



Challenges and Barriers Faced by Stakeholders in the Implementation of Blended Learning in Temeke Municipality, Tanzania.

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Abstract : This study investigated barriers to the implementation of blended learning in public secondary schools in Temeke Municipality, Tanzania, using the Technology Acceptance Model (TAM) by Davis (1989), which emphasizes perceived usefulness and perceived ease of use as key determinants of technology adoption. A mixed-methods approach employing a convergent parallel design was used to collect quantitative and qualitative data. Questionnaires were administered to 80 students selected through stratified and random sampling, while in-depth interviews and focus group discussions were conducted with 12 teachers, four school heads, and one District Secondary Education Officer selected purposively. Documentary review supplemented primary data sources. The findings identified several interconnected challenges that undermined effective implementation of blended learning. Limited internet access, caused by high data costs and poor network connectivity, constrained students' participation in online learning. Unreliable electricity supply frequently disrupted the use of digital teaching tools, while inadequate ICT devices restricted access for both teachers and learners. Insufficient teacher training and professional development reduced pedagogical confidence and competence in integrating digital technologies, compounded by generally low levels of digital literacy among stakeholders. The lack of clear and supportive national and school-level policies weakened institutional commitment and created uncertainty in implementation, while financial constraints limited investment in infrastructure, training, and digital learning resources. Furthermore, socioeconomic disparities among students widened the digital divide, with learners from low-income households facing greater barriers to access. The study concludes that these challenges negatively shaped stakeholders' perceptions of the usefulness and ease of use of blended learning, thereby limiting adoption and sustainability. While blended learning has strong potential to enhance teaching quality, learner engagement, and access to education, its effective implementation in Temeke Municipality requires coordinated investment in digital infrastructure, reliable electricity, access to ICT devices, continuous teacher capacity building, clear policy frameworks, and targeted measures to reduce economic and digital inequalities

Keyword : Challenges and Barriers Face, Stakeholders, Blended Learning

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INTRODUCTION

The education sector worldwide has changed drastically in recent years through adopting digital technologies, and many blended learning models have been implemented. Blended learning, which is defined as the combination of traditional face-to-face instruction and online delivery of instruction, has become one of the primary methods of learning improvement worldwide. In the U.S. context, blended learning has been driven by increased access and availability of digital platforms and tools. The digital approach has allowed for increased flexibility in designing courses and delivering instruction. The delivery of blended learning also allows for customized learning experiences that are able to address the needs of different students, making this form of learning more accessible and effective for our educational systems. Despite the advantages of blended learning, there are challenges for its deployment and implementation in a U.S. context. One of the main challenges relates to inequitable access to technology, which creates an uneven playing field in students' learning experience (Kanwal et al., 2023).

The Chinese government has been in the lead in the promotion of blended learning as a component of its comprehensive education reforms. Li and Zhu (2020) illustrated how the “Internet Plus Education” policy introduced by the Ministry of Education in 2015 reflects the nation's emphasis on integrating digital technologies into the education system. The policy has shaped the development of blended learning practices, particularly in urban areas where digital networks are powerful (ibid.). Also, Liu (2022) argued that notwithstanding the implementation

of such innovations, rural regions continue to face significant challenges and disadvantages due to poor access to technology and limited internet penetration. These differences inhibit a uniform uptake of blended learning, creating the potential for a digital divide between urban areas and rural areas.

Martínez and Pérez (2020) portrayed that Cuba, renowned for its robust educational system, has adopted blended learning models cautiously, tailoring them to the nation's emphasis on equitable access to education. The Cuban government has designed a blended learning model to guarantee the most possible access to education, reflecting the singular socio-political reality of the country. By utilizing a combination of traditional and electronic modes of learning, Cuba has brought education into the rural and poor neighborhoods, thereby narrowing the geographical disparities in access to quality education. Despite its potential, the implementation of blended learning in Cuba is faced with daunting challenges. The nation's infrastructure remains underdeveloped, with limited access to high-speed internet and up-to-date digital equipment.

