THE 21ST CENTURY COMPETENCE-BASED-PEDAGOGY REFORM AND SUSTAINABLE TEACHER EDUCATION THROUGH TRANSFORMATIVE LEARNING MODEL

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ARTICLE INFORMATION

A B S T R A C T

Systems in the 21st century are increasingly embracing competency-based pedagogy (CBP) reform for sustainable education and socio-economy development mainly determined by teacher education (TE) and teaching quality. The CBP reform for sustainable development is complex and needs alternative TE and teaching with transformative learning (TL) insights that are still scantily spread in diverse fields. To assist in strengthening existing debilitations, the current article uses the TL model to analyse TE's response to CBP reform for sustainable education. The main question is how TE responds to CBP reform for sustainable education through the TL model insight. To seek answers, the research design uses text comprehension, questionnaires and focus-group discussions with 409 samples in Cameroon CBP-reform-TE transitions. Outset findings reveal scanty TL insights with weak TE response to CBP reform for sustainable education that needs revival. Improving TL insights of articulating-diverse-prior-experience, engaging-critical-reflection-discourse, enacting-varied-interactive-practices; controlling-constrains and reusing-ongoing-evaluation-outcomes that iterate CBP reform also updated TE and student learning outcomes. In conclusion, iterating CBP reforms in TE themes needs a TL journey for trainees-teachers and learners as transformative agents who update mutual lifelong development outcomes. TE programs should respond to 21st-century pedagogy reforms for sustainable education and socio-economy development through further TL model characterisations.

1. Introduction

Systems in the 21st century are largely embracing the competence-based pedagogy (CBP) reform for sustainable education and socio-economy development mainly led by teacher education (TE) and teaching quality. CBP reforms are complex and fast emerging demands including alternative TE and teaching using transformative learning (TL) insights that are still scantily separated in different fields. TE needs reflection and praxis situated on CBP reform and learner outcomes for social relevance (MacPhail et al., 2022). For example, the US accreditation norms, European Bologna, Central African Economic and Monetary Community, and Cameroon's Bachelor Master and Doctoral stems align with the sustainable development goal 4 on inclusive equal quality lifelong-learning opportunities enacted by the United Nations in 2015 to achieve by 2035. The CBP reforms intersect with TE practices that situate trainees' personal and collective resources (Fischer, et al., 2022; Orland-Barak & Wang, 2021; Sancar et al., 2021).

Many scholars (see Anderson-Levitt, 2017; Rogers, 2021; Levine & Patrick, 2019; Bliven & Jungbauer, 2021) hold that CBP reforms often elicit episodic rhetorics. Initial, induction and in-service TE rhetorical responses to CBP reform recur but trainees retain static teaching models and low career morale. The CBP reform faces a scanty resource base, many resistances and poor outcomes that solicit sustainable TE involving reflection, dialogue, and praxis to transform mindset, morale, and experience (Niemi, 2015). CBP and TE seem simply exclusive and trainee and teacher-led outcomes are below potential. Trainees and teachers tend to evade complex roles, rehearse bogus content, worry over low career pay and ignore crucial TE, teaching and student performance expectations. To partly fill this lacuna, most scholars promote a TE that sustains more CBP reform through TL where trainees cum teachers are transformative agents in TE-CBP-reform pathways. CBP-reform-TE pathways need TL insights to evolve, mend sector gaps and engulf ongoing models. TE has to widen TL insights to build trainee and teacher ability to articulate diverse experiences, reflect, dialogue and practice involving CBP reform (Rogers, 2021).

To assist the ongoing discourse, the current research uses the TL model developed by Jack Mezirow and applied by Negi & Jain (2021) in professional development and others in other field ideals and praxes including TE and CBP reform (García-Martínez et al., 2022). The current article uses the TL model to analyse TE's response to CBP reform for sustainable education. The question is how TE responds to CBP reform for sustainable education. TL proponents hold that extra TL insights give TE pathway reflection, dialogue and praxis to revive minds, words, and actions to perform emerging roles including CBP reform (Sims & Cunliff, 2022). The TL insights merge CBP content knowledge, reasoning, and action, situated learning and mastery learning in TE programs to promote sustainable development (Nind, 2020; Partel, 2018; Winget & Persky, 2022). The eclectic TL insights in crucial CBP reform and TE notions deliver a TL model journey of initial TE involving CBP reform for sustainable whole lifelong in-service and induction education planning and management (Tchombe, 2014). Cameroon experiences largely inform the empirical insights as Cameroon often reactively enacts inclusive CBP reforms under teachers from TE programs with scanty TL cues following global trends. The research design involves 499 samples in Cameroon CBP-reform-TE transitions that promote inclusive CBP reform under teachers from TE programs with scanty TL cues as part of global trajectories.

