

OPEN ACCESS



Educational Research and Reviews

August, 2023
ISSN: 1990-3839
DOI: 10.5897/ERR
www.academicjournals.org



**ACADEMIC
JOURNALS**
expand your knowledge

About ERR

Educational Research and Reviews (ISSN 1990-3839) is published bi-monthly (one volume per year) by Academic Journals.

Educational Research and Reviews (ERR) is an open access journal that publishes high-quality solicited and unsolicited articles, in English, in all areas of education including education policies and management such as Educational experiences and mental health, the effect of land tenure system on resource management, Visualization skills and their incorporation into school curriculum, Gender, education and child labour etc. All articles published in ERR are peer-reviewed.

Contact Us

Editorial Office: err@academicjournals.org

Help Desk: helpdesk@academicjournals.org

Website: <http://www.academicjournals.org/journal/ERR>

Submit manuscript online <http://ms.academicjournals.me/>.

Editors

Dr. Peter W. Wong

*Southern Cross University
Australia.*

Assoc. Prof. Manjula Vithanapathirana

*Faculty of Education
University of Colombo
Colombo,
Sri Lanka.*

Associate Editors

Dr. Melissa Vick

*School Of Education
James Cook University
Townsville,
Australia.*

Dr. Ahmet Basal

*Yıldız Technical University
Education Faculty
Foreign Languages Education Department
İstanbul,
Turkey.*

Dr. Maniam Kaliannan

*Faculty of Administrative Science & Policy Studies
Universiti Teknologi MARA (UiTM)
Selangor,
Malaysia.*

Prof. Ogunsakin R. Ebenezer

*Department of Statistics
Ekiti State University
Ado Ekiti,
Nigeria.*

Dr. Tavis D. Jules

*Cultural and Educational Policy Studies
School of Education
Loyola University Chicago
Chicago,
USA.*

Dr. A. Kadir Maskan

*Dicle University
Ziya Gokalp Education Faculty
Department of Physics Education
Diyarbakir,
Turkey.*

Dr. Adams Onuka

*Centre for Peace and conflict Studies (CEPACS)
University of Ibadan
Nigeria.*

Dr. Mohd Akhtar Siddiqui

*Institute of Advanced Studies in Education
Faculty of Education
Jamia Millia Islamia Central University
New Delhi,
India.*

Dr. Yambo John M. Onyango

*University of Eastern Africa
Kamagambo Adventist College Campus
Baraton,
Kenya.*

Dr. Tolga Gök

*Torbali Vocational School of Higher Education
Dokuz Eylul University
Izmir,
Turkey.*

Editorial Board

Prof. García Mayo, María del Pilar

*Departamento de Filología Inglesa y Alemana y de Traducción e Interpretación
Universidad del País Vasco (UPV/EHU)
Paseo de la Universidad 5
Vitoria,
Spain.*

Prof. Frank Witlox

*Ghent University
Department of Geography
Gent,
Belgium.*

Prof. Georgios D. Sideridis

*University of Crete
Department of Psychology
Rethimno,
Greece.*

Prof. Andreas Veglis

*Department of Journalism and Mass Media
Aristotle University of Thessaloniki
Thessaloniki,
Greece.*

Prof. Mutendwahothe Walter Lumadi

*Curriculum & Instructional Studies
College of Education
UNISA,
South Africa.*

Dr. Miriam McMullan

*Faculty of Health and Social Work
University of Plymouth
Plymouth,
UK.*

Prof. Moshe Barak

*Graduate Program for Science and Technology
Education
Ben-Gurion University of the Negev,
Beer Sheva,
Israel.*

Dr. Hiam Zein

*Psychology and Education
Lebanese American University
Chouran-Beirut,
Lebanon.*

Dr. Joel O. Eriba

*Faculty of Education
Benue State University
Makurdi,
Nigeria.*

Prof. Bingjun Yang

*School of Foreign Languages
Southwest University
Chongqing,
China.*

Dr. Ernest W. Brewer

*The University of Tennessee
Educational Administration and Supervision
Tennessee,
USA.*

Prof. Gail Derrick

*Regent University
School of Education
Virginia Beach,
USA.*

Dr. Evridiki Zachopoulou

*Department of Early Childhood Care and Education
Thessaloniki,
Greece.*

Dr. Francesco Pastore

*Seconda Università di Napoli
Italy,*

Dr. Syed Iftikhar Hussain Shah

*Technical Education and Vocation
TEVTA Secretariat
Lahore,
Pakistan.*

Dr. Ravi Kant

*College of Teacher Education
Maulana Azad National Urdu University
Darbhanga,
India.*

Editorial Board

Dr. Dibakar Sarangi

*Directorate of Teacher Education and State Council
for Educational Research and Training
(DTE & SCERT)
Odisha,
India.*

Dr. Elisa Backer

*Faculty of Business
Federation University Australia
Australia.*

Dr. Ahmad Alkhaldeh

*Department of Curriculum and instruction
University of Jordan
Jordan.*

Dr. Mehmet Akif Sözer

*Department of Primary Education
Gazi Faculty of Education
Gazi University
Turkey.*

Table of Content

Development in technical and vocational education and training: Synopsis and implications of education policies for right skills in Kenya Beatrice Amondi Osumbah ^{1*} and Peter Wekesa ²	181-193
Gender Parity Approaches in Uganda's Education System: A Case of Public Secondary Schools in Bugiri District Muweesi Charles ^{1*} , Mugenyi Disan Kuteesa ² , Kaweesi Muhamadi ¹ , Kintu George ¹ , Tomusange Robert ³ , Isabirye Christopher ⁵ , Namagero Tendo Shira ⁷ , Kaahwa Yuda Taddeo ⁶ , Sserwadda Lawrence ⁶ , Wanyana Mercy ¹ , Nakonde Justine ⁴ , and Nakasaawe Victoria ⁶	194-202
A study on the relationship between teacher competency and job performance under human resource management in higher education Yan Yang ^{1,2*} and Yuan-Cheng Chang ²	203-217
A study on the competency of physical education teachers at the basic education level in China Lei Peng ^{1,2} and Man Jiang ^{1*}	218-224

Review

Development in technical and vocational education and training: Synopsis and implications of education policies for right skills in Kenya

Beatrice Amondi Osumbah^{1*} and Peter Wekesa²

¹Department of Applied Sciences Kenya Institute of Curriculum Development, Kenya.

²Department of Planning, Research, Outreach and Policy Kenya National Qualifications Authority, Kenya.

Received 30 March, 2023; Accepted 25 May, 2023

This article presents implications of education and training policies on Technical and Vocational Education and Training (TVET) from the pre-colonial Kenya to date based on systematic review of education policies and related literature. In the pre-colonial period the non-formal and informal vocational training was demand driven, relevant and flexible. Throughout the colonial period, the Kenyan natives developed negative attitude towards formal TVET because it was introduced and managed to suit the aspirations of missionaries and colonialists and so were there commendations of the various education commissions. At independence, and to appeal to the populace, the administrative and policy direction in the Country reinforced this negativity. On the other hand, there were indications that the government and policy makers saw TVET as a key solution to industrialization and the perennial youth unemployment menace. Through out the sixties, seventies, eighties and nineties the government's enthusiasm for TVET resulted in inertia, gaining momentum in the turn of the millennium and peaking with the promulgation of the Kenya Vision 2030 and the Kenya 2010 Constitution. However, well-meaning policies are yet to translate in production of adequate and competent middle level professionals to drive innovative economy and industrialization. As a way forward, the government needs to take the lead and coordinate reforms in this multifaceted and policy crowded field with many players, and create a robust TVET ecosystem to accelerate production of right skills for jobs in the Country.

Key words: Education polices, Kenya education system, technical and vocational education and training, competency-based education and training, right skills.

INTRODUCTION

Education and training, world over, is the primary means of social mobility, national and international cohesion and socio-economic development (Khanani, 2021; Republic of Kenya 2012b; 2019a) and there is a clear correlation between the quality of a country's educational system

and its general economic status and overall well-being (World Population Review, 2023). This is because developing nations tend to offer higher quality of education than least developed nations whereas fully developed nations offer best quality of education of all

*Corresponding author. E-mail: beatrice.osumbah@kicd.ac.ke. Tel: +254 722629483.

(Ibid). World Bank (2012) re-joins that economic development globally is driven by education policies. This is because the policies, which are government statements for carrying out activities (Wambui, 2017), guide education and training players to inculcate innovativeness and initiativeness in learners to transform knowledge, skills and technology into quality goods, services and works. These benefits depend on smartness of the policy designs, extent to which stakeholders are recognized and included in the development and implementation process, conduciveness of institutional, policy and societal contexts and coherence of implementation strategy (Viennet and Pont, 2017). In other words, good policies must be implemented intelligibly for citizens to realize the intended benefits.

In Kenya, the education structure is broadly stratified into basic and higher education cycles (Republic of Kenya, 2019a). Basic education, which constitutes pre-school, primary and secondary education, is free and compulsory to all citizens in line with Dakar Framework for Action (2000) on education (Khanani, 2021; Ndegwa and Gutiérrez-Colón, 2019) and lays basis for higher education. Higher education level is composed on TVET and University education (Republic of Kenya, 2012a). Kenya has been counting on TVET subsector to produce adequate and competent middle level manpower (technicians, craftsmen and artisans) to drive an innovative economy and industrialization to transit the Country into a middle level economy as espoused in the Kenya Vision 2030 and the Kenya 2010 Constitution (Republic of Kenya, 2019a), and as a cure to youth unemployment (Sifuna, 2020; TVETA, 2020).

Since pre-independence, several education and training policies have been enacted in the Country targeting skills development. However, the Country is yet to produce adequate and competent middle level professionals to drive the Country's socio-economic development as espoused in its development blue prints. Reports of skills gaps and skills mismatch between labour market and those supplied are still enumerated as challenges in the TVET subsector to date.

Through systematic literature review, this article synthesises education policies and related literature from the pre-colonial period, during colonial period, in independent Kenya to date, and how their implementation has impacted skills development in TVET, and makes recommendations for strengthening the TVET ecosystem. The study also seeks to establish a basis for future research in this subsector of education which accounts for over 80% of trainees who transit into higher education from the basic education cycle in Kenya. The article starts by outlining the position of TVET in Kenya's education and training system. The operational understanding of TVET and education policies then precedes the historical development of TVET in the Country from pre-independence, during the colonial period and after independence to date.

These results are then followed by discussions and recommendations to improve the TVET ecosystem in the Country.

OVERVIEW OF KENYA'S EDUCATION AND TRAINING SYSTEM WITH REFERENCE TO TVET

Fundamental characteristics that define and drive systems of education and training from design to implementation include access, equity, quality and relevance (Republic of Kenya, 1999a; 1999b; 2005; 2012; 2012b; 2019a; 2019b).

These characteristics also form the basis upon which education systems are evaluated and reforms instituted through education policies (Khanani, 2021; Veinnet and Pont, 2017). Throughout this article achievements, gaps and challenges in education in general, and TVET in particular are described in the context of these four characteristics.

Access addresses the open-ended nature of education (Republic of Kenya, 1999a) that is, adequacy of opportunities available to persons that wish to enter the system (Republic of Kenya, 2012a; 2019a). Access is indicated by enrolment ratios, transition, dropout, retention and completion rates as well as number of education and training institutions vis-à-vis the population (Republic of Kenya, 2012a). Equity refers to fairness in participation and allocation of resources to ensure equal education opportunities for all (Republic of Kenya, 2012a) and often calls for affirmative action. Quality of education can be gauged by relevance of the programmes in relation to aspirations of learners, expectations of parents and community, general needs of the society, effectiveness of the system in achieving set goals and efficiency of the system in terms of input required to achieve desirable results (Republic of Kenya, 1999b). Republic of Kenya (1999a) adds that quality education results in development of independent, analytical and creative graduates as it ensures identification and development of individual talents. This means that quality education should segregate learners at every level and produce diverse and high-end graduates.

While relevance refers to appropriateness and is an aspect of quality (Republic of Kenya, 1999b), an education and training system is relevant if it seeks to meet the development needs of the nation as anticipated by the national goals (Republic of Kenya, 2012) and if it allows for applicability of what is learnt in real life situation, as the learner is empowered for intelligent, dynamic and appropriate response to challenges in life (Republic of Kenya, 1999a). Relevance is a product of curriculum, resources, learning contexts and process, and assessment. Eshiwani (1990) concludes that access and equity describe internal efficiencies while quality and relevance describe external efficiencies of an education system.

This means that while access and equity can be ascertained at the beginning of a programme, quality and relevance can only be ascertained after the programme.

According to Khanani (2021) and Republic of Kenya (2012b), Kenya has posted impressive performance at all levels of education. For instance, the number of primary schools increased from 6,058 in 1963 to 35,442 in 2017, while that of secondary schools increased from 151 to 10,665 over the same period. Enrolment in primary education grew from 891,103 pupils in 1963 to about 10.4 million pupils in 2017, while in that for secondary education grew from 30,000 in 1963 to approximately 2.8 million in 2017 (Republic of Kenya, 2019a). In the TVET subsector, records from TVET Authority show that there were 2286 accredited TVET institutions as at February 2023 up from 700 in 2013, while universities increased from one in 1970 to 40 in 2017 (Republic of Kenya 2019a; Government of Kenya, 1964).

However, there is growing concern regarding quality and relevance of education in the Country (Inyega et al., 2021; Khanani, 2021). With 80% of Kenyan population being youth with immense potential to transform the Country's economic fortune, it is paramount that the quality and relevance of their skills as they enter the job market is prioritized (Inyega et al. (2021).

This rapid growth in education has partly been due to development and implementation of education and training policies (Republic of Kenya, 1999a) and partly because of the emphasis that government and the people of Kenya have given to education (Kisilu, 2004). For instance, entrenching education in the Country's Constitution, the Kenya Vision 2030, other development blue prints and various Acts of Parliament, and allocating 5% to 7% of its GDP to education annually is laudable commitment by the people and government of Kenya to provision of accessible, equitable, relevant and quality education and training (Republic of Kenya, 2019a; 2012a).

Since independence in 1963, through education policies, Kenya has overhauled its education system three times. The first post-independence system, dubbed 7-4-2-3 system, was as a result of Kenya Education Commission of (1964) recommendation and replaced the racially disaggregated system. It comprised of seven years of Primary Education, four years of Ordinary Level Secondary Education, two years of Advanced Level Secondary Education and at least three years of University Education (Government of Kenya, 1964). This system was implemented between 1964 and 1985 and was later faulted for being too elitist and not offering solutions to the rising unemployment among the learned youth (Inyega et al., 2021; Ndegwa and Gutiérrez-Colón, 2019; Republic of Kenya, 1981).

In 1985, the 8-4-4 system was adopted following the recommendations of Presidential Working Party for the Establishment of a Second University (Inyega et al. 2021; Sifuna, 2020). The 8-4-4 system, comprising eight

years of Primary Education, four years of Secondary Education and at least four years of University Education, was to make education in Kenya more responsive and accommodative to vocational training and address the rising unemployment in the Country (Inyega et al., 2021, Republic of Kenya, 2019a; Ndegwa and Gutiérrez-Colón, 2019). However, Inyega et al. (2021) and Republic of Kenya (1999a) regret that the anticipated growth of middle level colleges did not happen, yet vocationalisation of education was the new system's linchpin. This stifled the dream of the 8-4-4 system in terms of progression in skills development. The 8-4-4 system was later faulted for being too expensive, increasing drop-out rates among learners, not promoting life-long learning, being heavily examination oriented, promoting rote learning as opposed to knowledge application, and not in harmony with the educational structures of the other East African countries (Inyega et al., 2021; Kisilu, 2004; Sifuna, 2020; Republic of Kenya, 2012a; 1999a). The system seemed to have failed in terms of access, equity, relevance and quality.

In 2017, the Country adopted the current 2-6-6-3 system following recommendations of the Task Force on Alignment of Education to 2010 Constitution (2012). The Basic Education level, comprises of two years of Early Childhood Development Education, six years of Primary Education, three years of Junior Secondary Education and three years of Senior Secondary Education (Republic of Kenya, 2012a,). TVET subsector includes trade test/national vocational certificate, artisan, craft and diploma trainings offered in Vocational Training Centres, Technical and Vocational Colleges, Technical Trainers Colleges, National Polytechnics and Institutes of TVET in the Universities (Republic of Kenya, 2019; Sifuna, 2020; TVETA, 2020).

In this new education system, the concept of technical and vocational education starts from primary education as Environmental Activities and Science and Technology learning areas. Pre-technical and pre-career education learning area builds on Science and Technology and equips learners with foundational knowledge, skills, attitudes and values in vocational and technical education at Junior Secondary School. At Senior Secondary School, Careers and Technology Studies is one of the nine tracks that learners can choose from based on their talents and abilities. This track, which is to be implemented as a trilateral engagement between schools, tertiary institutions and industry, culminates in dual certification for employment (Republic of Kenya, 2017). It is evident that the new system amplifies vocational and technical education (Inyega et al., 2021).

CONCEPT OF TVET AND EDUCATION POLICIES

Technical and Vocational Education and Training (TVET) refers to a range of learning experiences from Vocational

Education and Training (VET) to Technical Education and Training (TET) which are relevant to the world of work and may occur in non-formal and informal learning contexts, education and training institutions and workplaces (Mosoti, 2011; Republic of Kenya, 1999a; 2012a; 2012b; 2019a; Sifuna, 2020; UNESCO, 2015). In most cases the learning is intended to lead to direct labour market entry (Sifuna, 2020).

While VET components are responsible for the production of skilled operators to support construction and carry out maintenance and operation of equipment and infrastructure, TET graduates perform supervisory and management functions as well as maintenance of systems, machines and equipment in industry (Mosoti, 2011). According to Republic of Kenya (1999a), vocational programmes have more practical skills while technical have more analytical skills together with general education component which increases the general knowledge of trainees in an occupation.

All in all, TVET is a vital tool for the development of a Country's skill capital (TVETA, 2020) and therefore a key sector for sustainability of the Country's socio-economic growth (Wasike and Maiyo, 2020). According to Mosoti (2011), from human resource management perspective, TVET is a means of giving people capacity not only to be employed, but also to work in their specific areas of specialization and employ others. In the context of the articles, TVET provides opportunities for trainees to learn practical, social and personal skills that enable them to function technically at workplaces through use of tools, equipment and machines, and as productive and responsible job creators in society.

According to Republic of Kenya (1999a) providing quality TVET under ordinary circumstances is very expensive; however, providing TVET in a rapidly technologically changing workplace is extremely expensive even for rich nations. This is supported by Sifuna (2020) that in many parts of the world, TVET programmes are more expensive than general education because TVET courses require special physical infrastructure, equipment and instructional materials.

Policy, in general, is a government statement of interest to carry out activities in a standardized and uniform way (Wambui, 2017). According to Viennet and Pont (2017) education policies are actions to be taken by governments in relation with educational practices, and how governments address the production and delivery of education in a given system. Papanikos (2011), looking at it more broadly, defines education policy as any systematic intervention to improve the practice of education at all levels. According to the author, the word systematic is used to describe a process by which means and resources are used to achieve predetermined objectives (targets, goals). It is clear that policy is about intentions, outcomes, processes and players. In this context education policies are documented purposive Statements by government to improve practice in

education by describing, prescribing and/or proscribing a course of action. These purposive statements are arrived at through transparent, participatory and inclusive processes.

DEVELOPMENT OF TVET IN THE PRE- AND COLONIAL KENYA

Before the coming of the missionaries, education was provided by parents, siblings, elders and villagers through Traditional African Education where the young were taught relevant fundamentals of their tribe, religion and practical aspects of their trade (Kisilu, 2004) embedded in societal values (Eshiwani, 1990) as means of survival. This form of education, though largely non-formal and informal, was vocational in nature, relevant to real life, demand driven and flexible. Looking at the system of education and its period, it may be right to conclude that there were no written education policies, however relevant information was stored and passed through the existing social structures.

Between 1884 and 1963, marking the advent of western evangelism and colonisation to the year of independence, formal training was introduced in Kenya by the missionaries and colonialists. This period also marked the advent of policy frameworks. Before colonisation formal education was carried out by missionaries as a strategy for evangelical success (Kisilu2004; Ndegwa and Gutiérrez-Colón, 2019). However, with advent of colonialists, formal vocational trainings were introduced to provide semi-educated skilled native manpower to the colonial masters (Eshiwani, 1990; Ndegwa and Gutiérrez-Colón, 2019).

The intent of African Education between the missionaries and colonialists seemed perpetually at cross purposes. These led to invitation of Professor Frazer, with an educational background, as an advisor on African education (Lelei and Weidman, 2012). The Frazer report (1909) proposed academic curriculum for white and Asian children and industrial training for Africans communities (Lelei and Weidman, 2012; Urch, 1971). Low uptake of industrial training by Africans led to setting up of a commission by colonialists, a decade later, to investigate educational procedures and prescribe appropriate education for Africans. The Education Commission for the East African Protectorate of 1919 recommended literary education dubbed 'hand and eye' for children up to 11 years followed by technical and industrial training (Urch, 1971).

The missionaries, feeling short-changed, petitioned Phelps-Stokes Fund to adapt African education to African needs. The Phelps-Stokes commission of 1924 recommended that religious and moral instructions be regarded as fundamental to the development of sound education and that vocational and technical education be strengthened (Urch, 1971).

Seemingly this was to appease the evangelists and colonialists while being numb to the aspirations of the African natives.

By 1934 formal education with a stronger emphasis on technical and vocational education began to take shape (Okech and Asiachi, 1992) not for improving lives of Africans and making them self-reliant, but to make them able to take instructions from their masters (Eshiwani, 1990) and as a repressive means to the development of African capacity to think critically (Republic of Kenya, 1999a). Because of these underlying motives, African technical and vocational education in the colonial period remained inadequate in quantity, quality and scope (Eshiwani, 1990; Lelei and Weidman, 2012) and stifled initiative, innovativeness and entrepreneurial skills which are key for self-reliance and industrialization (Republic of Kenya, 1999a). The native Africans inadvertently developed negative attitude towards formal vocational and technical training as well as industrialization as they desired academic education which was well funded and supported (Kisilu, 2004; Ndegwa and Gutiérrez-Colón, 2019; Republic of Kenya, 1999a).

In 1944 Beecher Education Commission was instituted to examine and report on the scope, content and methods of the African education system. The Beecher report stressed character development and practical skilling of graduates of primary and intermediate education. It further proposed that expansion of vocational and technical education be based on demand and after employability of graduates had been tested (Republic of Colony and Protectorate of Kenya, 1949).

TVET AT AND AFTER INDEPENDENCE TO THE TURN OF THE CENTURY

Kenya Education Commission of 1964, the first post-independence Education Commission recommended establishment of occupation specialized secondary trade schools to prepare graduates for TVET. It further proposed that provision of technical education be demand driven and based on manpower survey by government to avoid unemployment of the educated (Government of Kenya, 1964). However, this education commission, with the mandate to make the education system more responsive to the needs of independent Kenya, seemed cautious about TVET (Sifuna, 2020) as an independence honeymoon (Orwa, 1982). Analysis of the policy shows that over 95% of the 160 commission recommendations focused on elitist education. Kisilu (2004) adds that while the recommendations were good, they did not deal with the established situated negative view on practical education. The result was over-emphasis on white collar jobs compared to blue collar jobs. This was despite the fact that at independence the Country was faced with severe shortage of trained manpower for socio-economic development (Khanani, 2021; Republic of Kenya, 1976). These developments

are supported by Viennet and Pont (2017) that societal trends define issues that arise in the education sector and the way they are perceived, and that the timing and pace of implementation determine how the process unfolds.

