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A WORKERS' EDUCATION CURRICULUM WITH NO PRODUCTION ISSUES? GAPS IN WORKERS' EDUCATION IN SOUTH AFRICA

ABSTRACT

Despite massive changes in production, workers' education, especially in South Africa, is misaligned with the radical transformation of the labour process and the introduction of new technologies in the workplace. Understandably, workers' education in South Africa has tended to focus on wages and politics because black labour under Apartheid was cheap. Based on in-depth interviews and internet sources, this research paper shows that workers' education in South Africa generally covers what I call redistribution themes, which include wages, benefits, and, in many instances, politics of upward social mobility at the expense of production, which affects workers negatively in the form of retrenchments, changes in skills, and increased work pace. This omission has effectively left production-related matters in the hands of employers, who prioritise advancing and protecting their profit interests.

Keywords: *technological innovations, trade unions, workers' education, production, curriculum*

KURIKULUM ZA IZOBRAŽEVANJE DELAVCEV, KI NE OBRAVNAVA TEM IZ PROIZVODNJE? VRZELI V IZOBRAŽEVANJU DELAVCEV V JUŽNI AFRIKI – POVZETEK

Kljub velikim spremembam v proizvodnji se izobraževanje delavcev, zlasti v Južni Afriki, ni uskladilo z radikalno preobrazbo delovnega procesa in uvajanjem novih tehnologij na delovnem mestu. Razumljivo je, da se izobraževanje delavcev v Južni Afriki osredotoča na plače in politiko, ker je bila v času apartheida delovna sila črnih delavcev poceni. Na podlagi poglobljenih intervjujev in internetnih virov pokažem, da izobraževanje delavcev v Južni Afriki na splošno zajema teme, ki jih imenujem teme prerazporeditve. Te vključujejo plače, nadomestila in pogoste primere navzgor usmerjene družbene mobilnosti na račun tem, povezanih s proizvodnjo, kar negativno vpliva na delavce zaradi omejevanj, sprememb v zahtevanih spretnostih in povečane hitrosti. Teme, povezane s proizvodnjo, so tako dejansko prepuščene delodajalcem, ki dajejo prednost svojim dobičkonosnim interesom in jih tudi ščitijo.

Ključne besede: *tehnološke inovacije, sindikati, izobraževanje delavcev, proizvodnja, kurikulum*

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INTRODUCTION

In a 2013 report, the South African Department of Higher Education and Training (DHET) provides a comprehensive definition of the post-school education sector as encompassing "all education and training provision for those who have completed school, those who did not complete their schooling, and those who never attended school" (DHET, 2013, p. xi). Despite this broad definition of the post-school education sector, debates on the topic primarily revolve around developments within universities (Habib, 2019; Jansen, 2023; Le Grange, 2023) and technical and vocational education and training (TVET) institutions (Madileng, 2022; Ronnie, 2023; Stops et al., 2022). Nonetheless, it is worth noting that certain positive developments are emerging, aimed at giving adult education, often seen as a "stepchild" or a neglected component of the post-school education sector, the recognition it deserves.

These positive developments include the publication of the *White Paper for Post-School Education* in 2013 (DHET, 2013), the revision of the *Adult Education and Training (AET) Act* of 2000, and the implementation of the *Colleges Amendment Act of 2013*, among other initiatives (Mginywa, 2021). Additionally, there has been a shift in the oversight of adult basic education and training (ABET) from the provincial departments, previously managed by the Department of Basic Education (DBE), to the DHET. Despite these noteworthy reforms and the establishment of community colleges under the leadership of DHET across all provinces, formal and non-formal adult education continues to face marginalisation within the post-school education sector. It remains underfunded and lacks robust support structures and systems. As a result, there is still a considerable distance to cover in order to fully unlock the potential of adult education (Aitchison & Land, 2019; Triple E Training, 2023).