This paper furthers existing scholarship on TL models by merging pedagogical content knowledge, reasoning and action, situated learning and mastery learning previously applied in professional development (Negi & Jain, 2021), roles and resources (Cao et al., 2020), agency ecology (Leijen et al.,

2022) and post-training characterisations (Arvajaa et al., 2022). The thesis of the current paper is on TE's response to 21st-century CBP reform for sustainable education through the TL model amalgam of diverse crucial resources. The paper hopes to build the capability of policymakers, teacher educators, teachers, trainees, learners, learners' parents and community residents who ought to support CBP reform and TE practices with TL insights but are still scantily exclusive despite resilient efforts to promote inclusive sustainable education and socioeconomy development (García-Martínez et al., 2022). The discourse focuses on how TL insights of CBP reform and TE inform model TL journey of trainees-teachers and student-citizen learning-active participation as transformative agents to promote outcome growth. Henceforth, the paper explains the crucial sustainable education model, 21st-century CBP reform, and sustainable TE and TL theoretical notions to highlight relevant methods, findings, discussion, recommendations, and conclusion.

2. Sustainable Education Model

Models systematically describe and specify procedures based on practice and assist in achieving feasible outcomes. The sustainable education model converges and intersects societal-school knowledge, attitudes and skills for everyone's and future's sustainable education and socioeconomy developments in this fast-revolving ICT-driven massive information creation, flow and utility era (Keejo, Eunsuk & Myunsuk, 2023). Models are deterministic, stochastic, mechanistic and empirical based on the level of basic experience and predicted outcome. Deterministic models ignore change and stochastic models stress predictable outcomes. Mechanistic models rank elements and empirical models adapt to change. Deterministic-mechanistic models prescribe and stochastic-empirical models describe steps to attain given goals. Thus, the TL model proposed in this paper brings diverse insights to explain concepts and practices to update TE outcomes with CBP reform. Models are also analytic, normative and actionable steps to illustrate idea-action and cause-effect relations. Analytic and normative models explain basic norms and roles. But, analyses may be too logical, norms oversimplified, goals unattained or results unintended. Hence, the model systematically analyses concrete situations to advance feasible guides to update CBP in TE and realise secondary school classroom outcomes. The model in focus here is a TL amalgam of CBP reform in TE processes.

The model proposed in this paper adopts TL idea-praxis through a linear systematic process of situational study to build a draft that undergoes trial testing and application alongside ongoing evaluation with feedback for further improvement towards field usage. But actual occurrence of defects and apt amendments are done flexibly (Pont & Viennet, 2017). This is a back-and-forth process that starts with a draft model and then a situational analysis of TL insights in CBP and TE to refine key

aspects before undertaking a hypothetical pilot test. If the pilot test result is okay, the model enters an authentic test to show its functionality to solve predicted issues. After tests and eventual refinement, the model is tidily delivered to users to apply. The model undergoes analysis, design, development, trial-test and evaluation whilst pragmatically resolving issues. Studies are done to have clues to build, test and refine the model through iterative diagnosis, design and application that systematically merge more CBP and TE with feasible TL practices. CBP reform norms and their TL insights are explained below.

3. 21st Century Competence-Based-Pedagogy (CBP) Reform

CBP reforms possess TL insights and evolve or break away from objective- and outcome-based pedagogies following how we conceive and apply objectives and outcomes. In the 1960s, the USA began learner-centred CBP reform to improve TE, teaching and graduate skills for global use. The CBP reform was adopted in various US states before going back and forth in other global spaces (Anderson-Levitt, 2017: 49-51). Cameroon hosted the 1995 French-speaking African Ministers' Conference which is accused of neocolonising secondary education through CBP reform from 2012 to the present.

Many international organisations push systems to adopt CBP reforms that underrepresent TE and teaching needs amidst recurrent resistance. Workers feel cheated by bosses who stress changing market gains over TE-teacher status (Elfert, 2015). In effect despite many, CBP reform is more rhetorical than realistic and seems inconsistent and rejected by teachers with few means, lags in grassroots outcome and accountability for failure. The CBP reform rhetoric is unsustainable and requires TE to radically shift from classical to contemporary transformative competence-building dispensations.