According to Jansen and Smeding (2020) of the Netherlands, blended learning is one of the key pillars of learning nowadays. Certainly, blended learning is increasingly being encouraged by Dutch government initiatives, such as the “Digitalization in Education” initiative that emphasizes the consistent integration of online portals into conventional learning practices (ibid.). As the project's ultimate goal, a learning platform was established where the integration of technology enriches traditional pedagogy hence promotes engagement and facilitates

accomplishment (Van der Meijden, 2021). Blended learning in the Netherlands has been identified with a myriad of benefits, such as promoting learner independence, developing critical thinking abilities, and cultivating an inclusive learning culture aligned with multiple learning needs. However, there exist implementation challenges in providing fair access of digital resources to schools and teacher training for guaranteeing maximum use thereof.

While adoption in Africa has been gradual, it has not caused disparity in incorporation and relevance of education systems into the traditional systems. Ghana, Kenya, South Africa, and Zimbabwe are countries at the forefront of embracing blended learning, which refers to a learning environment that combines the face-to-face classrooms and incorporates digital devices and internet-based platforms as an addition to the learning environment in order to enrich the learning experience. Despite all these promising advances, there are numerous challenges to the widespread use of blended learning in Africa. Disincentives in Ghana include annoying internet connectivity, low levels of digital literacy among teachers, and insufficient access to learning devices for students (Boadu, 2021).

Unlike other African countries, which face significant challenges in adopting blended learning, such as inadequate infrastructure and a lack of government support, South Africa has been at the forefront of the adoption of technology in education. In other countries like Nigeria and Malawi, challenges such as a shortage of electricity, poor internet penetration, and limited availability of digital devices have hindered the

establishment of blended learning systems (Adebayo, 2021). These concerns present serious challenges for students who do not have access to e-learning sites, further widening the education gap. However, South Africa's active role, as evidenced by ambitious policy thrusts like the Department of Basic Education's "Integrated ICT in Education" program, has enabled wider access to digital learning materials at various levels of education. For instance, in urban schools such as Cape Town, ICT integration in secondary schools has allowed teachers to use digital materials, such as interactive whiteboards and internet-based assessment tools, to enhance traditional approaches to teaching (Raban and Mayisela, 2024). The plan has been particularly evident in the country's response to the Corona Virus 2019 (COVID-19) pandemic, where schools employed online platforms such as Google Classroom to continue classes remotely.

In addition, Zimbabwean experience of blended learning is very low due to the fact that the country is faced with significant economic limitations impacting access to digital material within schools. Yet some of the private schools and universities managed to incorporate blended learning models with limited success since they claimed enhanced student motivation and performance (ibid.). Nevertheless, the government policy initiatives have come too late to tackle the broader adoption of blended learning in the education system, particularly in public schools (Chikwanha & Moyo, 2021).

Kenya has also advanced in the adoption of blended learning, particularly since the COVID-19 pandemic necessitated the shift to virtual learning. Kenya's government has invested in the "Digital

Literacy Program” to provide schools with the digital technologies they require, including laptops and internet connectivity. Despite such efforts, the performance of blended learning in Kenya is disrupted by rural-urban disparities in access to technology within schools and challenges in training teachers and curricula to embrace blended learning (Muthoni et al., 2021).

In Tanzania, the promotion of blended learning has comparatively been slow in comparison to merged efforts for the integration of digital technology in education. The emergence has encountered a number of challenges, including poor moderations of infrastructure, poor internet connectivity and the need for major teacher training (Kassim & Gamba, 2020). Blended learning blends the use of traditional face-to-face and virtual environments to create relatively very flexible learning opportunities for students (Mwang'onda and Mwandosya, 2022). The challenges presented consist of limited access to technology, limited teacher professional development, and the absence of attainable policy strategies to help facilitate and integrate a blended learning model within the curriculum (Mshana, 2021). For example, research from the Mwanza Region indicated schools had adopted blended learning approaches in the region, yet limited infrastructure and trained teachers created bottlenecks (Magesa et al., 2021). Research from the Mbeya Region has also noted the inequality of access to online resources so that rural schools experienced the worst accessibility when compared to urban schools (Mushi, 2020). These challenges make it difficult for schools to leverage the blended model to its fullest potential.

Stakeholders in Temeke Municipality, including policymakers, teachers, and students, are divided on the ready potential of blended learning. While some consider mixed-mode teaching to be a new frontier for increasing learner performance and participation and demonstrate a positive regard for its potential to fill gaps in education provision (Mshana, 2021), others raise concerns about the digital divide and varied technological access, and note the often-limited institutional readiness to leverage digital inputs (Magesa, Mshana & Mutani, 2021).

