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Nurturing Learners' Research Skills Through Project-Based Learning: A Capability Approach Traversing Three Countries

Abstract

Summative assessment is often criticised as an unfair representation of learner effort and aptitude. In summative high-stakes examinations, economically privileged learners consistently outperform marginalised counterparts, perpetuating inequitable social class reproduction. But UN Sustainable Development Goal No.4 calls for equitable quality education and lifelong learning for all learners, irrespective of socio-economic status and aptitude. Consequently, many education systems are adopting project-based learning to reduce dependency on summative exit examinations and nurture learners' lifelong research and problem-solving skills. Informed by the capability theory, the current literature-based study casts a bird's eye on how teachers are capacitating learners with research skills in South Africa, Lesotho, and Zimbabwe – three former British colonies with a shared heritage of dependency on summative high stakes examinations. Teachers in the three countries are worried by unclear implementation modalities, inadequate capacitation and heavy workloads that undermine project-based learning and the formative assessment it entails. While commendable progress in utilising the project-based approach has been recorded in South Africa and Lesotho, teachers in Zimbabwe are struggling to implement the change in an authentic and ethical manner due to poor remuneration and the government's power-coercive dissemination strategies. If the UN goal to achieve equitable quality education is to be attained, dual communication, consultation and teacher capacitation are imperative.

Keywords: curriculum reform, project-based learning, research skills, UN Sustainable Development Goal, quality education, 21st century skills

Introduction

Globally, project-based learning (PjBL) and problem-based learning (PBL) are often misconstrued to mean the same and are frequently used interchangeably (Du Toit, 2021). While there are common threads meandering through the two closely related concepts (like prolonged engagement with an identified problem, self-regulated learning, collective collaboration, and the search for a solution to a given problem) the two are not the same. What ultimately distinguishes PjBL and PBL is the final product at the end of each process. "The production of a learning artifact is what consequentially distinguishes project-based learning from problem-based learning", notes Grant (2011, p. 38). In PjBL, a tangible artifact is produced in response to the question driving the project. The artifact can be a prototype scientific product or a model, a creative piece of art, or a research write-up that provides a solution to a clearly defined problem. But in PBL the product is a solution to a theoretical problem (like a

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mathematical, scientific, or historical question) which does not entail the production of an artifact as a final product of the research process.

PjBL has a longer tradition in the developed global North than the developing global South (Walde, 2016). Dating back to the 1990s, the last three decades have witnessed phenomenal growth in the acceptance and use of PjBL in North America, Europe and Nordic countries (Larmer et al., 2015). This is mainly because this learning approach reduces dependency on summative high stakes examinations, develops learners' critical thinking abilities, and helps students learn and practice problem-solving skills needed for college, career, and life success. Federal and state governments, school boards and parents in the developed world are encouraging schools to adopt PjBL as a complementary assessment approach to summative examinations.

But in the developing global South, PjBL is a relatively recent reform initiative which can be traced to the turn of the 21st century. It is still struggling to gain traction in the school curriculum and to be accepted by school administrators, parents, teachers and learners as a progressive, beneficial and fair teaching-learning-assessment approach (Walde, 2016). The current struggle to institutionalise PjBL can be partly attributed to the legacy of summative high stakes examination inherited from colonial education systems. But shambolic post-colonial curriculum reforms are also to blame. Where PjBL has been attempted in developing countries like Ghana, Ethiopia, Tanzania, Malawi, Zimbabwe and South Africa, the outcomes have not been as expected, breeding scepticism (and at times outright revulsion) among stakeholders for this learner-centric curriculum innovation (Firomumwe, 2022).

Consequently, the reputation of PjBL has suffered terribly because of poor implementation modalities. Larmer et al. (2015, p. 10) point out that: "Poorly designed and poorly executed projects can result in wasted time, misdirected student energy, and failure to achieve learning goals." This appears to be the case in most African countries where curriculum reform authorities have experimented with this exciting (but often misunderstood) curriculum reform innovation.

Purpose of the study

Several studies on the implementation of PjBL have been conducted in developing countries. Quyen and Khairani (2017) for instance, reviewed 21 studies conducted in Asian countries on the implementation of PjBL. 80% of these studies reported that teachers had inadequate knowledge of PjBL and the formative assessment it demands, making the reform unpopular with teachers and students. Research done in Africa tends to focus on the trials and tribulations of this initiative in a particular country. Walde (2016) focused on PjBL in Ethiopia, Firomumwe (2022) and Gama (2022) researched on Zimbabwe, while Forcher-Mayr and Mahlknecht (2020) and du Toit (2021) researched on South Africa, and Lekhanya and Raselimo (2022) cast their radar on Lesotho. Despite the promise held in PjBL to transform classroom and assessment practice, there is paucity of comparative dual and tripartite country studies on this reform initiative in contemporary Africa. This is the research gap the current tripartite country study intends to narrow by conducting a scoping literature review of monolithic country studies conducted over the last decade (2012–2022) in South Africa, Lesotho and Zimbabwe. These single-country studies are juxtaposed to search for patterns and divergencies in a novel tripartite country narrative on the implementation of PjBL in classrooms in the three former British colonies.

