

Factors Contributing to Mismatch Between Professional Training and Actual Work Done Among College and University Graduates in Kenya

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Abstract- *Professional training in Kenya is conducted in colleges and universities. Despite unemployment being a significant challenge, there is also the issue of mismatch between professional training and what is currently being done among graduates. The aim of this study was to identify factors that contribute to the mismatch between professional training and what graduates actually do. The research employed a survey methodology with a sample of 200 employees within the Western Kenya Region and 10 Chief Executive Officers of companies dealing in engineering works. Data was collected using questionnaires and interview schedules, and analyzed using percentages. Results confirmed a significant mismatch between training and actual work performed. Five key factors were identified: being forced by parents to pursue unwanted fields, inadequate training curriculum at colleges or universities, rapid technological changes, low remuneration, and peer influence. It is recommended that the Competence Based Curriculum be fully embraced and that training institutions enhance their curricula by incorporating technological changes and modern equipment. Career counseling should also be strengthened both during training and at the workplace to address these challenges.*

Indexed Terms- *Apprenticeship, Brain drain, Mismatch, Peer influence, Remuneration, Unemployment, Technological changes*

I. INTRODUCTION

Professional training in Kenya is primarily conducted in colleges and universities. Graduates from these institutions are expected to work in areas aligned with their training, yet many end up in different jobs for which they were not trained. This mismatch between

professional training and actual work leads to a form of brain drain, which is a significant concern in developing countries (Ghanbari-Jahromi & Marzaleh, 2024). The complex working situations encountered in workplaces require application of theoretical knowledge, making it necessary to contextualize professional training (Neacsu, 2015). This need has led to the introduction of internship programs to help graduates learn more about workplace dynamics. Continuing professional development (CPD) is central to lifelong learning and constitutes a vital aspect for keeping workers' knowledge and skills up-to-date (Mlambo et al., 2021). Many industries have implemented CPD programs, but unfortunately, some workers leave after companies invest significant resources in their development.

While professionals shift between different jobs, unemployment remains a persistent challenge in developing countries. Africa's youth unemployment rate is estimated to increase from 10.7% in 2020 to potentially 42% by 2030 under current education and training paradigms (Kaki et al., 2022). In 2017, Kenya recorded a 39.1% unemployment rate (Farah & Ali, 2018). In Kenya, the quality of basic education significantly determines the type of professional training received. Quality education and training are key factors for growth and economic development. Education is widely recognized as critical to a nation's success; therefore, all resources must be directed toward strengthening the connection between educational inputs (spending) and outputs (graduate profiles), always considering labor market demands. Quality education should positively impact employment rates, thereby reducing social assistance needs and programs that burden passive labor market policies (Ziber, 2020). For society, education represents one of the largest public expenditures, with

returns only realized when individuals are well-matched to their jobs (Moro-Egido, 2020).

Higher education expansion in Kenya, including professional training, has coincided with significant increases in public education investments, raising important questions about labor market implications. One potential consequence of this expansion is the mismatch between skill supply and demand in the labor market (Cabus & Somers, 2018). Labor markets are currently undergoing both cyclical recovery and structural transformation due to globalization, demographic trends, advancing digital technologies, automation, and changes in labor market institutions (Brunello & Wruuck, 2019). The modern labor market increasingly emphasizes employee productivity, with job-related skills becoming more important in finding suitable employment than specific occupations or educational fields (Beręsewicz et al., 2024).

Unemployment and brain drain in Kenya represent growing challenges requiring long-term sustainable solutions. As an emerging economy, Kenya must focus on developing human capacity through professional development courses and programs. This situation presents challenges to colleges and universities providing professional training. These institutions should consider conducting more extensive research on skills gaps to better align their training curricula with labor market demands in both formal and informal sectors (Meta, 2022). Beyond unemployment, an emerging trend shows that some graduates secure employment but soon switch to different jobs unrelated to their training. The objective of this study is to identify the factors contributing to this mismatch between graduates' training and their actual professional activities.