However, the government and policy makers seemed convinced that TVET was key to socio-economic development of the young nation, especially in tackling the issue of youth unemployment. For instance, in the same year of 1964, the Government introduced National Youth Service, to inculcate values of citizenship and provide education to turn the 'out-of-school' youths into productive citizens (Sifuna, 2020). Furthermore, to give opportunity to young people who were left in the 'educational gap' and reduce rural-urban migration, the government established village polytechnics in 1968 with the support of National Christian Council of Kenya (Orwa, 1982; Sifuna, 2020) to provide more informal vocational trainings. While the National Youth Service was formal in structure, design and implementation of courses leading to certification, the architects of village polytechnics had in mind small, low cost, flexible and localized institutions aimed at community needs without certification (Sifuna, 2020). However, as formal employments weighed demands on academic certificates, the policies and foundations of training in the village polytechnics changed and became formal (Orwa, 1982).

Soon the school leaver unemployment replicated at the secondary school level due to a more rapid expansion of secondary education than wage employment and access to post-secondary education leading to expansion of TVET in 1970s (Republic of Kenya, 1999a; Sifuna, 2020). As the number of unemployed educated youth increased, planners were convinced that academic education alone was insufficient preparation for employment in a developing economy as it led to disdain for manual labour, exacerbating absorption of school leavers into blue collar jobs (Lelei and Weidman, 2012; Republic of Kenya, 1999a).

National Commission on Educational Objectives and Policies (1976), also known as Gachathi Commission confirmed high wastage of graduates as a result of the objective, structure and content of formal education. According to the Commission, formal education was producing few individuals who were well equipped for placement in urban and formal economy, while a large number was unaccounted for and wasted. The report decried little understanding for designing and developing vocational training that would benefit the Country. Based on situational analysis the report recommended expansion of vocational training, informal and rural economies through skills for self-employment, occupation specific skills and use of low-cost technology which could be introduced and maintained locally. In addition, industrial training was to focus on national and international standards. The Commission was emphatic that technical education be developed in close functional relation to commercial and industrial development

(Republic of Kenya, 1976).

This was supported by Inyega et al. (2021) that education system must operate in synchronization with demands from the ever-evolving labour market so that youths are prepared for existing jobs through right skills.

With strengthening of TVET, there was need to provide clear career progression pathways, rationalise TVET and improve equity (Lelei and Weidman, 2012). The government therefore, in 1981, appointed a Presidential Working Party for the Establishment of a Second University which was technology-based. Among the findings of this commission was admission of students attached to employers in the existing big polytechnics. Based on its recommendations, access to TVET was expanded to all potential trainees through liberalised admissions; a second university was established in 1984 not just for technology but to meet the growing demand for university education; and Education system was changed from 7-4-2-3 to 8-4-4 with emphasis on vocationalised education by ensuring that graduates, at all levels, had some scientific and practical knowledge for self and wage employment as well as further training (Ndegwa and Gutiérrez-Colón, 2019; Republic of Kenya, 1981).

Between 1988 and turn of the millennium, two other education commissions were established to right the wrongs in the 8-4-4 system of education (Inyega et al., 2021) by addressing access, equity, quality and relevance. The Presidential Working Party on Education and Manpower (1988), also known as Kamunge Commission, whose mandate included addressing the high wastage of school leavers and diverse and uncoordinated skills training proposed creation of centres of excellence; that education and training be orientated towards learning for self-employment; that entrepreneurial skills be included in all programmes; and that graduates of TVET be assisted through formalised credit system to establish themselves. To improve quality of training, skilled trainers and instructors were to be trained in pedagogy, subjected to regular in-service and staff placement in industry to keep abreast with changing technology and enable them offer career guidance and counselling to trainees (Republic of Kenya, 1988). Sifuna (2020) asserts that the mismatch between outdated technology in training institutions and modern ones in industries could be bridged through collaborations. A call for implementation of some of these recommendations was still being echoed over three decades later.

The Commission of Inquiry into the Education system of Kenya (Koech Commission) of 1999, proposed a totally integrated quality education and training to deal with challenges of education in the next millennium. The recommendations of the commission, though comprehensive, were not made public due to the cost implication of implementation (Republic of Kenya, 2005) in as much as most Kenyans lauded it the most exhaustive and comprehensive review with pertinent and

timely recommendations (Lelei and Weidman, 2012). The setback of cost is supported by Viennet and Pont (2017) who summarize the challenges of implementing education policies as co-ordination issues, inadequacy of organisational resources, actors' capacity and reactions against reforms. However, most of these recommendations were up scaled in educational policies developed post promulgation of Kenya Vision 2030 in the year 2007.

According to Koech Commission, technical education had failed to provide quality middle level workers due to poor linkages between training institutions and industry, non-modular curricula, lack of credit transfer and rigid systems where dwell time determined course completion as opposed to flexible system where demonstration of competence determined course completion. The Commission further stated that the Country needed a process-oriented system of education instead of examination-oriented system, which the 8-4-4 had become. The Commission's proposals for TVET included strengthened collaborations between universities, technical training institutions and informal (jua kali) sector to promote applied research and education for direct employment; modular and practical learning approaches which facilitate certification of each module independently; curricula designs that are flexible and promote lifelong learning; and entrepreneurship and strong linkage between training institutions and world of work to enhance practical training, staff exchange as well as staff and trainee work placement; establishment of a professional bodies to manage professional aspects of TVET; formation of national professional boards to monitor curriculum development, training, assessment and certification, and ensure professional ethics are upheld in each profession; and creation of legal accrediting processes to ensure relevance and that standards of training are developed and maintained (Republic of Kenya, 1999a).

In order to adequately prepare the TVET graduates for world of work, the Commission proposed categorization of units into common core competencies, common cluster competencies, specialization competencies and work experience. Common core competencies were to prepare all TVET trainees to handle general life issues. Common cluster competencies were to be undertaken by all trainees in a wide area of study to support knowledge application in their occupations. Specialization competencies would then relate to specific disciplines (Republic of Kenya, 1999a). The relationship between the competencies was as shown in Figure 1.

As illustrated in Figure 1, the competencies were expected to increase in content, volume of learning and occupation specificity from common core category to work experience.

This resonated with research that was undertaken by Kenya Institute of Education (KIE), now referred to as Kenya Institute of Curriculum Development (KICD), to

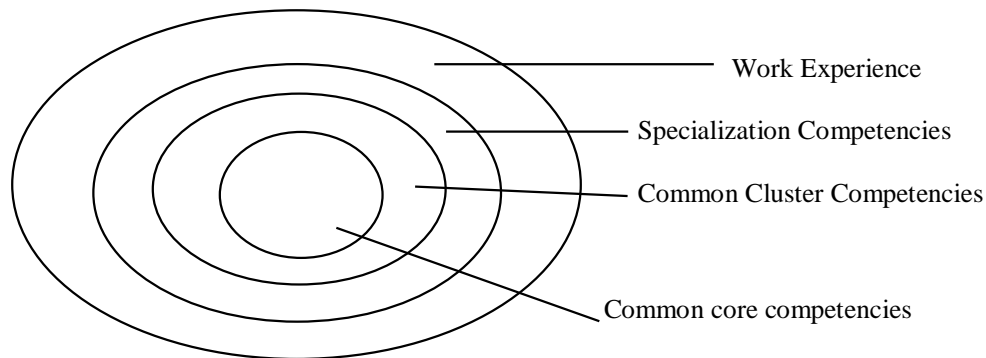


Figure 1. Categories of TVET competencies.

Source: Republic of Kenya (1999a), totally integrated quality education and training. A report of the commission of inquiry into the education system of Kenya.

Table 1. Entry requirements, subjects and duration of TVET courses.

Entry requirements	Time Allocation (Approximate number of Hours and % of course duration)		
	Artisan	Craft	Technician
	Primary school education	Artisan certificate or secondary school education	Craft certificate or secondary school education
Subjects			
Supportive subjects/general education	165 (8%)	550 (19%)	924 (31%)
Trade support	-	-	550 (19%)
Trade theory	154 (8%)	275 (9%)	330 (11%)
Trade practice	1334 (67%)	1485 (50%)	506 (17%)
Industrial attachment	330 (17%)	660 (22%)	660 (22%)
Total course duration	1980	2970	2970

The research also proposed ratio of Hands-on Practice: Theory for the TVET courses as follows: Artisan – 90%:10%, Craft – 80%:20%, Technician – 60%:40%.

Source: Kenya Institute of Education (1997).

guide the review of TVET programmes in an effort to standardize, harmonize and rationalize the curricula. During the survey questionnaires were administered to workers, trainees, instructors, course coordinators, heads of departments, principals, education officers, corporate organizations while observations schedules were used to evaluate TVET lessons and workers (KIE, 1997).

The proposed entry requirements, course duration and subjects of study for levels under the TVET subsector were as shown in Table 1.

The theory time was to be distributed between trade theory and supportive subjects. Supportive subjects were to prepare trainees for general life and were common to all trainees at each level irrespective of the trade (KIE, 1997).

These were comparable to common core competencies proposed by Republic of Kenya (1999a). Trade theory subjects were only applicable at Technician level (KIE, 1997) and were comparable to common cluster

competencies by Republic of Kenya (1999a).

One other concern was that the use of terms artisan and craftsman were more applicable to engineering workers and could not be adequately applied in social sciences or business education (KIE, 1997). Though the report did not give recommendations to this nomenclature, this would later be addressed in 2014 by the Kenya National Qualifications Authority during development of Kenya National Qualifications Framework where levels were used to describe the qualifications (Republic of Kenya, 2014; 2012b).

A comprehensive analysis of education sector conducted by the Government in 1999 concluded that the education system was producing 'docile conformists' with formal qualifications but devoid of vital qualities such as initiativeness, good judgement, self-motivation, good communication skills and sense of responsibility (GoK, 1999). The report concisely addressed the issues of access, equity, quality, relevance and proposed that

TVET should emphasise on linkage with industry, business community, informal sector and world of self-employment and that programmes be demand driven in terms of content, skills and duration. In addition, the report proposed that the Country set up a bank of curricula and create a dissemination network for their distribution and use (Republic of Kenya, 1999b).

While expounding on the benefits of linkages between training institutions and industry Inyega et al. (2021) are emphatic that strong collaborations enhance internships, service-learning field placements, quality of training, job readiness of trainees, mentoring, coaching, talent identification and nurturing and address funding crises that many institutions face.

According to Sifuna (2020) throughout the sixties, seventies, eighties and nineties the government's enthusiasm for TVET resulted in inertia, albeit at slower pace compared to reforms in other sectors of education. Lelei and Weidman (2012) add that despite the efforts of the various commissions, the implementation of their recommendations had been uneven at best. Still on process of policy implementation Viennet and Pont (2017) opine that too fast a pace of policy implementation may result in players not being able or willing to implement the reforms, while too a slow pace may result in loss of momentum and or draining of resources before meaningful achievements are made.

The implications are that achievement of adequate and right skills for jobs in the Country has been slow due to the manner and pace at which the educational policies are implemented. Viennet and Pont (2017) while noting that in a span of six years OECD countries adopted over 450 education reforms, describe education policy implementation as purposeful and multidirectional change process requiring systemic approach with all components moving in synchrony.

TVET AT TURN OF THE CENTURY TO DATE

At the turn of Century, the government continued to view TVET as a key subsector in accelerating economic growth and addressing youth unemployment menace (Sifuna, 2020; Republic of Kenya, 2007; 2012a; 2019a; Wasike and Maiyo, 2020). To continue transposing TVET to meet the challenges of the 21st Century, more policy frameworks were developed by the government. Wasike and Maiyo (2020) in support of this argue that in the recent years there had been a renewed governmental interest in TVET in Kenya based on a raft of policies developed and increased budget.

Sessional Paper No. 1 (2005) on Policy Framework for Education, Training and Research was government response on education to Millennium Development Goals and the National Conference on Education and Training held in 2003 to develop sector policies and implementation strategies that would ensure provision of accessible,

equitable, relevant and quality education and training under efficient management of resources (Republic of Kenya, 2005a).

Challenges in TVET, according to Sessional Paper No. 1 included inadequate capacities and facilities in TVET institutions, disparities in training standards due to lack of effective coordination system, inflexible and irrelevant curricula due to little participation of the industry, weak quality assurance mechanisms and pedagogy deficient teaching staff. The Sessional Paper outlined 13 educational objectives among them developing a national training strategy to ensure Technical, Industrial, Vocational Education and Training (TIVET) institutions are appropriately funded and equipped (Republic of Kenya, 2005a). This paper also proposed to return technical subjects to the school system and revamp innovations in TVET (Sifuna, 2020; Wambui, 2017). Since industrialization can only be achieved through application of technology, the sessional paper further proposed production of a critical mass of citizens with technical skills for technological take off and economic sustainability right from secondary education, through TVET to University level (Republic of Kenya, 2005a).

While issues of skilling and technology had come a long way since pre-independence, provision of clear education and training pathways for TIVET graduates, proposal of flexibility of entry and exit into the academic pathways through modularized programmes and inclusion of TIVET in the higher education subsector were great milestones in the development of TVET (Republic of Kenya, 2005a; Sifuna, 2020).

As a sequel to Sessional Paper No.1 (2005), the Kenya Education Sector Support Programme 2005-2010 flagged out technical, industrial, vocational and entrepreneurship education as one of its 23 investment programmes in an effort to provide right skills for jobs and accelerate socio-economic development (Republic of Kenya, 2005b). The overall goal of TIVET programmes, at the end of the five years, was to improve access, quality and relevance of skills by developing of the National Skills Training Strategy, enhancing transition from primary to TIVET, establishing TIVET centres of excellence, enhancing skills for automation and computer integration in industry, developing annual bursary awards programme for trainees, creation of industrial incubators, equipping national polytechnics to offer key industrial based degree level courses and rehabilitating TIVET training facilities (Republic of Kenya, 2005b; Sifuna 2020). The Sessional Paper No. 1 and the Kenya Education Sector Support Programme 2005-2010 seemed to magnified the role of industry in the process of skills development.

In an effort to improve the economy, Kenya in 1996 developed the Sessional Paper No 2 on industrializing the Country by 2020. A decade later the Government re-awoke its industrialization dreams through Vision 2030 and made more emphasis on skills development for industrialization. The Kenya Vision 2030, covering the

period between 2008 and 2030, aims at transforming the Country to a newly industrializing middle level economy by increasing the GDP at an average of 10% per annum (Republic of Kenya, 2007). Economically, the vision targets formalization of the informal economy which is the single largest employer in the Country due to its diversity (TVETA, 2020), as well as improving road infrastructure and energy provision in priority drivers of the economy. On its social pillar, the Vision targets to increase access to TVET and raise the quality and relevance of TVET programmes to exploit science, technology and innovations for faster economic development. The political pillar is to create a conducive political environment for socio-economic growth (Ibid).

According to Republic of Kenya (2019a), the Country is counting on TVET subsector to produce adequate and competent middle level manpower (technicians, craftsmen and artisans) to drive an innovative economy and industrialization required for achievement of the Kenya Vision 2030. The ideal ratio of Engineer: Technologist: Technician: Operator (crafts-person and artisan) is 1:3:12:60 (Ibid). In other words, for every one-degree holder, the Country needs about 20 TVET graduates to design, produce and maintain systems of production that will grow the economy at a rate of 10% annually. It is evident that the Kenya Vision 2030 gave prominence to TVET and prioritized its growth and development to achieve industrialization and desired economic growth.

With promulgation of the 2010 Constitution, the government embarked on re-aligning the education sector to the New Constitution and the Vision 2030 through a task force (Republic of Kenya, 2012a). In the same period, the government developed the sessional paper No 14 of 2012 on Reforming Education and Training Sectors in Kenya.

With reference to TVET, both the task force report and the Sessional paper No. 14 observed that curricula in various Institutions were divergent, inflexible and out dated with glaring mismatch between skills learnt and skills demanded by industries, thereby raising issues of quality and relevance of training. Further, the skills development system followed a curriculum-based, time-bound approach rather than demand-driven approach. Secondly curriculum development, training and assessment were diverse and fragmented under inadequate mechanisms for quality assurance. Subsequently, certification of TVET made it difficult for prospective employers to determine the comparative value of qualifications. This was compounded by the fact that certification was based on completion of courses and passing examinations rather than demonstration of competencies. Thirdly, the training infrastructure composed of physical facilities, equipment, and reference materials and trainers was wanting. Lastly, there was weak linkage between basic, TVET and University education, coupled with low participation of the industry

and private sector in curriculum design and development, training and assessment (Republic of Kenya 2012a; 2012b). These observations were corroborated almost a decade later by Sifuna (2020) and Wasike and Maiyo (2020) who described TVET curricula as supply-based, outdated, excessively long and inflexible and not meeting needs of stakeholders and industry.

Recommendations of the task force and the Sessional Paper therefore included: Modularization of curricula to promote access, multi-skill training, occupational specific careers and competencies, flexibility as well as self-paced and lifelong learning. A trainee would therefore earn a competency by completing determined number of courses in a module where each module comprised a complete employable skill. A certificate of competency would then be awarded to such a candidate. Other recommendations were the inclusion of life skills and knowledge in training; standardizing quality and relevance of TVET through development of standards, harmonization and coordination of programmes; streamlining management and assessment of industrial attachment processes; and lastly, establishment of a Labour Market Information System (LMIS) and other survey instruments for data on the actual employability of TVET graduates (Republic of Kenya 2012a; 2012b). suffice to note that most of these observations were made in the policy documents developed by 1990s.

One of the major outcomes of the Sessional Paper No. 14 was the enactment of the TVET Act of 2013 in which TVET reforms were actualized and three professional bodies established. These bodies were TVET Authority (TVETA), TVET Curriculum, Development, Assessment and Certification Council (TVET CDACC) and TVET Funding Board (Republic of Kenya, 2013). This was despite existence of Kenya Institute of Curriculum Development Act) which mandates the Institute to develop curricula and curriculum support materials for Basic Education and TVET (Republic of Kenya 2013b), and Kenya National Examinations Council Act which mandates the Council to conduct academic and technical examinations and award certificates and diplomas (Republic of Kenya 2012c). According to Viennet and Pont (2017) the number and variety of policies to be implemented in a given system make education a crowded policy field, with the possibilities of contradictions and or misalignments between the policies. This is evidently the case in Kenyan TVET ecosystem. While TVETA was to offer quality assurance for training programmes and training infrastructure, TVET CDACC was to undertake curriculum development, conduct competence assessment and award certificates of competency. TVET Funding Board which was to manage the technical and vocation education fund (Republic of Kenya, 2013) is yet to be established.

On governance of education, the task force recommended establishment of Education Standards and Quality Assurance Commission (ESQAC) as a national

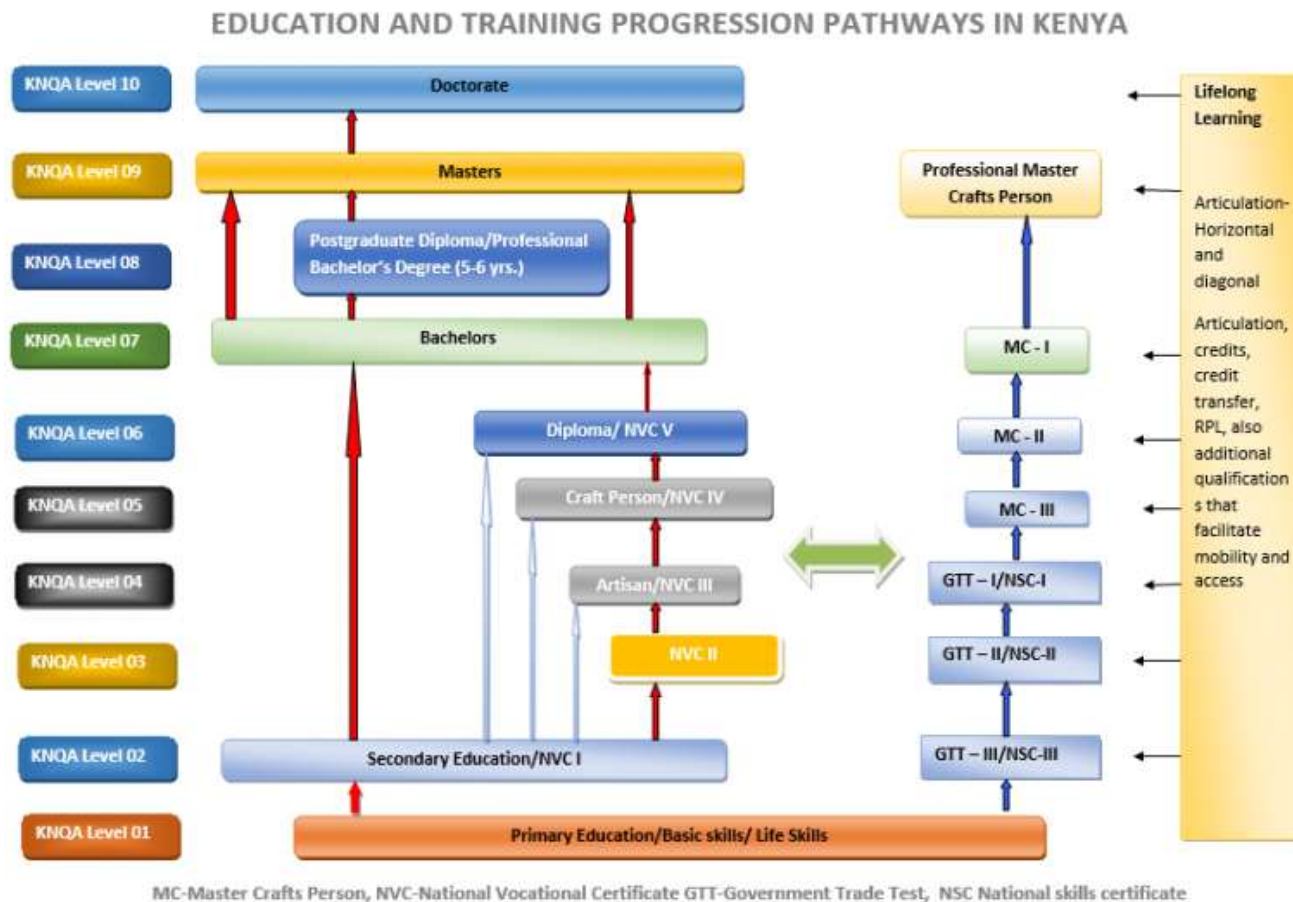


Figure 2. Education and training progression pathways in Kenya. Source: KNQA website

custodian of standards and quality of education and a National Qualifications System based on a National Qualifications Framework (NQF) regulated by a National Qualifications Authority (Republic of Kenya 2012a). While the Kenya National Qualifications Authority (KNQA) was established via the Kenya National Qualifications Framework (KNQF) Act of 2014 (Republic of Kenya, 2014), ESCQAC is yet to be established.

