (Chinyamurindi, 2016; Maree, 2016). Further, calls have been made to focus on understanding how the challenge of rurality can be addressed in terms of the issues with which rural students in higher education need to deal (Harry & Chinyamurindi, 2020).

Based on this background, our set objectives for this study were

- to establish the influence of self-management as part of self-directed learning on career development self-efficacy on a rural campus in South Africa;
- to establish the influence of desire as part of self-directed learning on career development self-efficacy on a rural campus in South Africa; and
- to establish the influence of self-control as part of self-directed learning on career development self-efficacy on a rural campus in South Africa.

First, we present a background discussion related to career development, rurality, and self-efficacy. In this section we consider both the theoretical and empirical literature related to career development, rurality, and self-efficacy. In the second section, we present the research design and methodology we followed. The third section is dedicated to the results of the study. We conclude with a focus on the discussion of the results in view of the extant literature and on further implications, based on the findings, regarding possible ways of encouraging individual career development and assisting career counsellors.

Background to the study

The context in which this study was located is a rural university attended mostly attended by Black students who, for the most part, attended schools that lack educational resources and have teachers who are inadequately trained (Sedibe, 2011). In these schools, little or no career guidance information is available for the students (Mathabe & Temane, 1993;

Chinyamurindi, 2016). Lack of exposure because of factors beyond students' control limits career choices and thus stifles potential career development (Stead & Watson, 2017).

Because rural communities are perceived, largely, to be disadvantaged given the legacy of apartheid, we need to develop skills that can play an important role in solving challenges faced by the country (Maila & Ross, 2018), even in such communities. Rural communities face challenges such as poverty, inequality, and high unemployment (Chinyamurindi, 2016) and often they are least served in terms of socio-economic opportunities (Badat & Sayed, 2014) compounded by the challenges related to under-developed infrastructure (Nzama, 2010).

Theoretical underpinning

We considered three main theoretical postulations informed by the constructs under study. First, and at a general level, we considered Systems Theory Framework (STF) (Patton & McMahon, 1999, 2006). STF allows the career development of adolescents to be conceptualised as consisting of complex interactions between *the individual influence system* (e.g., age, personality, gender, beliefs, interests, and ethnicity), *the social influence system* (e.g., family, school, peers, and the media), and *the environmental-societal influence system* (e.g., geographic, political, and socio-economic factors) (Chinyamurindi, 2016; Maree, 2016). STF has been used previously in South Africa to understand the career issues that relate to distance learning students (Chinyamurindi, 2016), and high school students (Watson et al., 2010).

We also considered Bandura's (1977) self-efficacy theory and how the individual uses this to organise and implement actions. From the vantage point of the individual, self-efficacy can be treated as a resource that an individual uses to interact with others and that leads to the ability to succeed (Mehdizadeh, 2010). In an academic context, such confidence translates into improved learning and better academic performance (Jongsung, 2013). Linked to the self-efficacy theory is Bandura's (1986) social cognitive theory that places emphasis on reinforcement linked to cognitive development as part of the individual's learning processes (see Smith & Berge, 2009). In essence, a student will perform those behaviours in which they have confidence and in a context that is conducive to this. In essence, as argued by Bandura (2002), there is not only reciprocity between and among human thoughts, feelings, and behaviours but also causation in relation to these in view of individual and environmental factors and issues. Such social and cognitive experiences play a pivotal role in the learning and also the developmental aspects of the student, creating, potentially, a favourable learning environment (Nakagawa & Arzubiaga, 2014).

Self-directed learning and career development self-efficacy

Douglass and Morris (2014) defined self-directed learning as a process that happens when the student becomes responsible for the identification of their learning needs and develops learning goals while choosing activities and resources that are suitable to meet these learning needs. The identified activities are implemented, and the process evaluated for effectiveness

in addressing the identified learning needs (Kan'an & Osman, 2015). The benefits of self-directed learning are best described in terms of the type of students it develops. The desire for learning about self-directed learning readiness highlights the personal traits of students as self-directed ones who have the ability to construct knowledge actively (Botha & Coetzee, 2016). The desire to learn relates to the students' motivation levels and their ability to seek new information to address their learning needs in a realistic, positive, and enjoyable manner (Cohen, 2012). The students who display a satisfactory desire to learn are confident and aware of their challenges and capabilities in their career, a situation that may, at least potentially, affect their prospects post-study.