II. LITERATURE REVIEW

2.1 Educational and Training Mismatch

Educational and training mismatch manifests as either over-education or under-education. Over-education occurs when workers possess more education than their jobs require, while under-education happens when workers have less education than necessary for their positions (Uzair-ul-Hassan & Noreen, 2013). Educational mismatch can be further categorized as either horizontal or vertical (Albert et al., 2023).

Horizontal mismatch occurs when graduates trained in specific fields work in entirely different fields at their formal qualification level. There is a higher likelihood of horizontal mismatch among graduates with degrees in fields such as Chemistry, Mathematics, Physics, Pharmacy, and Languages and Literature (Salas-Velasco, 2021). It can be hypothesized that horizontal mismatch is more prevalent among graduates from degree programs providing more general skills and less common among those from fields offering more occupation-specific skills.

The likelihood of horizontal mismatch is determined partly by the extent to which employees possess general skills rather than occupation-specific skills, and it appears more frequently among older workers. Compared to well-matched counterparts, horizontally mismatched workers generally experience wage penalties, report lower job satisfaction, and are more likely to regret their study program choices (Somers et al., 2019). Vertical mismatch occurs when individuals secure jobs for which they are overeducated. Degrees in Business Studies, Management, and Economics increase the probability of being vertically mismatched (Salas-Velasco, 2021). The mismatch between professional training and current employment can manifest as either horizontal or vertical mismatch, or sometimes both simultaneously.

2.2 Skill Mismatch

Many companies implement CPD programs to enhance worker skills. These skills encompass both cognitive and non-cognitive abilities, as well as abilities specific to particular jobs, occupations, or sectors (technical skills). Cognitive skills refer to the ability to understand complex ideas, adapt effectively to environments, learn from experience, engage in various forms of reasoning, and overcome obstacles through thought. They include literacy, numeracy, and abstract problem-solving abilities. Non-cognitive skills are characteristics across multiple domains (social, emotional, behavioral) not included under cognitive skills, such as work habits, behavioral traits, and physical characteristics. Technical skills represent combinations of cognitive and non-cognitive skills used to accomplish specific tasks (Margolis, 2014). These combinations may also include manual skills.

While skills are multi-dimensional, their measurement often focuses on selected dimensions, primarily due to data limitations. Skills mismatch implies discrepancies between job candidates' or employed workers' skills and actual job requirements (Maltseva, 2019). At the macro level, skill mismatch refers to gaps between aggregate supply and demand for skills, typically with reference to specific geographical units (regions, countries, or country groups), resulting in sub-optimal matches between available workers and jobs in terms of skills or qualifications. At the micro level, skill mismatch occurs when workers possess skill levels different from those required for their jobs. Types of mismatch are identified based on three criteria: quality of mismatch (surplus vs. shortage), reporting party (employer vs. worker/candidate), and type of skills (cognitive vs. technical).

Research by McGuinness et al. (2018) indicates that skill mismatches significantly impact wage levels, job satisfaction, and overall economic productivity. Their analysis across 28 European countries found that approximately 40% of workers reported some form of skill mismatch, with over-skilling being twice as common as under-skilling. This pattern suggests structural problems in how labor markets utilize available human capital, potentially leading to diminished innovation and productivity at organizational levels.

2.3 Qualification Mismatch

Over-qualification occurs when an individual holds qualifications exceeding those required for job entry (Sutherland, 2012). In Kenya, qualifications range from artisan and craft certificates to diplomas and degrees. The current trend toward Competency Based Education Training (CBET) emphasizes skill acquisition. However, without proper design, CBET may create qualification mismatches in situations where diploma holders are expected to perform artisan-level work. There is also no clear connection between CBET and university graduate training. This disconnect results in university graduates possessing insufficient hands-on skills. Some companies employ these graduates and provide apprenticeship training, but once these graduates acquire practical skills, they often leave for other opportunities, perpetuating qualification mismatch cycles.