KNQA, in collaborations with stakeholders, developed a ten level National Qualifications Framework (KNQF), as shown in Figure 2, as a system for articulation, classification, registration, accreditation, quality assurance, and monitoring and evaluation of national qualifications. The KNQF comprises three Pathways/Sub-frameworks namely Academic, TVET and Industrial/Skills, designed to allow mobility of learners and labour across the region, continent and globally.

TVETA, as a quality regulator, developed the Competency Based Education Training and Assessment (CBETA) standards in 2019 which currently guides competency-based skilling and assessment. The standards have implemented a lot of recommendations from Republic of Kenya (1999a; 1999b; 2012a; 2012b)

and KIE (1997).

Based on the Standards, TVET curricula are to be developed from industry standards, indicate qualification levels and be designed in competence modules. Further the total course is to comprise of basic, common and core competencies as well as Industrial attachment (TVETA, 2019). These are comparable to competencies proposed by Republic of Kenya (1999a). Records from TVET Authority show that, as at February 2023, 286 competency-based Curricula had been approved and were available for use as was proposed by Republic of Kenya (1999b).

On certification, the CBETA standards proposed that Certificates of Competency be issued to individuals who have demonstrated acquisition of skills, knowledge and worker behavior in a particular Unit of Competence as well as individuals who have been assessed for Recognition of Prior Learning (RPL) while a Final Certificate be issued when a candidate has demonstrated competence in all Units of Competency that comprise a qualification (TVETA, 2019) as was recommended by Republic of Kenya (1999a).

The period between the turn of the century to date saw

the Country develop more education and training policies in the history of the Country. However, a survey conducted by Federation of Kenya Employers in 2018 still showed increased trend in skill mismatch among employees in the labour market with employers confessing that most graduates lacked the right technical, soft, life and interpersonal skills to perform jobs. The report made recommendations to training institutions, government, learners and employers. While the institutions were to focus on making curricula more practical oriented, the government was to ensure enforcement of education and training policies while the employers were called upon to make their voices heard in the Country's skills development process. The report further proposed strong collaborations between players in the skills development process (Federation of Kenya Employers, 2018).

A survey on implementation of Competency Based Education and Training (CBET) Programs in Kenyan TVET Institutions conducted by TVETA and TVET CDACC in the year 2021 showed that more than half of the courses implemented in the TVET institutions were competency-based. However, these courses accounted for an average of 20% of trainees in the TVET institutions. This is despite the fact that in the past seven years, records from KNEC show that on average 83% of the over 700,000 student transit to annually TVET in pursuit of higher education. This low uptake of CBET courses was due to negative perception and inadequate access to TVET programmes because of lack of systematic career guidance, lack of public awareness on qualification pathways and curricula not meeting needs of industry and stakeholders (Sifuna, 2020; TVETA, 2020; Wasike and Maiyo, 2020).

According to TVETA (2020), currently, the challenges in TVET in Kenya include: Limited industry linkages of TVET programmes resulting in mismatch between TVET programmes and labour market needs; limited labour market research resulting in lack of data on skills needs and hampering the much needed evidence based policy making; limited number of occupational/industry standards and the need to revise the existing ones since they are prerequisites for developing demand driven programmes; fragmented and uncoordinated TVET ecosystem resulting in multiplicity of qualifications; resource constraints including human, financial, facilities and equipment; limited adoption of technology for delivery of content due to unavailability and high cost of internet; and limited certifications amongst informal sector workforce which comprise the bulk of wage employment in Kenya.

Suffice to note that these challenges, relating to access, quality and relevance of TVET programmes, have perennially been flagged out in policy documents since pre-independence. Wambui (2017) opine that educational development in any country is affected by historical, geographical, technological, religious, political and ideological factors, however in Kenya the political

factor is seen as the steering wheel of education in the country.

DISCUSSION

Quality of education and training determines any country's socio-economic well-being. It is therefore incumbent on governments to continually reform education and training to respond to pertinent and contemporary issues while ensuring the country's goals and aspirations are realized in tandem with international protocols and conventions. In an elaborate and multifaceted sector like education these reforms require policies to guide and concretize developments, assign responsibilities and provide basis for monitoring and evaluating impacts of interventions on access, equity, quality and relevance of education and training.

Kenya, through enactment of several education policies, has implemented major reforms in education and training since pre-independence. The Country has also posted impressive performance in education at all levels, most notably with reference to access. The current five-year old education system is stratified into Basic Education, TVET and University Education cycles. The government, historically, has been counting on TVET to provide a strong springboard for the desired socio-economic development as espoused in its development blue prints. This is because TVET produces hands-on workers for developing, running and maintaining systems of production. In the process of skilling, TVET must provide opportunities for trainees to learn practical, social and personal skills that enable them to function technically at workplaces through use of tools, equipment and machines, and as productive and responsible members of society. This makes provision of TVET very expensive; yet Kenya has to produce 20 TVET graduates for every degree holder for the Country to achieve 10% annual economic growth as desired.

Historically, non-formal and informal TVET preceded formal education and training which started with coming of missionaries and colonialists. A pattern of developing education policies to bring about reforms in education therefore started in the pre-independence era however; access, quality and relevance by then were skewed to the needs of missionaries and colonial masters. This led to resentment of TVET by natives.

At independence, and with the Country reeling from resistance to colonialism and vocational education, the poor reputation towards TVET continued. However, the pre- and immediate post-independence education developments appeared to have given a feeble start to technical and vocational training both through policy direction and administratively. Despite being cautious about TVET in this first post-independence education policy, the government and policy makers appeared to have held the view that TVET had a big role to play if the

nation's desired socio-economic development was to be achieved. All the same the negative attitude has persisted in the Country despite TVET accounting for over 80% of higher education progressions from secondary education annually.

Throughout the sixties, seventies, eighties and nineties the government's enthusiasm for TVET resulted in inertia, gaining momentum with the turn of the millennium and peaking after promulgation of the Kenya Vision 2030 and the Kenya 2010 Constitution. This made TVET a national priority and resulted in development of a raft of education and training policies.

With several reforms to be implemented against a backdrop of limited resources, the process of education policy implementation has been more political than technical, selective, slow and uneven especially in TVET. The well-meaning education and skills development policies have therefore not translated in production of adequate and competent middle level professionals since independence to date.

Further, the several education and training policies being implemented by different government agencies has resulted in duplication and clashing of mandates, slowing down production of competent personnel for the country's socio-economic development, undermining the performance of these organizations and creating confusion to other players in TVET, especially the industry, which is central in development and assessment of competency-based programmes.

Diverse nature of TVET, coupled with fragmented systems for quality assurance, uncoordinated systems for curriculum development and contexts for curriculum implementation, assessment and certification have resulted in multiplicity of qualifications that are incomparable. The bottom line is that the qualifications are obtained from varied programme designs (standard, broad-based and competency-based curricula designs) with varied durations and entry requirements. This situation has made it difficult for the Country to bridge the skills demand and supply mismatch, further compounding production of right skills.

RECOMMENDATIONS

The target of middle level professionals required for industrialization can be realized if the TVET "factories" are streamlined, harmonized and well-coordinated under strong quality assurance system, and training programmes made flexible and research-based with a reliable, valid, authentic, criterion referenced and evidence-based assessment process. These reforms are resource intensive and require proper coordination because they are multifaceted and involve many players. The government therefore needs to lead in these change processes for the tempo to be maintained and goals achieved. Education being a policy crowded field, the government should lead harmonization and

repealing of policy and legal instruments in TVET to clear off duplication of mandates, harmonize roles and concretize responsibilities of agencies charged with provision of TVET. This will create a clear reporting and reference system for TVET. Secondly the government should give a clear policy direction on migration from knowledge-based to competency-based education and training to increase uptake.

The TVET agencies need to improve public awareness on careers in TVET by documenting success stories through periodic publication.

One of the things TVET is lauded for is in increasing the rate of employment. However, education alone cannot solve unemployment and the government needs to plan the Country's holistic development including labour market skills demand with clear projections and milestones, then train young people in such a way that they will be able to benefit and contribute to this development.

Competency Based Education and Training, being industry dependent, there is need to build a strong and motivated industry that is able to participate in research and academia including use of tax rebates.

Through action research, the government, industry, research and academic institutions would each play their role effectively and in a relevant way in the production of adequate and qualified middle level human resource for industrialization and innovative economy as skills gaps will be flagged out real time.

With gains made so far, curriculum developing and qualification awarding institutions, as part of TVET ecosystem need to review the developed standards and frameworks which have been tried to accelerate access, equity, relevance and quality of the TVET. In addition, these institutions need to conduct periodic tracer studies of TVET graduates to ascertain their employability and create data for review of curricula, conduct of assessment and certification process.

Since provision of quality TVET in a rapid technologically changing is extremely expensive, digitalization of training process will not only avail the content widely and easily, it will also reduce the cost of training and waste, enable more students to be trained at the same time, reduce accidents especially when conducting dangerous activities, allow trainees to take responsibility of the learning process and make teaching and learning more interesting and appealing to the youth.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

- Colony and Protectorate of Kenya (1949). African education in Kenya: Report of a Committee appointed to inquire into the scope, content, and methods of African education, Its administration and finance, and

- to make recommendations. Retrieved from <https://gazettes.africa/archive/ke/1949/ke-government-gazette-dated-1949-12-15-no-59.pdf>
- Eshiwani GS (1990). Implementing educational policies in Kenya (English). World Bank discussion Papers; no. WDP 85. Africa Technical Department series Washington DC. World Bank Group. Retrieved from <http://documents.worldbank.org/curated/en/836481468774283223/Implementing-educational-policies-in-Kenya>
- Federation of Kenya Employers (2018). Skills Mismatch Survey. Retrieved from <http://www.tifaresearch.com/wp-content/uploads/2018/12/Skills-Mismatch-Survey-Report.pdf>
- Government of Kenya (1964). Kenya Education Commission Report, Nairobi. English Press Limited.
- Inyega JO, Arshad-Ayaz A, Naseem MA, Mahaya EW, Elsayed D (2021). Post-Independence basic education in Kenya: A Historical Analysis of Curriculum Reforms. *Forum for International Research in Education* 7(1):1-23.
- Kenya Institute of Education (1997). Review of technical and vocational education and training curricula in Kenya. Kenya Institute of Education.
- Kisilu MK (2004). Reforming Education and Training. Lessons from Development of Vocational Education and Training in Kenya. *Australian Journal of Adult Learning* 44(1):44-61.
- Lelei M, Weidman JC (2012). Education development in Kenya: Enhancing access and quality. In *Quality and Qualities* (pp. 143-162). Brill.
- Mosoti ZM (2011). Human Resource Development Through Technical and Vocational Education and Training During Independence Days in Kenya. *International Journal of Social and Policy Issues* 8(2):160-186.
- Ndegwa A, Gutiérrez-Colón M (2019). Is the Kenyan education system ready for change? A pilot study. *African Educational Research Journal* 7(2):40-47.
- Orwa WO (1982). An Investigation of Vocational Education In Kenya With Reference To Village Polytechnic Programme. Retrieved from <http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/23827Panikos>
- Republic of Kenya (1976). National Commission on Educational Objectives and Policies. Nairobi: Government Printer
- Republic of Kenya (1981). Presidential Working Party on the Establishment of the Second University, Nairobi. Government Printer.
- Republic of Kenya (1988). Presidential Working Party on Education and Manpower Training for Next Decade and Beyond. Government Printers.
- Republic of Kenya (1999a). Totally Integrated Quality Education and Training. A Report of the Commission of Inquiry into the Education System of Kenya. Government Printers.
- Republic of Kenya (1999b). Comprehensive Education Sector Analysis report. Government Printers.
- Republic of Kenya (2005a). Sessional Paper No. 1 of 2005 on Policy Framework for Education, Training and Research. Meeting the Challenges of Education, Training and Research in the 21st Century. Government Printers.
- Republic of Kenya (2005b). Kenya Education Sector Support Programme 2005-2010. Retrieved from https://planipolis.iiep.unesco.org/sites/default/files/ressources/kenya_kessp_final_2005.pdf
- Republic of Kenya (2012a). Report of the Task Force on Re-Alignment of the Education Sector to the Constitution Of Kenya 2010. Towards A Globally Competitive Quality Education for Sustainable Development. Government Printers. Retrieved from <https://vision2030.go.ke/wp-content/uploads/2018/05/Re-Alignment-Education-Sector..pdf>
- Republic of Kenya (2012b). Sessional Paper NO. 14 of 2012 on Reforming Education and Training Sectors in Kenya. Government Printers. Retrieved from <https://repository.kippra.or.ke/bitstream/handle/123456789/490/Sessional%20paper%20no%2014%20of%202012.pdf?sequence=1&isAllowed=y>
- Republic of Kenya (2012c). The Kenya National Examinations Council. Government printers. Retrieved from http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/KenyaNationalExaminationsCouncilAct2012.PDF_
- Republic of Kenya (2013). TVET ACT. Government Printers. Retrieved from <https://www.tveta.go.ke/wp-content/uploads/2022/08/TVET-Act-2013-2014-revised.pdf>
- Republic of Kenya (2013b). The Kenya Institute of Curriculum Development Act. Government Printers. Retrieved from https://kicd.ac.ke/wpcontent/uploads/2017/10/KICDACT2013-1.pdf_
- Republic of Kenya (2014). Kenya National Qualifications Framework (KNQF) Act of 2014. Retrieved from <https://www.knqa.go.ke/wp-content/uploads/2018/10/KNQF-act.pdf>
- Republic of Kenya (2017). Basic Education Curriculum Framework. Kenya Institute of Curriculum Development. Retrieved from <https://kicd.ac.ke/wp-content/uploads/2017/10/CURRICULUMFRAMEWORK.pdf>
- Republic of Kenya (2019a). A Policy Framework for Reforming Education and Training for Sustainable Development in Kenya. Towards Realizing Quality, Relevant and Inclusive Education and Training for Sustainable Development. Government Printers. Retrieved from <https://repository.kippra.or.ke/bitstream/handle/123456789/3020/L%20306%20FORMATTED%20SESSIONAL%20PAPER%20NO.%20%201%20OF%202019.pdf?sequence=1&isAllowed=y>
- Sifuna DN (2020). The Dilemma of Technical and Vocational Education (TVET) in Kenya. *Journal of Popular Education in Africa* 4(12):4-22.
- TVETA (2019). Competence-Based Education, Training and Assessment Standards & Guidelines. Retrieved from <https://www.tveta.go.ke/standards/>
- TVETA (2020). National TVET Standards: The Kenya Report. Retrieved from <https://www.tveta.go.ke/wp-content/uploads/2021/02/National-TVET-Standards-Kenya-Report-2020-5.12.-2020-2.pdf>
- United Nations Development Programme (2023). The SDGS in Action. Retrieved from <https://www.undp.org/sustainable-development-goals>
- Urch GE (1971). Education and colonisation in Kenya. *History of Education Cambridge University Press* 11(3):249-264.
- Veinnet R, Pont B (2017). Education policy implementation: A literature review and proposed framework. *OECD Education Working Paper No. 162*. Retrieved from [https://one.oecd.org/document/EDU/WKP\(2017\)11/En/pdf_](https://one.oecd.org/document/EDU/WKP(2017)11/En/pdf_)
- Wambui H (2017). Reforming for value creating education in primary school Kenya: addressing policy and practice. *International Journal of Advanced Research* 5(11):217-230.
- Wasike JN, Maiyo JK (2020). Utility of government initiatives in technical, vocational and training institutions on student enrolment in Bungoma county, Kenya. *European Journal of Education Studies* 7(12):771-782.
- World Bank (2012). More and Better Jobs in South Asia. Washington, DC. World Bank.
- World Population Review (2023). Education Rankings by Country 2023. Retrieved from <https://worldpopulationreview.com/country-rankings/education-rankings-by-country>

Full Length Research Paper

Gender Parity Approaches in Uganda's Education System: A Case of Public Secondary Schools in Bugiri District

Muweesi Charles^{1*}, Mugenyi Disan Kuteesa², Kaweesi Muhamadi¹, Kintu George¹, Tomusange Robert³, Isabirye Christopher⁵, Namagero Tendo Shira⁷, Kaahwa Yuda Taddeo⁶, Sserwadda Lawrence⁶, Wanyana Mercy¹, Nakonde Justine⁴, and Nakasaawe Victoria⁶

¹Department of Education Foundations, Busitema University, Uganda.

²Department of Educational Foundations, Kyambogo University, Uganda.

³Department of Foundations of Education, Mountains of the Moon University, Uganda.

⁴Department of Sociology and Social Administration, Kyambogo University, Uganda.

⁵Department of Pedagogical Studies, Health Tutors College-Mulago, Uganda.

⁶Department of Educational Foundations & Curriculum Studies, Makerere University, Uganda.

⁷Department of Educational Languages, Busitema University, Uganda.

Received 31 August, 2022; Accepted 11 May, 2023

The study examined the available approaches to improving gender parity in public secondary schools in Bugiri District. It specifically focused on the approaches put in place to improve gender parities in Public secondary schools, their effectiveness and challenges faced by stakeholder. The study was rooted in the interpretive paradigm and employed a qualitative methodology. Data were obtained from head teachers, teachers and students with the help of semi-structured interview guides that was triangulated with document checks and was analyzed thematically. Findings revealed that in schools where gender-related training was implemented, head teachers and teachers continued to partner with the communities in the provision of school facilities for girls (toilets and restrooms), learning materials, and also advising their children. According to findings, the ministry of education and sports typically advocates for programs that promote gender equality in schools. Further, for female students to feel comfortable and confident in their health while attending school, there are also organizations that produce reusable pads. People who are the victims of gender discrimination typically look for a forum to talk about their issues and need an unbiased listener. According to results, most of the secondary schools have started balancing activities among teachers, with male teachers taking on responsibilities towards female students and female teachers taking care of male students. The gender roles that have been established are still so distinct that many women are referred to as being in charge of the household duties. Conclusively, religious leaders do a lot to participate in the implementation of gender-responsive programs in schools. Most of the secondary schools have started balancing activities among teachers, with male teachers taking on responsibilities towards female students and female teachers taking care of male students.

Key words: Gender parity, secondary schools, students and teachers.

INTRODUCTION

Uganda continues to face gender inequality in economic empowerment and economic outcomes, despite closing gender gaps in rates of labor force participation and entrepreneurial activity. Gender parity is a statistical measure that compares a particular indicator among women, like average income, to the same indicator among men (Saleh-Hanna V, 2018).

Calculating gender parity in education involves dividing the proportion of female students at a certain academic level by that of male students at the same level (Silkenat, D, 2019). Gender equality, also known as sexual equality or equality of the sexes, is the state of equal ease of access to resources and opportunities regardless of gender, including economic participation and decision-making; and the state of valuing different behaviors, aspirations and needs equally, regardless of gender.

The COVID-19 pandemic expanded gender gaps in paid work and business ownership, and the 2020 lockdown set off a wave of work stoppages and business closures that affected women more than men, while job losses and school closures have resulted in a greater share of unpaid care work for women, who already shoulder a disproportionate amount of household responsibilities.

The Global Gender Gap Index 2022 compares 146 nations based on how gender-based disparities have changed in terms of economic opportunity and engagement, educational achievement, health and survival, and political empowerment (World Economic Forum, 2022).

The Index assesses gender parity rather than true equality, although it is nevertheless a helpful tool for analyzing growth and decline. According to the 2022 Report, the average distance completed to parity was 68%, with scores indicating the distance to parity on a scale from 0-100. If things continue as they are, it will take 132 years to bridge the gender pay gap and 151 years to attain equal economic opportunity (World Economic Forum, 2022).

Only 35% of practicing doctors in the US are female at the moment. However, the gender balance among medical students, which has been constant over the previous five years, suggests that gender parity in the physician workforce may be attained soon. There is gender parity and even an overrepresentation of women at the instructor level among medical school professors. The percentage of female faculty members, however, decreases with each position, with the percentage of female professors being 56% lower than that of female

assistant professors (Anita et al., 2019). The education and schooling of young girls has significantly improved in the majority of Asian countries. The gender gap in education may be closed in South Asia in as little as 46 years, as opposed to Western Europe, Latin America, Sub-Saharan Africa, the Middle East, and North Africa. The Asian nations that are cited are not representative, but rather serve to highlight the major gender and educational challenges that their citizens face (Anita, 2018).

As a consequence of several policies and initiatives that have been put in place throughout time and at various educational levels throughout South Asian countries, gender parity has risen. The figures also give a false impression of who actually understands and values education. The fact that many girls still choose not to enroll in formal education raises serious concerns for everyone who believes in the transformational potential of education (Pappu, 2020).

The Academy for Educational Development's Center for Gender Equity analyzes the low female enrollment in secondary education in different areas of the world. 40% of girls do not attend secondary school worldwide. Long-term outcome associated with education girls is less disease, healthier children, less poverty, and civic engagement (UNESCO, 2022).

Ashgabat, 14 November 2022 - In an effort to increase national capacity for gender responsive education, UNICEF and the Ministry of Education collaborated. The National Institute of Education hosted a five-day "Seminar on Practical Application of Improved Teaching Methods to Promote Gender Equality in Schools" from November 7–11, 2022, for 27 national professionals from the Turkmenistan education sector. This attempts to enhance gender equality and inclusion for future generations through children's education (UNESCO, 2022). Uganda achieved gender parity on enrollment into primary schools in 2014; enrollment into secondary schools has increased from 54% for boys and 46% for girls in 2008 to 53% for boys and 47% for girls in 2014 while total enrollment into tertiary education for females increased from 38% in 2002 to 44% in 2014.

The country of Uganda is working to eradicate the considerable gender disparity that prevails there. Gender oppression must be successfully and totally eliminated, and this requires a comprehensive and revolutionary approach that addresses systemic power disparities. In order to shatter the patriarchal violence and provide the conditions for everyone to be able to heal and go forward together, a disruption of this scale need crucial and forceful education (Monk et al., 2021).

*Corresponding author. E-mail: cmuweesi@gmail.com.

Author(s) agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

Purpose of the study

The purpose was to examine the effectiveness of the available approaches to promoting gender parity in public secondary schools in Bugiri District

Objectives of the study

The study was conducted to:

- (a) Examine the gender parity approaches in public secondary schools in Bugiri District
- (b) To explore the challenges faced by stakeholders in a bid to enhance gender parity in schools.

Theoretical review

The feminist philosophy, which first appeared in works like Mary Wollstonecraft's *A Vindication of the Rights of Woman* in 1794, guided the study (Levitas, 2021). Feminism seeks to comprehend the origin of gender inequality, hence force feminism examines how men and women behave in social situations as well as their experiences, interests and tasks.

Thus, gender inequality is a common theme in the feminist thought. Feminism was chosen because discrimination, objectification, oppression, patriarchy and stereotyping (Levitas, 2021) which are the major focus and are related to the problem under consideration. By implications; some of the strands of feminism can ably improve gender parities in education institutions. The major of Feminism comes from women centered view stipulating that women have more social problems than men. But a point to note is that , social problems are not strictly related to women, true feminism should benefit men too but not applicable to only women, should emphasize the promotion of equality and justice among men and women (Hardings, 1991).