Mainstream literature on adult education (Aitchison & Land, 2019) and skills development (Allais & Marock, 2023; Lee, 2023) frequently overlooks one of the crucial aspects of adult education: workers' education. Within the hierarchies of marginalisation, adult education is at the lower end, but workers' education is rock bottom and comes after adult education. This downplaying of the role of workers' education is significant in view of the fact that workers' education can serve as a powerful tool in harnessing the collective voices of workers who continue to be marginalised by social and economic systems in post-apartheid South Africa. While black workers, in particular, made significant contributions to the attainment of democracy and political freedoms in South Africa, which began in 1994, it is crucial to note that economically, this segment of the population has experienced significant social and economic setbacks since that time (Hlatshwayo & Buhlungu, 2017).

Cronje's (2017) research, which used an expanded definition of unemployment as including even those who had given up looking for jobs, found that the number of unemployed people in South Africa increased from 3,672,000 in 1994 to 8,880,000 in 2016 – a staggering 141.8% increase. Employment conditions have deteriorated further since then. In the first quarter of 2023, unemployment in this expanded definition reached

42.4%, placing South Africa among the countries grappling with chronic and structural unemployment on a global scale. Furthermore, the youth unemployment rate, which encompasses job-seekers aged 15 to 24 years, increased to 62.1%, up from 61% in the first quarter of 2023 (Trading Economics, 2023). It is noteworthy that nearly half of all employment in South Africa falls into the category of precarious work, characterised by low wages, extended working hours, and limited or no access to benefits. It is important to highlight that these precarious workers are not confined to peripheral roles but are actively engaged in critical manufacturing and service operations, underscoring the pervasive nature of this employment challenge (Dor & Runciman, 2022).

In post-apartheid South Africa, the marginalisation of workers coincides with the decline of radical workers' education. Historically, radical workers' education took shape through structured programmes organised by trade unions and non-governmental organisations (NGOs), and it played a pivotal role in advancing democracy within the unions, bolstering wage negotiations, improving working conditions, and contributing to the broader liberation struggle – especially during the 1970s and 1980s. It is important to note that the labour movement was not without its internal problems and differences, including issues such as political intolerance and insufficient attention to women's emancipation.

The labour movement transformed into an educational platform where structured workers' education programmes, based on Paulo Freire's principles of democracy and participation, fostered a dynamic environment of co-learning among those who had higher levels of formal education and workers on the shop floor (Cooper, 2007, 2020). Concerning radical workers' education, Webster (2021) notes:

> Access to the intellectual and physical resources of the middle class led to the production of a large number of publications that aimed to educate workers on their rights. Fosatu Worker News [a news magazine of the Federation of South African Trade Unions (FOSATU) formed in 1979] was one such publication. It was published in Sotho, English, and Zulu, informing workers of the unions' policies and providing histories of worker struggles. (p. 521)

Radical workers' education in South Africa was fundamentally focused on a dialogical approach to educate workers with the goal of bringing about radical changes in South Africa. Nevertheless, the 1990s marked a decline in the momentum of the radical workers' education movement, giving way to a more individualistic approach to workers' education. This shift was primarily concerned with obtaining certifications and achieving individual upward mobility, both within the private and public sectors, rather than emphasizing collective and transformative social change.

The landscape of workers' education in South Africa experienced a significant transformation, with the dominant role previously played by trade unions and NGOs in delivering radical workers' education in the 1970s and 1980s gradually being supplanted. This shift saw the emergence of the Sector Education and Training Authorities (SETAs),

consultants, and private service providers taking precedence in providing educational and training services (Cooper, 2021; Vally et al., 2013). Although radical workers' education played a crucial role in advancing the labour movement during the apartheid struggle, it often did not adequately address the role of technology in production and labour processes. Research indicates that technological advancements and job restructuring have a substantial impact on the job security of factory employees. As an illustrative example, between 1989 and 2011, approximately 50,000 employees at Iscor, which has since become ArcelorMittal, lost their jobs due to technical innovations and changes in work arrangements (Hlatshwayo, 2013).

The first part of the article shows that internationally, trade unions typically adopt two approaches. The first approach involves incorporating research and education on technology as a central element of their activities, while the second approach focuses on technology only when it directly impacts workers and employment. The second part of the paper examines how South Africa's radical education ignored production and technology issues. The third part, which entails the core of the findings, demonstrates that despite prominent debates on the role of technology in production in post-apartheid South Africa, trade unions continued with workers' education that did not focus on the role of technological innovation in production and services.