CBP integrates personal and common experiences, reflection, dialogue, and ongoing evaluation to fix constraints and build self-motivated resiliency (Levine & Patrick, 2019). CBP fosters ongoing goal setting and volition to gain transversal themes that apply to social resources. Teaching-learning needs a TL mindset of diverse experience, critical reflection, rational discourse, and reflective practice. Using the CBP model, teachers experience overall positive outcomes to articulate the end before starting to map quality outcome courses (Rogers, 2021) for greater student performance and smooth entry into job milieus that improve community growth. CBP models personalise [non-]verbal and concrete creation of experiences where actors mutually conceive, design, develop, implement, and evaluate good pedagogic, educational, and social experiences via TL journeys in TE (Bliven & Jungbauer, 2021).

4. Sustainable Teacher Education

By the 19th century, TE favoured university social and tuition fees and other job needs more than a lifelong commitment to rigorous creative teaching (Ogunyinka et al., 2015). The current call by the GEN conference to be held in Liverpool Hope University aligns with SDG4 enacted by UNO in 2015 for realization in 2035 towards lifelong initial TE selection, coursework, and certification process. The whole lifelong process considers how to update teachers' dynamic creative capacity through statutory induction and voluntary in-service to perform CBP roles (Tchombe, 2014). Initial TE admits trainees into 2-5 years of coursework using subject, general and teaching knowledge, and practice not CBP rationale. Trainees observe peers to scaffold skills before blocking or integrating 60-90 days of teaching practice under less peer aid (Endeley, 2014; Ellis et al., 2020). Evaluation of training is summative end-of-course tests with less formative authentic practice. Few trainees defend theses with less teaching insights and earn lifetime certification in paid jobs that ignore lifelong career issues that require ongoing reflection, research, socialisation, practice, and peer tutoring to shift from pre-21st-century competent-craftsmanship, charismatic-subject-mastery to 21st-century reflective-practitioner models. Pre-21st century models are largely mechanistic classroom management and content transmission to build teachers' subject and personal traits for mediocre story-telling or -presenting. 21st-century models favour creativity and remedial mutual experiences, critical thinking, and reflective practice to inspire further creativity and exchanges. Initial TE inducts persons into ongoing inservice practices that nest onto student performance (Sancar et al., 2021).

TE sustains trainees' diverse career agency in the ecological model of simultaneous learning, planning, teaching and recycling of outcomes involving mixed-ability students (Cao et al., 2020; Leijen et al., 2022). However, some trainees hold rigid teaching models that hinder CBP reform and learners' learning. TE needs wider experiences to critically reflect and dialogue whereby teaching is teamwork (Arvajaa et al., 2022). Current TE models seem structured, short-lived, cognitive and guarantee lifetime paid jobs that make teachers ignore, fear and resist reforms. One model cannot meet robust teaching and TE themes of critical lifelong pedagogic content, thinking, dialogic and praxis where reflective practitioners learn how to teach by teaching and transform minds through teaching. Peers diagnose and teach creatively in TE while engaging in ongoing interactions. Low resources and rigid laws weaken TE-career tunnels that need joint CBP reform content, reasoning-action, situated and mastery learning.

Pedagogic content knowledge is an amalgam of academic resources, learning to teach, teaching, learners' value, education foundations, and wisdom from practices via the reasoning-action model (Nind, 2020). The model aids one in understanding, transforming (preparing, representing, selecting,

adapting), teaching, evaluating, reflecting, and extending experiences. Pedagogic knowledge, reasoning and action involve research, manoeuvre and transfer of diverse resources that may ignore the mutual ongoing authentic practice. Authentic teaching in TE is situated learning in complex social contexts of nonformal to initial micro-teaching, observation, induction, teaching practice and senior in-service roles during legitimate peripheral participation (Partel, 2018)). Trainees learn TL means to scaffold with peers and join lifelong teaching corps that improve on most diverse learners' outcomes.

Learning partly relies on teaching and varying instruction enables most learners to perform well (Betts, Thai & Gunderia, 2021). Teaching using the mastery learning model remediates learning outcomes by fixing learning errors and enriching successes for ongoing diverse growth. Mastery learning aligns teaching to emerging inclusive outcome settings via the mastery learning multiplier effect. Mastery learning resembles a solo trip but uses diverse pedagogic content and reasoning-action to situate personal and group authentic teaching-TE on community practice. Pedagogic content merges academic and teaching knowledge while reasoning and action dynamizes practice situated in teaching reform while mastery learning entails case-centered mutual ongoing development. CBP reform and TE are structures apart but share TL potentials that affect teaching and CBP reform through a seamless TL model.