The successful delivery of blended learning in Temeke Municipality relies upon addressing several complex and interrelated challenges related to infrastructure, policy, institutional capacity, and stakeholder readiness. The sustainability and scalability of blended learning initiatives largely depend on effective policy interventions, adequate digital infrastructure, reliable electricity supply, and continuous capacity-building for both teachers and students (Komba & Nkumbi, 2022). However, the lack of localized and context-specific empirical evidence makes it difficult for policymakers, education planners, and school leaders in Temeke to design targeted, effective, and sustainable interventions suited to the municipality's unique socioeconomic and technological environment (Mushi, 2020). In addition, variations in school resources, digital literacy levels, and student economic backgrounds further complicate successful implementation (Mgaiwa, 2021). Without a clear understanding of these localized challenges, efforts to integrate technology into teaching and learning risk being poorly coordinated, inequitable, and ineffective. Hence, this study seeks to

explore the main challenges and barriers faced by stakeholders during the implementation of blended learning in Temeke Municipality to generate evidence-based insights that can inform policy formulation, guide institutional planning, strengthen stakeholder capacity, and support the development of inclusive, sustainable, and context-responsive blended learning practices.

LITERATURE REVIEW

Theoretical Review

This study employed Davis's (1989) Technological Acceptance Model (TAM), which explains how individuals adopt technology based on their perceived ease of use and perceived usefulness. TAM has been widely applied in educational settings to understand why some stakeholders readily embrace technology tools while others resist their adoption. According to Davis (1989), regardless of how educationally sound a new system is, if users cannot implement it effectively or do not perceive benefits from its use, they are likely to reject it. In the context of blended learning in Temeke Municipality, TAM is particularly relevant because successful implementation depends heavily on the attitudes of both teachers and students toward digital tools and online learning platforms (Mtebe, 2020). The model helps to highlight specific barriers encountered by stakeholders, such as limited access to computers and the internet, insufficient training, and lack of familiarity with digital platforms, which negatively affect perceived ease of use. Moreover, TAM provides a framework for understanding how perceived usefulness can be shaped by the availability of adequate resources, supportive policies, and technical assistance. For instance, if

teachers in Temeke perceive blended learning as time-consuming or complicated due to poor infrastructure or lack of professional development, they may resist its adoption, regardless of its potential educational benefits. Conversely, when learners find online platforms intuitive and aligned with their learning needs, their engagement and motivation increase, enhancing the overall effectiveness of blended learning. By applying TAM, this study is able to systematically examine both psychological and practical factors that influence stakeholder acceptance of blended learning, offering insights into interventions such as targeted training programs, provision of ICT resources, and policy measures to improve user perceptions and facilitate sustainable adoption of blended learning in public secondary schools in Temeke Municipality.

Empirical Literature Review

Blended learning worldwide is inhibited by a number of challenges, including digital divide, technophobia, and inadequate teacher training. Even in countries like the United Kingdom (UK) and Australia with strong policy support, blended learning faces challenges in variations of internet penetration and digital infrastructure (Selwyn, 2020). One of the major challenges is the resistance by traditional educators to technology-driven pedagogies, afraid of missing the face-to-face student contact (ibid).

Okonkwo and Mbah (2021) conducted research on digital learning in Nigeria: challenges and opportunities in Africa. It was found that adoption of blended learning is hindered by infrastructural constraints, nondigitization, and financial limitations

(ibid.). In Nigeria, for example, constant power outages and low internet penetration create problems for schools to sustain blended learning programs (ibid.). Similarly, Amankwah (2022) researched challenges in the application of blended learning in Ghanaian schools. It was found that in Ghana, schools have been faced with a lack of ICT resources thereby making it hard for them to incorporate online learning and classroom learning.

Several studies have been conducted on matters pertaining to Tanzania's education system. Mwantimwa (2019) conducted a study on the implementation of blended learning in Tanzania and established that Tanzania has several barriers to implementing blended learning, including inadequate ICT infrastructure, teachers' training, and financial constraints (ibid.). Quite a significant number of schools, particularly in semi-urban and rural areas, lack a consistent internet connection, and therefore, it is difficult to conduct online learning (ibid.). In addition, it was said that the prohibitively high cost of digital devices and data limitations prevent students from full participation in blended learning (ibid.).