UNIDIMENSIONAL WORKERS' EDUCATION: SOME THEORETICAL REFLECTIONS

According to Ghosh et al. (2009), the traditional role of trade unions was negotiating wages, benefits, and working conditions with the employers who own and run the workplaces. Similarly, Sandberg (1985) contends that focusing on wages and working conditions involves what some scholars regard as "distribution" struggles. However, in the 1980s, employers began to restructure work by introducing lean production, which entails cutting production costs, and new technologies and production methods. To respond to the latest production challenges, trade unions, particularly in Sweden and Germany, began to grapple with production issues (Hlatshwayo, 2013; Sandberg, 1985).

In the 1980s, the role of trade unions evolved, and during the phase of lean production and technological changes, employers compelled trade unions in Sweden to include "production" issues such as technological changes and work reorganisation in their bargaining process. Having production as one of the foci meant that education in trade had to include production issues, such as responding to work reorganisation and technological changes in production. Wages and benefits are significant for workers and the unions because "[b]y bringing workers' collective power to the bargaining table, unions can win better wages and benefits for working people – reducing income inequality as a result" (Economic Policy Institute, 2021, p. 1).

South Africa is a country where Apartheid and capitalism rest on the cheap black labour system that relegated black workers to low wages, and the migrant labour system, which meant that men worked in the mines and left their families in the reserves. The growth

of the urban-based workforce, particularly in the 1960s, made it possible to develop the trade union movement, whose foundation in the struggle was for wage increases and improved working conditions. It was this movement that became the backbone of the struggles against Apartheid and capitalism, thereby prioritising redistribution over production. In other words, workers' education sought to strengthen political and wage struggles.

A focus on wages, working conditions, and benefits, as alluded to by the Economic Policy Institute (2021), is essential for workers and trade unions because the issues of distribution keep workers alive, as they use wages to purchase food, housing, transport, health care, education, and other services for workers and their families. However, since the 1980s, trade unionism had to include distribution and production issues as employers began to change production by outsourcing, introducing new technologies, and other forms of work restructuring programmes.

German unions are a good example of the evolution of trade union strategies. Initially, in the 1960s, German unions, notably IG Metall, embraced technical innovations in production as they did not adversely affect workers (Masondo, 2013, p. 66). However, IG Metall started taking proactive steps in the production process in the 1970s, when employers began to lay off workers due to technological innovations. As a result, the *Works Council Act* underwent revisions, necessitating a lengthy consultation concerning technological changes and production (Bosch, 2021). In the 1960s, the union had developed a "humanisation of work" project. It secured funding from the Federal Ministry of Research and Technology of West Germany for research and education projects to develop "humane" production technologies. As a result of the proactive approach to technology in production, the union updated its worker education. Thus, workers' education and research informed workers about the significance of technological improvements in the work process (Hlatshwayo, 2013).

To formulate a proactive response to technological changes, IG Metall utilised works councils, which elected worker representatives, providing a space for consultation concerning works council laws, members' support, research, and capacity within the workforce and unions (Bacon & Blyton, 2000; Mashilo, 2010). In the event of factory closures, companies, the government, and trade unions are expected to develop social programmes to care for displaced workers (Masondo, 2013).

In response to ongoing debates about the Fourth Industrial Revolution (4IR) – which is marked by the rapid adoption of technologies such as artificial intelligence, blockchain, nanotechnology, bullet trains, and driverless vehicles – IG Metall collaborated with the Ruhr-University Bochum to establish a 4IR learning factory in Bochum in 2016, with support from the German Federal Government (Klippert et al., 2020). Learning factories are advanced educational environments that simulate factory settings. Participants engage in their studies within these factory-like settings, allowing them to experience production processes similar to those used in real-world factories. According to Newman et al. (2017), unlike traditional learning factories, the learning factory in Bochum allows worker

representatives and workers to design technologies and robots that workers in Germany control. In 2019, IG Metall had 130 shop stewards and members involved in research and education at the 4IR learning factory. Workers' education in the learning factory environment enables shop stewards, workers, university-based labour scholars, engineers, sociologists, computer scientists, and company-based engineers to investigate complex designs of technologies and artificial intelligence that do not harm workers' health and rights. In 2019, a delegation from the National Union of Metalworkers of South Africa (NUMSA) participated in a workshop hosted at the learning factory as part of the ongoing collaboration between NUMSA and IG Metall (Hlatshwayo, 2020).

In addition to using the learning factory as an instructional tool, certain labour groups and unions in Australia and the USA are employing AI-enabled chatbots to educate workers, particularly insecure workers who lack union representation and a voice at work. The International Business Machines Corporation (IBM) developed a chatbot, which the alt-labour network in the USA and a union in Australia altered to suit their specific needs, enabling marginalised workers to access information about their rights and be directed to resources where they can seek assistance. The development of the chatbot, which commenced in 2016, also served as a means of fostering learning and knowledge exchange between the United Workers' Union (UWU), a traditional union in Australia, and their counterparts in the USA, which are unions affiliated with the alt-labour network known as the Organisation United for Respect (OUR).

Retail workers in Australia found the chatbot valuable for learning about their rights and reporting incidents of bullying and sexual harassment. This capability facilitated swift responses to instances of women workers' rights violations. In certain respects, the platform effectively addressed issues of physical distance and the isolation experienced by individual workers (Flanagan & Walker, 2021). On the other side, there have been instances where trade unions have failed to prioritise education in technology and production. Trade unions in South Africa, India, Nigeria, and the United Kingdom have been fighting in the rearguard as technology improves. These unions tend to prioritise wage discussions over technological developments (Hlatshwayo, 2013).

Buhlungu's (2001) groundbreaking doctoral thesis on the evolution of trade unions since the Durban strikes of 1973 correctly states that labour NGOs' worker education and research focus on redistribution in the form of wages and working conditions. This observation implies that workers' education in labour NGOs excludes production. Yet when he wrote his thesis, trade unions faced workplace restructuring in the form of privatisation, outsourcing, and technological changes.

Trade unions focusing on wage struggles reduce workers' education to reproduction or distribution issues in the form of wages, benefits, and working conditions, which may help reproduce workers and their families. These are big struggles, but what frequently happens is that firms may provide a salary rise, for example, but then restructure production and technology in a way that results in layoffs or increased labour intensity, which hurts the

remaining workers. When management maintains absolute control over technology production, unions that do not engage in proactive education and research on production and technology are less likely to secure favourable agreements and benefits for their members. Unions that perceive production as solely within the domain of employers may inadvertently harm their members by positioning them defensively when management adopts new technologies primarily to further the company's narrow interests (Hlatshwayo, 2014). Therefore, the South African case presented here in this paper is a unidimensional approach to workers' education, which tends to focus on distribution issues over production. The equation is not imbalanced because distribution is prioritised over production. South African trade unions tend to have an asymmetrical relationship between redistribution and production, which impacts their workers' education and prioritises redistribution.

The critical questions this research aimed to address were the predominant issues and themes in workers' education in South Africa. Additionally, the study sought to understand the reasons for focusing on these themes, particularly in the context of technological change and work reorganisation that impact workers and trade unions.

RESEARCH DESIGN

I obtained ethical clearance for conducting the research from the University of Johannesburg in 2020. I conducted in-depth interviews and gathered information from credible internet sources, such as the websites of trade unions and NGOs supporting labour, to answer the research questions mentioned above. I interviewed former trade unionists, educators, and academics who work with workers and trade unions, all experts in workers' education. In total, I conducted 15 interviews between 2020 and 2024. As I have been researching this topic for many years, my interviewees were familiar with me, which helped them feel at ease during our discussions. I also ensured they felt free to express their opinions to enrich the research (see Osborne & Grant-Smith, 2021).

The sampling technique used is purposive sampling because the knowledge and information to help answer the research question could only be obtained from worker educators and academics involved in workers' education in South Africa. The sample tries to ensure some national representation of the industrial centres that have a relatively strong presence of trade unions and workers' education programmes. Trade unionists who work as educators play a central role in designing and developing education programmes for worker leaders. In the same vein, NGOs supporting workers and trade unions are also key to planning and delivering workers' education programmes in South Africa (see Campbell et al., 2020).