Hewitt-Taylor (2001) noted that such students are motivated and persistent, independent, self-disciplined, self-confident, and goal-oriented. Self-directed learning enables students to be more effective social beings. The literature on self-directed learning asserts that such students demonstrate a greater awareness of their responsibility to make learning meaningful and in monitoring themselves (Hayes, 2013). Such students are curious and willing to try new things as Park (2013) has observed, view problems as challenges, desire change, and enjoy learning (Song & Hill, 2007).

Honicke and Broadbent (2016) suggested that learning on one's own requires a complex collection of self-skills and learning skills that not all students acquire spontaneously. Gallagher et al. (2017) pointed out that the discussion about integrating career development with learning is, indeed, related to continually learning new skills, but it is much more about the start of a lifelong process of personal development. It is about how the individual tacitly perceives learning as part of their life-focusing self-narrative and how they socially express and negotiate that perception as part of a life-story narrative. From this perspective, career development, rather than being framed by organisational bureaucracy, can be reconceptualised as an interpretive construct used by people (Honicke & Broadbent, 2016). Moreover, there is, potentially, no aspect of one's interpretive construction of career development that is as critically important as the continuing acquisition of knowledge and skills since this represents the most distinctive feature of the human species (Hirschi et al., 2015).

The link between self-directed learning and individual careers has been the subject of research; see, for example, the study by de Bruin and Cornelius (2011). Using a sample of first year South African university students, they investigated whether students who had access to university learning through alternative routes found making career decisions challenging. Their findings revealed that students who exhibited high self-directed learning scores experienced few difficulties in making career-related decisions. The link between self-directed learning and career-related issues is becoming crucial in the 21st century. This is exacerbated by the changing nature of work driven by international quests for the world to become a knowledge economy (Harry & Chinyamurindi, 2020; Pope, 2015).

The above-mentioned evolution in the world of work has led to a change in the meaning of work (Harry & Chinyamurindi, 2019). More importantly for our purposes here, this change has also led to a change in curriculum design because the development of intervention

mechanisms that will see students having more autonomy in their learning and career development-related decision making has become a top priority in higher education (Fisk, 2017). In this current era of technological advancement, information has become a major asset, and this has resulted in many jobs suddenly changing in nature (Shahroom & Hussin, 2018). But technology has also equipped students with tools to manage their learning (Khalid et al., 2020). Furthermore, access to online tools has improved, and this has led to improved access to information by students and this, in turn, has resulted in knowledge sharing (Shava & Chinyamurindi, 2018), and possibly more control by students of their learning as Saxena (2013) has observed. It could be argued that as students improve in managing their own learning, student career development self-efficacy, or, in other words, the perceived ease with which students can make career development-related decisions, is also enhanced.

To measure self-directed learning, we adopted the dimensions of Fisher et al (2001), namely self-management, the desire for learning, and self-control. Several studies have adopted a similar approach that attests to the robustness of the scale (see Turan & Koç, 2018; Samarasooriya et al., 2019). In light of the above we formulated the following hypotheses:

- H1: Self-management predicts career development self-efficacy among students;
- H2: Desire for learning predicts career development self-efficacy among students; and
- H3: Self-control predicts career development self-efficacy among students.

Research methodology

Research approach

We used a quantitative research approach in this study to collect data from a total pool of a convenience sample of 200 respondents through a self-administered questionnaire. A total of 150 respondents took part in the study.

Measuring instruments

We categorised the research instrument into five sections with each representing a dimension measured by the study. A five-point Likert scale ranging from strongly disagree representing 1, to strongly agree representing 5 was used throughout. The scales used in this study to gather primary data were reliable and acceptable. The *self-management* scale had 13 items with a Cronbach alpha coefficient equal to .73; the *desire for learning* scale had 12 items with a reliability score of .76; the *self-control domain* scale with 15 items was found reliable with a Cronbach alpha coefficient equal to .81; the *career development self- efficacy* scale with 4 items had a Cronbach alpha coefficient equal to .73; and the *career decision self-efficacy* scale with 25 items had a Cronbach alpha coefficient score equal to .88.