As such, the research question driving this study is: What are the teachers' common and divergent experiences in implementing project-based learning in traditional classroom settings?

Project-based learning in a globalised 21st century

Literature abounds on the benefits of PjBL in a globalised but volatile 21st century (Du Toit, 2021; Habok & Nagy, 2016; Lekhanya & Raselimo, 2022). The new millennium is characterised by rapid technological change and rabid nationalisms that ignite deep fissures. Conversely, the global village demands co-operation, collaboration, critical thinking, diverse problem-solving skills, and decisive individual decision making. These paradoxical demands of the 21st century position PjBL as an appropriate pedagogy for preparing learners for unpredictable life inside and outside the classroom.

Project-based pedagogy is "a compelling alternative to traditional instructional approaches considered to be dry, fact-based, disconnected from students' lives, and teacher-centered", notes Duke et al. (2021, p. 161). Teachers become facilitators of learning and students active creators of knowledge. By scaffolding learners' individual and collaborative research skills, and metacognitive processes, teachers facilitate PjBL (Habok & Nagy, 2016). Students seek solutions to real-life problems experienced in their schools, communities, and the global village.

Through collaborative projects, students learn to respect divergent opinions and contributions from peers (Duke et al., 2021). Collaboration is one essential attribute in a globalised 21st century which is dependent on effective communication, planning, reflective thinking and lifelong learning. Research shows that PjBL increases learner motivation by catering for diverse interests and learning capabilities (Du Toit, 2021), while allowing for the transfer of knowledge across different learning areas.

However, PjBL often faces challenges which militate against its effective implementation in traditional classroom settings. Generally, both students and teachers struggle with PjBL as they are used to didactic instruction which reduces learners to passive recipients of processed knowledge.

Theoretical framework

The current literature-based study on teacher experiences with PjBL is illuminated by the capability theory (Sen, 1997). The theory holds that humans have potential to improve their personal and community lives; if the latent energy and talent embedded in them is identified, unpacked, and utilised positively. People have capabilities and freedoms to make choices that can promote individual development and societal well-being, provided a conducive environment is created by those in leadership positions.

In the current study, the capability approach is used to mirror what teachers are doing (or not doing) to tap into learners' potential to conduct research and nurture creativity as they engage in PjBL – an official curriculum reform prerequisite in South Africa, Lesotho and Zimbabwe. Evidence emerging from published research is used to glean insights into how teachers are nurturing (or failing to nurture) learner capacity to identify researchable challenges in their schools and communities; engage with them to collect relevant data and produce artifacts or ideas that can resolve or reduce the challenges.

Methodology

To generate data for this qualitative desktop study, literature available on the internet and Goggle Scholar on the implementation of project-based learning in South Africa, Lesotho and Zimbabwe was searched, selected, and analysed. This included government policy statements, reports from the Ministries of Education in the three countries, and peer reviewed articles published in internationally accredited journals. A review of these documents availed nonreactive data that can be read, re-read, and reviewed several times without being changed by the researchers' subjectivities and inherent biases (Cohen, Manion & Morrison, 2018). Thus, the current study can be replicated in similar contexts using similar documents, thereby (re)affirming the trustworthiness of literature-based studies.

A process framework (Imaduddin et al., 2021) was used to select articles for inclusion in this tripartite country study. The framework evolves in a four-step linear sequence:

1. **Identification**: Using the keywords project-based learning, schools, South Africa, Lesotho, Zimbabwe, and 2012–2022 as the time limitation, scientific articles were identified on Goggle Scholar.
2. **Screening**: By reading (and re-reading) the abstracts and introductions, the identified articles were scanned to assess whether they focused on teachers' experiences while implementing project-based learning at classroom level.
3. **Eligibility**: Only articles that analyse teachers' classroom experiences while implementing PjBL were selected for intensive review and analysis in line with the research question driving the current study.
4. **Inclusion**: Scientific articles meeting the eligibility criteria were reviewed to form the corpus of the data presentation, analysis, and discussion in the current study.

Findings and discussion

This section presents findings on teacher implementation of PjBL in South Africa, Lesotho and Zimbabwe. It later discusses how a capability approach to PjBL can empower learners with research and problem-solving skills needed in the 21st century.

Project-based learning across three territories: An overview

Official curriculum documents in South Africa, Lesotho and Zimbabwe are clear on the rationale for PjBL. For instance, the Curriculum and Assessment Policy Statement (CAPS) in South Africa outlines the need for learners to do projects that "have a strong focus on field observation and research in the local environment" (DBE, 2011, p. 14). Curriculum policy expects teachers to guide, scaffold, and assess learners continuously as they work on their research projects. But South African teachers' responses to PjBL are a mixed bag.