Mgaiwa (2021) researched attitudes towards blended learning in Temeke Municipality and established that in Temeke Municipality there were technological problems such as irregular electricity and poor ICT facilities that were hindrances towards the use of blended learning effectively. The majority of secondary schools lacked proper computers and digital learning materials, thus making it difficult for teachers and students to access learning resources online (ibid.). Besides, software and platform compatibility issues contributed

to the complexity of blended learning adoption (ibid.). Surprisingly, it was also disclosed that Temeke's socioeconomic disparities influence access to blended learning resources (ibid.). While students from rich families were equipped with laptops and stable internet, their poor counterparts could barely get access to basic ICT facilities (ibid.). This kind of digital divide heightens inequalities in education and restricts the usefulness of blended learning as an all-inclusive educational method (Mwantimwa, 2019).

While national efforts to promote digital literacy exist, a lack of clear policies on blended learning in Tanzania creates implementation issues. Schools in Temeke have difficulties aligning their blended learning programs to national education systems due to regarding policy guideline disparities (Mtebe & Raphael, 2021). Greater policy clarity and government backing are necessary to overcome these challenges.

METHODOLOGY

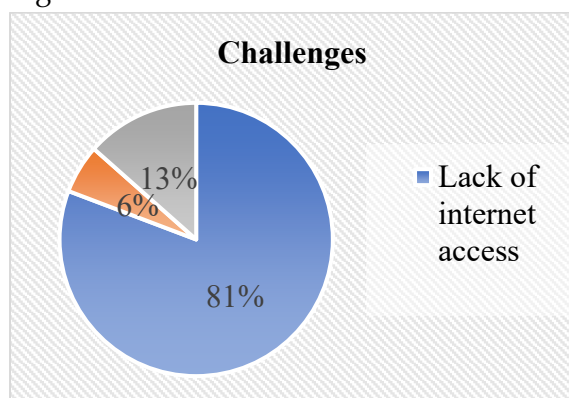
This study employed a mixed-methods approach using a convergent parallel research design to examine the adoption of blended learning in public secondary schools in Temeke Municipality, Tanzania. Quantitative data were collected through questionnaires administered to 80 students selected using stratified and random sampling, while qualitative data were obtained through in-depth interviews and focus group discussions involving 12 teachers, 4 school heads, and 1 District Secondary Education Officer selected purposively. Documentary review was also used to complement primary data. Quantitative data were analyzed using SPSS version 16.0 and Microsoft Excel, while qualitative data were analyzed using

content and thematic analysis supported by NVivo-12 software. Validity was ensured through pilot testing, expert review, and triangulation of data sources, while reliability was confirmed using the test-retest method, yielding a reliability coefficient of 0.863. Ethical approval was obtained from SAUT University, informed consent was secured from participants, and confidentiality was strictly maintained throughout the study.

RESULT AND DISCUSSION

Challenges Faced by Stakeholders during Implementation of Blended Learning

This objective of this study sought to identify challenges and barriers faced by stakeholders during the implementation of blended learning. The study used questionnaires and interviews with the stakeholders. The findings are presented in Figure 1.



Source: Field Data (2025)

Figure 1.

Students' Responses on the Challenges (N=80)

Figure 1. shows that the majority of respondents (84%) found a lack of internet due to insufficient financial resources to buy bandwidth, followed by 14 percent who argued that there was poor electricity supply. Moreover, the least (6%) said lack of devices, either computers or phones, as

tools to support the system for internet facilities (Figure 4.1).

Lack of Internet Access

The study found that blended learning programmes were used for teaching and learning, but the programmes failed to improve the teaching and learning process due to a lack of financial support from the government. As a result of the limited services of internet connection services, the mission of implementing the programme worked ineffectively or dropped. It created a lack of interest in the Internet, raised by some learners who became disinterested in studying. Also, the lack of internet because of insufficient computer devices, laptops, and smartphones, hindered productivity. The findings align with recent studies, for instance, John and Mkude (2022), as well as Ayo et al. (2023), which revealed that although blended learning programs have been widely adopted in teaching and learning, their effectiveness remains limited due to insufficient government financial support and poor internet connectivity services. This has predominantly limited the implementation of such initiatives, which resulted in low student attendance and subsequent dropout in some occasions (ibid.). Furthermore, the absence of digital equipment such as computers, laptops, and smartphones has also limited access to, and reduced the intensity of productivity and engagement with online learning platforms (Mwakalinga & Temu, 2024). Additionally, the study findings of this study correspond to those in the study by Makau (2021), which professed that the delivery of blended learning has been hampered by challenges such as a lack of infrastructure, poor internet access, and

sufficient teacher training. These have led to the delay of the masses embracing blended learning in Tanzania (ibid.).