REVIEW OF RELATED LITERATURE

This section provides background information about the study goals. The most recent and fundamental works on the study topic are highlighted in particular. The purpose of this section is to help comprehend how gender parity is organized in various countries. The majority of this excellent data comes from scholarly publications.

Approaches put in place to enhance gender parity in secondary schools

Gender parity strategies in secondary schools

To mark International Women's Day, UNESCO, the UN

Girls' Education Initiative (UNGEI) and Transform Education, with support from the Organization of Economic Cooperation and Development (OECD), held a webinar calling on students, parents, teachers, governments and development partners to smash gender stereotypes and bias through education (UNESCO, 2022).

The Global Education Monitoring Report and UNESCO launched a new factsheet challenging gender bias and stereotypes in and through education. Recognizing the transformative role of education, Amelia Fernandez, Advisor for the Government of Navarre, and laureate of the 2019 UNESCO Prize for Girls' and Women's Education for the project SKOLAE, shared that "teachers have a duty to have a gender-transformative approach so that we explain to learners all of their capabilities and enable them to fulfil their potential as people and not as silos of boys and girls separately (UNESCO, 2022)."

Even in the most industrialized nations, girls are frequently reared with the misconception that they are not on an equal footing with males. If these teachings are not reversed, they may persist until adulthood. Women feel they can succeed when they are encouraged and given opportunities (Karthik, 2017).

In another study, recurring themes necessary for secondary school teachers working in the Eritrean context were identified by examining the present gender-sensitive education toolkits for educators in low- and middle-income countries. According to research, teachers should pay close attention to the following in order to promote gender sensitivity: engaging students in learning, establishing a gender-sensitive classroom, using language and teaching materials, health and maturity issues, and enlisting the help of parents and the community (Korenius, 2015).

A recent poll by the Organization for Economic Cooperation and Development (OECD) included 540,000 students between the ages of 15 and 16 from 72 different nations. In the OECD countries as a whole, 66% of students said they felt anxious about getting bad results, and 59% said they frequently worry about how hard an exam will be. The OECD also discovered that even when they are well-prepared, 55% of students experience extreme anxiety before school tests. 37% of students said they felt extremely anxious when studying, with girls regularly reporting more anxiety than boys about their coursework (OECD, 2017).

Effectiveness of approaches in place to ensure gender parity in secondary schools

Women have consistently aimed to play key roles in tackling the most pressing issues facing the globe today, including global poverty, health, and climate change, throughout history and in recent years. Women have consistently worked to advance initiatives that support

environmental sustainability, education, and health (Calorina and Barbara, 2018).

The Teachers Service Commission has hired many women as teachers in Kenya. Although there are 45 female teachers in the Nyandarua Central sub-county, there is cause for concern because so few of them are involved in secondary school management, particularly in mixed secondary schools. Only three of the fifteen principals at the mixed secondary schools in Nyandarua Central Sub-County, for instance, are women (Martins and Wangenheim, 2022).

Women have had their time and energy stolen from them for a long time by economic and cultural systems that assign them child care and the everyday maintenance tasks of cooking, cleaning, and shopping (Dennis et al., 2018). Due to the double weight of work, a woman is severely constrained in her ability to make a difference outside of her house and family. Due to the disproportionately high percentage of household tasks performed by women, they are prevented from achieving senior administrative positions (Xinfeng et al., 2019).

Arab women occupy the majority of teaching posts in Arab schools, but when they aim to become principals, patriarchal opposition breaks out. This article discusses a study that looked at teaching colleagues' perceptions of the hiring of female principals (Madjar and Chohat, 2017).

The appointment of women to school leadership and management has motivated intensive investigation since the end of the 20th century (Blackmore, 2007; Brunner and Grogan, 2007; Glazer, 1991). Research on gender equality in educational leadership indicates that some gaps between men and women have closed the appointment of women to school leadership and management has motivated intensive investigation since the end of the 20th century (Blackmore, 2007; Brunner and Grogan, 2007; Glazer, 1991). Research on gender equality in educational leadership indicates that some gaps between men and women have closed.

Women are still underrepresented in positions of top management, despite the fact that they are entitled to and qualified for any management roles that have traditionally been held by their male counterparts. This article's goal is to determine whether there are gender variations in the elements that academics have said contribute to the underrepresentation of women in leadership roles in educational institutions (Evans et al., 2018).

Despite significant advancements in recent decades, the recruitment, advancement, and promotion of women in academics remain low. More than half of all PhDs are earned by women, who make up a considerable portion of the academic talent pool. Despite this, they are still underrepresented in teaching and leadership positions (Mitchelle et al., 2020).

Working collaboratively is the approach that is most common in the scientific community, independent of the individual contributions' qualities (Geordan et al., 2019).

In our view, it is this synthesis of many viewpoints and ideas that gives science its originality and advances scientific paradigms. Nevertheless, there is still little gender diversity in several scientific sectors. Only 28.8% of scientists worldwide are female researchers, according to the UNESCO Institute for Statistics (UIS). We will highlight Colombia's gender disparities in this review, where women make up just 37.8% of the nation's researchers (Calorina and Barbara, 2018).

Challenges faced by stakeholders in a bid to enhance gender parity in secondary schools

Female teachers are less likely (34%) than their male counterparts to take leadership positions in secondary schools, according to Kanukisya and Mbogela (2021). Insufficient role models and mentors, gender norms, socialization, and gender stereotypes, as well as a lack of participation, were all contributing factors. It's critical to address the problems that prevent more women from occupying leadership roles.

A teacher's professional advancement is hampered by two issues: (1) Internal factors, such as female teachers' low aspirations and lack of desire, which causes them to become complacent with their current situation. Another possibility is that female teachers are concerned that having a higher position would mean having more work and responsibility to handle; (2) External factors: Culture plays a big part and affects people's mindsets, therefore the head job is only held by men (Muweesi C, Basan MK. 2022). The number of female principals is still low even though the rules pertaining to structural roles do not disadvantage women due to rivalry with male principals and the restricted number of jobs available in comparison to the number of instructors who match the standards (Ryan, 2019).

Despite the fact that there does not seem to be a gender difference in these factors, family responsibilities, a lack of aspiration for management positions, a lack of mobility, the suitability of female educators to hold management positions, and a lack of supportive networks appear to be the main barriers to the promotion of female educators to school management positions. Other barriers include the lack of support from male coworkers, gender stereotypes, and a lack of confidence (Yang et al., 2019).

In China, gender equality and women's advancement have lagged, while women's traditional roles and the division of household duties between men and women have remained static. As the fertility policy is relaxed, more women will give birth more frequently, which will make it more challenging for them to find employment. Women's salaries suffer due to childbirth, and the issue of maternal punishment only gets worse as it becomes more prevalent (Fang and Xia, 2021).

Violence, social isolation, exploitation, and

discrimination are still ongoing threats to women's rights in Cambodia. If women are to successfully contribute to Colombia's growth, which is so important, they must get through the major obstacle that gender inequity presents. There is a significant gender gap in the scientific community in Colombia, which is not an exception to the rule of gender equality in other areas of life (Calorina and Barbara, 2018).

Summary of literature

International Women's Day is on March 8 and International Girls are reared with the misconception that they are not on an equal footing with males. Research shows that even when well-prepared, 55% of students experience extreme anxiety before school tests. In the OECD countries as a whole, 66% of students said they felt anxious about getting bad results, and 59% said they frequently worry about how hard an exam will be.

Women have had their time and energy stolen from them for a long time by economic and cultural systems that assign them child care and the maintenance tasks of cooking, cleaning, and shopping. Due to the disproportionately high percentage of household tasks performed by women, they are prevented from achieving senior administrative positions. Despite significant advancements in recent decades, the recruitment, advancement, and promotion of women in academics remain low.

Female teachers are less likely (34%) than their male counterparts to take leadership positions in secondary schools. Insufficient role models and mentors, gender norms, socialization, and gender stereotypes are contributing factors. Culture plays a big part and affects people's mindsets; therefore, the head job is only held by men. In China, women's traditional roles and the division of household duties between men and women have remained static. As the fertility policy is relaxed, more women will give birth more frequently, which will make it more challenging for them to find employment. There is a significant gender gap in the scientific community in Colombia.

Gaps identified

In general, there are not many in-depth analyses of the gender parity issue in the literature. The information accessible is mostly for industrialized nations, and there is currently little local understanding regarding the methods used to promote gender parity. It is difficult to implement better strategies for promoting gender equity in schools without this type of understanding. Given the paucity of the literature, there is a lack of efficacy when it comes to the measures that are already in place. On the other hand, disparities are still being spoken about. The obstacles are considerable, which is why even the

strategies that have been used to advance gender parity have never been successful.

METHODOLOGY

This study specifically focused on approaches put in place to improve gender parities in public secondary schools, their effectiveness, and challenges faced by stakeholders. The study was rooted in the interpretive paradigm and employed a qualitative methodology. Convenience sampling was used to select 4 public secondary schools from Bugiri district.

Study participants included teachers, head teachers, and students. Data were collected using semi-structured interview guides. Semi-structured interviews enable in-depth questioning and resolution of contradictory responses (Horton et al., 2004). For triangulation purposes, document review was considered and collected data were analyzed thematically.

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

Approaches in Place to enhance gender parity in public secondary schools in Bugiri District

Training in gender sensitivity aims to create a gender-sensitive teaching environment that encourages and facilitates equal participation by both boys and girls, which can help improve girls' retention and performance and the overall quality of learning when consistently and systematically practiced. In schools where gender-related training was implemented, head teachers and teachers continued to partner with the communities in the provision of school facilities for girls (toilets and restrooms), electricity, learning materials, and also modeling and advising their children. In line with these findings, head teachers A' views in the table above were multiple.

Stakeholders should be involved in any training about gender to ensure successful implementation of initiatives. Such initiatives could include school/college administrators, non-government organizations (NGOs), District Education officials, Ministry of Education and Sports, religious leaders, SWT/SMT, security officials, local leaders, and parents and guardians. Involving stakeholders in these trainings helps to ensure that all perspectives are taken into account and that any initiatives are designed to be successful, this was in consonant with Head teacher B's submission in Table 1.

According to findings, the Ministry of Education and Sports normally advocates for programs put up to ensure gender parity in schools. However, it is always an initiative ignited by school administrators. This is done through commissioners and other officials through whom MoES monitors implementation of its programs at school level. Feedback by Head teacher C (in the table1 above) revealed the Ministry laxity to offer clear policy guidelines to enhance these parities. With further interactions with Head teacher D in the table above, This study revealed that in almost all public secondary schools in Bugiri

Table 1. Research Question; what are the gender parity approaches in secondary schools?

Head teacher	Emerging theme	Response
A	Training in gender sensitivity	The issue of gender parity is a complicated one. However, as leaders, we have always organized training sessions every month to sensitize students, teachers and willing individuals from communities. We are doing our part, supported by some development partners, who we consult at individual levels or through government. I think, in a particular school, we are doing well in as far as gender parity is concerned.
B	Involvement of stakeholders in any trainings about gender	This has now become a song, in that unless we change approaches to enforcing it, even government may end up failing to achieve the desired goals. Coming back to this school, you can see we have labeled everywhere on walls that male and female persons are equal. We pass messages to whoever is concerned. We even print out those small papers and give learners to walk with them.
C	Ministry of Education and Sports advocacy for programs involved in implementing program that enhance gender parity	Do you know that the issue of gender, these days holds the attention of police in its hands? Let me tell you, gender parity has been a debate right from our colonial masters and I, for one, I try as much as possible to advocate for gender parity by encouraging parents to give equal attention to female children just like it is with the male counterparts. We are living in a society where you find the difference between boy and girl so common and obvious with limited explanation. I frequently debate against this.
D	School/college administrators are involved in implementing program that enhance gender parity	Thank you, sir, for bringing such a thematic issue on board. For a long time, the question of gender has been a concern among individuals and different government entities. The main intention of the government is to ensure that schools and other institutions do not adopt policies which separate students and activities based on gender. As a supervisor of institutional activities, I strive to assign responsibilities to teachers without being gender biased. I also take a close watch, on a private basis, to ensure that students are gender sensitive.

Source: Primary Data.

District, school/college administrators are involved in implementing program that enhance gender parity. The role of DEOs was found to be participating in programs geared towards effective implementation of gender parity programs in schools and colleges.

Relatively, another very important approach that is set forth in schools to promote gender parity is that of awarding students and teachers without indicating any form of being gender biased. At the moment, schools are charged with the responsibility of ensuring that any teacher who excels in work assessed through results at the Uganda Certificate of Education (UCE) and Uganda Advanced Certificate of Education (UACE) levels is treated equally. Teachers with my students who scored high in their subjects receive an appreciation in cash or gifts depending on arrangement in a given school. However, these gifts do not indicate separate ones for males and separate ones for females. These same results apply to students who perform well and lead others.

Effectiveness of programs available to enhance gender parity

This study found out that religious leaders do a lot to participate in implementation of gender responsive

programs in schools. On the side of security officers such as Police, and crime preventers. Asked about how effective the issue of implementing approaches for gender parity is in the school, one head teacher indicated:

At the moment, whether one is in church or in hotel or in a village meeting, at burials and wherever, it has become part of leaders' regular responsibility to make advocacy for gender parity a song. You hear fellow leaders advocating for involvement of female children in engineering courses, or taking them to study as gynecologists.

Cultural leaders' participation on the other hand was found to be significant though they still need to be sensitized about the value of GRP so that they join the team of advocates for implementation of gender sensitive programs, as one of the influential authorities at all levels in communities. On

Taking you to the kingdom level, there are opportunities to support the girlchild in schools. Here in our school, there are many female students who study as a result for support from the kingdom. You may find that a class where you used to meet one girl in five boys, that girls are more and more each

day that sets in. this is a high level of achievement which you must notice. In addition, the government of Uganda has played its part and communicated to communities about the need for gender parity. To this effect, those who listen easily implement the government urge.

The Senior Women Teachers (SWTs) and Senior Men Teachers (SMTs) have the duty to ensure that gender sensitive programs are effective in schools. This is why at earlier stages of this report; the number of trained SWTs and SMTs was investigated. By ensuring that school possesses both senior man teacher and senior women teachers, it indicates that administrators and other stakeholders have indeed acquired some step-in registering gender parity. The qualitative results partly indicate as follows:

At the moment, most of the secondary schools have started balancing activities among teachers, with male teachers taking on responsibilities towards female students and female teachers taking on responsibilities towards male students. The goal is to teach teachers and students how to associate without considering the attractive aspect of the opposite sex.

For female students to feel comfortable and confident in their health while attending school there are also organizations that produce reusable pads. The poll did find that, in many cases, parents at particular secondary schools are not involved in the production of reusable pads. The same is true for males' participation in pad-making, where just two secondary schools had a significant presence in the activity. According to this study, females use homemade pads more frequently in one secondary school than any other. The two secondary schools chosen for the study had a noticeable availability of samples for reusable pads.

Findings reveal that gender inequality is clearly seen from early life until old age, and it is unique when it comes to regular living activities, such as working both in the office and the kitchen from a child's perspective. Even though the gap has shrunk in the twenty-first century as a result of proper education, it remains deeply ingrained in our society and can be seen in the differences between each household and the workplace. The gender roles that have been established are still so distinct that in many instances' women are referred to as being in charge of the household duties and men as being the family's primary provider of income. In the qualitative findings, one of the head teachers stated as follows:

Everyone can notice the wide range of people who identify as different genders, such as cisgender, transgender, etc. Due to inadequate knowledge, people have been segregating gender roles in

society, which has resulted in discrimination against women, segregation, and the formation of gender distinctions.

The program to promote MDD such as songs, skits, drama, poems, rhymes, etc was reported to be absolutely supported, as well as organizing counseling and guidance sessions for purposes of responding to gender parity. In addition, findings revealed that Numerous NGOs operate in numerous fields and place a strong emphasis on providing a safe haven for those who are struggling. People who are the victims of gender discrimination typically look for a forum to talk about their issues and need an unbiased listener. The people who are involved in creating safe environments for the victims to speak up and feel free from the things they are feeling are often NGOs that operate in the area of gender inequality.

Challenges' faced by stakeholders in a bid to enhance gender parity in secondary schools

According to findings, teachers and students indicated that one of the most significant challenges stakeholders face in enhancing gender parity is that parents do not participate in seminars, workshops, or even meetings that educate or sensitize stakeholders about the importance of gender balance in all aspects of society. The results showed that it would be essential for parents to participate in each and every session because they stay with children most of the time. In the words of headteacher school B, the following remarks rhyme with these findings;

At the moment, the challenge is mainly in the homes where these students come from. In fact, if parents could spearhead this idea of gender parity, everything would have worked automatically. However, when called upon, these parents refuse to attend even term meetings. Now, how do you expect improvements in such an environment? Mind you, most of the students in almost all schools are day scholars, and they bring all sorts of behaviors from home to school. The highest percentage of immorality among boarding students exists among those who are related to day scholars...

In addition, findings revealed that another challenge faced in a bid to enhance gender parity is the unnoticed cases of illegal teacher-student love affairs. The undisciplined teaching staff ends up defiling female students and this has reportedly affected the rate at which such teachers participate in condemning acts against gender disparities. This was also mentioned by three headteachers with a common voice as indicated below;

There is something going on in schools, but even principals lack an adequate spy network to establish the vice. The love relationships between teachers and female students are unnoticed and very widely spread in schools, with hardly any possible interventions. Even when the administration strives to avert the problem, we still keep experiencing endless reports.

More findings indicate that the government is also responsible for the delayed implementation of strategies to enhance gender parity. According to respondents' opinions, the government has ill-conceived policies that cannot address the issue of gender parity in individual secondary schools. Findings indicate that the government could have a legally appointed gender-sensitive committee designed to maintain the strategies introduced to enhance gender parity, other than making it an extra responsibility for school administrators and teachers. A quotation from qualitative results indicated;

The poor arrangement of programs is largely responsible for this mess. For example, you do not expect to tell a teacher who is himself or herself immoral to be gender sensitive. I just do not know how to frame it, but I think there would be a monitoring team based outside the school. This independent group can develop a strategy that will lead to the identification of victims of gender disparities.

The other reason concerns the fact that the issue of gender parity is discussed mainly in favor of the girl-child. Findings clearly reveal that the male teachers and male students are not given as a lead group in discussing gender issues. In fact, some of the male students inquired of what would happen in case a female teacher tries to practice immoral love affairs with a male student. At the same time, it was unclear what would happen to female students who keep insulting their male counterparts over gender-related affairs. Similarly, qualitative findings hinted on this;

How can we truly fight for gender equality in a society where it is widely assumed that when we talk about gender equality, only women are under pressure? It is this misconception that has slowed the fight for gender equality among men. In fact, it has just promoted more gender disparities because it requires attention.

Conclusions

Conclusively, in schools where gender-related training was implemented, head teachers and teachers continued to partner with the communities in the provision of school facilities for girls (toilets and restrooms), learning materials, and also advising their children. According to

findings, the ministry of Education and Sports normally advocates for programs put up to ensure gender parity in schools. This is done through commissioners and other officials through whom MoES monitors implementation of its programs at school level.

This study also found out that religious leaders do a lot to participate in implementation of gender responsive programs in schools. Cultural leaders' participation was found to be significant though they still need to be sensitized about the value of GRP. For female students to feel comfortable and confident in their health while attending school there are also organizations that produce reusable pads. People who are the victims of gender discrimination typically look for a forum to talk about their issues and need an unbiased listener. The people who are involved in creating safe environments for the victims to speak up and feel free from the things they are feeling are often NGOs that operate in the area of gender inequality.

Cultural leaders need to be sensitized about the value of gender responsive programs (GRP) in schools. Most of the secondary schools have started balancing activities among teachers, with male teachers taking on responsibilities towards female students and female teachers taking care of male students. This indicates that administrators and other stakeholders have acquired some step in registering gender parity. The gender roles that have been established are still so distinct that many women are referred to as being in charge of the household duties.

Recommendations

In relation to approaches in place to enhance gender parity, it is recommended that the government, all school administrators, students, and parents, as well as the community at large, come up and liaise to ensure that gender parity is promoted in the secondary schools.

It is also important to reassure stakeholders about the importance of gender parity so that they keep implementing recommended measures. This will help enhance the effectiveness of the measures.

The government ought to set up special committees that are not part of the school's team so that they can monitor progress on gender parity from outside the school. This will aid in tracking down problems and finding solutions.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

REFERENCES

Anita KC (2018). Gender and schooling in Asia: Prospects and challenges. Routledge International Handbook of Schools and

- Schooling in Asia pp. 759-763.
- Anita R, Kumra MS, Gary DL (2019). Achieving Gender and Social Equality: More Than Gender Parity Is Needed. *Academic Medicine* 96(11):1658-1664.
- Blackmore J, Sachs J (2007). *Performing and reforming leaders: Gender, educational restructuring, and organizational change*. State University of New York Press.
- Brunner C, Grogan M (2007). *Women leading school systems*. Lanham: Rowman and Littlefield.
- Calorina FM, Barbara FO (2018). Women in Academia and Research: An Overview of the Challenges Toward Gender Equality in Colombia and How to Move Forward. *Frontiers in Astronomy and Space Sciences* 5:24.
- Dennis FA, Anthony B, McAllister J, Mosime ST, Thani GT (2018). A Five Country Study of Gender and Sexuality Diversity and Schooling in Southern Africa. *African Educational Review* 16(1):19-39.
- Evans D, Borriello GA, Andy FP (2018). A Review of the Academic and Psychological Impact of the Transition to Secondary Education. *Frontiers in psychology* 9:1482.
- Fang G, Xia L (2021). From One to Three: China's Motherhood Dilemma and Obstacle to Gender Equality MDPI. *Women* 1(4):252-266.
- Geordan S, Melanie J, Kate W (2019). Gender equality in science, medicine, and global health: where are we at and why does it matter? *Science Direct*, pp. 560-569.
- Glazer JS (1991). *Feminism and Professionalism in Teaching and Educational Administration*. *Educational Administration Quarterly* 27(3):321-342.
- Harding S (1991). *Whose science? Whose knowledge?* Cornell University Press, New York, NY, USA.
- Horton J, Macve R, Struyven G (2004). Qualitative research: experiences in using semi-structured interviews. In *The real life guide to accounting research* (pp. 339-357). Elsevier.
- Kanukisya B, Mbogela SS (2021). The Participation of Female Teachers in Educational Leadership in Secondary Schools in Ubungo Municipality, Dar es Salaam, Tanzania. *Journal of Humanities and Social Sciences* 10(3).
- Karthik M (2017). Cycling to School: Increasing Secondary School Enrollment for Girls in India. *American Economic Journal* pp. 321-50. <https://doi:10.1257/app.20160004>
- Korenius S (2015). Gender sensitive education – A literature review of relevant toolkits for secondary school teachers in Eritrea. Theseus. Retrieved 2022, from <https://www.theseus.fi/handle/10024/157296>
- Levitas MK (2021). What is Feminist Theory? - Definition & Overview: What Is Feminist Theory? Study.com pp. 1-4.
- Madjar N, Chohat R (2017). Will I succeed in middle school? A longitudinal analysis of self-efficacy in school transitions in relation to goal structures and engagement. *Educational Psychology* 37(6):680-694.
- Martins RM, Wangenheim CG (2022). Findings on Teaching Machine Learning in High School: A Ten - Year Systematic Literature Review. *Journal of Informatics in Education*. doi:<https://doi.org/10.15388/infedu.2023.18>
- Mitchelle IC, Emily D, Yarar C, Monica F, Hidalgo B, McClure LA, Nathaniel B (2020). Turning Chutes into Ladders for Women Faculty: A Review and Roadmap for Equity in Academia. *Journal of Women's Health* 29(5).
- Monk D, Maria DG, Harris JC (2021). *Gender and Education in Uganda*. doi: <https://doi.org/10.1093/acrefore/9780190264093.013.1289>
- Muweesi C, Basan MK. (2022). Gender and Participation in Sexuality Extra-Curricular Education in Primary Schools in Bugiri Municipality, Uganda. *Studies in Social Science & Humanities* 1(3):1-8.
- OECD (2017), *The Pursuit of Gender Equality: An Uphill Battle*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264281318-en>.
- Pappu R (2020). Gender Equity in Education: Changes and Challenges in South Asia. *International Journal of Lifelong Education* pp. 1-27.
- Ryan AS (2019). Factors that foster and deter advanced teachers' professional development. Elsevier pp. 321-331.
- Saleh-Hanna V (2018). [Review of No Mercy Here: Gender, Punishment, and the Making of Jim Crow Modernity, by S. Haley]. *Social Justice*, 45(2/3 (152/153):181-188.
- Silkenat D (2019). Book Review: No Mercy Here: Gender Punishment, and the Making of Jim Crow Modernity by Sarah Haley. *Feminist Review* 123(1):155-157.
- UNESCO (2022). UNICEF and Ministry of Education Cooperate to Make Education in Turkmenistan Gender Responsive. Unesco 2.
- Xinfeng T, Suquin T, Zhihong R, Keung FW (2019). Prevalence of depressive symptoms among adolescents in secondary school in mainland China: A systematic review and meta-analysis. *Science Direct* pp. 498-507.
- Yang HY, Gaeun B, Xuan, Lisa B, Julie K (2019). Analysis of H-index in Assessing Gender Differences in Academic Rank and Leadership in Physical Medicine and Rehabilitation in the United States and Canada. *American Journal of Physical Medicine & Rehabilitation* pp. 479-483.