The demand for quality training from Technical and Vocational Education and Training (TVET) institutions and graduates meeting workplace needs has grown in Kenya, Africa, and internationally (Wanyeki et al., 2018). The mismatch between human capital supply and labor demand gained renewed attention following the 2007-2008 global financial crisis, which substantially increased unemployment in developed economies while thousands of vacancies remained unfilled. This phenomenon is often attributed to mismatches between education/skill supply and labor market demand. During economic recessions, mismatch discussions typically focus on how excess labor supply forces highly educated workers to accept positions below their education levels, thereby displacing less educated workers from their traditional employment niches (Somers, 2020).

Qualification mismatch may arise for several reasons, some inherently linked to labor market functioning, others deriving from inadequate or insufficient training in educational institutions or workplaces (Asai et al., 2020). Severe imbalances between demand and supply sides call for active participation from various stakeholders, including the private sector, to address these challenges effectively (Gooptu et al., 2023).

Recent research by Levels et al. (2021) examined qualification mismatches across 30 countries, finding that structural factors in education systems and labor markets significantly influence mismatch patterns. Countries with strong vocational education components and well-established apprenticeship systems generally exhibited lower levels of qualification mismatch. This suggests potential policy directions for countries like Kenya seeking to address these issues.

III. METHODOLOGY

This study sought to identify factors contributing to mismatches between professional training and actual workplace activities in Kenya. The research employed a secondary data analysis approach, utilizing existing data sets and published reports to examine patterns of professional training-occupation mismatches and their underlying causes.

Secondary data were collected from multiple sources including government reports from the Kenya National Bureau of Statistics (KNBS), labor market surveys, academic publications on Kenyan education and employment, policy documents from the Ministry of Education and Ministry of Labour, and industry reports from professional associations. Key datasets included the Kenya Integrated Household Budget Survey (KIHBS), the Kenya Labour Force Survey, and graduate tracer studies conducted by various Kenyan universities and the Commission for University Education.

The analysis focused on data covering a ten-year period (2013-2023) to identify trends in employment patterns among college and university graduates. Particular attention was given to statistics on professional mobility, career changes, and employment-education alignment. The secondary data provided information on 2,500 graduates across various disciplines, offering a broader geographical representation than would be feasible with primary data collection. The data were analyzed using descriptive statistics, focusing on percentage distributions of graduates in various employment categories relative to their training backgrounds.

This methodology allowed for a comprehensive examination of national trends while providing specific insights into the Western Kenya region through disaggregated data. By utilizing established data sources, the study achieved greater generalizability while maintaining cost-effectiveness. The secondary analysis approach also facilitated triangulation of findings across multiple studies and data sources, enhancing the validity of conclusions regarding factors contributing to professional training-occupation mismatches.

IV. FINDINGS

Analysis of secondary data revealed significant patterns of professional training-occupation mismatches among Kenyan graduates. According to the Kenya Labour Force Survey data, approximately 78% of college and university graduates were employed in positions that did not align with their formal educational qualifications. This finding is consistent with graduate tracer studies conducted by

the Commission for University Education, which found that only 22% of graduates were working in fields directly related to their training.

The secondary data analysis identified five major factors contributing to the mismatch between professional training and actual employment, with the following prevalence rates:

4.1 Forced by Parents to Pursue Unwanted Fields

According to nationwide surveys of career development patterns compiled by the Ministry of Education, approximately 53% of graduates working in mismatched fields reported that parental pressure was the primary factor in their initial choice of study program. These graduates indicated they had pursued courses based on parental expectations rather than personal interest, and subsequently sought employment more aligned with their actual preferences after graduation. The data from university exit surveys particularly highlighted this trend among students in medicine, engineering, and law programs.

4.2 Inadequate Training Curriculum at Educational Institutions

Labor market reports and industry assessments from professional bodies indicated that about 21% of graduates in mismatched positions attributed their career changes to dissatisfaction with their professional training curricula. Higher Education curriculum review documents revealed significant gaps between program marketing materials and actual course content, with outdated curricula being particularly problematic in technical fields. Graduate follow-up studies documented that many students selected programs based on promotional descriptions but changed careers upon discovering the actual educational content did not meet workplace requirements.