Poor Electricity Supply

The findings among students showed that a lack of electricity in schools cannot offer ways to access Information Technology (IT) since there is no power supply, where the absence of electricity cannot sustain computer equipment to be used effectively in case there is a power supply shortage. It is the reason it hinders both teachers and students in accessing teaching and learning materials from the internet, whereby electricity is needed for photocopying, printing, and using other devices like projectors in the classrooms for teaching. The findings correspond with recent studies like Mtebe and Raphael (2021) as well as Nyinondi et al. (2023), which indicate that in Tanzania, inadequate electricity supply in schools significantly impedes integration of information technology in education. Without reliable power, essential devices such as computers, projectors, printers, and photocopiers cannot function effectively, limiting both teachers' and students' access to digital teaching and learning resources. Absence of electricity not only disrupts classroom instruction but also hinders efforts to enhance digital literacy and resource accessibility, especially in rural or under-resourced areas.

Table 1.
Teachers' Responses on Challenges
(N=12)

Responses	Frequency	Percentage %
Limited ICT usage	6	50
Insufficient training and professional development	5	42
Poor infrastructure, electricity, and space	1	8
Total	12	100

Source: Field Data (2025)

Table 1. shows that 50 percent argued that limited ICT usage, followed by 42 percent said insufficiency of training and professional development and 8 percent of respondents said poor infrastructure and electricity space as reasons for their failures.

Limited ICT Usage

The study found that the mission of blended learning is disappointing because of limitations of internet usage due to a low budget for buying bundles. They informed that Temeke municipality is located in a continent, which is ranked the third-highest speed of Internet among other continents. The velocity of Tanzania, including Temeke municipal, is unsuitable for the implementation of blended learning. Magesa et al. (2021) suggest the same, that the absence of sufficient digital infrastructure and trained teachers poses significant challenges. This aligns with Magesa et al. (2021), who argue that the lack of robust digital infrastructure and shortage of trained teachers substantially hinder successful adoption of technology-enhanced education, highlighting the persistent gap between policy intentions and practical realities. Also, the study concluded that there is a need for computer literacy through the application of blended

learning in training, in order to master using computers and consider computers a key tool in such training. Through this, blended learning is a justified method. Tanzania also is offering blended services, which are increasing directly, even though their adoption is not yet extensive because of unawareness of the services. Similarly, El Messaoudi (2024) found that a blended learning environment improved digital literacy skills of undergraduate students in the case of Morocco's higher education.

These findings are in line with the overall consensus that introducing digital tools into education requires a minimum level of computer proficiency to realize the full learning impact. While increasingly more blended learning services are offered in countries like Tanzania, their adoption is still limited due to insufficient awareness and training, indicating the need for targeted initiatives to address this deficiency. Besides, the study is similar to Msahana (2021) study in that it shows the implementation of blended learning in Temeke is faced with a series of challenges. These include minimal access to digital resources, the absence of adequate training for teachers, as well as the lack of an existing policy infrastructure for guiding the inclusion of digital tools in the curriculum. Also, the study found that the lack of computers and the Internet in every place meant that many schools had very few computers. The number of schools with Internet access is not balanced, and it is, therefore, a learning necessity, which is not easy to acquire through computers and the Internet in every school for every student. This makes the use of computers everywhere unbearable. The study has similarities with the study conducted by Persichitti et al. (2021), which states that development and sustenance of mixed

learning programs in Tanzanian settings, and particularly urban settings like Temeke Municipality, are insufficiently researched.