Full Length Research Paper

A study on the relationship between teacher competency and job performance under human resource management in higher education

Yan Yang^{1,2*} and Yuan-Cheng Chang²

¹Jiangsu Vocational and Technical College of Economics and Finance, Huaian, China.

²Department of Education Management, Chinese International College, Dhurakij Pundit University, Bangkok, Thailand.

Received 22 May, 2023; Accepted 23 June, 2023

This study aimed to investigate the effects of Jiangsu University teachers' competency and engagement on their job performance and determine whether teacher competency affects job performance through the mediating role of engagement. We constructed a theoretical model based on self-determination theory (SDT) and the job demand–resource model and validated it using structural equation modeling (SEM). The study sample comprised teachers from 8 types of undergraduate colleges and universities in Jiangsu Province, China. Three hundred and fifty-four university teachers were surveyed using the Teacher Competency Scale, the Utrecht Work Engagement Scale, and the Job Performance Scale. The results showed a significant positive effect of university teachers' competency on their engagement and job performance. Additionally, SEM analysis showed a partial mediation effect of engagement in the relationship between teacher competency and job performance. The findings not only enrich our understanding of the mechanisms underlying the relationship between university teachers' competency and job performance but also extend the scope of SDT and suggest practical discussions and recommendations.

Key words: University teacher, competency, engagement, job performance.

INTRODUCTION

The State Council of the Central Committee of the Communist Party of China's *Opinions on Comprehensively Deepening the Reform of Teaching Force Construction in the New Era* (2018) states that highly competent teachers are the foundation of high quality educational development, that teacher quality and

level influence the educational effect, and that teachers bear the burden of training socialist builders and successors (Li, 2018; Antoniou and Kyriakides, 2013; Li et al., 2018). Teacher ability refers to the ability of teachers to go all out to achieve goals and actively exert their own inner potential and initiative in teaching (Xue et al., 2023),

*Corresponding author. E-mail: yan20206@qq.com.

Author(s) agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

which is an intrinsic motivation for teachers' development (Valsiner and Van der Veer, 2000). Moreover, the individual teacher competency level determines the entire teaching force's competency level (Armstrong and Taylor, 2009; Bibi, 2005). Additionally, in the process of new-era organizational development, comprehensive improvement of human resource management (HRM) has become key for organizations to obtain a comprehensive competitive edge (Bednall et al., 2014). Human resources refers to the sum of physical and mental resources that people have to contribute to the creation of value and can be utilized by the organization (Armstrong and Taylor, 2009). As universities' most important and core human resources, teachers' overall quality, teaching performance, research performance, and social service ability profoundly impact universities' education level and the quality of talent cultivation (Taylor and Tyler, 2012; Xu and Ye, 2014; Yan et al., 2022). Competency assessment is the theoretical foundation of and an important tool for HRM (Rajpal, 2016; Katz and Rath, 1985). Constructing a competency model is fundamental to addressing constituent issues of the HRM process such as recruitment, selection, talent cultivation, performance management, and payroll management (Pantić and Wubbels, 2010). Competency model, that is, as a fixed role needs to have the characteristics to be able to complete the task well, can be said to be a kind of competency characteristics for the performance of fixed positions to seek integration (Anitha and Reema, 2014).

Competency model can provide a scientific, complete and successful model for a given level, job or role. It reflects all the necessary behaviors, skills and knowledge to influence an individual's success in a given job and is often used as a tool in a given workplace (Mathis et al., 2015). Construction of a competency evaluation index system can facilitate the efficient implementation of various tasks in all HRM subsystems, thus improving an organization's overall competitiveness (Zhang et al., 2021).

Competency and engagement have constituted a hot topic in the field of organizational behavior and HRM for over two decades, and teacher engagement is a key to improving teachers' core competencies (Li et al., 2021; Salmela-Aro and Upadyaya, 2018). Improving engagement goes hand in hand with improving job performance in terms of teacher competencies (Xue et al., 2023). Job performance is influenced by a variety of factors including the organizational environment, the nature of the job, job competencies, job engagement, and certain personal characteristics (Sheldon and Filak, 2008). Teacher engagement is closely related to a university's performance (Runhaar et al., 2013). Teachers' ability to devote themselves to their work and demonstrate a high level of engagement is a direct influence on a school's performance (Huang et al., 2022) because it creates a clear link between individual performance and organizational strategic goals (DeNisi and Sonesh, 2011).

Self-determination theory (SDT; Deci and Ryan, 1985) is a theoretical framework that emphasizes the importance of satisfying the psychological need for well-being to optimal performance. SDT posits that individuals have three basic psychological needs: autonomy, competence, and relatedness (Deci and Ryan, 2000). Satisfying these psychological needs is essential for psychological growth, optimal competency, and well-being. Hence, much SDT research has focused on the factors that facilitate or hinder satisfaction of these needs (Deci and Ryan, 2000). Historically, empowering teachers has been widely recognized as one of the most important solutions to teachers' problems (Melenzyer, 1990) including job satisfaction, burnout, and poor job engagement (Zhang et al., 2021). According to SDT, teachers, as professionals, should be given greater autonomy and freedom, and meeting their basic psychological needs can unlock greater capacity (Klaeijssen et al., 2018), allowing them to, in turn, positively influence their students (Klassen et al., 2012), which would ultimately produce higher teacher job performance (Wahyuddin, 2016). For example, previous research has shown that teachers' perceptions of autonomy positively predict their professionalism (Koneremann, 2012) and teaching self-efficacy (Korthagen and Evelein, 2016).

However, currently, personnel management in universities lacks development strategies, systematic human resource planning, a comprehensive professional behavior evaluation system, an efficient training and development system, and an effective and scientific performance appraisal system that could lead to optimal performance (Xu and Ye, 2015).

Therefore, there exists relative lag regarding concepts related to constructing a teaching force as well as a lack of in-depth research on and an accurate understanding of the new situation and the new problems universities are facing in market economy conditions (Yang and Khairuddin, 2022). This has led to various drawbacks for faculty management in terms of content, incentive means, and management methods and objectives; additionally, faculty management has shown an inability to adapt to people-oriented requirements (Rajpal, 2016). Using competency as an entry point to explore the path to enhancing HRM has recently become an important tool in management and education (Bednall et al., 2014; Zhang et al., 2021). Therefore, this study proposed a teacher competency model to assess teachers' job performance and examine the impact of teacher competency on job performance. This study investigated the relationship between university teachers' competency and their engagement and job performance and analyzed university teachers' psychological needs and behavioral performance. This paper suggests adopting management and service approaches that suit university teachers' needs to promote their professional development and self-diagnosis toward improving their job performance (Runhaar et al., 2013) and enhancing universities' overall

performance/quality, core competencies, and innovation development (Greguras and Diefendorff, 2009; Pantić and Wubbels, 2010).

LITERATURE REVIEW

Competency and job performance

Teacher competency is the foundation of teachers' educational work, the basis for school recruitment and performance assessment, and the key to improving and modernizing education (Xue et al., 2023). It is a combination of various competency elements that facilitate the organization and development of teaching (Yang and Khairuddin, 2022; Xue et al., 2023). Drawing on McClelland (1998), teacher competency was defined as individual characteristics that distinguish high performing teachers from average performing teachers in education. Teacher competency is the combination of individual teachers' motivation, self-concept, knowledge, behavior, emotions, and personality traits in a given context (Anitha and Reema, 2014). Once a worker is able to correctly understand their own abilities and becomes aware of the nature of the work environment, more competent performance can be generated; conversely, a worker who is not fully confident in their abilities or is unfamiliar with the nature of the work environment tends to perceive low competency (Phillips et al., 2001).

Using competency models effectively and scientifically can help users identify the competencies needed for their jobs, as well as their job strengths, the weaknesses that need to be corrected and remediated, further learning and development that can be achieved, etc. The iceberg model (McClelland, 1973) and the onion model (Boyatzis, 1991) are two important competency models that demonstrate that Organizational goals can be achieved when individuals possess the necessary competencies (Sandberg, 2000).

Lee et al. (2020) stated that variation in in-service teachers' teaching competencies and performance should be given attention when observing teaching practices (Taylor and Tyler, 2012). Based on Barry and Stewart (1997), job performance was defined as the results of university teachers' activities and behavioral performance regarding fulfilling school teaching, research, and other related tasks in a manner closely linked to their schools' goals (Hwang et al., 2017; Swider and Zimmerman, 2014). Chen and Schaubroeck (2002) concluded that job performance reflects whether a person is effective at what they do or whether they demonstrate good competency. Other studies on the relationship between teacher competency and job performance have confirmed that teacher competency is positively related to job performance (Demir, 2015; Runhaar et al., 2013); that is, the teacher competency level determines individual performance and is a good predictor of individual

performance (Yan et al., 2022). Moreover, Rahmatullah (2016) found that increasing teacher competency effectively improved teacher performance among 150 teachers in Indonesia and that continuous learning and competency improvement resulted in higher teacher performance. Based on the above literature and analysis, this study proposed the following research hypothesis:

H1: University teacher competency significantly and positively contributes to job performance.

Competency and engagement

Vroom et al. (2015) reviewed research on strategies for improving employee performance based on motivation theory and concluded that employee engagement and competency are the main variables of organizational performance and that this relationship between needs and goals can be expressed in a process model as follows: individual effort (competency)–individual achievement (performance)–organizational rewards (compensation)–individual needs. HRM efforts can effectively improve organizational performance through the selection and nurture of teacher competencies and the motivation and development of teacher engagement (Min et al., 2020). Additionally, teacher competency, job enrichment, job role fit, encouragement from colleagues, support from superiors, and availability of job resources all positively impact work commitment (engagement) (May et al., 2004; Maeda et al., 2021; Xue et al., 2023). A satisfying job attracts employees' interest in devoting themselves to their work and investing their efforts in helping the organization achieve its mission (Shuck et al., 2011). Therefore, when employees have relatively rich job tasks and a better job match, these become a driving force that ensures a much higher level of engagement (Laschinger and Leiter, 2006), which helps the organization improve its performance and achieve its strategic goals (Van Niekerk, 2022). Based on the above literature and analysis, this study proposed the following research hypothesis:

H2: University teacher competency significantly and positively contributes to teacher engagement.

Engagement and job performance

Studies have found that the current reasons for low teacher engagement are mainly influenced by school management levels, career development opportunities, benefits, and recognition of teachers' work (Bakker et al., 2007; Levitats et al., 2022). University teachers are the backbone of higher education, and their engagement affects individual teacher job performance (Wang and Chen, 2020). Drawing on Schaufel et al. (2002), we define teacher engagement as the extent to which professional

teachers engaged in teaching and learning are dedicated to their teaching and learning work and thus engage in playing their role (Yao et al., 2022). Teacher engagement is expressed as a cognitive, emotional, and behavioral commitment to teaching and learning (Aldabbas et al., 2021) and as engagement in the profession (Rich et al., 2010). Some researchers have suggested that as engagement increases, employees' emotions, cognitions, and prospective behaviors also positively improve, which can lead to improved job performance (Hakanen and Schaufeli, 2012; Wang and Chen, 2020). Teachers with high engagement have better job performance because they invest more effort in their work, are more focused on their work, have emotional connections with colleagues and leaders that contribute to organizational value behaviors, and have a higher propensity to accomplish job goals (Christian et al., 2011). Based on the above literature and analysis, this study proposed the following research hypothesis:

H3: University teachers' engagement significantly and positively contributes to teachers' job performance.

Mediating role of engagement

Engagement is usually studied using Demerouti et al. (2001) job demand–resource (JD-R) model (Lesener et al., 2018), which proposes that two factors influence employee performance: job demands and job resources. High job demands can trigger health damage, deplete employees' energy, and lead to persistent overload and exhaustion (Bakker and Demerouti, 2017). In contrast, job resources help to achieve job goals, reduce job demands and their costs, and promote growth, learning, and development (Bakker et al., 2011). Job resources evoke a motivational process, promote work engagement, and buffer the harmful effects of work demands (Bakker et al., 2015; Bakker and Demerouti, 2017; Van Wingerden et al., 2017).

Deci and Ryan's (1991) SDT suggests that individuals develop a strong sense of competency in task setting when skills are matched to task requirements, and their intrinsic motivation is influenced by a sense of autonomy in task setting (Sheldon and Filak, 2008). In other words, when internal resources and the social environment, such as job characteristics, employee competency, and engagement in an organization, adequately support and promote individuals' three basic psychological needs (that is, autonomy, competency, and relatedness), individuals' internal motivation is enhanced, encouraging their adoption of adopt positive behaviors that stimulate their potential and promote better job performance (Deci and Ryan, 2000; Ryan et al., 1994). Based on basic psychological needs theory, Ryan and Frederick (1997) showed that the degree to which employees' three basic psychological needs are met is a good predictor of their

performance and the pleasure they derive from the work process. The J-DR model also reflects that, to varying degrees, in the process of intrinsic self-determination, the availability of job resources, that is, the level of support for teachers' work in schools, motivates teachers to work and thus increases their level of commitment (engagement), satisfying their need for autonomy and competency (Shim et al., 2022) and enhancing their willingness to devote their efforts and competencies to fulfilling job tasks. These perceptions and beliefs increase the degree to which individuals are willing to commit themselves to performing their roles (Bakker and Demerouti, 2017; Crawford et al., 2010), ultimately resulting in positive job performance (Levitats et al., 2022; Yao et al., 2022). Additionally, in a study of kindergarten teachers, Li et al., (2021) found that engagement mediated the relationship between self-control and job performance. Based on the above literature and analysis, this study proposed the following research hypothesis:

H4: Engagement has a mediating role between university teacher competency and job performance.

METHODS

Figure 1 shows the hypothetical model.

Research participants and the sampling method

In this study, 360 full-time university teachers from 8 types of colleges and universities in Jiangsu Province were identified for quantitative research data collection using convenience sampling. The 8 schools were selected according to the Jiangsu Province college/university criteria and divided into 3 categories, namely double first-class universities, undergraduate universities, and higher vocational colleges; hence, the sample was representative. The researchers utilized their work connections to enlist the heads of the universities' academic affairs offices and those of the second-level colleges to distribute the questionnaires to full-time teachers. Before questionnaire distribution, potential respondents were informed about the purpose of the study, advised of their rights and interests, and guaranteed privacy and confidentiality. Informed consent was obtained from all participants. The questionnaires were administered online via the Questionnaire Star platform. Participating teachers completed the questionnaires anonymously via a smartphone app. The questionnaires were collected and quantitatively analyzed using SPSS and AMOS. In the pretest stage, 200 questionnaires were distributed to test the questionnaire content's reliability and validity. Mueller (1997) has suggested that a sample size of 200 or more is preferable for stable structural equation modeling (SEM) results, and this study's sample size met the criterion. A total of 360 questionnaires were collected. After invalid questionnaires were deleted, 354 valid questionnaires were screened. The valid response rate was 98.33%.

Table 1 summarizes the respondents' descriptive statistics. Among the university teachers who participated in this study, 157 (44.4%) were males, and 197 (55.6%) were females. Regarding education level, 95 (26.8%) were bachelor's degree holders, 222 (62.7%) were master's degree holders, and 37 (10.5%) were doctoral degree holders. Regarding years of teaching experience, 143 (40.4%) had less than 5 years of teaching experience, 51

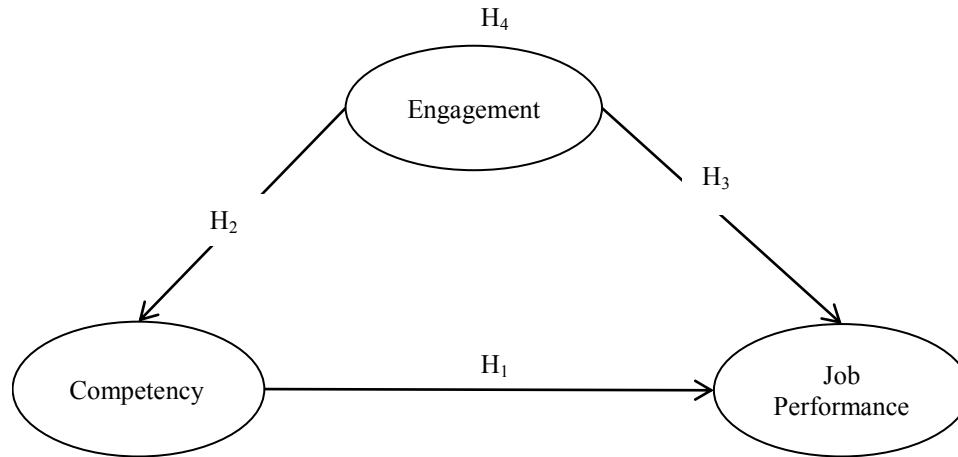


Figure 1. Hypothetical model.
Source: Authors

Table 1. Descriptive statistical summary table ($n=354$).

Variable	Category	Number	Percent
Gender	Man	157	44.4
	Woman	197	55.6
Education background	Bachelor	95	26.8
	Master	222	62.7
	Doctor	37	10.5
Educational experience	Less than 5 years	143	40.4
	5-10 years	51	14.4
	More than 10 years	160	45.2
Type of school	"985", "211"	17	4.8
	Undergraduate university	141	39.8
	Higher vocational college	196	55.4
Professional title	Teaching assistant	126	35.6
	Lecturer	142	40.1
	Associate professor	72	20.3
	Professor	14	4

Source: Authors

(14.4%) had 5-10 years, and 160 (45.2%) had over 10 years. The distribution of teachers across universities designated as "985" and "211" institutions, undergraduate universities, and higher vocational colleges was 17 (4.8%), 141 (39.8%), and 196 (55.4%), respectively.

Regarding occupational position, 126 (35.6%) participants were teaching assistants, 142 (40.1%) were lecturers, 72 (20.3%) were associate professors, and 14 (4%) were professors.

Research tools

The teacher competency questionnaire was developed by combining Shinkfield and Stufflebeam's (2012) and Judd and Kenny's (2010) competency scales. The resultant scale consists of 25 questions on four dimensions, namely basic competency,

teaching competence, scientific research competence, and innovation competence. It is scored on a 5-point Likert scale. An example item is "I am able to control my emotions and remain calm in the face of stress and challenges." Item analysis of the pretest sample showed that (a) all items' composite reliability (CR) values exceeded 3, (b) the correlation coefficient of one item (a1) on the basic competency dimension on the summative scale was below 0.4, and (c) the pretest sample's Cronbach's α increased after deleting this item. The item analysis results met the item removal criteria (Nunnally and Bernstein, 1994). Therefore, item (a1) was removed, and the remaining 24 items comprised the formal test. In the formal test, the summative scale's Cronbach's α was 0.938, which was greater than 0.7 (Nunnally, 1978); the confirmatory factor analysis (CFA) results showed that the standardized factor loadings ranged from 0.612 to 0.845, both of which were greater than 0.5 (Hair et al., 1992). Therefore, the scale had good reliability and validity. The

Table 2. Confirmatory factor analysis of teacher competency ($n=354$).

Variable	Item/estimate	R ²	Cr	Ave	Srmr	Pgfi	Cfi	Nfi	Pnfi
Basic competency	A2(0.624)	0.389	0.787	0.427					
	A3(0.644)	0.415							
	A4(0.615)	0.378							
	5a(0.612)	0.375							
	A6(0.761)	0.579							
	A7(0.828)	0.686							
Teaching competency	A8(0.745)	0.555	0.913	0.602					
	A9(0.791)	0.626							
	A10(0.843)	0.711							
	A11(0.804)	0.646							
	A12(0.712)	0.507							
	A13(0.693)	0.480							
Research competency	A14(0.691)	0.477	0.868	0.569	0.057	0.655	0.871	0.836	0.745
	A15(0.748)	0.560							
	A16(0.796)	0.634							
	A17(0.845)	0.714							
	A18(0.678)	0.460							
	A19(0.754)	0.569							
Innovation competency	A20(0.658)	0.433	0.900	0.563					
	A21(0.759)	0.576							
	A22(0.767)	0.588							
	A23(0.819)	0.671							
	A24(0.716)	0.513							
	A25(0.768)	0.590							
Reference value	>0.500	>0.400	>0.600	>0.500	<0.080	>0.500	>0.800	>0.800	>0.500

Source: Authors

model fit results are shown in Table 2, indicating a good model fit for this scale (McDonald and Ho, 2002).

Regarding Schaufeli and Bakker's (2003) Utrecht Work Engagement Scale (UWES), Schaufeli has suggested examining the three dimensions of engagement, energy, and focus as a single dimension because they are highly correlated with one another. Therefore, this study used a simplified version of the 9-item UWES to measure engagement as a whole. Scoring was on a 5-point Likert scale. An example item is "I feel energized at work." Item analysis of the pretest sample showed that (a) all items' CR values exceeded 3, (b) the correlation coefficients between the items and the summative scale were greater than 0.4, and (c) Cronbach's α did not increase after items were removed. The above item analysis results supported the retention of all items, leading to retention of all items comprising the scale for formal testing. Regarding the formal test sample, the summative scale's Cronbach's α was 0.903, which was greater than 0.7; the CFA results indicated that the standardized factor loadings ranged from 0.515 to 0.808, all of which were greater than 0.5. Therefore, the scale had good reliability and validity. The model fit results are shown in Table 3, indicating good model fit for this scale.