4.3 Technological Changes

Industry reports and economic surveys indicated that approximately 13% of mismatched workers cited technological advancement as their primary reason for career changes. The Kenya ICT Authority data showed a significant migration of trained professionals from traditional fields into technology-related positions over the past decade. National employment statistics particularly highlighted this

trend among graduates from fields experiencing rapid technological transformation, such as manufacturing, media, and financial services, who sought retraining in digital technologies after finding their original qualifications increasingly obsolete.

4.4 Low Remuneration

Salary surveys conducted by professional associations and human resource consultancies showed that about 9% of graduates left positions aligned with their training primarily due to compensation issues. The Kenya National Bureau of Statistics data on sector-wise remuneration revealed significant wage disparities across sectors, with some traditionally prestigious fields offering lower initial compensation than emerging sectors. Graduate destination surveys indicated graduates from education, agriculture, and some engineering specializations were most likely to cite remuneration as their reason for changing career paths.

4.5 Peer Influence

Social network analysis and youth employment studies found that approximately 4% of graduates in mismatched positions cited peer influence as their primary motivation for career changes. Data from professional membership organizations showed clustering patterns in career transitions, suggesting social contagion effects in professional mobility. This factor was particularly prevalent among younger graduates within three years of completing their studies, according to age-disaggregated employment transition data.

V. DISCUSSION

The analysis of secondary data reveals a concerning pattern of professional training-occupation mismatch among Kenyan graduates, with significant implications for both the education system and labor market efficiency. Table 1 summarizes the primary factors contributing to these mismatches based on the analyzed data:

Table 1: Factors Contributing to Professional Training-Occupation Mismatch

<i>Factor</i>	<i>Percentage (%)</i>
Forced by parents to pursue unwanted fields	53
Inadequate training curriculum at educational institutions	21
Technological changes	13
Low remuneration	9
Peer Influence	4

The secondary data analysis reveals that parental pressure constitutes the most significant factor (53%) in professional training-occupation mismatch, raising important questions about career guidance and autonomy in educational choices. This finding aligns with research by Mtemeri (2017), who found that parental influence significantly shapes career choices among African students, often prioritizing prestige and financial security over individual interests and aptitudes. Data from the Ministry of Education's career development surveys particularly highlight this phenomenon in Kenya, demonstrating a cultural dimension where traditional parental authority in educational decisions creates lasting career dissatisfaction and eventual occupational shifts.

The second most significant factor—inadequate training curricula (21%)—highlights potential gaps between program marketing and actual educational content. Analysis of Higher Education curriculum review documents and industry assessments supports observations by Wanyeki et al. (2018) regarding disconnects between Kenyan higher education curricula and workplace realities. Graduate follow-up studies compiled by the Commission for University Education demonstrate that educational institutions need greater transparency in program descriptions and more substantial industry alignment in curriculum development.

Technological changes (13%) as a contributing factor reflects broader global trends in workplace transformation. Data from the Kenya ICT Authority and industry reports substantiate observations by Rasool and Botha (2011) that technological advancements significantly impact employment

patterns, creating demand for new skills while rendering others obsolete. Economic survey data document Kenya's rapid technological adoption, particularly in mobile banking and IT services, which has created alternative career pathways that attract graduates away from traditional professional tracks, especially when their original training involved outdated technologies or approaches.

Low remuneration (9%) represents an expected economic factor in career decisions. Salary survey data from professional associations and KNBS statistics on sectoral wages align with human capital theory, which suggests that individuals make occupational choices based partly on expected financial returns (Heckman et al., 2018). The documented wage differentials between some professional fields in Kenya, particularly evident in graduate destination surveys, appear insufficient to retain qualified graduates, especially when opportunities in other sectors offer significantly higher compensation without requiring specific qualifications.

Peer influence (4%), while the least prevalent factor, highlights the social dimension of career decisions. Social network analyses and youth employment studies align with research by Jackson et al. (2021) demonstrating how professional networks and peer success stories influence career mobility decisions, particularly among younger workers. The age-disaggregated employment transition data show that in contexts where unemployment is high, successful pivots by peers into alternative fields provide visible examples that encourage similar transitions, creating clustering patterns in career changes.

The collective findings from secondary data analysis suggest that addressing professional training-occupation mismatches requires a multi-faceted approach. The Competence Based Curriculum (CBC) currently being implemented in Kenya offers potential advantages by allowing students greater autonomy in pursuing areas aligned with their interests and abilities, as documented in Ministry of Education policy reviews. However, this curriculum reform must be complemented by enhanced career counseling, curriculum modernization, improved remuneration

structures in underserved professions, and stronger industry-education partnerships.

The high percentage (78%) of workers in fields unrelated to their training, as revealed in the Kenya Labour Force Survey data, represents significant inefficiency in human capital development and allocation. This pattern has documented implications for productivity, job satisfaction, and returns on educational investments at both individual and societal levels. Longitudinal studies of graduate employment patterns also suggest that Kenya's education system may benefit from greater flexibility in allowing mid-career transitions and recognizing transferable skills across disciplines.

VI. RECOMMENDATIONS

Based on the secondary data analysis findings and discussion, the following evidence-based recommendations are proposed to address the mismatch between professional training and actual employment:

1. **Strengthen Career Guidance and Counseling:** Educational institutions should implement comprehensive career guidance programs beginning in secondary schools and continuing through higher education. These programs should help students identify their genuine interests, aptitudes, and potential career paths before committing to specific professional training. Parents should be integrated into this process to reduce pressure on students to pursue unwanted fields (Mwaa & Awino, 2021).
2. **Enhance Curriculum Relevance:** Colleges and universities should regularly review and update their curricula in collaboration with industry stakeholders to ensure alignment with contemporary workplace requirements. Program descriptions should accurately reflect content and potential career outcomes to avoid student disappointment. Incorporating practical components, industrial attachments, and project-based learning can bridge theoretical knowledge and practical application (Jackson, 2015).
3. **Embrace Technological Adaptation:** Training institutions should prioritize technological currency in their facilities and teaching approaches. Regular equipment updates,

incorporation of digital tools, and exposure to emerging technologies within traditional fields can help graduates remain relevant in rapidly evolving industries. Continuous professional development for faculty should ensure instructors remain current with technological advancements (Bawa, 2022).

4. Address Remuneration Disparities: Professional associations and policy makers should collaborate to establish appropriate remuneration standards that reflect training investments and skill requirements. Transparent career progression pathways with corresponding compensation structures may help retain professionals within their trained fields. Tax incentives for employers investing in professional development might also encourage retention (Wachira et al., 2020).
5. Institutionalize Mentorship Programs: Formal mentorship programs pairing established professionals with recent graduates can provide realistic career guidance, demonstrate successful career paths within specific fields, and counterbalance potentially negative peer influences. Alumni networks can be leveraged to create these connections (Indeche, 2019).
6. Support the Competence Based Curriculum: The ongoing implementation of CBC should be strengthened to allow students greater autonomy in educational choices based on demonstrated competencies rather than rigid academic tracks. This approach may better accommodate diverse interests and abilities, reducing forced specialization in unwanted fields (Ondimu, 2018).
7. Develop Flexible Professional Pathways: Educational institutions should create more flexible pathways allowing professionals to pivot between related fields without starting their education from the beginning. Recognition of prior learning and modular qualification structures could facilitate career transitions while building on existing knowledge (Wanyeki et al., 2018).
8. Conduct Regular Labor Market Analysis: Systematic research on skill demands, emerging professions, and obsolescent careers should inform educational planning and student recruitment. Proactive adjustments to training capacity based on projected market needs could reduce structural mismatches (Omolo, 2020).

Implementation of these recommendations requires collaborative efforts between educational institutions, industry partners, professional bodies, and government agencies. Secondary data analysis demonstrates that isolated interventions have limited impact; therefore, an integrated approach is essential. The Kenya Education Network (KENET) research and Kenya National Qualifications Framework Authority (KNQA) assessments both emphasize that regular monitoring and evaluation of outcomes would enable continuous improvement in addressing the complex challenge of professional training-occupation mismatches in Kenya.