Ethical considerations

Ethical clearance was obtained from the Research Ethics Committee of the university in question.[1] The principal researcher took time to explain the goals of the study to participants, their right to terminate participation without penalty, and the right to privacy and confidentiality. When all these ethical issues had been addressed, the participants' consent was sought and obtained.

Results

Inferential statistics

Inferential statistics were performed making use of the simple linear regression technique.

A simple linear regression was undertaken to test the hypothesis that self-management does not predict career development self-efficacy among students. In the process, we also evaluated the regression model by making use of the Durbin-Watson test that investigates whether the first order auto-correlation exists or not. To test the assumption of homoscedasticity, and normality of residuals, special (Q-Q plots) were relied upon and they indicated that these two assumptions were not violated. The results indicated a weak positive correlation between self-management and career development self-efficacy, $r = .347$. The results further revealed that self-management explained 12.1% of the variation in career development self-efficacy, $R^2 = .121$. The resultant model as explained by the F-ratio, $F= 20.316$, $p = .001$ is evidence enough to declare the model fit, given the p-value = .001. The Durbin-Watson $d = 1.954$ falls between the two critical values of $1.5 < d < 2.5$ indicating that there is no first order auto-correlation in the data used for the simple linear regression purposes. Estimates of the model parameters reveal that the resultant model is statistically significant, $\beta_0 = 1.791$, $t = 4.120$, $p = .001$; $\beta_1 = .529$, $t = 4.507$, $p = .001$. Given these findings, a unit change in self-management results in a corresponding positive change in career development self-efficacy among students equivalent to .529 units. Given this result, we have sufficient evidence at the 5% significant level to conclude that self-management predicts career development self-efficacy and we therefore reject the null hypothesis stating that self-management does not predict career development self-efficacy among students.

- H0: Desire for learning does not predict career development self-efficacy among students.
- H2: Desire for learning predicts career development self-efficacy among students.

The simple linear regression was performed with desire for learning as the explanatory variable and career development self-efficacy as the outcome variable. The results revealed that there is a weak positive relationship between desire for learning and career development self-efficacy, $r = .213$. The results further revealed that desire for learning explained 4.5% of the variation in career development self-efficacy among students, $R^2 = .045$. The resultant model of $F= 6.970$; $p= .009$ is evidence enough to declare the model fit, given the p-value =

---

1   An ethical clearance certificate was granted, with ethical clearance number: MC-2018-046.

.009 less than $p = .05$. This implies that the model is significantly better at predicting career development self-efficacy of students compared to the use of the mean value. The Durbin-Watson $d = 2.058$ falls between the two critical values of $1.5 < d < 2.5$ indicating that there is no first order auto-correlation in the data used for the simple linear regression purposes. Estimates of the model parameters reveal that the resultant model is statistically significant, $\beta_0 = 2.473$, $t = 5.13$, $p = .000$; $\beta_1 = .319$, $t = 2.64$, $p = .009$. From the results, given a unit increase in desire for learning, there will be a corresponding positive increase in career development self-efficacy equivalent to .319 units in career development self-efficacy among students. Given these findings, we have sufficient evidence at the 5% significant level to conclude that desire for learning predicts career development self-efficacy and we therefore reject the null hypothesis stating that desire for learning does not predict career development self-efficacy among students.

- H0: Self-control does not predict career development self-efficacy among students.
- H3: Self-control predicts career development self-efficacy among students.