5. Transformative-Learning Theory

The TL theory was propounded by Jack Mezirow in the 1990s and offers the communicative and instrumental principles and 10-step model (Sims & Cunliff, 2022) that apply in many academic and praxis fields including journals, conferences and professional development. In this paper, TL is radical CBP reform and TE pathway changes that sustain whole lifelong learning to articulate prior mental frames, viewpoints and actions to refine model meanings. The paper feasibly anchors the model on generic teaching-learning reform and TE that seem apart but share TL insights. Pedagogic reform and TE outcomes possess debilitating schemes that TL can revive. For example, trainees often perceive TE as an easy journey to permanent simple low-pay teaching jobs or past-time towards lucrative jobs that TL needs to adjust. Communication and problem-solving principles can help strengthen such debilitations (Nagi & Jain, 2021).

The 10-step TL model begins with disorienting events with feelings of guilt to desire and change. To change, trainees articulate diverse norms to unveil gaps and express remorse; critically assess views; share discontent and transform with peers as part of TE (Ndemanu & Coronel-Molina, 2022). This critical reflection, rational discourse and praxis bond when actors perceive, reflect, express and act with diverse resources. Reflection adjusts and discourse displays views as trainees try new roles, and plan

and amass resources in teaching practice. Trainees then, gain quality TL pedagogic resources, and cyclically evaluate and reuse complex pedagogic outcomes in TE pathways. The TL pathways transcend the centrality of experience, critical reflection, rational discourse, and praxis. Prior CBP reforms in TE rely on and also inform reflection, discussion and practice. Critical reflection reframes ideas and rational discourse justifies views and sources. Reflection multiplies mental ideas and rational discourse uses sign, body, word, audiovisual or text tools to display reflection results to others. Trainees read, think, speak, write, and act critically and mutually in TL thresholds.

The TL theory and model principles offer a seamless transition from preliminal, and liminal to postliminal thresholds. The transitional thresholds are irreversible but may face resistance that initial incidents need follow-up critical supplements (Meyer et al., 2010). Preliminary woes inform the mental resources at the liminal phase in preparation to enter the postliminal state with ongoing solo and shared introspection, retrospection, observation, and prospection. The model resumes various TL insights of CBP reform and TE to propose incidents to apply to trainees and influence career outcomes. TL inspires critical and clinical initial and in-service exchanges via incidents that induce dissonance, reduce prejudice, engage experiences, and build reflective journals on CBP reform in TE. The TL incidents blend model lecture, reflection-practice journal in cooperative pedagogic exchanges.

But initially, TL is more cognitive than clinical which is resourceful for CBP and TE (Christie et al., 2015). This paper aims to further the cognitive alongside clinical use of the TL model for sustainable TE response to 21st-century CBP reform for education and socio-economy developments. Trainees experience mental critical and authentic clinical TL incidents of teaching through the TL journey in TE programs. Previous literature explains the sustainable search method; education model, 21st-century CBP reform and TE views that are like bubbles apart despite common TL insights. TL theory sums teaching reform in initial, induction to inservice TE to foster whole lifelong learning. The focus is on TL insights into basic concepts and gaps that can be updated through a careful empirical investigation funnel.

6. Method

Using the scoping review method, we search multiple keywords in a) CBP; b) TE, pedagogic knowledge-reasoning-action, situated and mastery learning; and c) TL meta-theory: where a) and b) are CBP cum TE norms and stress how c) resounds to updating a and b (Nind, 2020; Levine & Patrick, 2019; Negi & Jain, 2021; Ndemanu & McColonel, 2022). Journals on TL, CBP reform, sustainable TE and education; Google Scholar and ChatGPT-3.5, official services, peer-researchers, trainees, trainers and learners provide sources and tools. The results are sequentially synthesized, tested, and refined into

the TL model before explaining the trainee's transformative journey and -role as -agents to update CBP reform as TE. The literature review initially offers the grounding for the emerging model that:

1. Sustainable TE responds to 21st-century CBP reform with TL insights.

2. Iterating CBP reform in TE with TL is still scantily apart and we seek an update to;

3. Articulate diverse-prior-experiences for grounding,

4. Engage critical reflection and rational discourse for informed communication,

5. Enact variable- interactive practices for active problem-solving,

6. Control complex constraints for excellent practice and

7. Reuse formative-evaluation outcomes for sustainable CBP reform-TE pathways.

A pilot-361 final year trainee questionnaires and double critical 10-peer input are solicited through a systematic critical-clinical process of synthesised diagnosis and updating to derive the model below.
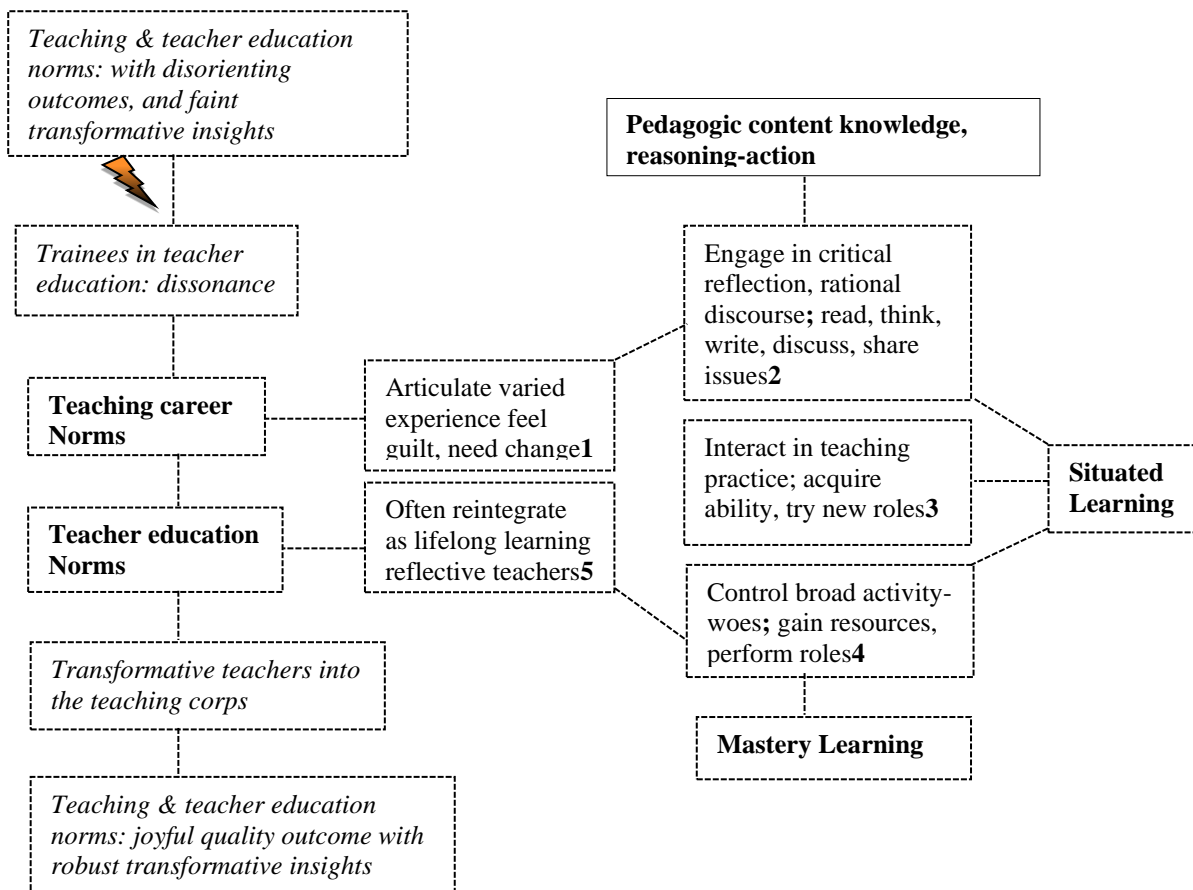
Figure 1: TL model of updating 21st-century pedagogy reform and sustainable TE

Figure 1 is a multistep process to update CBP reform in TE through the TL journey after Mezirow (1991) with trainees as transformative agents. The model steps closely relate but one cannot exit one into another starting with TL-insights of disorienting performance of CBP reform and TE. Under-

performance repercussions trigger the desire for change at solo and mutual trainee cum teacher and teaching-TE transitions. The model engages trainees in diverse experiences; critical reflection, rational discourse; and variable teaching practices with constraints that need evaluation for remedial development. The model injects transformative agents as teachers into the teaching corps with insights to often reform teaching. This TL journey is sustained using text analysis, trainee questionnaires and focus-group discussions and trainees play roles as transformative agents of updating CBP reform in TE models.