The job performance questionnaire was developed by combining Allworth's (1997) and Borman and Motowidlo's (1997) job performance scales. The resultant scale consists of three dimensions, namely task performance, relational performance, and adaptive performance. The scale comprises 18 questions rated on a 5-point Likert scale. An example item is "I take the initiative to conduct research and complete school research tasks." Item

analysis of the pretest sample showed that (a) all items' CR values exceeded 3; (b) the correlation coefficients of each item comprising the summative scale exceeded 0.4; (c) the factor loadings of four items (c1, c7, c8, c9) in the task performance dimension, one item (c12) in the relational performance dimension, and one item (c15) in the adaptive performance dimension were less than 0.5; and (d) the pretest sample's Cronbach's α increased after deletion of the six aforementioned items. The item analysis results met the criteria for removing these items. Therefore, the six items mentioned in (c) were removed, and the remaining 12 items were used in the formal test. The summative scale's Cronbach's α in the formal test was 0.874, which was greater than 0.7; the CFA results showed that the standardized factor loadings ranged from 0.501 to 0.863, all of which were greater than 0.5. Therefore, the scale had good reliability and validity. The model fit results are shown in Table 4, indicating good model fit for this scale.

RESULTS

SPSS 25.0 and AMOS 23.0 statistical software were used. Firstly, validation factor analysis was conducted for each scale to test the study variables' validity; secondly, descriptive statistics and Pearson correlation analysis were conducted regarding the study variables and their dimensions; thirdly, common method variance (CMV) was

Table 3. Confirmatory factor analysis of engagement ($n=354$).

Variable	Item/estimate	R ²	Cr	Ave	Srmr	Pgfi	Cfi	Nfi	Pnfi
Engagement	B1(0.777)	0.604	0.909	0.531	0.074	0.500	0.856	0.845	0.634
	B2(0.785)	0.616							
	B3(0.809)	0.654							
	B4(0.779)	0.607							
	B5(0.583)	0.340							
	B6(0.515)	0.265							
	B7(0.770)	0.593							
	B8(0.764)	0.584							
	B9(0.718)	0.516							
Reference value	>0.500	>0.400	>0.600	>0.500	<0.080	>0.500	>0.800	>0.800	>0.500

Source: Authors

Table 4. Confirmatory factor analysis of teacher job performance ($n=354$).

Variable	Item/estimate	R ²	Cr	Ave	Srmr	Pgfi	Cfi	Nfi	Pnfi
Task performance	C2(0.843)	0.711	0.929	0.725	0.038	0.596	0.946	0.928	0.717
	C3(0.830)	0.689							
	C4(0.860)	0.740							
	C5(0.863)	0.745							
	C6(0.860)	0.740							
	C10(0.501)	0.251							
Relational performance	C11(0.800)	0.640	0.782	0.481	0.038	0.596	0.946	0.928	0.717
	C13(0.791)	0.626							
	C14(0.639)	0.408							
	C16(0.704)	0.496							
Adaptive performance	C17(0.795)	0.632	0.803	0.577	0.038	0.596	0.946	0.928	0.717
	C18(0.777)	0.604							
Reference value	>0.500	>0.400	>0.600	>0.500	<0.080	>0.500	>0.800	>0.800	>0.500

Source: Authors

detected using Harman's one-factor test; fourthly, the mechanism of the role of engagement in the relationship between university teacher competency and job performance was verified. Bootstrap SEM of the mediation effect and the significance of the regression coefficient ($p < 0.001$) were used as a basis to determine the existence of the mediation effect (Hayes et al., 2017).

Discriminant validity

The factor loadings of the latent variables basic competency, teaching competence, research competence, and innovation competence comprising teacher competency (Table 2) ranged from 0.612 to 0.845; that is, all values exceeded 0.500. CR was 0.787 for basic competency, 0.913 for teaching competence, 0.868 for research competence, and 0.900 for innovation

competence, respectively, with all values exceeding 0.600 (the criterion for good construct reliability). Average variance extracted (AVE) was 0.427 for basic competency, 0.602 for teaching competence, 0.569 for research competence, and 0.563 for innovation competence, respectively. According to Fornell and Larcker (1981), CR should be greater than 0.600, and AVE should reach 0.500 (the ideal criterion), with 0.36–0.50 being the acceptable threshold. Appropriate construct convergent validity can be on the basis of construct reliability alone. The factor loadings of the observed variables for the latent variable engagement with respect to teacher engagement (Table 3) ranged from 0.515 to 0.809; all values exceeded 0.500, and CR was 0.909, which was higher than 0.600 (the criterion for good construct reliability). AVE was 0.531. The latent variable task performance with respect to teacher job performance (Table 4) had a mean variance of 0.531. The factor loadings of the observed variables

Table 5. Ave and correlation coefficients of the study variables ($n=354$).

Variable	1	2	3	4	5	6	7	8
Basic competency	0.653 ^a							
Teaching competency	0.732***	0.776 ^a						
Research competency	0.665***	0.751***	0.754 ^a					
Innovation competency	0.729***	0.784***	0.786***	0.750 ^a				
Engagement	0.426***	0.509***	0.497***	0.501***	0.729 ^a			
Task performance	0.458***	0.570***	0.577***	0.602***	0.575***	0.851 ^a		
Relational performance	0.357***	0.419***	0.425***	0.497***	0.547***	0.690***	0.694 ^a	
Adaptive performance	0.433***	0.450***	0.445***	0.544***	0.562***	0.623***	0.655***	0.760 ^a
M	3.721	3.961	3.770	3.896	3.589	4.017	3.876	3.783
Sd	0.614	0.600	0.635	0.602	0.651	0.569	0.596	0.614

* $p < .05$; ** $p < .01$; *** $p < .001$, ^asquare root of ave (average variance extracted).

Source: Authors

comprising the latent variables task performance, relational performance, and adaptive performance ranged from 0.501 to 0.863; that is, all values were greater than 0.500. CR was 0.929 for task performance, 0.782 for relational performance, and 0.803 for adaptive performance, with all values above 0.600 (the criterion for good construct reliability). AVE was 0.725 for task performance, 0.481 for relational performance, and 0.577 for adaptive performance. Discriminant validity was assessed according to the Fornell-Larcker (1994) criterion, which states that a model satisfies the discriminant validity criterion if the square root of each latent variable's AVE is greater than the correlation coefficient between that latent variable and the other latent variables in the measurement model (Hair et al., 2006). Overall, the university teacher competency model was deemed to have good discriminant validity. As shown in Tables 2-4, the university teacher competency model's absolute fit indices the standardized root mean square residual (SRMR) and the parsimony goodness of fit index (PGFI), its relative fit indices the comparative fit index (CFI) and the normed fit index (NFI), and its parsimonious normed fit index (PNFI) met the reference values, indicating good overall model fit.

Relevant analysis

The descriptive statistical analysis results are shown in Table 5. In this study, the scales for measuring teacher competency, teacher engagement, and job performance were all 5-point Likert scales with a mean of 3. According to the analytical results, the university teachers' mean competency, engagement, and job performance scores were 3.852 ($SD = 0.550$), 3.588 ($SD = 0.651$), and 3.923 ($SD = 0.519$), respectively, with all values exceeding 3, indicating that the university teachers' competency, engagement, and job performance levels were medium to high at the time of the study. As Table 5 shows, the variables' correlation coefficients ranged from 0.357 to

0.786; all reached significance ($p < 0.001$), and there was no covariance. Next, we validated the overall model.

Common method variance

In this study, Harman's one-way test was used to detect CMV, and the data were tested via exploratory factor analysis. The validation results based on un-rotated factor analysis showed a Kaiser-Meyer-Olkin value of 0.946 (> 0.8) and a significant Bartlett test of sphericity ($p < 0.001$). The results indicated that 19 factors had eigenvalues greater than 1; the first factor's variance was 35.601%, which was less than the critical value of 50% set by the method. This indicated the absence of serious CMV in the study variables (Podsakoff et al., 2003).

Next, the single-and multi-factor models were compared via CFA to determine whether there were significant differences in their overall levels of goodness-of-fit, degrees of freedom, and chi-square values. The results showed that the multi-factor model had a higher goodness-of-fit validity than the single-factor model; therefore, CMV was not severe (Hayes et al., 2017). As shown in Table 6, the multi-factor model outperformed the single-factor model in all indicators of overall validity (χ^2/DF , GFI, AGFI, NFI, CFI, SRMR), and comparison of the two models' degrees of freedom and chi-square values showed significant differences ($\Delta\chi^2 = 2436.084$, $\Delta DF = 9$, $p = 0.000$). Therefore, this study was deemed to be free of serious CMV.

Analysis of the overall path model

The overall path model was then analyzed with respect to university teachers' competency, engagement, and job performance. Hair et al. (2006) proposed model fit test refers to measures of absolute fit, incremental fit measures, and parsimonious fit measures. Regarding the absolute fit measures, $\chi^2 = 2954.234$, $df = 936$, χ^2/df

Table 6. Difference between the single-factor and multi-factor models.

Model	Reference value	Multi-factor model	Single-factor model
χ^2	/	2954.234	5390.318
Df	/	936	945
χ^2/df	<5.00	3.156	5.704
Gfi	>0.800	0.706	0.462
Nfi	>0.800	0.761	0.563
Rfi	>0.800	0.747	0.543
lfi	>0.800	0.823	0.610
Nnfi	>0.800	0.812	0.590
Cfi	>0.800	0.822	0.608
Pnfi	>0.500	0.719	0.538
Pgfi	>0.500	0.638	0.422
Pcfi	>0.500	0.777	0.581
Srmr	<0.080	0.072	0.099
Rmse	<0.080	0.078	0.115

Source: Authors.

=3.156, which met the criteria of $\chi^2/df < 5$, RMSEA = .078; SRMR = .072, which was below 0.08 (Hu and Bentler, 1999); GFI = 0.706, RFI = 0.747, which was close to the 0.8 criterion and thus acceptable (Doll et al., 1994). Regarding the incremental fit measures, CFI = 0.822, IFI = 0.823, NNFI = 0.812, which met the 0.8 criterion. Regarding parsimonious fit measures, PNFI, PGFI, and PCFI were 0.719, 0.638, and 0.777, respectively, with all values exceeding 0.5 (Jodie and Ullman, 2006). The analysis indicated good overall model fit, facilitating overall model analysis.

Regarding the overall model's direct effects, as can be seen in Figure 2 and Table 7, teacher competency significantly and positively predicted engagement, and the path coefficient was 0.622 ($t = 9.648$, $p < 0.001$), indicating that higher teacher competency means higher job engagement. Moreover, teacher competency positively and significantly predicted job performance, with a path coefficient of 0.470 ($t = 6.683$, $p < 0.001$), indicating that higher teacher competency means higher job performance. Additionally, engagement positively and significantly predicted job performance, with a path coefficient of 0.449 ($t = 6.685$, $p < 0.001$), indicating that higher job engagement means higher job performance. Therefore, H1–3 was verified.

In this study, the indirect effect was analyzed by referring to standard bootstrap SEM of the mediated effect. First, N samples were randomly selected from the available data, and if N was 5, then 100 repetitions were performed to obtain a sample of 500; the more times repetitions were performed, the closer the distribution of the repetitions to the original distribution. Some studies have indicated that at least 1,000 repetitions are required to calculate the confidence interval (CI; Efron and

Tibshirani, 1993). If the indirect effect does not contain 0 in the 95% CI and reaches a significant level, then a mediating effect exists (Mackinnon, 2008); if the direct effect contains 0 in the 95% CI, then the direct effect is not significant and is fully mediated. Indirect and direct effects not containing 0 in the 95% CI meet the criterion for significance; a total effect not containing 0 in the 95% CI meets the criterion for significance for partial mediation (Tsai et al., 2014). The specific analysis performed in this study is presented in Table 7.

Analysis of the mediating effect, as shown in Figure 2 and Table 7, indicated that the indirect effect of teacher competency on job performance through the variable of engagement was 0.279 (0.622×0.449). The CI [0.123, 0.444] did not contain 0 ($p < 0.001$). The total effect of engagement between teacher competency and job performance was 0.749 ($0.470 + 0.279$), and the CI [0.565, 0.905] did not contain 0 ($p < 0.001$). All its paths were positive, and the indirect effect was 37.3%. Among the direct effects, the direct effect of teacher competency on job performance was 0.470, and the CI [0.175, 0.765] did not contain 0 ($p < 0.001$), indicating a partially mediating effect of engagement in the relationship between teacher competency and job performance. Therefore, based on the model validation results, the study found that teacher competency enhanced teachers' job performance through engagement in universities in Jiangsu Province; hence, H4 was verified.

DISCUSSION

Based on the results of this study, it was found that teacher competency not only had a significant direct effect

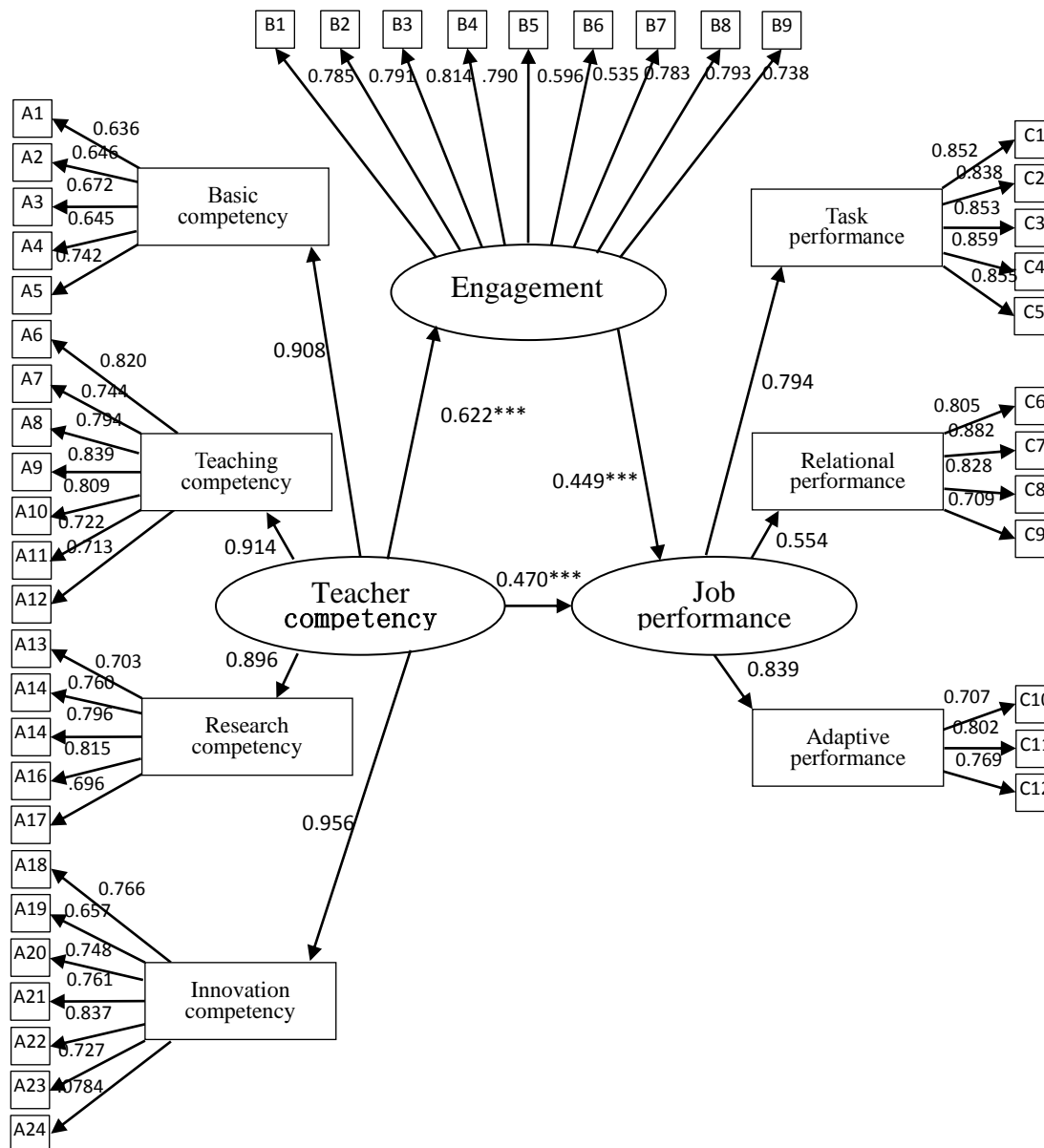


Figure 2. Map of sem paths.
Source: Authors

on the university teachers' job performance but also indirectly affected job performance through the mediating effect of engagement. Moreover, the significant increase in the mediation model's explanatory power indicated that the two variables of teacher competency and engagement can more comprehensively explain university teachers' job performance.

Competency and job performance

The results of this study confirmed H1, as the correlation analysis results in Table 5 showed a significant and

positive relationship between teacher competency and its dimensions with teacher job performance, with each dimension significant at the 0.001 level.

Hence, the stronger university teachers' competency is, the better their job performance. Based on this, the authors conducted SEM and found a predictive effect of teacher competency on teacher performance; further, teachers can influence their performance through the various competency dimensions they possess. This is consistent with the findings of Rahmatullah (2016) and Yan et al. (2022), which indicate that basic competency and teaching competence are the basic competencies necessary for a teacher and that they reflect university

Table 7. Bootstrap sem analysis of total, direct, and indirect effects.

Effect	Estimate	P-value	Confidence interval
Direct effect			
Teacher competency→engagement	0.622	< 0.001	[0.489,0.733]
Teacher competency→job performance	0.470	< 0.001	[0.175, 0.765]
Engagement → job performance	0.449	< 0.001	[0.166, 0.704]
Job performance → adaptive performance	0.839	< 0.001	[0.746, 0.920]
Job performance → relational performance	0.554	< 0.001	[0.493,0.614]
Job performance → task performance	0.794	< 0.001	[0.713, 0.869]
Indirect effect			
Teacher competency→ job performance	0.279	< 0.001	[0.123, 0.444]
Teacher competency→ adaptive performance	0.629	< 0.001	[0.471, 0.766]
Teacher competency→ relational performance	0.415	< 0.001	[0.323, 0.502]
Teacher competency→ task performance	0.594	< 0.001	[0.442, 0.723]
Total effect			
Teacher competency→ job performance	0.749	< 0.001	[0.565, 0.905]
Teacher competency→ adaptive performance	0.628	< 0.001	[0.471, 0.766]
Teacher competency→ relational performance	0.415	< 0.001	[0.323, 0.502]
Teacher competency→ task performance	0.594	< 0.001	0[.442, 0.723]

*p<.05 **p<.01 ***p<.001.

Source: Authors

teachers' personal qualities; further, the research and innovation competences refer to the competencies needed for research innovation, stress resistance, and engagement. University teachers with these competencies will comprehensively boost their job performance by constantly exploring and improving research quality as well as by innovating through scientific research. This finding supports SDT's assertion that an individual's need to increase their competency significantly impacts their relational needs and the satisfaction of their basic needs (Deci and Ryan, 2002). Specifically, the level of school support for teachers' work can motivate teachers to work and thus increase their engagement level, satisfying their need for autonomy and competency and increasing their willingness to invest effort and competency into their work tasks (Bakker and Demerout, 2017) and ultimately resulting in positive job performance (Levitats et al., 2022).

Competency and engagement

The results of this study confirmed H2. The correlation analysis in Table 5 shows a significant and positive correlation of teacher competency and all its dimensions with teachers' job engagement at the 0.001 level. Hence, the stronger teachers' competency is, the higher their work engagement. SEM revealed that teacher competency is a predictor of teacher engagement and that teacher can influence engagement through the various competency dimensions they possess. This is consistent with the findings of Laschinger and Leiter

(2006) and Niekerk (2022), which suggest that teacher competencies are attributes inherent to the job itself. Specifically, a satisfying job attracts teachers' interest and encourages university teachers to show behavioral and psychological identification with their school and their job. This leads to their engagement with and commitment to their school's mission. This finding supports the theoretical foundation of the J-RD model, which suggests that teachers are motivated when there is persistent matching between their motivational, emotional, or stress responses and the job resources available to their school (Demerouti et al., 2001).

Specifically, the degree to which a school supports teachers' work and gives them the resources to do it directly determines teachers' engagement, and when teachers are given more of the resources that they need to do their jobs, they will work harder, be more committed, and show higher engagement (Maeda et al., 2021).

Engagement and job performance

The results of this study confirmed H3. The correlation analysis in Table 5 shows a significant and positive relationship of teacher engagement with teacher performance and its dimensions at the 0.001 level. Hence, the stronger teachers' engagement is, the higher their job performance. Based on this, we used SEM to reveal the predictive effect of teacher engagement on teachers' job performance and also found that teachers can influence their job performance through the various dimensions of engagement they possess. This is consistent with the

findings of Wang and Chen (2020) and Christian et al. (2011), which indicate that the greater teachers' engagement with their work, the higher their task, relational, and adaptive performance; those scholars also found that enhancing teacher engagement is conducive to improving teachers' job performance. This finding supports the theory upon which the J-DR model is premised, which suggests that job requirements require teachers to be cognitively, psychologically, and physically engaged in their work, and job resources provide teachers with the resources they need to perform at work (Shuck et al., 2011). Specifically, when teachers have a great deal of autonomy at work, are able to maintain positive emotions, and receive support from leaders, colleagues, and the organization, they are more likely to achieve individual job tasks. This, in turn, increases their satisfaction with and loyalty to the organization, generating higher organizational engagement and enhancing job performance (Wang and Chen, 2020; Yao et al., 2022).

Mediating role of engagement

The findings of this study confirmed H4. This study examined the relationship between teacher competency and engagement and job performance and explored the mediating role of engagement in the effect of teacher competency on job performance through SEM analysis. The SEM results shown in Figure 2 and the bootstrap analysis results presented in Table 7 confirmed the partially mediating role of engagement in the relationship between teacher competency and job performance; that is, teacher competency indirectly influenced job performance through engagement among university teachers in Jiangsu Province. This finding is consistent with previous studies (Aldabbas et al., 2021; Li et al., 2021) that found that the higher university teachers' competency, the higher their engagement level and the better their job performance. This suggests that an effective management mechanism that combining teacher competency and enhanced teacher engagement would allow teachers to fully utilize their talents at the highest level of engagement and thus achieve the best performance (Min et al., 2020). The results of this study support SDT, which suggests that motivation level can significantly impact an individual's cognition, emotion, and behavior (Deci & Ryan, 2002; Sheldon & Filak, 2008). Specifically, when internal resources and the social environment comprising job characteristics, competency, and engagement in an organization adequately support and promote individuals' three basic psychological needs (i.e., autonomy, competence, and relatedness), individuals' internal motivation will be enhanced, encouraging them to adopt positive behaviors and thus stimulating their potential and promoting better performance (Deci and Ryan, 2000; Ryan et al., 1994).