I employed thematic analysis to evaluate the data collected from interviews. All interviews were recorded and transcribed, the duration ranging from 30 minutes to one hour. In some cases, I have used the actual names of the interviewees because they are recognised experts and public figures, who openly share their views on the subject discussed in this paper. I have also secured their oral consent to mention their names. The interviewees who are not public figures preferred not to be identified. Therefore, some interviewees will

be named, while those without a public profile will remain anonymous. I have obtained oral or written consent from those mentioned in the paper, adhering to ethical standards in this research. I analysed these transcribed interviews to identify responses to the questions posed in the research. The research gathered and analysed reliable internet sources from labour-related NGOs and trade unions. This exercise aimed to examine the nature and form of workers' education provided by these organisations and determine whether it addresses the production challenges faced by workers and trade unions.

The triangulation process was about comparing and contrasting in-depth interviews and internet sources, such as the official websites of trade unions and NGOs supporting trade unions, to determine facts, such as dates, years, and events. Websites had invaluable information about programmes on workers' education, and they helped when compared with the interviews to reveal common issues, such as the absence of a curriculum on the role of technologies in production (see Heale & Forbes, 2013; Pimentel, 2024).

FINDINGS AND INTERPRETATION OF DATA

Redistribution and NGOs

Visiting the Labour Research Service (LRS) website, an NGO founded in 1986 to support collective bargaining for trade unions in South Africa, reveals that their primary focus is assisting unions in negotiating wages and benefits. A key document prominently featured on the site is titled *A Series of Benchmarks to Inform Wage Negotiations* (Mthethwa, 2024). This document aims to educate trade unions and negotiators on how to use evidence effectively to persuade employers regarding wage increases (Mthethwa, 2024). LRS organises its work around "transforming corporate governance", "collective bargaining support", which is actually about wage bargaining and not production, as well as "gender" projects. Despite technology and work reorganisation being the thorny issues facing workers, LRS has the following campaigns: the "National Minimum Wage" campaign, and campaigns focused on women's rights and representation in trade union leadership (LRS, 2024b). All these campaigns and programmes are essential because women workers occupy precarious positions in the workplace. However, a unidimensional approach to collective bargaining could mean that LRS cannot provide education to workers in a manner that ensures that workers can respond to production concerns in the workplace (LRS, 2024a).

Founded in 1983, the International Labour Research and Information Group (ILRIG) is "a labour service organisation dedicated to research, education, training, and production of popular materials in the interests of then advancing unions and workers' power" (ILRIG, 2024). ILRIG has generally focused on international labour, economic and political issues in the context of contributing to solidarity amongst workers across the globe (ILRIG, 2024). ILRIG further says: "Through ILRIG's education programmes and research we aim to bring the experiences of working and poor people in other countries to Southern African organisations, and to draw on this information to inform the search for alternative policies" (ILRIG, 2024). The organisation has only two articles that discuss production

broadly in the form of automation, digitalisation, and the 4IR (Hattingh, 2021; Hattingh & Moussouris, 2021). This is besides booklets on the restructuring of the dairy industry in South Africa and another two that deal with the struggles of farmworkers and retail workers, which were published in 2004 and 2021, as well as other publications and booklets dealing with working-class struggles and various responses to neoliberal globalisation (ILRIG, 2024). A booklet on *Worker Education: A Guide for Trade Unions* is important for those who want to understand the basics of workers' education, but it does not educate workers on how to respond to issues of production, which was already a big issue for workers in 2002, when ILRIG published a guide on worker education (Pape & Newman, 2002).