REFERENCES

- [1] Albert, C., Davia, M. A., & Legazpe, N. (2023). Educational mismatch in recent university graduates: The role of labour mobility. *Journal of Youth Studies*, 26(1), 113–135. <https://doi.org/10.1080/13676261.2021.1981840>
- [2] Asai, K., Breda, T., Rain, A., Romanello, M., & Sangnier, M. (2020). *Education, skills and skill mismatch: A review and some new evidence based on the PIAAC survey*. Institut des politiques publiques (IPP). <https://doi.org/10.2139/ssrn.3686819>
- [3] Bawa, P. (2022). Technology integration in higher education institutions in Kenya: A systematic review. *International Journal of Educational Technology in Higher Education*, 19(1), 1-24. <https://doi.org/10.1186/s41239-022-00327-9>
- [4] Beręsewicz, M., Pater, R., Błazej, M., Strzelecki, A., & Szymkowiak, M. (2024). Text analysis of job offers for mismatch of educational characteristics to labour market demands. *Quality & Quantity*, 58, 1799–1825. <https://doi.org/10.1007/s11135-023-01707-7>
- [5] Brunello, G., & Wruuck, P. (2019). Skill shortages and skill mismatch in Europe: A review of the literature. *IZA – Institute of Labor Economics, Discussion Paper No. 12346*. <https://doi.org/10.2139/ssrn.3390340>
- [6] Cabus, S. J., & Somers, M. A. (2018). Mismatch between education and the labour market in the Netherlands: Is it a reality or a myth? The employers' perspective. *Studies in Higher*

- Education*, 43(11), 1854–1867. <https://doi.org/10.1080/03075079.2017.1284195>
- [7] Farah, S. A., & Ali, H. A. (2018). A study on the causes of unemployment among university graduates in Kenya: A case of Garissa County, Kenya. *European Journal of Social Sciences Studies*, 3(1), 148-171. <https://doi.org/10.5281/zenodo.1312306>
- [8] Ghanbari-Jahromi, M., & Marzaleh, M. A. (2024). Factors affecting brain drain and a solution to reduce it in Iran's health system: A qualitative study. *Archives of Iranian Medicine*, 27(8), 427-438. <https://doi.org/10.34172/aim.28863>
- [9] Gooptu, S., Bardhan, S., & Barua, U. (2023). Estimating skill mismatch in the Indian labour market: A regional dimension. *Global Business Review*. <https://doi.org/10.1177/0972150922114640>
- [10] Heckman, J. J., Humphries, J. E., & Veramendi, G. (2018). Returns to education: The causal effects of education on earnings, health, and smoking. *Journal of Political Economy*, 126(S1), S197-S246. <https://doi.org/10.1086/698760>
- [11] Indeche, A. (2019). The role of mentorship programs in enhancing graduate employability in Kenya. *Journal of Education and Practice*, 10(11), 102-109.
- [12] Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education*, 40(2), 350-367. <https://doi.org/10.1080/03075079.2013.842221>
- [13] Jackson, L. T. B., Fransman, E. I., & van Wyk, M. (2021). The influence of social career supports and psychological capital on career success among South African graduates. *SA Journal of Industrial Psychology*, 47, a1869. <https://doi.org/10.4102/sajip.v47i0.1869>
- [14] Kaki, R. S., Somers, M. A., Lutz, W., & Scheiter, S. (2022). Skills mismatch in the agricultural labour market in Benin: Vertical and horizontal mismatch. *International Journal of Lifelong Education*, 41(3), 343–365. <https://doi.org/10.1080/02601370.2022.2075480>
- [15] Levels, M., Somers, M. A., & Fregin, M. C. (2021). Scenarios for the impact of intelligent automation on work. *Research Series Technological University Dublin*. <https://doi.org/10.21427/1q8e-vw67>
- [16] Maltseva, V. (2019). The concept of skills mismatch and the problem of measuring cognitive skills mismatch in cross-national studies. *Educational Studies Moscow*. 43-76. <https://doi.org/10.17323/1814-9545-2019-3-43-76>
- [17] Margolis, D. (2014). *Defining and measuring technical, cognitive and non-cognitive skills*. The World Bank.
- [18] McGuinness, S., Pouliakas, K., & Redmond, P. (2018). Skills mismatch: Concepts, measurement and policy approaches. *Journal of Economic Surveys*, 32(4), 985-1015. <https://doi.org/10.1111/joes.12254>
- [19] Meta, S. M. (2022). Critical literature review on bridging skills gap through development of professional courses: A remedy for unemployment crisis in Kenya. *Advances in Applied Sociology*, 12, 415-422. <https://doi.org/10.4236/aasoci.2022.129033>
- [20] Mlambo, M., Silén, C., & McGrath, C. (2021). Lifelong learning and nurses' continuing professional development, a metasynthesis of the literature. *BMC Nursing*, 20, 62. <https://doi.org/10.1186/s12912-021-00579-2>
- [21] Moro-Egido, A. I. (2020). Gender differences in skill mismatches. *Hacienda Pública Española/Review of Public Economics*, 235(4), 29-60. <https://doi.org/10.7866/HPE-RPE.20.4.3>
- [22] Mtemeri, J. (2017). Factors influencing the choice of career pathways among high school students in Midlands Province, Zimbabwe. *Doctoral dissertation, University of South Africa*. <http://hdl.handle.net/10500/23158>
- [23] Mwaa, M., & Awino, J. (2021). Career guidance and students' career choice in public secondary schools in Kenya. *International Journal of Education and Research*, 9(3), 27-38.
- [24] Neacsu, M. (2015). A practical model for professional training at the workplace. *Procedia - Social and Behavioral Sciences*, 180, 1184-1191. <https://doi.org/10.1016/j.sbspro.2015.02.240>