Simple linear regression analysis was performed with self-control as an explanatory variable and career development self-efficacy as the outcome variable. The results revealed a weak to moderate positive correlation between self-control and career development self-efficacy, $r = .401$. The results further revealed that self-control explains 16.1% of the variation in career development self-efficacy among students, $R^2 = .161$. The resultant model of $F = 28.340$, $p = .000$ gives enough evidence to declare the model fit, given the p-value $= .000$ less than $p = .05$. This result implies that it is significantly better to rely on this model when predicting the career development self-efficacy of students as opposed to the use of the mean value. The Durbin-Watson $d = 2.119$ falls between the two critical values of $1.5 < d < 2.5$, indicating that there is no first order auto-correlation in the data used for the simple linear regression purposes. The estimates of the model parameters reveal that the resultant model is statistically significant, $\beta_0 = 1.701$, $t = 4.409$, $p = .000$; $\beta_1 = .524$, $t = 5.324$, $p = .000$. From these results, a unit increase in self-control leads to a corresponding increase in student career development self-efficacy equivalent to .524 units. Given this finding, we have sufficient evidence at the 5% significant level to conclude that self-control predicts student career development self-efficacy and we therefore reject the null hypothesis stating that self-control does not predict career development self-efficacy among students.

From the above findings, the resultant model of the study is presented in Figure 1. The model reveals that among the study's explanatory variables, self-management has the highest influence on student career-development self-efficacy, $b = .529$, followed by self-control, $b = .524$. Desire for learning has the least effect compared to all other explanatory variables, given $b = .319$. This implies that mechanisms designed to enhance student career development self-efficacy must be designed around self-management and self-control aspects.

Figure 1

The Student Career Development Self-Efficacy Model
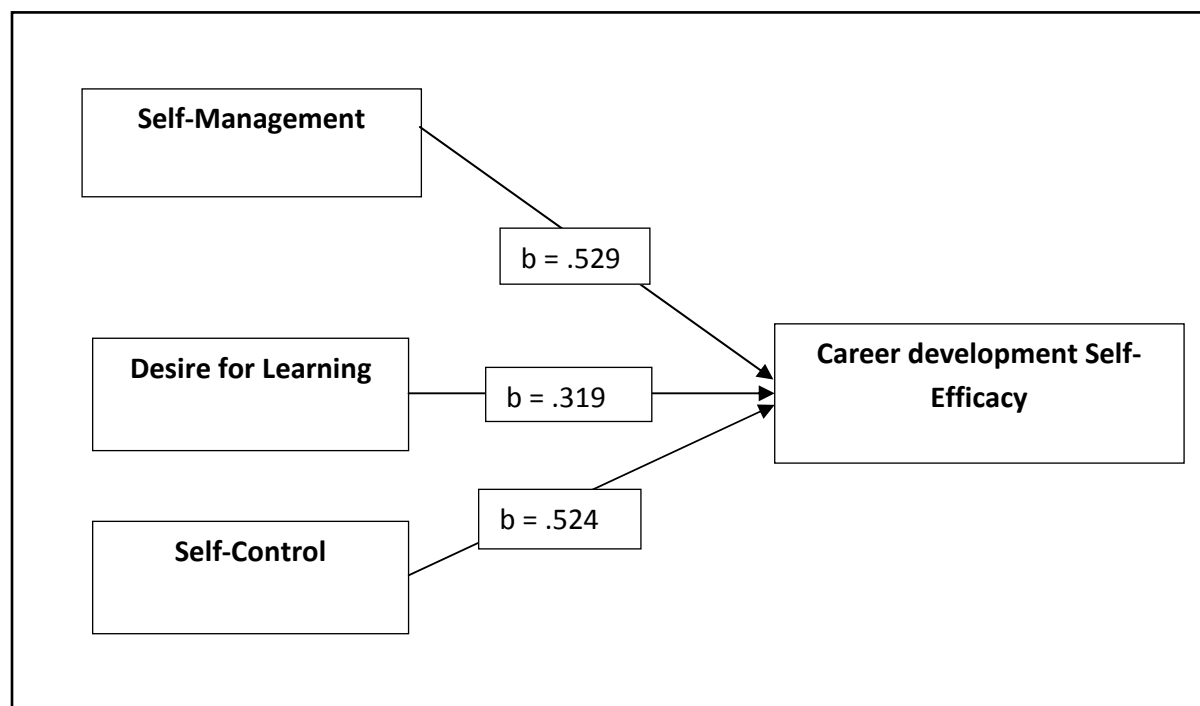
Source: Survey data.