Mthetho Xali, who has been involved in research and education since the 1980s and now works for ILRIG, indicated that changes in the production process are a reality in South Africa. However, these changes have not been matched with the transformation of workers' education to include production. When asked whether his organisation has delivered educational programmes to respond to technological changes and other workplace changes, he replied:

> Well not now, not now and the only time was with Ditsela and our staff. You know, this thing of automation, 4IR, I think we ran with it with some staff, but in our workshop, we have not dealt with this issue. Some farms are introducing new technologies and this is something we need to respond to. (Xali, interview, 13 June 2023)

David Cooper, a retired Associate Professor who founded ILRIG, published a seminal book on the industrial revolutions and the emergence of 4IR today (Cooper, 2011). Tshisimani, an NGO based in Cape Town, approached Cooper to conceptualise and facilitate workshops on 4IR. Working with Dinga Sikwebu, a renowned union educator, Simone Cupido, and Phindile Kunene (both activists and former staff members of Tshisimani), he ran workshops in the Western Cape, Eastern Cape, and Gauteng in 2018. Cooper elaborated on the workshops:

> We created posters explaining the 4IR. I would deliver content in a lecture mode, but Phindi [Phindile Kunene] and Simone [Cupido] told me that I needed to create small group discussions with guiding questions to ensure participation. That was a necessary correction. I had to realise that these workers had a knowledge of this technology but they had it in their own language, not my theoretical language; that they really understood even better than me how computers were taking over their lives. (Cooper, interview, 27 April 2023)

Cooper's testimony demonstrates that there is considerable potential for delivering dialogical workers' education, including education on production; educators who are experts are most likely to benefit. However, such interventions are not sustainable and not specific. This is an issue that trade unions and other worker organisations must take seriously

because they want to defend the workers' position in production. A balanced strategy that encompasses both the redistribution and production fronts requires a fundamental transformation of workers' struggles and strategies, especially in the context where managers are using production to push back the gains of workers. Therefore, academics, NGOs, trade unions, and other structures that represent workers need to redefine workers' education to include both redistribution and production.

The late Edward Webster, a renowned scholar-activist and an enduring figure in labour studies in the Global South, founded the Society, Work and Politics Institute (SWOP) in 1987 to support trade unions through research and education. After his formal retirement in 2009, SWOP focused on working-class communities, climate change, and social movements. However, its research, publications, and education do not tackle production issues, such as lean production (SWOP, 2024; van Diemen, 2024).

In 2019, the Ditsela Workers' Education Institute had a module called "Advanced Certificate in Knowledge Economy & Workplace Technologies: Module 3 ICTs for Development ICT4D – Policy and Practice" (Ditsela, 2022). While this was a step in the right direction to ensure that trade unionists are familiar with the need for trade unions to intervene in production and technology issues, the module was only suitable as a general introduction to union responses to technological innovation in the workplace. As Hlatshwayo and Buhlungu (2017) advise, NGOs and trade unions should customise workers' education and research on technological innovation in labour processes to align with an individual factory's specific and daily production requirements and the broader labour process. This approach is essential because technologies are often unique to each factory or workplace. For example, the technologies that banks use differ entirely from those used in car manufacturing.

In June 2022, the Chris Hani Institute (CHI), an NGO dedicated to supporting labour, collaborated with the Congress of South African Trade Unions (COSATU) Gauteng Province to conduct a workshop focused on young workers affiliated with COSATU and the South African Communist Party (SACP) in the Gauteng region. The event introduced young workers to 4IR (COSATU & CHI, 2022). Whilst these educational events helped introduce worker and young worker leaders to the role of technologies in the labour process and 4IR, they needed to be more specific and help the unions respond to particular concerns in various workplaces. Another problem is that these educational events occur sporadically and are not part of a consistent, ongoing programme aimed at continuously educating workers to respond effectively to technological innovation.

Tshisimani collaborated with NUMSA to arrange two workshops for NUMSA shop stewards. The first workshop took place in Boksburg, Gauteng, in February 2018, while the second was held in East London in November 2018. The workshop programmes in both cities were interactive, with presentations from researchers and academics focusing on the evolution of 4IR. During these workshops, shop stewards examined the presentations and shared their own first-hand experiences from their respective factories (Kunene & Cupido, 2019).