The next phase is a focus-group discussion to further test the model in TE to verify a potential change in trainees' TL insights on secondary CBP reform as TE outcome in Cameroon. In-depth focus group discussions aim to revive scanty potential during the 2022 teaching practice in secondary school classrooms. Researchers obtain approval from the University of Buea Ethics Committee before using ethical criteria to locate and invite potential participants under conventional empirical research standards that put the participants at the centre.

Though a Cameroonian case study, the focus is on how any changes in trainees' TL insights influence secondary school CBP reform as sustainable TE outcomes in the findings below:

7. Findings and Discussions

The article uses the TL model of Merzirow (1991) as applied in different fields to question how TE responds to CBP reform for sustainable development which still appears scantily apart across fields. Preceding reviews and methods inform CBP reform for TE and trainee cum teacher TL journeys with transformative-agency roles as illustrated in Figure 1 contents which constitute part of the data in this paper. Thus, the findings focus on irreversible multisector TL transitional thresholds in Cameroon's initial-TE-CBP-reform-learning journeys with global implications (Meyer & Baillie, 2010). The findings showed trainees' expressed viewpoints of updating CBP reform in TE deepened from the preliminal shallow state following the liminal and post-liminal focus group discussions with teaching practice interventions.

In addition, the mean scores of trainee TL insights of teaching reform increase from 9.36 to 14.11 ($p<0.05$) and their student performance is from 11.05 to 14.30 ($p<0.01$) across the discussions. It means that the discussions improve trainee TL insights into CBP reform and learners' performance in TE outcomes. The empirical insights attest that the TL model significantly updates basic experiences, reflection, discourse, and actions to evolve lifelong outcomes. Trainees often move between reflective-focus group discussion and -teaching practices by examining the preceding week's practices to improve

plans to discuss and facilitate subsequent weeks' lessons. The systematic TE process helps build teacher-reflective practice capacity despite inherent perturbations.

Some trainees feel frustrated and try retreating after the 1st discussion which requires changes in TL incidents. But we apply further persuasive motivating incidents to help them see reason and how others share similar woes to transform. The incidents bolster their resolve to reflect and discuss awful underperformances and update to garner joy for all alas! They further amass CBP reforms to better engage and overcome emerging teaching and social adversities. Teaching ability is vital to improving career morale and activism by adding value to teaching-learning and social outcomes. There is overwhelming indication that, if teachers touch students at the right points of need, it will sustainably improve teacher status. The lifelong trajectory of TL incidents can funnel crucial CBP reform to mutual dynamic ends where TE incidents multiply trainees' reuse of essential outcomes for further personal and collective career and social developments.

8. Recommendations and Conclusion

The model is of practical use to various partners to characterize the process of updating the scanty TL insights of CBP reform and TE program for sustainable development.

Trainees could better understand their journey into formators of future human capital to build communities through continuous career planning and managing of in-person, digital and hybrid give-and-take exchange settings.

Currently, low career morale offers a rationale to help the teaching corps dominate the development agenda by more value-adding than pity-seeking approaches.

Trainers should co-procreate new practitioner lineages that uphold inclusive future visions by equipping trainees cum teachers to reform relevant practices for learners.

The learners should feel valued and express themselves to lead CBP reform for sustainable education and well-being.

Policymakers can create policies to address partners' interests to manage internal career announcement, recruitment, formation, posting and promotion or to meet global external trends anchored on teachers as advocates of continuous CBP reform in TE journeys for overall education-socioeconomy developments.

Education organizations should offer more consultancies for mutual scholarly, career and civic engagement through system-wide transition programs on teacher assessments, networks and resource buffers, or employment skills updates. CBP reform should be an inseparable part of seamless TE for education and socioeconomy lifelong developments.

The outset motivation of this paper is the existing CBP reform and TE with TL insights that are scantily spread in diverse fields and trainees cum teachers often evade complex roles, rehearse bogus content and worry over low career pay that ignores emerging interests and cause underperformances. This often hurts teachers, teaching corp and students and their competence for quality community development. TL model can update CBP reform and TE outcomes for sustainable education but the question is how to achieve this whole-lifelong-futuristic necessity. The opined model puts trainees/teachers and learners/citizens as transformative agents to cover TL journeys with roles. The paper mostly uses Cameroonian insights and other studies can use isolated or comparative longitudinal and experimental TL characterisations to further investigate and apply TE use of TL insights to update CBP reform and TE for inclusive sustainable education and socioeconomy development.

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