Discussion

Outline of results

With regard to the influence of self-management on career development self-efficacy, the simple linear regression model analysis revealed that self-management has a positive influence on career development self-efficacy. The results provided sufficient evidence to reach the conclusion that self-management positively influences career development self-efficacy. These results support findings of a study conducted by Komarraju & Dial (2014) on placing importance of self-management behaviours and how this can assist individuals concerning their professional growth.

Another study (Alotaibi 2015) that corresponds with this one recognised that self-management (contextual control) entails setting learning objectives and managing learning resources, and in order to apply self-management effectively to the career development self-efficacy process, the learning environment (including people, resources, assessment, and time) should be identified and managed. Furthermore, Du Toit-Brits (2015) was of the opinion that control does not focus on independence only, but also on cooperation with other individuals in a specific context. Empirical studies carried out elsewhere confirm the significance of our statistical results regarding the influence of self-management on career development self-efficacy. In light of these statistical results, we concluded that self-management predicts career development self-efficacy.

In this study, we also aimed to establish the influence of self-management on the desire for learning. Based on statistical results, we found that desire for learning has a significantly positive influence on career development self-efficacy. This was demonstrated by a simple linear regression model summary and overall fit statistics. Parameter estimates discovered that desire for learning has a statistically significant positive influence on career development self-efficacy. Thus, at the 5% significant level, it is possible to conclude that desire for learning predicts career development self-efficacy.

These results were in line with arguments put forward by Yang et al. (2016) that people who love to learn do not depend only on the classroom; they seek answers for every question they have. In addition, this result is in agreement with a study conducted by Zacher (2014) that one is responsible for one's own career and one has to reflect continually on where one is, where one wants to be, and how one will prepare for further career opportunities.

The objective of this study was to investigate the influence of self-control on career development self-efficacy. Here we discuss the findings regarding this. To determine this, a simple linear regression was performed. The parameter estimates show that self-control has a statistically significant positive influence on career development self-efficacy.

The results discussed above are in agreement with those of a study conducted by Alotaibi (2015) that placed importance on social context in allowing for academic success. Priority should also be placed on the development of mental and emotional skills since these affect an individual's career development. The role of self-control becomes an important professional strategy in assisting individual career development.

Practical implications

The findings of this study add useful knowledge to practice especially by revealing that self-directed learning has a positive influence on career development self-efficacy. This was evident in most of the students who took part in this study. This suggests that lecturers, departments, faculties, and universities should promote self-directed learning to improve students' career development self-efficacy. According to Douglass and Morris (2014), self-directed learning refers to any form of learning in which the individual is primarily responsible for the planning, implementation, and evaluation of such learning. This implies that universities need to create a conducive environment in which self-directed learning is demonstrated. Furthermore, it is advisable for institutions to integrate the topic of self-directed learning into the university curriculum so as to prepare students with appropriate knowledge for developing their careers. Therefore, this study contributes in its shedding light on how important self-directed learning is and how much attention has to be committed to the implementation of career development self-efficacy.

Limitations and recommendations

The first limitation identified in this study is the research setting in that it was conducted in one university, so the research findings are specific and cannot be generalised to other

universities. The second limitation is the sample size. Since the study was conducted in one university, this was smaller than the total population of students from the faculty of management and commerce. The third limitation of this research is the fact that it did not provide for a constructivist perspective on career development difficulties. Future research may replicate the study in more than one university to generalise the results to a wider population. The self-directed learning capacity of lecturers was not determined because the study's aim was to determine the level of self-directed learning of students only. However, the level of self-directed learning of students may be influenced by the capacity of their lecturers to promote self-directed learning in them. Factors that influence the high or low levels of readiness for self-directed learning may be explored. It is also recommended that there be ongoing research especially on aspects related to the career development of university students in South Africa. This could have a qualitative focus to capture the complexity that accompanies processes such as the career development one.

Conclusion

In this article, we discussed the study that we conducted on examining the influence of self-directed learning on student career development self-efficacy. We explained the quantitative method that was employed and listed the main objectives of this research that were achieved. Furthermore, the article also highlighted the research procedures and the SPSS tool that we used to analyse the data. Finally, the article listed the implications of this research as well as its limitations and made recommendations for further research.