This result not only illustrates the importance of teacher competency (competence) as a basic psychological need factor for individuals in terms of university teachers' engagement and job performance but also emphasizes that engagement (autonomy) is a critical basic psychological need factor that leads to higher job performance (relatedness).

CONCLUSION AND RECOMMENDATIONS

Based on the Chinese context, this study took university teachers in Jiangsu Province as research subjects and used teacher competency as the entry point to construct a conceptual model of the relationship between university teacher competency and engagement and job performance. The authors proposed four research hypotheses and, through SEM, verified that, in Jiangsu Province, university teacher competency directly affects job performance. The study also found that engagement plays a mediating role between teacher competency and job performance. Furthermore, this study found close relationships among teacher competency, teacher engagement, and job performance and noted that these factors can influence each other, necessitating implementation of effective measures to coordinate the interrelationships. Through theoretical analysis and empirical research, we found that higher teacher competency positively impacts the cultivation of university teachers' engagement and the improvement of their job performance level. Moreover, analysis of the mediation effect confirmed the predictive role of teacher competency and engagement on job performance, providing a means for colleges and universities to better manage their work and enhance organizational performance, which is consistent with the modern organizational behavior view. Therefore, we propose the following recommendations, considering university teachers' and educational organizations' actual situation.

Improve university teacher competency standards and promote university teacher development

A competency-based compensation management system can forge a closer relationship between university teachers' competency behavior and performance pay and provide a scientific basis for HRM, including university teacher recruitment and allocation, training and development, and compensation management. Therefore, universities can base teacher selection, recruitment, training, and evaluation and assessment on the teacher competency evaluation system and its relationship with job performance and pay attention to the long-term matching of university teachers' professional competency and their positions as opposed to only looking at the short-term degree of match. Furthermore, universities can formulate a planned human resource development

strategy for university teachers and achieve balance and coordination between university teachers' short-term contributions and the organization's long-term development plan. This will allow truly excellent and outstanding teachers to stand out, thus promoting university teacher development.

Provide a good working environment that enhances teachers' engagement and motivates them to be competent in their work

Teachers' basic work consists of teaching and scientific research; such work directly affects teachers' teaching performance and their scientific research performance. Hence, college and university management should provide a good working environment that helps teachers retain their enthusiasm and encourages them to devote themselves to their work. The working environment should also stimulate teachers' potential to match their personal abilities with their teaching positions to give full play to their maximum value. This is the only way to greatly improve university teachers' overall engagement level. Universities also need to give full play to the effectiveness of teachers' HRM and improve their working efficiency. School managers should not only ensure that the school upholds a good organizational culture but should also establish policies suitable for school development as well as teacher development, adopt humanized management methods, pay attention to teachers' working life, and improve the performance assessment system and establish a scientific salary system, etc. Such actions will allow teachers to work without worrying. Additional benefits are an enhanced sense of identity and organizational belonging among teachers, while they vigorously demonstrate their professional dedication. This will enable teachers to improve their job performance and derive self-worth from their work, which will, in turn, encourage them to invest more effort in creating value for their school.

Research limitations and future directions

This study has two major limitations. First, the questionnaire survey was only administered to teachers at 8 universities in Jiangsu Province, China. Future studies may consider expanding the sample's geographical scope. Second, this study was cross-sectional. Although it revealed the predictive relationships between variables, it could not determine their causal relationships. Future research may consider combining longitudinal and experimental studies.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENTS

The authors are grateful to all teachers participating in this study for their contributions to the data collection.

REFERENCES

- Aldabbas H, Pinnington A, Lahrech A (2021). The influence of perceived organizational support on employee creativity: the mediating role of work engagement. *Current Psychology* 136:280-287.
- Allworth E, Hesketh B (1997). Adaptive performance: Updating the criterion to cope with change. In: 2nd Australian Industrial and Organizational Psychology Conference, 1 January 1997, Melbourne, Australia.
- Anitha J, Reema PM (2014). Competency mapping model: Drive for Educational institution. *International Journal of Research and Development - A Management Review* 2(4):24-30.
- Antoniou P, Kyriakides L (2013). A dynamic integrated approach to teacher professional development: Impact and sustainability of the effects on improving teacher behavior and student outcomes. *Teaching and Teacher Education* 29:1-12.
- Armstrong M, Taylor S (2009). *Handbook of Human Resource Management Practice*. Kogan Page Limited.
- Bakker AB (2015). "Top-down and bottom-up interventions to increase work engagement," in APA handbook of career intervention, eds PJ Hartung ML, Savickas, WB Wash (Washington, DC: American Psychological Association) 427-438.
- Bakker AB, Albrecht SL, Leiter MP (2011). Key questions regarding work engagement. *European Journal of Work and Organizational Psychology* 20(1):4-28.
- Bakker AB, Demerouti E (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology* 22(3):273.
- Bakker AB, Hakanen JJ, Demerouti E, Xanthopoulou D (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology* 99(2):274-284.
- Barry B, Stewart GL (1997). Composition, process, and performance in self-managed groups: The role of personality. *Journal of Applied Psychology* 82(1):62.
- Bednall TC, Sanders K, Runhaar P (2014). Stimulating informal learning activities through perceptions of performance appraisal quality and human resource management system strength: A two-wave study. *Academy of Management Learning and Education* 13(1):45-61.
- Bibi S (2005). Measuring poverty in a multidimensional perspective: A review of literature. PEP Working Paper 7:1-38.
- Borman WC, Motowidlo SJ (1997). Task performance and contextual performance: the meaning for personnel selection research. *Human Performance* 10(2):99-109.
- Boyatzis RE (1991). The competent manager: A model for effective performance. John Wiley & Sons.
- Chen XP, Schaubroeck J (2002). Participative decision making and employee performance in different cultures: the moderating effects of allocentrism/idiocentrism and efficacy. *Academy of Management Journal* 45:905-914.
- Christian MS, Garza AS, Slaughter JE (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology* 64(1):89-136.
- competency among in-service teacher degree program (PPG) in Universiti Tun Hussein Onn Malaysia. *Journal of Technical Education and Training* 12(1):181-188.
- Crawford ER, LePine JA, Rich BL (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology* 95(5):834-848.
- Deci EL, Ryan RM (1985). Conceptualizations of intrinsic motivation and self-determination. In *Intrinsic motivation and self-determination in human behavior* (pp. 11-40). Springer, Boston, MA.
- Deci EL, Ryan RM (1991). A motivational approach to self: Integration in personality. In: R. Dienstbier (Ed.), *Nebraska symposium on*

- motivation: Vol. 38. Perspectives on motivation (pp. 237-288). Lincoln, NE: University of Nebraska Press.
- Deci EL, Ryan RM (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry* 11(4):227-268.
- Deci EL, Ryan RM (2002). Overview of Self-Determination Theory: An organismic-dialectical perspective. In Deci EL, Ryan RM (Ed.). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.
- Demerouti E, Bakker AB, Nachreiner F, Schaufeli WB (2001). The job demands-resources model of burnout. *Journal of Applied Psychology* 86(3):499-512.
- Demir E (2015). Evaluation of professional personality competency of physical education teachers working in secondary schools by students. *Journal of Education and Training Studies* 4:133-149.
- DeNisi AS, Sonesh S (2011). The appraisal and management of performance at work. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology*. P 2. Selecting and developing members for the organization (pp. 255-279). American Psychological Association.
- Doll WJ, Xia W, Torkzadeh G (1994). A confirmatory factor analysis of the end-user computing satisfaction instrument. *Management Information System Quarterly* 18(4):453-461.
- Efron B, Tibshirani R (1993). *An introduction to the Bootstrap*. New York: Chapman & Hall/CRC.
- Fornell C, Cha J (1994). Partial least squares. *Advanced Methods of Marketing Research* 407:52-78.
- Fornell C, Larcker DF (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18:39-50.
- Greguras GJ, Diefendorff JM (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using Self-Determination Theory. *Journal of Applied Psychology* 94(2):465-477.
- Hair JF, Anderson RE, Tatham RL, Black WC (1992). *Multivariate data analysis*. Prentice-Hall.
- Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL (2006). *Multivariate Data Analysis* (Vol. 6). Pearson Prentice Hall.
- Hakanen JJ, Schaufeli WB (2012). Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. *Journal of Affective Disorders* 141:415-424.
- Hayes AF, Montoya AK, Rockwood NJ (2017). The analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling. *Australasian Marketing Journal* 25(1):76-81.
- Huang X, Wang C, Lam SM, Xu P (2022). Teachers' job crafting: The complicated relationship with teacher self-efficacy and teacher engagement. *Professional Development in Education* 1-18.
- Hwang YS, Bartlett B, Greben M, Hand K (2017). A systematic review of mindfulness interventions for in-service teachers: a tool to enhance teacher wellbeing and performance. *Teaching and Teacher Education* 64:26-42.
- Jodie BU, Ullman B (2006). Structural equation modeling: reviewing the basics and moving forward. *Journal of Personality Assessment* 87(1):35-50.
- Judd CM, Kenny DA (2010). Data analysis in social psychology: Recent and recurring issues. In ST Fiske, DT Gilbert, G Lindzey (Eds.), *Handbook of social psychology* (pp. 115-139). John Wiley & Sons, Inc.
- Katz LG, Raths JD (1985). A framework for research on teacher education programs. *Journal of Teacher Education* 36(6): 9-15.
- Klaeijns A, Vermeulen M, Martens R (2018). Teachers' innovative behavior: The importance of basic psychological need satisfaction, intrinsic motivation, and occupational self-efficacy. *Scandinavian Journal of Educational Research* 62(5): 769-782.
- Klassen RM, Perry NE, Frenzel AC (2012). Teachers' relatedness with students: an underemphasized component of teachers' basic psychological needs. *Journal of Educational Psychology* 104:150-165.
- Konermann J (2012). Teachers' work engagement: a deeper understanding of the role of job and personal resources in relationship to work engagement, its antecedents, and its outcomes. Ph D Thesis. University of Twente Research Information.
- Korthagen FA, Evelein FG (2016). Relations between student teachers' basic needs fulfillment and their teaching behavior. *Teaching and Teacher Education* 60:234-244.
- Laschinger H, Leiter MP (2006). The impact of nursing work environments on patient safety outcomes: the mediating role of burnout/engagement. *Journal of Nursing Administration* 36(5):259.
- Lee MF, Lim SCJ, Lai CS (2020). Assessment of teaching practice competency among in-service teacher degree program (PPG) in Universiti Tun Hussein Onn Malaysia. *Journal of Technical Education and Training* 12(1):181-188.
- Lesener T, Gusy B, Wolter C (2018). The job demands-resources model: A meta-analytic review of longitudinal studies. *Work Stress* 33:76-103.
- Levitats Z, Ivcevic Z, Brackett M (2022). A world of opportunity: A top-down influence of emotional intelligence-related contextual factors on employee engagement and exhaustion. *Frontiers in Psychology* 13:980339.
- Li JB, Leung ITY, Li Z, Lindsey D (2021). The pathways from self-control at school to performance at work among novice kindergarten teachers: The mediation of work engagement and work stress. *Children and Youth Services Review* 121:105881.
- Li M, Pérez-Díaz PA, Mao Y, Petrides KV (2018). A multilevel model of teachers' job performance: Understanding the effects of trait emotional intelligence, job satisfaction, and organizational trust. *Frontiers in Psychology* 9:2420.
- Li T (2018). Making Teaching an Envidable Profession: New Epoch-Making Teacher Policy in China and Challenges. *ECNU Review of Education* 1(2):145-152.
- MacKinnon DP (2008). *Introduction to Statistical Mediation Analysis*. New York: Lawrence Erlbaum Associates.
- Maeda K, Hashimoto H, Sato K (2021). Japanese Schoolteachers' attitudes and perceptions regarding inclusive education implementation: the interaction effect of help-seeking preference and collegial climate. *Frontiers in Education* 5:7266.
- Mathis RL, Jackson JH, Valentine SR, Megllich PA (2015). *Human Resource Management* (15th Ed.). Southwestern College publishing.
- May DR, Gilson RL, Harter LM (2004). The psychological conditions of meaningfulness, safety, and availability and the engagement of the human spirit at work. *Journal of Occupational Psychology* 77:11-37.
- McClelland DC (1973). Testing for Competency Rather Than Intelligence. *American Psychologist* (28):1-14.
- McClelland DC (1998). Identifying competencies with behavioral-event interviews. *Psychological Science* 9(5):331-339.
- McDonald RP, Ho MHR (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods* 7(1):64-82.
- Melenyzer BJ (1990). *Teacher Empowerment: The Discourse, Meanings and Social Actions of Teachers*. ERIC.
- Min H, Tan PX, Kamioka E, Sharif KY (2020). Enhancement of Study Motivation Model by Introducing Expectancy Theory. *International Journal of Learning and Teaching* 6(1):28-32.
- Mueller RO (1997). Structural equation modeling: Back to basics. *Structural Equation Modeling* 4:353-369.
- Nunnally JC (1978). *Psychometric theory* (2nd Ed.). New York: McGraw-Hill.
- Nunnally JC, Bernstein I (1994). *Psychometric theory* (3rd Ed.). New York: McGraw-Hill.
- Pantić N, Wubbels T (2010). Teacher competencies as a basis for teacher education—Views of Serbian teachers and teacher educators. *Teaching and Teacher Education* 26(3):694-703.
- Phillips SD, Christopher-Sisk EK, Gravino KL (2001). Making career decisions in a relational context. *Counseling Psychologist* 29:193-213.
- Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology* 88(5):879-903.
- Rahmatullah M (2016). The relationship between learning effectiveness, teacher competency and teachers performance madrasah tsanawiyah at serang, banten, Indonesia. *Higher Education Studies* 6(1):169.
- Rajpal R (2016). Relationship between teacher competency and job performance: a analysis on technical institutions with reference to work motivation. *International Journal of Research in Management*

- Sciences 4(1):9-18.
- Rich JA, Lepine JA, Crawford ER (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal* 53:617-635.
- Runhaar P, Sanders K, Konermann J (2013). Teachers' work engagement: Considering interaction with pupils and human resources practices as job resources. *Journal of Applied Social Psychology* 43(10):2017-2030.
- Ryan RM, Frederick C (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality* 65(3):529-565.
- Ryan RM, Stiller JD, Lynch JH (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *The Journal of Early Adolescence* 14(2):226-249.
- Salmela-Aro K, Upadaya K (2018). Role of demands-resources in work engagement and burnout in different career stages. *Journal of Vocational Behavior* 108:190-200.
- Sandberg J (2000). Understanding human competency at work: an interpretative approach. *Academy of Management Journal* 43(1):9-25.
- Schaufeli WB, Bakker AB (2003). Utrecht work engagement scale: Preliminary manual. *Occupational Health Psychology Unit, Utrecht University, Utrecht* 26(1):64-100.
- Schaufeli WB, Salanova M, Gonz'alez-Rom'a V, Bakker AB (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies* 3:71-92.
- Sheldon KM, Filak V (2008). Manipulating autonomy, competency, and relatedness support in a game-learning context: new evidence that all three needs matter. *British Journal of Social Psychology* 47(2):267-283.
- Shim SS, Finch WH, Cho Y, Knapke M (2022). Understanding teachers' job satisfaction and flow: the dual process of psychological needs. *Educational Psychology* 42(3):316-333.
- Shinkfield AJ, Stufflebeam DL (2012). *Teacher evaluation: Guide to effective practice* (Vol. 41). Springer Science & Business Media.
- Shuck B, Reio JrTG, Rocco TS (2011). Employee engagement: An examination of antecedent and outcome variables. *Human Resource Development International* 14(4):427-445.
- Swider BW, Zimmerman RD (2014). Prior and future withdrawal and performance: A meta-analysis of their relations in panel studies. *Journal of Vocational Behavior* 84(3):225-236.
- Taylor ES, Tyler JH (2012). The effect of evaluation on teacher performance. *American Economic Review* 102(7): 3628-3651.
- Tsai JJ, Wang CH, Lo HJ (2014). Locus of control, moral disengagement in sport, and rule transgression of athletes. *Social Behavior and Personality* 42(1):59-68.
- Valsiner J, Van der Veer R (2000). *The social mind: Construction of the idea*. Cambridge: Cambridge University Press.
- Van Niekerk A (2022). The implications of stakeholder consultation on employee engagement: An African cross-border acquisition. *Frontiers in Psychology* 13:1017073-1017073.
- Van Wingerden J, Derks D, Bakker AB (2017). The impact of personal resources and job crafting interventions on work engagement and performance. *Human Resource Management* 56:51-67.
- Vroom V, Porter L, Lawler E (2015). Expectancy theories. *Organizational Behavior* 1:94-113.
- Wahyuddin W (2016). The relationship between of teacher competency, emotional intelligence and teacher performance madrasah tsanawiyah at district of serang banten. *Higher Education Studies* 6(1):128.
- Wang C, Chen H (2020). Relationships among workplace incivility, work engagement and job performance National Taichung University of Education. *Journal of Hospitality and Tourism Insights* 3:415-429.
- Xu A, Ye L (2014). Impacts of teachers' competency on job performance in research universities with industry characteristics: Taking academic atmosphere as moderator. *Journal of Industrial Engineering and Management (JIEM)* 7(5):1283-1292.
- Xu A, Ye L (2015). The Influence of Teacher competency on Job Performance in Research University with Industry Characteristics: Taking Job Satisfaction as Mediator. In: Zhang Z, Shen Z, Zhang J, Zhang R (eds) *LISS 2014*. Springer, Berlin, Heidelberg.
- Xue R, Chai H, Yao L, Fu W (2023) The influence of school inclusive education climate on physical education teachers' inclusive education competency: The mediating role of teachers' agency. *Frontiers in Psychology* 14:1079853.
- Yan T, Teo EW, Lim BH, Lin B (2022) Evaluation of competency and job satisfaction by positive human psychology among physical education teachers at the university level: A systematic review. *Frontiers in Psychology* 13:1084961.
- Yang Z, Sheikh Khairuddin SMH (2022). The Pressing Needs of Human Resource Management Renovation of Higher Vocational Schools in China: From the Perspective of Teacher Competency. *ICCCM Journal of Social Sciences and Humanities* 1(3):19-29.
- Yao J, Qiu X, Yang L, Han X, Li Y (2022). The Relationship Between Work Engagement and Job Performance: Psychological Capital as a Moderating Factor. *Frontiers in Psychology* 13:729131.
- Zhang D, He J and Fu D (2021) How Can We Improve Teacher's Work Engagement? Based on Chinese Experiences. *Frontiers in Psychology* 12:721450.

Full Length Research Paper

A study on the competency of physical education teachers at the basic education level in China

Lei Peng^{1,2} and Man Jiang^{1*}

¹Chinese International College, Dhurakij Pundit University, Bangkok, Thailand.

²College of Physical Education, Hengshui University, Hengshui, China.

Received 25 May, 2023; Accepted 4 July, 2023

The aim of this study was to investigate the competency of physical education teachers at the basic education level in China. The study was conducted using a qualitative approach, using purposive sampling to conduct in-depth interviews with 12 physical education teachers from schools at the basic education level in China using the behavioral event interview method and extracting themes using coding techniques with the thematic analysis method. The results of the study show that the competencies of physical education teachers at the basic education level in China include 6 themes: Competency characteristics, knowledge characteristics, teacher moral characteristics, motivation characteristics, values characteristics and personality characteristics.

Key words: Basic education, physical education teachers, teacher competency.

INTRODUCTION

The Chinese Ministry of Education has continued to reform the curriculum for the teaching of physical education at the basic education level in China (Hu, 2021). China's Ministry of Education issued the Outline of Curriculum Reform for Basic Education, which sets out clear requirements for the professional competence of teachers at the basic education level in China (Hu et al., 2022) emphasizing that 'health comes first' and that attention should be paid to the all-round physical and mental development of young students (Fang, 2022). Thus, new challenges and higher demands are placed on physical education teachers at the basic education level (Cao, 2022). Faced with the grim situation of the frequent occurrence of mental health problems among Chinese

adolescent students and the continued 30-years decline in physical health (Wen, 2021), the Chinese government has enacted a continuous push for physical education reform measures, and it is physical education teachers who have taken on this important reform role (Xu, 2022). The diversity of roles is a necessary requirement for physical education teachers to adapt to the needs of the physical education curriculum reform, and the diversity of roles requires physical education teachers to be highly qualified (Eizaguirre et al., 2021). The diversification of the role of physical education teachers poses new challenges in terms of knowledge, competencies and values (Ehninger et al., 2021). This requires teachers to have the necessary basic professional knowledge,

*Corresponding author. E-mail: man.jia@dpu.ac.th.

Table 1. Behavioral incident interview outline form.

No.	Behavioral incident interview questions
1	What were the specific circumstances, background and causes of the incident?
2	Who were the people or groups involved in this incident?
3	What role did you play in the process?
4	What did you say or do at each stage and what were your thoughts and feelings at the time?
5	What difficulties or obstacles did you encounter in dealing with the situation? How did you resolve them?
6	What attributes of yours do you think contributed to your handling of the situation?
7	What was the final outcome? What do you think were the reasons for the good/bad handling of the matter?

Source: Authors.

scientific, humanistic and social knowledge, as well as the ability to learn on their own, to communicate with others, to access information, to reflect on their teaching and to have the right professional values (Faruqe et al., 2021).

Physical education teachers are important determinants of the success or failure of physical education reform and provide the impetus for curriculum change in physical education (Katz and Mishler, 2003). An important task in the reform is to build a team of physical education teachers who can ensure the successful implementation of the curriculum reform, and it is crucial that this team has a good level of competence in teaching physical education (Lucas et al., 2021).

Teacher competency is a key topic in the study of teacher professional development (McClelland, 1987). It can be any individual characteristic that can be reliably measured or counted, such as motivation, traits, self-image, attitudes or values, knowledge of a domain, cognitive or behavioral skills, and that significantly distinguishes good performance from average performance (McClelland and Boyatzis, 1982). Competency research is not only prevalent in the field of management, but is also widely and deeply developed in the field of education (Roberto, 2011). With the development of competency theory and practice in education, there has been an expansion from the beginning of the focus on educational administrators to the teacher population (Sudirman et al., 2019).

Physical education at the basic education level in China is the foundation for physical education for young people and is an important part of school education (Liu, 2016). In the reality that the physical and mental health of China's youth continues to decline, physical education teachers at the basic education level bear the burden of training outstanding reserve talents for China (Liu, 2022), and the competence of physical education teachers directly affects the quality of physical education teaching as well as the success or failure of teaching reform (Li, 2012). Physical education teacher competency research is a practical application of competency theory based on the characteristics of physical education teacher positions (Wardani et al., 2021) and is a further enrichment and

development of competency theory (Vaughn et al., 2022). In previous studies on teacher competency in China, the main focus has been on the performance of school leadership in improving teacher management, but not much research has been conducted on using teacher competency to improve the overall professionalism of teachers. However, with the frequent occurrence of youth health problems and the implementation of the physical education curriculum reform, the research on the competency of physical education teachers at the basic education level in China is slightly weak. In view of the above research background, this study conducts a qualitative research on the competency of physical education teachers at the basic education level in China, so as to summarize the competency characteristics of excellent physical education teachers and provide a theoretical reference for the improvement of the competency of physical education teachers at the basic education level in China.