Insufficient Training and Professional Development in Schools

The study found that funds provided for blended learning were very low, provided from the budget as a capitation grant, which is unsatisfactory to the schools. Some schools are unable to operate due to insufficient budgets and thus, fail to send their experts or teachers to develop their careers concerning blended learning in colleges, which is very expensive. Hence, the instructors fail to attend in-service training. The study is similar to the study by Mtebe and Raphael (2021), which showed that 60 percent of teachers in urban Tanzanian schools lacked sufficient training in digital pedagogies, leading to a lack of understanding of the effectiveness of blended learning.

Correspondingly, the findings revealed that the blended learning trainers are not aware that it is inappropriate to be used as a teaching method in every field. Some lessons are required to carry out practical activities and observe events. Training methods should be in a way that practical and productive thinking skills of students would grow in the end. It means the person can devise the problem and find its solution. In other words, in an efficient and practical education system, the learner has to be encouraged to find a method to solve problems curiously and expand his/her understanding, which requires practice and is based on the learner's activity.

Challenges faced by School Heads in Implementation of Blended Learning

The study, through school heads, found that there are challenges faced by teachers in adopting blended learning, such as a lack of sufficient facilities for using the tool. For example, the training effectively limited the implementation of blended learning. It influenced the unsuccessful moves of the blended learning system due to the absence of resources. The findings align with the study by Sareen (2024), which highlights significant challenges faced by teachers in adopting blended learning, particularly due to inadequate facilities and insufficient training. Identified passive learning, design limitations, and deficiencies in training were central challenges in the blended learning domain. Similarly, research by Nguyen et al. (2024) found that lecturers cited a lack of support from their institutions, including issues like policy and guideline gaps, insufficient facilities, inadequate technical support, limited training, financial constraints, and collaboration deficits. These findings underscore the critical need for comprehensive support systems, including adequate infrastructure and targeted professional development, to enhance the effectiveness of blended learning initiatives.

The study found that the method of designing for learning is very expensive because it takes a long time to design and develop Web-Based Training (WBT) courses at the beginning. Due to recent emergence of the training area, new technologies always require time, experience, and money in order to take full advantage of their capabilities. During the interview, one school head had this to add,

The great thing, however, is that learner will learn new skills and knowledge with each new course. The provision of hardware instruments is very expensive, which is sometimes difficult for institutions to afford. This problem is much worse for developing countries like Tanzania, including Dar es Salaam as well as Temeke Municipal (Field Data, St. Anthony Secondary School 04/08/2025).

Also, this study found that the problem facing schools in Tanzania is a lack of trained teachers on the usage of the internet because the policy was not stated well and remains on paper. Thus, it is the reason for the use of information technology in teaching in the classroom using the new method, which makes Africa backward in education at large. Only a few schools are successfully using IT in Africa, even in Tanzania, especially schools that compete with the new technology in the world market. The study is similar to the study of Songa and Mwakatima (2006), which showed that the lack of experts is a problem in all Tanzanian schools because the policy of using ICT was not implemented efficiently, especially in rural schools. In such schools, they had not employed knowledgeable teachers on using ICT to impart the knowledge for students to cope with the new technology so as to capture the world market in the competition of new technology.

CONCLUSION AND RECOMMENDATIONS

Based on the findings from this study, it became clear that subsequently blended learning has become one of the most valuable methods in the school setting. The method improves teaching content and makes the best of class time as well as breaks the teacher-centred teaching

arrangement, and essentially improves class efficiency. It was found further that the lack of financial support from the government results in limited services of internet connection and thus, the mission of implementing the programme works ineffectively. This created a lack of interest in the Internet as some learners became disinterested in studying the lesson. Based on the identified challenges and barriers, the study recommends strengthening digital infrastructure in public secondary schools through increased government and stakeholder investment in reliable internet connectivity, electricity supply, and adequate ICT devices. Continuous professional development programs should be provided to teachers to enhance their digital competence and confidence in using blended learning tools. School management should promote positive attitudes toward blended learning by encouraging collaboration, reducing resistance to change through sensitization programs, and supporting innovation in teaching practices. Clear national and school-level policies on blended learning should be effectively implemented and regularly monitored to ensure consistency and sustainability. Additionally, students should be supported through subsidized access to learning devices and affordable internet bundles to promote equity. Strong partnerships between the government, private sector, and development partners are also essential to mobilize resources and technical support for the successful and sustainable implementation of blended learning in Temeke Municipality and similar contexts.

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Investigation: All authors ;

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