References

Alotaibi, K. N. (2015). The learning environment a mediating variable between self-directed learning readiness and academic performance of a sample of Saudi nursing and medical emergency students. *Nurse Education Today, 36*, 249–254.

Badat, S., & Sayed. Y. (2014). Post-1994 South African education: The challenge of social justice. *The Annals of the American Academy of Political and Social Science, 652*(1), 127–148.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.

Bandura, A. (2002). *Social cognitive theory of mass communication*. In J. Bryant & D. Zillmann (Eds.), Media effects: Advances in theory and research (pp. 121–153). Lawrence Erlbaum Associates Publishers.

Botha, J., & Coetzee, M. (2016). The influence of biographical factors on adult learner self-directedness in an open distance learning environment. *International Review of Research in Open and Distributed Learning, 17*(4)*, 123–132.

Chinyamurindi, W. T. (2016). Using narrative analysis to understand factors influencing career choice in a sample of distance learning students in South Africa. *South African Journal of Psychology, 46*(3)*, 390–400.

Cohen, M. T. (2012). The importance of self-regulation for college student learning, College *Student Journal, 46*(4)*, 892–902.

de Bruin, K., & Cornelius, E. (2011). Self-directed learning and career decision-making. *Acta Academica, 43*(2)*, 214–235.

Douglass, C., & Morris, S. (2014). Student perspectives on self-directed learning. *Journal of the Scholarship of Teaching and Learning, 14*(1)*, 13–25.

Du Toit-Brits, C. (2015). Endowing self-directed learning in learning environments: Interrelated connection between student's environments and self-directed preparedness. *Journal of Education Studies, 1,* 32–52.

Fisher, M., King, J., & Tague, G. (2001). Development of a self-directed learning readiness scale for nursing education. *Nurse Education Today, 21*, 516–525.

Fisk, P. (2017). Education 4.0 … the future of learning will be dramatically different, in school and throughout life. https://www.peterfisk.com/2017/01/future-education-young-everyone-taught-together/

Gallagher, M. W., Marques, S. C., & Lopez, S.J. (2017). Hope and the academic trajectory of college students. *Journal of Happiness Studies, 18*(2)*, 341–352.

Harry, T., Chinyamurindi, W. T., & Mjoli, T. Q. (2018). Perceptions of factors that affect employability amongst a sample of final-year students at a rural South African university. *South African Journal of Industrial Psychology, 44,* 1–10.

Harry, T., & Chinyamurindi, W. T. (2019). Labour market transition and experiences of unemployed graduates: An exploratory study. *African Journal of Employee Relations, 43,* 1–31.

Harry, T., & Chinyamurindi, W. T. (2020). Illustrating school-to-work transition through drawings: An exploratory study with a sample of South African students. *South African Journal of Human Resource Management, 18,* 1–10.

Hayes, A. F. (2013*). Introduction to mediation, moderation, and conditional process analysis*: *A regression based approach*. The Guilford Press.

Hewitt-Taylor, J. (2001). Self-directed learning: Views of teachers and students. *Journal of Advanced Nursing, 36*(4), 496–504.

Hirschi, A., Abessolo, M., & Froidevaux, A. (2015). Hope as a resource for career exploration: Examining incremental and cross-lagged effects. *Journal of Vocational Behavior, 86*, 38–47.

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review, 17*(1), 63-84.

Jongsung, K. (2013). Relationship between Facebook usage and self-efficacy among collegiate athletes. *Media Watch, 4*(3), 364–374.

Kan'an, A., & Osman K. (2015). The relationship between self-directed learning skills and science achievement among Qatari students. *Creative Education, 6*, 790–797.

Khalid, M., Bashir, S., & Amin, H. (2020). Relationship between self-directed learning and academic achievement of university students: A case of online distance learning and traditional universities. *Bulletin of Education and Research, 42*(2), 131–148.

Maila, P., & Ross, E. (2018). Perceptions of disadvantaged rural matriculants regarding factors facilitating and constraining their transition to tertiary education. *South African Journal of Education, 38*(1), 1–12.

Maree, J. G. (2013). Latest developments in career counselling in South Africa: towards a positive approach. *South African Journal of Psychology, 43*(4), 409–421.

Mathabe, N. R., & Tamane, M.Q. (1993). The realities and imperatives of career counselling for a developing South Africa. *Journal of Career Development, 20*(1), 25–32.

Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyber psychology, Behavior, and Social Networking, 13*, 357–364.

Nakagawa, K. N., & Arzubiaga, A.E. (2014). The use of social media in teaching race. *Adult Learning, 25*(3), 103–110.

Nzama, T. A (2010). Challenges of sustainable rural tourism development in KwaZulu-Natal. *Inkanyiso, 2*(1), 44–53.

Oosthuizen, R. M., Coetzee, M., & Kruger, E. (2014). Assessing the test–retest reliability of career path appreciation as a measure of current and potential work decision-making capability. *South African Journal of Industrial Psychology, 40*(2), 1–18.

Park, H. (2013). Effect of self-directed learning readiness by learner's interaction on social network games. *Journal of Cases on Information Technology, 15*(3), 47–60.

Patton, W., & McMahon, M. (1999). *Career development and systems theory: A new relationship*. Pacific Grove.

Patton, W., & McMahon, M. (2006). *Career development and systems theory* (2nd ed). Pacific Grove.

Pettipas, S., Bernier, M., & Walker, T. R. (2016). A Canadian policy framework to mitigate plastic marine pollution. *Marine Policy, 68,* 117–122.

Pope, M. (2015). Career intervention: From the industrial to the digital age. In P. J. Hartung, M. L. Savickas & W. B. Walsh (Eds.), *APA handbook of career intervention* (Vol. 1), (pp. 3–19). APA Books.

Samarasooriya, R. C., Park, J., Yoon, S. H., Oh, J., & Baek, S. (2019). Self-directed learning among nurse learners in Sri Lanka. *The Journal of Continuing Education in Nursing, 50*(1)*,* 41–48.

Saxena, S. (2013, December 02). How technology supports self-directed learning. *EDTech Review*. https://edtechreview.in/news/824-how-technology-supports-self-directed-learning

Sedibe, M. (2011). Inequality of access to resources in previously disadvantaged South African high schools. *Journal of Social Sciences, 28*(2)*,* 129–135.

Shahroom, A. A., & Hussin, N. (2018). Industrial Revolution 4.0 and Education. *International Journal of Academic Research in Business and Social Sciences, 8*(9)*,* 314–319.

Shava, H., & Chinyamurindi, W. T. (2018). Determinants of social media usage among a sample of rural South African youth. *South African Journal of Information Management, 20*(1)*,* 1–8.

Smith, M., & Berge, Z. (2009). Social Cognitive Theory in Second Life. *MERLOT Journal of Online Learning and Teaching, 5*(2)*,* 87–104.

Song, L., & Hill, J. R. (2007). A conceptual model for understanding self-directed learning in online environments. *Journal of Interactive Online Learning, 6*(1)*,* 27–41.

Stead, G. B., & Watson, M. B. (2006). *Career psychology in the South African context* (2nd ed). Van Schaik Publishers.

Stead, G. B., & Watson, M. B. (2017). *Career psychology in the South African context* (3rd ed.). Van Schaik Publishers.

Turan, M. B., & Kenan Koç, K. (2018). The impact of self-directed learning readiness on critical thinking and self-efficacy among the students of the School of Physical Education and Sports. *International Journal of Higher Education, 7*(6)*,* 98–105.

Vilhjálmsdóttir, G., & Arnkelsson, G. B (2013). Social aspects of career choice from the perspective of habitus theory. *Journal of Vocational Behavior, 83*, 581–590.

Watson, M., McMahon, M., Foxcroft, C., & Els, C. (2010). Occupational aspirations of low socio-economic black South African children. *Journal of Career Development, 37*, 717–734.

Yang, Y., Zhang, M., & Kou, Y. (2016). Self-compassion and life satisfaction: The mediating role of hope. *Personality and Individual Differences, 98*, 91–95.

Zacher, H. (2014). Career adaptability predicts subjective career success above and beyond personality traits and core self-evaluations. *Journal of Vocational Behavior, 84*, 21–30.