Using the human capability theory, Forcher-Mayr and Mahlknecht (2020) spearheaded a student entrepreneurship project in 20 rural South African primary and secondary schools. Student projects targeted "South African real-life challenges of food insecurity, youth unemployment and rural poverty from a classroom perspective, by linking agriculture, food and entrepreneurship as main learning areas" (Forcher-Mayr & Mahlknecht, 2020, p. 119). With teacher support, learners collectively set up Entrepreneurship Learning Gardens (ELG) which promote learning, food security and

income generation; ultimately reducing poverty in rural Eastern Cape where the project was piloted.

However, not all is rosy. More than a decade ago, Lumandi (2011, p. 27) concluded that PjBL was "a bitter pill to swallow" because South African teachers were incapacitated to assist learners. Recently, Osman and Kriek (2021) found that poorly resourced schools in South Africa lacked ICT infrastructure (like the internet) to support research projects, and time allocated to projects was insufficient. Teachers also complained of increased workload as they supervise projects in addition to conventional teaching duties. One teacher suggested that "The Department of Basic Education needs to change the curriculum to suit the PBL approach" (Osman & Kriek, 2021, p. 157). This is something policy reformers in South Africa need to consider.

In Lesotho PjBL is a reform initiative embedded in the Curriculum and Assessment Policy (CAP) disseminated into schools in 2009. The project-based approach involves the development of portfolios by learners with teacher support as part of continuous assessment meant to reduce dependency on summative high stakes examinations. A study conducted by Chere-Masopha and Mothetsi-Mothiba (2022, p. 2) showed that "teachers were not using this strategy effectively or as recommended by the policy because they had limited knowledge and skill". Due to limited capability, teachers in Lesotho pay cursory attention to PjBL while concentrating on traditional teacher-centric pedagogies to enhance learner performance in summative high stakes examinations.

In Zimbabwe, the project-based approach is marred in controversy, confusion, and policy inconsistency vacillating between enactment and withdrawal. In September 2017 projects were disseminated into schools, despite contestations from stakeholders: only to be withdrawn in March 2018, much to the relief and jubilation of teachers, parents, and learners (Gwaze, 2018). But in May 2021, projects bounced back as Continuous Assessment Learning Areas (CALA). Without adequate stakeholder consultation and consensus, the Ministry of Primary and Secondary Education forcibly rolled CALA into schools (Kwami, 2022).

As an act of resistance and survival technique to supplement meagre salaries, most teachers in Zimbabwe are turning PjBL into an income generating venture. Unethically, teachers produce mediocre artifacts and write-ups which they sell to students for as much as US$20 each (PTUZ, 2021). They record dubious formative assessment marks and submit to the Zimbabwe Schools Examinations Council (ZIMSEC). The examination board has no mechanism to crosscheck the authenticity of the continuous assessment marks submitted and, therefore, cannot refute them. Unsurprisingly, PjBL remains unpopular with school administrators, teachers, learners, and parents in Zimbabwe.

Capacitating learners with 21st century skills

Traditional standardised assessment neither caters for individual learner needs nor essential 21st century skills of research, creativity and collaboration (Habok & Nagy, 2016). Low-achieving learners, and those with special educational needs, are often excluded in traditional classrooms and standardised tests. These are some of the shortcomings PjBL addresses. Research shows that PjBL benefits low-achieving students and those from racially diverse groups (Bell, 2010; Habok & Nagy, 2016; Oakley et al., 2004). For instance, to prevent at-risk minority students from getting isolated and dropping out, three to four students with diverse abilities can be grouped to

work on a research project. As a collaborate, members set rules which the group must adhere to, promoting a sense of belonging, teamwork, and project ownership.

In contrast to traditional classroom practice, careful planning by both teachers and learners is needed if learner capability to conduct meaningful research and produce a final artifact is to be nurtured. Increased planning burden and workload, responsibility to supervise learners and generate formative mark records are the major complaints from teachers in South Africa, Lesotho and Zimbabwe. The magnitude of grievances varies from country to country – depending on teacher remuneration, motivation, and morale.

Conclusion

PjBL must not be misconstrued as the magic bullet that nurtures learners' life-long research and creativity skills by reducing dependency on summative high stakes examinations. Blending learning with the capability approach can empower learners with skills and opportunity to choose what to research and select an appropriate methodology that can produce a final artifact that resolves or reduces the identified problem. Teachers also need capabilities to support learners as they conduct research so that they can assess them objectively and continuously; instead of fabricating formative assessment marks when they are due for final submission – as is largely the case in Zimbabwe. A capability perspective can foster teacher and learner competencies that promote the acceptance of PjBL in the three countries that are struggling to institutionalise a pedagogical approach that holds promise to nurture 21st century skills.

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