Simone Cupido, who worked for Tshisimani, had this to say about the 4IR programme:

> The Western Cape is where we spent most of our education programmes, and we did 4IR but did quite a bit of other programmes. […] I think in the first two workshops, we were just focusing on what 4IR is and making sense of experiences, and by the third, we could really start drilling down from the experiences. Still, I think there was about a year difference between those three modules of 4IR programme in the Western Cape. So maybe we started in 2018; by 2019 or 2020, the nature of mechanisation and digital technology within the workplaces in the Western Cape had increased so profoundly that the debates started to become very serious. (Simone Cupido, interview, 27 April 2023)

This initiative mentioned by Cupido held the potential to enable NUMSA to use the knowledge acquired in the workshops to address technological innovations in the workplace effectively. Cupido's testimony demonstrates that NGOs supporting labour are able to respond to the educational needs of workers and trade unions. However, these interventions are not sustainable because trade unions do not have long term programmes that include technology as part of the workers' education curriculum. Therefore, union leaderships need more support for this intervention.

Trade Unions and Workers' Education

Trade unions from various sectors of the South African economy founded COSATU, also referred to as the Federation, in 1985, at the height of the struggle against Apartheid and capitalism in South Africa. Since its formation, COSATU has always participated actively in South African politics and, in the early 1990s, formalised its alliance with the ruling African National Congress (ANC). Distribution and explicit politics preoccupy the agenda of the Federation, which entailed influencing the ANC by sending the Federation leadership to occupy political appointments under the banner of the ANC in parliament, provincial legislature, local government, and as economic agents of the state and utilities. Since the democratisation of South Africa, COSATU leaders have benefited immensely from workers' education delivered by NGOs, COSATU, and its affiliates. COSATU and its affiliates had highly skilled leaders, many of whom became formal politicians in the ANC in 1994. Dozens of COSATU leaders became parliament members and members of provincial and local governments. For example, almost all former general secretaries of COSATU, who had a very high-ranking position in a trade union federation, became ANC ministers in parliament and premiers. For instance, Jay Naidoo (COSATU's first Secretary General) was a minister in former President Mandela's cabinet and Mbazima Shilowa was COSATU's Secretary General between 1991 and 1998 and later became Premier of Gauteng between 1998 and 2008. The ANC alliance became a vehicle for upward social mobility. **Many leaders of COSATU and its affiliates became managers in human resources and other levels of management within companies**. – thereby invariably weakening workers' power in the workplace (Baskin, 1991; COSATU, 2024; Masondo, 2013).

COSATU's national education office attempted to provide education for the COSATU affiliates. COSATU leaders and educators designed workshops to familiarise shop stewards with the concept of 4IR, which was gaining prominence as a significant topic in both public media and academic circles. In December 2019, COSATU organised another workshop on 4IR in Johannesburg, where Bheki Ntshalintshali, who was the General Secretary of COSATU at the time, provided detailed insights into the subject:

> In 2019, at the August CEC [Central Executive Committee] meeting, we noted the job attacks on many fronts using the new phenomenon called the Fourth Industrial Revolution or 4IR. We also equally emphasized the need for a coherent approach throughout the Federation. COSATU is hosting through the Education Department a 4IR Workshop. This workshop will evaluate the many sectoral attacks on jobs through many forms of the digital revolution whilst the companies have not adequately planned in time and even skilled workers to be ready for the new jobs. (Ntshalintshali, 2019)

Babsie Nhlapho, the national educator of COSATU, commented:

> Well, our response to the debate on 4IR as COSATU is different from one stream because affiliates of COSATU respond differently to 4IR. There are affiliates, for instance, ICT and Communication workers have embraced 4IR. […] These workers are directly involved in ICTs activities as workers. […] So you get different messages in COSATU. But obviously, and those are service workers, but obviously the production and public sector workers, their response to 4IR is a more of a rejection response of 4IR. So COSATU does not have a singular response on 4IR, it depends; but also in clothing and textile, other unions have realised that this 4IR thing is a reality, new production, new machinery; and because some of these unions are also involved in owning of factories like SACTWU [Southern African Clothing and Textile Workers' Union], and having introduced these new machines themselves as the union; so that's why I am saying there are dual responses. (Nhlapho, interview, 20 July 2020)

NUMSA, the biggest union in South Africa, has a history of strong workers' education, which sometimes deals with production issues but only to a limited extent. However, the general decline of workers' education has affected NUMSA immensely. According to Nobhala (not his real name), funding and budget are a problem: "That is why we no longer have workshops on 4IR" (Nobhala, interview, 6 July 2023). Nobhala also spoke about a workshop on 4IR:

> In 2017, around April, we had a training programme on the 4IR because many of the industries where we are organised, they started introducing robotics in the production lines. One of the companies that have been named from the top. There are many but I can mention only a few. There's a big company in

> the Germiston industrial area called Rand Refinery, it's using a lot of robotics. (Nobhala, interview, 6 July 2023)

Poqo, a shop steward in a car manufacturing factory, stated:

> For me, my perspective is that one, if the union can look at our members or if they can look at our shop stewards and they can identify those people who are maybe technologically inclined, and then if they can train those people, and take them somewhere or give them some training to understand more. […] So I think the union, on that one they are failing ... if they can concentrate on that [training shop stewards]. For argument's sake … let us say you can take five people, for example. Then we take these people and send them somewhere they could see, add value, articulate, and ask questions; then I think that would be better. (Poqo, interview, 19 July 2020)

Hlatshwayo and Buhlungu (2017), based on their review of studies on trade union responses to production, advised that workers' education on production has to be general as well as very specific to the issues and challenges emerging from the factory, so that trade unions and workers can find practical solutions to production challenges. Poqo's proposal supports the ideas espoused by Hlatshwayo and Buhlungu (2017), which state that education on technology has to be specific and argues that trade unions have to target shop stewards so that the labour institutions can educate them to help the union expand its education to include technology.

Summarising the Findings in Tabular Form

Table 1, which is based on data from interviews and documents produced by the NGOs, shows that these organisations, similar to trade unions, have not prioritised technology as an important issue in workers' education. Specifically, they have not focused on providing educational workshops or publications related to technology.

Table 1
Workers' education and NGOs

Type of organisation	Founded in	Wages and benefits	Technology
NGOs			
ILRIG	1983	Strong	Weak
LRS	1986	Strong	Weak
SWOP	1987	Strong	Weak
DITSELA	1996	Strong	Moderate
Chris Hani Institute	2003	Strong	Weak
Tshisimani	2016	Strong	Moderate

Table 2 is based on data collected from interviews and documents provided by trade unions. It indicates that trade unions have primarily focused on wages, and this focus has also been reflected in their efforts toward workers' education.

Table 2
Workers' Education and Trade Unions

Trade unions (and federation)	Founded in	Wages and benefits	Technology
COSATU	1985	Strong	Weak
NUMSA	1987	Strong	Weak
SACTWU	1989	Strong	Moderate

CONCLUSION

The literature on workers' education has focused on wages and politics, which was also about contesting South Africa's cheap black labour system. Academics, researchers, trade unions, and NGOs followed this trend with workshops, conferences, and publications (Cooper, 2021; Vally et al., 2013). This article has departed from the aforementioned invaluable literature on workers' education by focusing on the less-discussed issue, namely the nexus between workers' education and technology. This article assumes that technology plays a significant role in reconfiguring the position of workers in terms of work, skills, and employment, yet the literature tends to ignore it. The article has paved the way for other scholars to investigate the nexus between workers' education and technology by exploring this relationship. The empirical evidence from the interviews and documents used in this article demonstrates that workers' education should begin exploring how it can integrate technology in the production processes and services in order to empower trade unions to respond to technological innovations in labour processes.

Workers' education is not a panacea, but knowing the strategies employed by management in changing production can allow trade unions to delay the process of introducing new technologies, and that can give unions some breathing space to devise coherent responses. On the other hand, when a union or a workers' organisation is learning about production, it is the workers who are most likely to find solutions about how to respond to the challenges posed by production. Workers, educators, trade unions, NGOs, and other worker formations need to formulate strategies and tactics to help revive workers' education in South Africa so that trade unions and other workers' organisations can defend workers against adverse changes in production.

Therefore, a suitable methodological approach to research and education is participatory action research and education that engages all the union leaders, the shop stewards, and the workers directly involved in production. This approach does not undermine the significance of sharing information and exchanging ideas across or within industries and

factories. Still, it underscores that the primary focus should be on addressing the unique features and demands of each workplace. Further research on how to revive workers' education that covers both redistribution and production topics is necessary.

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