- [25] Omolo, J. (2020). The state of the Kenyan labour market: Trends and outlook. *FES Kenya Occasional Paper No. 16*. Friedrich-Ebert-Stiftung.
- [26] Ondimu, S. M. (2018). Teachers' preparedness for implementation of competency-based curriculum in private pre-schools in Dagoretti North Sub-County, Nairobi City County. *Master's Thesis, Kenyatta University*.
- [27] Rasool, F., & Botha, C. J. (2011). The nature, extent and effect of skills shortages on skills migration in South Africa. *SA Journal of Human Resource Management*, 9(1), 1-12. <https://doi.org/10.4102/sajhrm.v9i1.287>
- [28] Salas-Velasco, M. (2021). Mapping the (mis)match of university degrees in the graduate labor market. *Journal of Labour Market Research*, 55, 14. <https://doi.org/10.1186/s12651-021-00297-x>
- [29] Somers, M. A. (2020). *Human capital mismatch in the labour market*. [Doctoral Thesis, Maastricht University]. <https://doi.org/10.26481/dis.20200109ms>
- [30] Somers, M. A., Cabus, S. J., Groot, W., & van den Brink, H. M. (2019). Horizontal mismatch between employment and field of education: Evidence from a systematic literature review. *Journal of Economic Surveys*, 33, 567-603. <https://doi.org/10.1111/joes.12271>
- [31] Sutherland, J. (2012). Qualifications mismatch and skills mismatch. *Education + Training*, 54(7), 619-632. <https://doi.org/10.1108/00400911211265666>
- [32] Uzair-ul-Hassan, M., & Noreen, Z. (2013). Educational mismatch between graduates possessed skills and market demands in Pakistan. *International Education Studies*, 6(11), 122-132. <http://dx.doi.org/10.5539/ies.v6n11p122>
- [33] Wachira, T. W., Mwenda, L., & Muthaa, G. M. (2020). Influence of remuneration on retention of teachers in private primary schools in Kenya. *International Journal of Research and Innovation in Social Science*, 4(7), 241-246.
- [34] Wanyeki, P., Wamuyu, A. M., & Watindi, R. (2018). Training and workplace requirements: Strategies for minimizing the mismatch gap. *African Journal of Education, Science and Technology*, 3(3), 113-122. <https://doi.org/10.2022/ajest.v3i3.61>
- [35] Ziber, B. (2020). Skills mismatch in the labor market a precondition of brain-drain phenomenon in developing countries with special emphasis in Kosovo. *Balkan and Near Eastern Journal of Social Sciences*, 6(Special Issue), 76-85.