METHODOLOGY

The STAR interview instrument form was used in this study and the content of the behavioral event interview outline is shown in Table 1, based on the requirements of the study. Prior to formalizing the interview outline, the researcher first created an interview outline and sought the views of the 5 Chinese physical education teachers interviewed at the basic education level, each of whom provided their personal views on the interview questions from the perspective of their individual work practices.

For the semi-structured interview outline, a panel of experts (consisting of 6 experts at the basic education level in China, 2 of whom were administrative leaders of local and municipal education bureaux involved in teaching and learning management, 2 of whom were secondary school principals with a subjective view of school teaching, and 2 of whom were university professors who had been involved in basic education research for a number of years) was invited to review the interview outline prior to the study. After review by the expert panel, changes were made based on the panel's comments and suggestions, after which semi-structured interviews were conducted. As shown in the contents of Table 2.

Data collection and analysis

This study used China Ten cent conferencing software to conduct the web-based video interviews. The collected interviews were

Table 2. Semi-structured interview outline form.

No.	Semi-structured interview questions
1	Could you please describe your current day-to-day teaching of Physical Education in terms of your main duties and responsibilities?
2	Please briefly describe your experience of teaching PE and what outstanding achievements you have made? What efforts have you made to achieve these achievements?
3	What personal characteristics do you think have contributed to your success in teaching PE?
4	As a PE teacher, you are a multi-talented teacher, which sport are you best at? What are your specific strengths? What specific requirements do you have for yourself in terms of movement demonstration?
5	The PE teaching reform has placed high demands on the physical fitness of PE teachers, how do you maintain your good physical fitness?
6	Could you please describe your current main daily tasks and responsibilities in teaching Physical Education?
7	Please briefly describe your experience of teaching PE and what outstanding achievements you have made? What efforts have you made to achieve these achievements?
8	What personal characteristics do you think have contributed to your success in teaching PE?
9	As a PE teacher, you are a multi-talented teacher, which sport are you best at? What are your specific strengths? What specific requirements do you have for yourself in terms of movement demonstration?
10	The PE teaching reform has placed high demands on the physical fitness of PE teachers, how do you maintain your good physical fitness?
11	You certainly have to deal with a wide variety of people in your PE teaching, can you briefly explain which interpersonal relationships are very important?
12	What knowledge and abilities do you think are necessary to be a good PE teacher?
13	What do you think distinguishes a good PE teacher from a mediocre one?
14	What personal characteristics do you think are required to be a good PE teacher?
15	Can you make some personal suggestions on the current reform of physical education teaching at the basic education level?

Source: Authors

numbered in advanced anonymous files and personal information was edited and collated. All interviews lasted a total of 795 min, with an average of 66 min, or nearly 13.25 h of in-depth interview transcription.

This study divides the data analysis of the interview data into four stages: the impression stage where the text is read to obtain initial information, the categorization stage where the text is analyzed for coding, the extraction stage where the structural meaning is distilled, and the extension stage where the data is interpreted. After the interview data are collated, the task of data collection ends and the coding stage is entered, where the data is objectively sorted, refined and analyzed. Faced with the huge amount of fragmented data information, extracting from it the key elements of physical education teachers' competency at the basic education level in China was an immensely challenging and arduous task for this study. The most important aspect of the process was to ensure objectivity and scientific validity between the information provided by the interviewees and the personal coding and analysis. In this study, after converting the interview data into text, we first read the interview data in depth, one by one, trying to capture the intention behind the information provided by the interviewer, and coding it word by word, keeping an open mind, without personal bias or preconceptions, trying to start from objective data information, coding close to the data itself, and using the interviewee's language as much as possible to express their core views and opinions.

Working group

This study used "intentional sampling" to select the key informants

who could provide the most information for this study, Chinese physical education teachers at the basic education level. There were clear requirements for the selection of the sample in this study; the physical education teachers were selected as frontline teachers and teaching and research leaders with a background in physical education, mainly based on their teaching experience, title and social reputation (McKoy, 2013). Physical education teachers must meet the following criteria: criterion one, those who have been honored as excellent teachers at provincial and municipal levels (municipalities directly under the Central Government); criterion 2, those who have been teaching physical education for 10 years or more; and criterion three, teachers with a senior or higher teaching title.

Based on the above criteria, this study sampled schools in different regions of China at the basic education level and conducted behavioral incident interviews with teachers who met the criteria in them. Respondents who participated in this study were divided by geographical location in China and the cities selected were: Beijing in northern China, Shijiazhuang and Hengshui in Hebei Province, Nantong and Yancheng in Jiangsu Province in southern China; Quanzhou and Jinjiang in Fujian Province; Zhengzhou and Kaifeng in central Henan Province; and Urumqi in Xinjiang Uyghur Autonomous Region in western China. The teachers interviewed consisted of 12 physical education teachers at the basic education level, as shown in 1: 2 in Beijing, 2 in Hengshui, Hebei Province, 2 in Jiangsu Province, 2 in Henan Province, 2 in Fujian Province, and 2 in Urumqi, Xinjiang Uyghur Autonomous Region, at the basic education level distributed among primary, middle and high schools, all of which were state-owned and public in nature. There are 2 senior primary school teachers, one full

Table 3. Table of interviewees and information about the interviews.

Interviewer	Gender	Teaching experience	Province	Title	Honors
Teacher A	Male	33	Hebei	Senior teacher	Outstanding Coach in Hebei Province
Teacher B	Male	26	Hebei	Senior teacher	Second Prize in the Hebei Primary and Secondary School Physical Education (and Health) Quality Class Competition
Teacher C	Female	26	Henan	Full senior teacher	National Outstanding Coach
Teacher D	Female	30	Henan	National level 1 coach	Advanced Sports Worker in Hebei Province
Teacher E	Female	34	Xinjiang	Senior teacher	National Advanced Individual in Mass Sports
Teacher F	Female	30	Xinjiang	Senior teacher	Advanced Individual in Sports Teaching in Xinjiang
Teacher G	Female	25	Beijing	Senior teacher	National Outstanding Table Tennis Instructor
Teacher H	Female	33	Beijing	Senior teacher	Outstanding Physical Education Teacher in Changping District
Teacher I	Male	20	Jiangsu	Senior teacher	Excellent Coach of Yancheng City
Teacher J	Male	29	Jiangsu	Senior teacher	Jiangsu Province High School Physical Education Teaching Competent Person
Teacher K	Female	20	Fujian	Senior teacher	Backbone Teacher of Quanzhou City
Teacher L	Male	24	Fujian	Senior teacher	National Outstanding Teacher

Source: Authors

senior primary school teacher, one national-level coach (full senior), 6 senior secondary school teachers, and 2 full senior secondary school teachers. There were 5 male PE teachers and 7 female PE teachers, of whom the longest teaching experience was 34 years and the shortest was 20 years, as shown in Table 3.

RESULTS

Based on the analysis of the results of the data coding, the first theme of the competency characteristics of physical education teachers at the basic education level in China is the knowledge characteristic. Knowledge is the sum of the results of human exploration of the material world as well as the spiritual world, in line with the direction of civilization.

Knowledge, too, does not have a uniform and clear definition. However, the value of knowledge is judged in terms of its usefulness, in terms of whether it enables human beings to create new substances, to gain power and authority, etc. The concept of knowledge is one of the most important concepts in the field of philosophical epistemology, and a classic definition comes from Plato: for a statement to qualify as knowledge it must satisfy three conditions: it must be verified, correct, and believed.

A total of 3 negative themes are included in the knowledge characteristics theme, which are: sports

expertise, e.g. Teacher A says: "*Strengthen your own theoretical learning and cultivation and improve your professional skills and knowledge in order to take the lead and set an example.*" General expertise, for example, teacher D said, "*You want students to enjoy your class, you need to master with understanding know the knowledge of the physical education curriculum prescribed by the school.*" Physical education teaching theory, for example, Teacher L said, "*students are a blank sheet of paper, they don't have anything, how the teacher leads forms a habit, and the gap between what you teach elementary and middle and high school students is particularly large.*"

Based on the analysis of the data coding results, the second theme of the competency characteristics of physical education teachers at the basic education level in China is the competency characteristics. Competence refers to the subjective conditions necessary for the successful completion of an activity, and is a psychological characteristic of personality that directly affects the efficiency of the activity and enables it to be completed successfully, and is always associated with the completion of a certain activity by a person.

There are 6 sub-themes in this study's competency structure, namely: The ability to innovate, for example, Teacher E said: "*I think this is something I should learn from. Don't say keep holding on to your original set of*

inherent things, but keep experimenting and being bold and innovative. This is something that touches me very much." I have no problem demonstrating and explaining accurately in every lesson; no matter what kind of content I am teaching." The team's management skills, such as Mr. I, said, *"When we go out to play, each teacher has an exchange with each other, we get along very well together and have fun, and go out to see the advantages of others to learn more."* The ability to train in amateur sports, for example, Teacher C said, *"It's not the same as this, he belongs to a special group, we serve the public group, he is a special group, special groups are not treated the same."* For example, Teacher D said, *"We started practicing here with a mat underneath, and there was definitely protection. 2 students are next to each other for protection."* For example, I teacher said, *"Physical education teachers special upgrading course, I participated in a 6-months knowledge and skills each upgrade, theory, their own professionalism to consolidate solid."*

Based on the analysis of the data coding results, the third theme of the competency characteristics of physical education teachers at the basic education level in China is the teacher moral cultivation characteristics. The teacher moral cultivation characteristics should be accurately referred to as teacher public morality, which is the social public morality that teachers should abide by in order to safeguard the public interest of society. It is the moral code and code of conduct that teachers and all education workers must abide by in their educational activities, as well as the moral concepts, sentiments and qualities that are compatible with them. It is the code of conduct that teachers should follow and the moral qualities that they must possess in order to carry out their work as teachers.

The themes of teacher moral cultivation in this study include 10 sub-themes, which are: integrity of character, for example, Teacher F said, *"To have good professional ethics and moral cultivation of behavior is the bottom line of being a teacher."* Hard-working, for example, Mr. M said, *"I am able to adjust my mind in time when facing difficulties, I am not afraid of hard work and I am able to bear hardships."* A love of sport, for example, Mr. I said, *"You have to love sport and love the sport."*, love the teaching profession, for example, Mr. C said, *"First of all, love the profession of teacher, a degree of importance to this profession, right."* Strive to study the business of the job, for example, Mr. D said, *"If you don't know how to do it yourself, ask your teachers and your colleagues. I am more down-to-earth."* Caring and loving students, for example, Ms. I said, *"I rarely scold, I'm their mother, so that means I have a deeper bond with the children."*, Dedication to the spirit. For example, Mr. E says, *"It is this love for my students that keeps me going. I arrive at school at 6.30am for training. Basically, the earliest group of teachers in the school teaches by example. For example, Teacher E says: "Rigour is the key to dealing*

with this issue. As a teacher, one must do what one says and act what one does." Understanding acceptance, for example, Teacher D said, *"I often make a deliberate effort to find some of his strengths and praise him, and now he particularly enjoys PE lessons and likes me."* Calm and collected, for example, Mr. J said, *"I'm a bit impatient in the process of training as a coach, but I also have to be meticulous and patient to get this right."*

Based on the analysis of the data coding results, the fourth theme of the competency characteristics of education teachers at the basic education level in China is the motivational characteristics. The dynamic characteristic refers to the combined force generated by various factors internal and external to teaching and learning, which motivates the teaching subject to engage in teaching activities and promotes the operation and development of the teaching process from week to week in order to achieve the teaching objectives. The dynamical characteristics theme of this study comprises 5 sub-categories that, respectively: love of sports. For example, Mr. L said, *"I am usually myself in this gym, athletic field; also do a series of their own exercise."* Professional well-being, for example, Mr. E said, *"The students know how to be grateful and whenever they come back after graduation and say they want to play, they come to me to come. We all have a good time too."* Work performance, for example, Mr. K said, *"Our special students won the boys' team at the National Secondary School Table Tennis Championships."* Internal drive, for example, Teacher D said, *"In our day there really wasn't too much of anyone forcing you to do anything, you were just kind of voluntary and spontaneous."*

Based on the analysis of the data coding results, the fifth main category of competency characteristics of teachers in basic education in China is personality traits. Personality traits are formed gradually in the practice of social life, and once formed; they are more stable and can be expressed at different times and in different places. However, the fact that a personality is stable does not mean that it is immutable, but rather that it can be molded. After a personality has been formed in a person's life, major changes in life circumstances must bring about significant changes in his personality traits. Character differs from temperament in that it is influenced by social history and culture, has a clear sense of social and moral evaluation, and directly reflects a person's moral style. Therefore, temperament is more a reflection of the biological attributes of personality, while personality is more a reflection of the social attributes of personality, and the core of personality differences between individuals is the difference in personality.

The personality trait theme of this study consists of nine sub-categories that, respectively, including responsibility for, for example, teacher C said, *"I feel a little more responsible myself"*. Career, for example, Mr I said, *"It's better to be down to earth now. Get down to earth and be practical."* Progressive mind, for example, teacher B said,

"First of all, we should carry out to strengthen this own business ability, be open-minded to ask teachers for advice and learn, and prepare lessons carefully." Competitive, for example, Mr. K said, "It should be hard work and motivation, people will only pose badly if they don't work hard and motivate themselves, so to get results do your best to study." Toughness, for example, Mr. M said, "I myself have a spirit of non-conformity, first of all, not to give up, it is this characteristic of not giving up practicing sports can bring some characteristics of not giving up." Perseverance, for example, Mr. I said, "From the teaching side, must be a little bit of foot to teach, must do fine, must be key to the action elements." The teacher has a clear self-concept." Teacher C, for example, says: "I am good at spotting and guiding. I am more approachable myself, and I also pay more attention to some of the language I use with the children." Physical and mental health, for example, Teacher C said, "Keeping one's body in good shape and health first comes through at this time." Affinity, for example, Mr. H said, "It might be more inclined to be friends with your classmates and I would go and listen to some of their ideas first."

Based on the analysis of the data coding results, the 6th main category of the competency characteristics of education teachers at the basic education level in China is the values characteristics. Values are the perceptions, understandings, judgments or choices made on the basis of certain senses of human thinking, i.e. a way of thinking or orientation in which people identify things and determine what is right and wrong, thus reflecting certain values or roles of people, things and objects. In a class society, different classes have different values. Values are stable and enduring, historical and selective, and subjective. Values have an orienting effect on motivation and reflect the state of people's perceptions and needs.

The values identity theme of this study comprises 5 sub-categories that, respectively: including the view of sport, for example, Teacher D said, "The leadership must take PE seriously, whether it's the leadership of the school, parents, and the community." Student view, for example, Teacher B said, "If you can solve it, go for it first time. To reinforce this sense of student participation in physical activity,". The concept of fame and fortune, for example, Teacher C said, "There is no commitment in the school or what kind of reward you will be given if you lead a team and the students reach a certain level, so I am a little bit less concerned in this regard." View of parenting For example, Teacher B said, "In PE, every element of PE is based around nurturing." In view of happiness, for example, Teacher C said, "So that's why I think it's important to just say nurture a child. The first thing is to train a child to be a human being to learn to be grateful."

DISCUSSION

The study by Ding et al. (2016) supports this conclusion,

but there is no uniform and clear definition of knowledge, but this study finds that the value of knowledge is judged by its practicality in terms of whether it allows humans to create new substances, gain strength and power, etc.

Competence is the subjective condition necessary for the successful completion of an activity, a psychological characteristic of personality that directly affects the efficiency of the activity and enables its successful completion, and is always linked to the completion of a certain activity by a person. This result seems reasonable from the viewpoint of Wang (2021) study, which all together put forward the importance of competence, pointing out that the important attribute of competence, which can neither be expressed nor developed without a specific activity, is consistent with the findings of this study.

Motivational characteristics refer to various factors, internal and external to teaching and learning, that motivate the teaching subject to engage in teaching and learning activities. This research perspective is reasonable in relation to that of Ju (2008). Through this study, it can be seen that the motivational characteristics are the same as the results of previous studies in terms of the combined forces that drive the teaching and learning process to operate and develop over and over again in order to achieve the goals of teaching and learning.

Character traits are formed gradually in the practice of social life and are more stable once formed; it will manifest itself at different times and in different places, However, the fact that personality has stability does not mean that it is set in stone, but that it is malleable (Zhang, 2020). After character is formed in a person's life, major changes in life circumstances will definitely bring about significant changes in his character traits. Unlike temperament, which is influenced by social history and culture, character has obvious implications for social and moral evaluation and directly reflects a person's moral style. Therefore, temperament is more a reflection of the biological attributes of personality, while character is more a reflection of the social attributes of personality, and the core of personality differences between individuals is the difference in character.

The characteristics of teacher moral cultivation should accurately be teacher public morality, which is the social public morality that teachers should abide by in order to safeguard the public interest of society, it is the moral code and code of conduct that teachers and all education workers must abide by in engaging in educational activities, as well as the moral concepts, sentiments and qualities that are compatible with it, the results of this study are reasonable with the findings of Luo et al. (2022). The commonality analyses teacher moral cultivation as the code of conduct that teachers should follow and the moral qualities that they must possess in order to engage in their teaching work.

Values are cognitions, understandings, judgments or choices based on certain human thinking senses, that is,

a kind of thinking or orientation in which people identifies things and debate right and wrong, thus reflecting certain values or roles of people, things and objects. In a class society, different classes have different values, and the results of this study differ from those of Zhou (2009). The difference lies in the fact that this study considers values to be stable and enduring, historical and selective, and subjective, whereas previous studies have examined the role of values in orienting motivation, while reflecting people cognitive and need status.

Conclusion

This study focuses on the competency characteristics of physical education teachers at the basic education level in China. The findings of this study are that the competency characteristics of physical education teachers at the basic education level in China include 6 characteristic dimensions, namely: knowledge characteristics, ability characteristics, motivation characteristics, personality characteristics, teacher moral characteristics and value characteristics.

Recommendations

The effective enhancement of learning awareness and learning action, the establishment of scientific teaching concepts to strengthen the accumulation of teaching experience, the effective improvement of training mechanisms to update school management concepts, and the strengthening of teachers' psychological guidance provide reliable and favorable protection to help enhance the competence of physical education teachers at the basic education level in China.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

- Cao H (2022). A study on the competency of physical education teachers' classroom work in junior high schools in Hefei Economic Development Zone [M.Sc. Thesis, Northwest Normal University].
- Ding RC, Wang LF, Mao YP, Gao DX (2016). A study on the application of competency model for physical education teachers in higher education institutions. *Physical Education Research and Education* (01):48-50.
- Ehninger J, Knigge J, Schurig M, Rolle C (2021). A new measurement instrument for music-related argumentative competence: the MARKO competency test and competency model. In *Frontiers in Education* 6:668538. Frontiers Media SA.
- Eizaguirre A, García-Feijoo M, Beneitone P, Yarosh M (2021). A Methodological Proposal to Analyse the Process for Implementing Competency-Based Learning (CBL) in a Business School. In *Integration and Application of Business Graduate and Business Leader Competency-Models* 4(7):27-48.
- Faruqe F, Watkins R, Medsker L (2021). Competency model approach to AI literacy: Research-based path from initial framework to model. *arXiv preprint arXiv* 9(12):1-5.
- Fang CC (2022). Research on the improvement of physical education teachers' teaching competency in the context of specialization of high school physical education. M.Sc. Thesis, Shanghai Institute of Physical Education.
- Hu D, Wang YJ, Guo Y (2022). The relationship between psychological empowerment and teacher competency in rural primary and secondary school teachers in ethnic areas: The mediating role of teaching efficacy. *Chinese Journal of Health Psychology* (4):571-575.
- Hu XX (2021). Research on primary school teachers' competency in the new era. M.Sc. Thesis, Hebei University of Technology.
- Ju FJ (2008). Teaching practice of basketball refereeing ability training for college students in general universities. *Shandong Sports Science and Technology* 20(5):82-83.
- Katz AM, Mishler EG (2003). Close encounters: exemplars of process-oriented qualitative research in health care. *Qualitative Research* 3(1):35-56.
- Liu XX (2016). Constructing a competency model for primary school physical education teachers [M.Sc. Thesis, Beijing University of Physical Education].
- Liu SQ (2022). A study on the competency characteristics of arts teachers in physical education colleges under the blended teaching model. M.Sc. Thesis, Chengdu Institute of Physical Education.
- Li X (2012). Construction and testing of a model of competent characteristics of physical education teachers in primary and secondary schools. Ph.D. dissertation, Huazhong Normal University.
- Lucas M, Bem-Haja P, Siddiq F, Moreira A, Redecker C (2021). The relation between in-service teachers' digital competence and personal and contextual factors: What matters most? *Computers and Education* 160:104052.
- Luo BY, Wei X, Yang WN (2022). Statistical analysis of journal papers in archival questionnaire method in China. *Archives Management* (04):108-111+114.
- McClelland DC (1987). Characteristics of successful entrepreneurs. *The Journal of Creative Behavior*.
- McClelland DC, Boyatzis RE (1982). Leadership motive pattern and long-term success in management. *Journal of Applied Psychology* 67(6):737-743.
- McKoy CL (2013). Effects of selected demographic variables on music student teachers' self-reported cross-cultural competence. *Journal of Research in Music Education* 60(4):375-394.
- Roberto VGL (2011). Development of a network environment to offer discrete responses to complex problems: the case of breast cancer in Mexico City cases. *International Journal of Technology Intelligence and Planning* 7(1):19-32.
- Sudirman A, Lie D, Sherly S, Dharma E (2019). The impact of work discipline and work ethic on the teacher performance of Sultan Agung Pematangsiantar Private Middle School Teachers TA 2018/2019. *International Journal of Business Studies* 3(3):125-135.
- Vaughn S, Rye J, Allen A, Bok A, Mauk K, Park L (2022). Updated competency model for professional rehabilitation nursing: Practice applications. *Rehabilitation Nursing Journal* 47(1):12-23.
- Wang F (2021). A study on the construction of a competency evaluation index system for career guidance of general high school teachers. M.Sc. Thesis, East China Normal University.
- Wen JY (2021). Research on the construction and application of online teaching competency model for primary and secondary school teachers. M.Sc. Thesis, Liaoning Normal University.
- Wardani L, Sekarini D, Syaputra R, Kartikawati M, Dawanti R, Mulia D, Malek M (2021). Career of horizontal education mismatch workers: Career competency, job crafting, and work engagement. *Journal of Education and Learning (EduLearn)* 15(3):414-424.
- Xu MQ (2022). A study on the competency of junior high school physical education teachers. M.Sc. Thesis, Shandong Normal University.
- Zhang XJ (2020). Research on the Competence of Early Childhood Teachers in Teaching Physical Education [M.Sc. Thesis Shandong Institute of Physical Education].
- Zhou XM (2009). Research on Competence Characteristics and Index Evaluation of Physical Education Teachers in General Universities. *Journal of Shandong Institute of Physical Education* (3):94-96.

Related Journals:

