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ADVANCING PERSONALISED LEARNING IN DISTANCE EDUCATION AT THE UNIVERSITY OF BUEA: A PATH FORWARD FOR A MASTERS PROGRAMME IN NURSERY AND PRIMARY EDUCATION

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Abstract:
The realm of nursery and primary education in Cameroon has witnessed the introduction of novel curricula aimed at fostering competencies among learners, particularly accentuating Science, Technology, Engineering, and Mathematics (STEM) education. This paradigm shift underscores the pressing demand for educator's adept at navigating and fully leveraging these curricular frameworks to facilitate the acquisition of knowledge, skills, and attitudes requisite for the learners' holistic development. Concurrently, the enactment of the National Development Strategy 2020-2030 (NDS30), geared towards propelling Cameroon towards emergent status by 2035, serves as a resounding call for concerted efforts across all sectors, including education, to realise the stipulated objectives. Consequently, there is an urgent imperative for a cadre of high-calibre educators equipped with the specific knowledge, skills, and competencies necessary to yield the desired educational outcomes. Such educator proficiency can only be cultivated through rigorous professional programmes that address contemporary challenges and foster avenues for lifelong learning. It is well-established that higher levels of education are intricately linked with elevated pedagogic standards (Howes *et al.*, 2003; Siraj-Blatchford, 2010). In alignment with this premise, the Faculty of Education at the University of Buea has devised a master's programme in nursery and primary education employing a blended learning model, encompassing both face-to-face and online learning modalities. Nonetheless, to provide truly tailored educational experiences catering to the diverse talents, interests, and needs of each learner, a personalised learning approach is indispensable. The creation of a personalised distance learning environment holds paramount significance, particularly in light of the burgeoning prominence and acceptance of personalised learning within higher education

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circles. This initiative furnishes a roadmap for transitioning from conventional face-to-face instruction to online learning through the lens of personalised learning principles.

Keywords: advancing personalised learning, distance education, master's programme, nursery and primary education

1. Introduction and Background

The convergence of increasing classroom diversity, advancements in learning sciences research, technological evolution, and the evolving demands of the 21st-century global job market have prompted educational systems to pivot towards personalized learning experiences. While many higher education institutions (HEIs) are actively embracing this paradigm shift, others are slower to recognize its significance. The contemporary workforce requires individuals who are adept at navigating complex challenges, engaging in critical and creative thinking, collaborating effectively, and assuming leadership roles. Consequently, it is imperative for our educational systems to undergo a fundamental reevaluation, acknowledging the diverse needs of learners to realize our commitment to nurturing each individual into a productive and fulfilled citizen. This imperative propels us towards adopting a more tailored approach to learning.

The rapid growth of information and communication technology has facilitated the realisation of personalised learning (Wan and Niu, 2016). It is imperative to implement intelligent learning systems capable of accommodating learners' preferences. For instance, the Faculty of Education at the University of Buea has developed a distance learning programme that integrates both face-to-face and online components. However, the programme must strive to optimise learning experiences by considering learners' knowledge, goals, motivations, experiences, and skills. Therefore, personalised learning emerges as an indispensable tool and a forward-looking approach towards delivering quality programmes that cater to the diverse needs of all learners.

Personalised learning has been a subject of scholarly inquiry for an extensive duration, historically manifesting in forms such as apprenticeship and mentoring. As educational technologies evolved during the latter half of the 20th century, personalised learning transitioned into intelligent tutoring systems. In the contemporary 21st century, learning analytics stand poised to revolutionise personalised learning once more. Presently, it embodies a multifaceted approach characterised by self-organisation (Chatti, 2010; Miliband, 2006), encompassing both tailored instruction and learning customisation to accommodate individual needs and aspirations. Despite the feasibility of such personalised learning approaches, they persist as formidable challenges within modern educational systems.

2. The Problem

The realm of nursery and primary education in Cameroon has witnessed the introduction of novel curricula aimed at fostering competencies among learners, particularly accentuating Science, Technology, Engineering, and Mathematics (STEM) education. This paradigm shift underscores the pressing demand for educators adept at navigating and fully leveraging these curricular frameworks to facilitate the acquisition of knowledge, skills, and attitudes requisite for the learners' holistic development. Concurrently, the enactment of the National Development Strategy 2020-2030 (NDS30), geared towards propelling Cameroon towards emergent status by 2035, serves as a resounding call for concerted efforts across all sectors, including education, to realise the stipulated objectives. Consequently, there is an urgent imperative for a cadre of high-calibre educators equipped with the specific knowledge, skills, and competencies necessary to yield the desired educational outcomes. Such educator proficiency can only be cultivated through rigorous professional programmes that address contemporary challenges and foster avenues for lifelong learning.

It is well-established that higher levels of education are intricately linked with elevated pedagogic standards (Howes *et al.*, 2003; Siraj-Blatchford, 2010). In alignment with this premise, the Faculty of Education at the University of Buea has devised a master's programme in nursery and primary education employing a blended learning model, encompassing both face-to-face and online learning modalities. Nonetheless, to provide truly tailored educational experiences catering to the diverse talents, interests, and needs of each learner, a personalised learning approach is indispensable.

The shift from traditional face-to-face instruction to online learning further emphasizes the need for personalized learning. Within Cameroon's multicultural context, educational providers must adopt models and techniques that resonate with students' diverse characteristics. Despite the integration of online learning into many HEIs in Cameroon, a significant challenge persists in delivering and assessing learning content uniformly for all learners. Learners demonstrate variations in learning styles, abilities, experiences, and backgrounds, thus necessitating a differentiated approach to educational experiences (Laksitowening & Hasibuan, 2016). Furthermore, there is a lack or total absence of interpersonal connections between learners and instructors that are usually present in a traditional classroom. Moreover, it can be challenging for instructors to monitor students' progress and provide timely feedback.

The creation of a personalized distance learning environment holds paramount significance, particularly in light of the burgeoning prominence and acceptance of personalized learning within higher education circles. The purpose of this study, therefore, is to provide a roadmap for transitioning from conventional face-to-face instruction to online learning through the lens of personalized learning principles in the distance education program of the University of Buea.

3. Theoretical Bases

The foundation of this study rests upon Gardner's (1983) Theory of Multiple Intelligences. Gardner proposed a groundbreaking perspective on intelligence, defining it as the capacity to solve problems or create valued products within cultural contexts. He emphasised the dynamic nature of intelligence, asserting that it is not fixed but rather acquired as a set of abilities and skills applicable across diverse situations and contexts. Gardner contended that individuals can demonstrate intelligence in various ways beyond what traditional intelligence tests measure. Gardner's theory proposes that, individuals possess different types of intelligences, such (1) linguistic (words); (2) logical-mathematical (numbers); (3) spatial (pictures); (4) musical (musical/rhythmic); (5) bodily-kinesthetic (movement); (6) intrapersonal (self); (7) interpersonal (people); (8) naturalist (plants and animals). The eight intelligences of Howard Gardner's theory are described below:

The theory challenges the notion of a singular, uniform measure of intelligence and recognises the diverse ways individuals can exhibit intellectual prowess. This perspective underscores the importance of acknowledging and nurturing the varied intelligences present in learners, thereby fostering a more inclusive and effective educational environment.

Gardner posits that all individuals possess each of the eight types of intelligences, albeit in varying degrees of strength. The educator's objective, therefore, is to cultivate a diverse array of learning activities and approaches that leverage these intelligences. This facilitates students in utilising their unique blend of intelligences to achieve success in their educational pursuits, encompassing both personal interests and societal expectations. The essence of Gardner's theory lies not in teaching every subject through eight different lenses or ensuring mastery of all intelligences by every student. Rather, it lies in educators' adeptness at identifying and responding to individual student needs based on their understanding of multiple intelligences.

This theory serves as a cornerstone for developing comprehensive learning plans within educational institutions, thereby enhancing students' academic performance. In today's competitive landscape, a holistic approach to intelligence development is imperative for fostering effective learning experiences. Consequently, instructional design should incorporate multiple intelligences, particularly in online learning environments, where specialists can utilise diverse stimuli and delivery methods to cater to individual learning needs.

By designing instruction that engages students in personalised and meaningful learning experiences, academic achievement can be significantly enhanced, as it promotes the development of various aspects of multiple intelligences. Moreover, educators equipped with knowledge of multiple intelligences can create student-centred learning environments that accommodate the diverse instructional needs of their student population. Hence, instructional materials should be tailored to cater to the needs of diverse learning groups by embracing multiple intelligence theories, thereby fostering a

supportive and inclusive learning environment. Therefore, Gardner's theory supports Personalised learning because it recognizes the diverse abilities of learners, and helps teachers tailor instructions to the individual student's strengths, weaknesses, interests and learning styles. When students are provided with varied learning opportunities that align with their intelligences, they are easily motivated and can enthusiastically engage in the learning process.

4. The Distance Education Master's Degree program in Nursery and Primary Education at the University of Buea

4.1 Rationale

The Master's Degree in Nursery and Primary Education is meticulously crafted to enhance students' existing expertise in the field. This comprehensive programme equips students with a profound understanding of diverse learning styles among children, the developmental requisites of pupils up to the age of eleven, and the significant influence of familial relationships on the learning process. Through this programme, individuals will adeptly design developmentally appropriate curricula aimed at nurturing critical thinking abilities, fostering curiosity, and encouraging introspection among their pupils.

Coursework may encompass a wide array of subjects, including infant and child development, the study of exceptional children, and early childhood settings within the context of family and society. The curriculum is thoughtfully designed to cultivate essential skills such as effective communication with young learners, adept listening abilities, and adept problem-solving skills. These competencies not only enhance interactions with children in personal spheres but also open up diverse career avenues. Graduates with a master's degree in nursery and primary education are primed for success in various roles, including elementary school teaching, preschool administration, or childcare specialisation. Furthermore, the programme prepares individuals for non-teaching vocations such as corporate training, museum education, curriculum development, or programme design. Thus, earning a master's degree in nursery and primary education serves as a robust foundation for a rewarding career in education and beyond.

4.2 Objectives of the Degree Programme

The programme is aimed at offering nursery and primary school teachers, educationists and other interested persons the opportunity for academic and professional development necessary for quality educational offerings. The general objective will enable the development of an understanding of the effective teaching-learning process through academic, professional education for personal development. This is operationalised into specific objectives as follows:

4.3 Specific Objectives of the Degree Programme

- Develop a broad perspective of the role of nursery and primary school teachers as an agent of change in Cameroon's basic education in this age of IT revolution and globalisation.
- Development of their academic and professional competences for effective educational offerings.
- To promote pedagogic excellence at the nursery and primary levels of education.
- To equip students with effective research skills for the improvement of the teaching and learning process.
- Learn and understand new approaches to ensure quality education.
- Enable them to shift from a focus on teaching to learning.
- Understanding and developing competencies to organise learning experiences for inclusive integrated/special education.
- Develop the ability to manage schools.
- Understand more about the needs, interests and characteristics of nursery and primary school children.
- Develop awareness of professional morals and ethics.

5. Structure of Program

5.1 List of Courses

- DED 601: Advanced Principles and Concepts in Teaching and Learning,
- DED 602: Scientific Writing,
- DED 603: The Curriculum Development Process and Practice in Nursery and Primary Education,
- DED 604: General Pedagogy and Specific Methodologies in Nursery and Primary Education,
- DED 605: Designing Instruction in Nursery and Primary Education,
- DED 606: Supervision of Instruction in Nursery and Primary Education,
- DED 607: Psychology of Learning in Nursery and Primary School Children,
- DED 608: Issues and Trends in Nursery and Primary Education [6 credits (50-10-0)],
- DED 609: The Administrative and Management Techniques in Nursery and Primary Education,
- DED 610: The Curriculum of Nursery and Primary Education,
- DED 611: Research and Statistical Methods in Education,
- DED 612: Professional Ethics and Cross-Cultural Issues in Counselling,
- DED 617: Innovation in ICTs in Nursery and Primary Education,
- DED 619: Practicum in Basic Education,
- DED 621: Advanced Information Literacy Education and Management of Digital Information Resources,
- DED 698: Thesis.

These courses are divided into six semesters as follows:

Year one: First Semester Courses

S/N	Course Title	Course Code	Credits	Course Status
1	Advanced Principles and Concepts of Teaching and Learning	DED601	6	C
2	The Curriculum Development Process and Practice in Nursery and Primary Education	DED603	6	C
3	Psychology of Learning in Nursery and Primary School Children	DED607	6	C
4	The Administrative and Management Techniques in Nursery and Primary Education	DED609	6	C
	Total		**24**	

Year One: Second Semester Courses

S/N	Course Title	Course Code	Credit Value	Course Status
1	General Pedagogy and Specific Methodologies in Nursery and Primary Education	DED604	6	C
2	Supervision of Instruction in Nursery and Primary Education	DED606	6	C
3	Issues and Trends in Nursery and Primary Education	DED608	6	C
4	The Curriculum of Nursery and Primary Education	DED610	6	C
	Total		**24**	

Year Two: First Semester

S/N	Course Title	Course Code	Credit value	Course Status
1	Innovation in ICTs in Nursery and Primary Education	DED617	6	C
2	Designing Instruction in Nursery and Primary Education	DED605	6	C
3	Research and Statistical Methods in Education	DED611	6	C
4	Advanced information literacy Education and Management of Digital Information Resources	DED 621	6	C
	Total		**24**	

Year Two: Second Semester

S/N	Course Title	Course Code	Credit value	Course Status
1	Educational Entrepreneurship	DED624	6	C
2	Scientific writing	DED602	6	C
3	Professional Ethics and Cross-Cultural Issues in Counselling	DED612	6	C
	Total		**18**	

Year Three: First Semester

S/N	Course Title	Course Code	Credit value	Course Status
1	Practicum in Education	DED619	6	C
2	Thesis	DED698	42	
	Total		**48**	

Year Three: Second Semester

S/N	Course Title	Course Code	Credit value	Course Status
1	Thesis	DED698	42	C
	Total			

Course Code	Course Title	Objective(s)	Contents
DED601	Advanced Principles and Concepts in Teaching and Learning	The course treats strategies relating to teaching specific teaching subjects or groups of schools' subjects.	Classroom teaching methods and strategies in subject areas such as sciences, social studies, languages and mathematics. Strategies for promoting specific learning; principles learning, problem solving, concept learning, cognitive strategies, psychomotor, declaration knowledge; lesson and programme design.
DED602	Scientific Writing	The course prepares the students not only how to conceive, plan, initiate and conduct research in education, but, more importantly how to present an appropriate write-up of the research conducted.	Scientific Writing forms an inescapable task of graduate studies. It involves elements such as the concrete evidence of the research conducted and how this was done. Therefore, in writing the report, the student must consider clarity, organization, and content. Also, the student should not forget to check for the specific requirements of the Faculty, University, etc. A typical thesis/dissertation has the following interrelated main parts: a title page, preliminary pages (dedication, certification and acknowledgements), abstract, table of contents, the body comprising the various chapters, and a references section.
DED603	The Curriculum Development Process and Practice in Nursery and Primary Education	The course discusses in depth major concepts, stages, models and tasks in the curriculum development process.	Major concepts in curriculum development; components of the curriculum; stages in the curriculum development process; participants and roles in the curriculum development process; objectives-oriented, humanistic-oriented and administrative-oriented models of curriculum development, curriculum evaluation models.

DED604	General Pedagogy and Specific Methodologies in Nursery and Primary Education	This course treats generic and specific teaching methods in relation to teaching in general and in specific areas, such as English, Geography, Economics, History, Mathematics, Biology, Chemistry, Physics and French.	The methods covered include transformative pedagogy, lecture, discussions, recitation, demonstration, role-play, dramatization, drill, cooperative learning, tutorial, independent study, projects, laboratory and others.
DED605	Designing Instruction in Nursery and Primary Education	The course treats the properties and models of instructional design and their application in course or programme design in formal and non-formal learning environments in Nursery and Primary Schools	Concepts of design, instruction and instructional design; instructional design process, categorization of objectives (Bloom and Gagne Schemes); strategies for promoting specific learning; principles learning, problem-solving, concept learning, cognitive strategies, psychomotor, declaration knowledge; lesson and programme design.
DED 606	Supervision of Instruction in Nursery and Primary Education	In-depth reflection on theory in school administration, policy and supervision	projects relating to understanding of advanced principles and methodology in Nursery and Primary school administrations and supervision; critical issues in administration and supervision in school systems; major text relating to administration and supervision in Cameroon schools.
DED 607	**Psychology of Learning in Nursery and Primary School Children**	To be able to demonstrate that psychology is a science that involves the study of the mind and behaviors. The course is designed to examine some theoretical and research developments in the field of human learning and their implications for teaching and learning in the classroom.	The topics will include: Concept of learner, methods of studying psychology of learning, theories (behavioral, cognitive, humanistic); Memory and information processing, Characteristics of learners; Gender socialization, individual differences; diversity, teaching of thinking skills movement; Teaching and learning styles; Creativity and intelligence and motivation. Understand and apply critically research methods in psychology of Learning Discuss and apply various theories. Assess the significance and importance of childhood learning in our context. Identify and evaluate how young Learners understand and learn in our context.
DED608	**Issues and Trends in Nursery and Primary Education**	The focus of the course is on issues such as: nature of knowledge and ways of knowing; diversity in education, concepts of the curriculum; types of curricula; curriculum in historical context; mother tongue and literacy in childhood education, Bilingualism and multi-culturalism, Class retention and mass promotion practices,	The course discusses selected philosophical, psychological, socio-cultural, historical and gender issues encountered in the field of curriculum studies.

		Multi-Grade classes in our context, gender issues and the curriculum and special education, building competence, persistence of the colonial curriculum in Africa; curriculum change and teacher education.	
DED609	The Administrative and Management Techniques in Nursery and Primary Education	This course primarily deals with the functions of headteachers and staff and the competence they need to perform them. It will also examine related issues such as good governance; equity, and social justice within educational organizations.	Critical examination or purpose and objectives of education; functions - administrative, financial management, supervision of instruction, managing community relations, culture building, performance appraisal, reporting, managing relations with students, teachers, superiors; maintenance of building and facilities
DED610	The Curriculum of Nursery and Primary Education	In-depth examination of curriculum patterns in pre-schools, primary as well as in teacher training colleges; organization for teaching in the different levels; curriculum issues and perspectives.	The course describes patterns of curriculum organization in Pre-school, Primary Teacher Education, Explain the basic terminology of Curriculum organization. Highlights the major domains, subjects and core competences aimed at enhancing learning in schools. Identify the principles used in organizing any curriculum. Explain the subjects and subject areas in the school curriculum. It also highlights the differences between various patterns of school curricula, evaluate each curriculum pattern and present its strengths and weaknesses Compare curriculum patterns and highlight the commonalities, Identify the factors that contribute to the adoption of a particular pattern in a society, Describes how the curriculum and subjects are organized at the Pre-school, Primary, and Primary Teacher Education colleges in Cameroon.
DED611	Research and Statistical Methods in Education	The course prepares the students to conceive plans, initiate and conduct research in education.	Types of research in education and stages of the research process; writing a research proposal involving elements such as: defining a research problem, research objectives and questions, formulating hypotheses, and research design; quantitative and qualitative methods of data collection and analysis; presentation of research reports in school and conference settings, styles of the American Psychological Association (APA) publication manual.

DED612	Professional Ethics and Cross-Cultural Issues in Counselling	The course will introduce students to professional ethics and other issues in the practice of counselling with an emphasis on models of cross-cultural counselling.	Characteristics of counseling relationships, the role of counsellor and the client, confidentiality, referral termination of counseling relationships, cultural values and counseling, gender, bias/prejudice, religion / religious beliefs, etc.
DED617	Innovation in ICTs in Nursery and Primary Education	The course treats the design, implementation and evaluation of the process of learning and teaching in terms of specific objectives and using a combination of human and non-human resources to bring about effective instruction.	The concept of technology; instructional models; technological application in teaching; Designing a course for online teaching and learning. Tutoring tools for online Distance Education. Managing Innovation in Distance Education. Distance and online Education setting
DED 622	Advanced information literacy Education and Management of Digital Information Resources	This course is designed to teach students the basics of Information Literacy education in all kinds of libraries and to equip them with skills of implementing Information literacy education to users both physically and online. It also gives students a good grounding in the use of ICTs in the automation and management of libraries, archives, and information services.	Information literacy programmes and their implementation in libraries. Information literacy for lifelong learning. Digital information literacy. Design Information Literacy programmes for all kinds of users. User needs and user studies. Using Integrated Library Management Systems (software – proprietary versus open-source platforms.). Automating chores (reader services, reference, technical routines, administrative), retrieving information resources using automated systems, the hybrid library, managing virtual or digital collections, etc.
DED698:	Thesis	The course assists the students to plan and carry out research on an area of interest and need.	Development of a research proposal; review of literature, collection and analysis of data; writing, preservation and defence of a thesis.

5.2 A Case for a Hybrid Learning Approach to Meet Student Needs

In contemporary classrooms, students exhibit a diverse spectrum of abilities, interests, and motivations towards learning. By striving to harmonise face-to-face and technology-infused course options, educational institutions pave the way for personalised learning experiences, fostering success for all learners, regardless of their backgrounds and individual disparities. Historically, the onus has rested on teachers to curate, organise, and disseminate content, as well as to guide, encourage, and respond to students within the confines of the classroom (Smith, 1997). Conversely, within the online realm, students assume agency in determining the salient aspects of their learning journey, subsequently justifying their choices through successful knowledge acquisition or by refining their personal learning strategies. Despite the physical detachment, teachers remain accessible, provided they are amenable to establishing virtual connections. Consequently, online learning presents an expansive array of educational opportunities to students, facilitated by technology's affordances in terms of flexibility regarding how, when, and where

learning materials are accessed, thereby mitigating numerous barriers. This amalgamation of personal interactions with media aids and online learning and communication activities encapsulates the essence of learning as a personalised endeavour, as posited by Smith (1997).

Students maintain connectivity with peers, subject matter experts, information repositories, and experiential learning opportunities through threaded conference discussions, video archives, and real-world data simulations, accessible within an anytime, anywhere framework. Hence, adeptly aligning online and offline instructional methodologies emerges as the most efficacious approach to meeting students' academic requirements. This entails harnessing technological tools such as literacy resources, web-based utilities, digital repositories, social networking platforms, and learning management systems to facilitate seamless integration between various learning modalities.

5.3 Personalized Learning (PL)

Contemporary theories on personalised learning draw inspiration from educational philosophies dating back to the progressive era of the previous century, particularly exemplified by John Dewey's emphasis on experiential, learner-centred education, social learning, curriculum expansion, and adaptability to a dynamic world. McCombs and Whisler (1997; as cited in Lee *et al.*, 2018) contend that learner-centred environments evolve by conscientiously considering individual learners' distinct attributes, leveraging the best available insights into teaching and learning. This sentiment is echoed by Lockspeiser and Kaul (2016), who assert that personalised learning serves as a conduit for fostering learner-centred education. Additionally, FitzGerald *et al.* (2018) highlight that personalisation stands as a pivotal subject of contemporary interest within technology-driven learning design and governmental policy discussions, albeit receiving comparatively less attention within educational research circles. This observation may elucidate the discordance observed in approaches to personalised learning.

Schmid and Petko (2019) reveal personalised learning as a multifaceted construct characterised by a plethora of definitions and diverse implementation methodologies. They argue that despite its broad usage, a universally accepted definition of personalised learning remains elusive, with the term instead serving as an overarching descriptor for educational strategies aimed at honouring each student's unique abilities, knowledge, and learning requisites. Spector (2013) posits that advancements in technology will furnish more robust empirical support for personalised learning initiatives. Consequently, a variety of terms, including adaptive learning, individualised instruction, and customized learning, have emerged as substitutes for the concept of personalised learning.

While consensus remains elusive regarding a definitive definition of personalised learning, certain fundamental characteristics should be incorporated into its conceptualisation. These encompass learner diversity; the social and emotional dimensions of learning; centring learning around the individual; tailoring and optimising

learning objectives, approaches, content, pace, and tools for each learner; fostering learner autonomy, with increased choice and agency in the learning process; and maintaining high expectations for every student. Based on these attributes, personalised learning can be construed in various ways.

Stevens (2017) defines personalised learning as an array of educational programmes, learning experiences, instructional methodologies, and academic-support strategies designed to cater to the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students. Additionally, personalised learning can be characterised as instruction wherein the pace of learning and instructional methods are tailored to suit the needs of each learner, often leveraging technology to facilitate personalised learning environments. This approach ensures equitable access to quality education tailored to individual needs and interests, with technology playing a pivotal role in enabling personalised learning experiences.

Feldstein and Hill (2015) argue that a more precise term for personalised learning would be technology-assisted differentiated instruction, underscoring the integral connection between personalised learning and technology-enhanced learning environments. Through personalised learning, students are afforded the technological and online resources to progress at their own pace, based on their educational requirements and interests, thereby empowering them to take ownership of their educational journey. This personalised one-to-one computing approach transforms learning environments into dynamic communities of interconnected learners, capitalising on digital tools to enhance collaboration and engagement.

Collaborative learning represents another hallmark of the personalised online milieu, wherein technology facilitates peer collaboration and interaction with a diverse range of instructional resources. Students are encouraged to become active participants in their learning and are motivated by regular feedback and challenging assignments. Importantly, personalised learning does not entail the digitisation of traditional learning but rather the individualisation of learning through the mastery of contemporary digital tools and collaborative strategies among educators, students, and peers, leveraging the unique affordances of the digital landscape.

Grant and Basye (2014) delineate the key characteristics of a successful personalised learning initiative, which include engaging students' interests and abilities through authentic, real-world activities, shifting teachers' roles to facilitators and coaches rather than dispensers of knowledge, empowering students to chart their learning pathways; integrating technology to enable student choice and support formative assessment; measuring progress based on proficiency in identified skills and understanding; and seamlessly integrating technology throughout teachers' and students' experiences to facilitate learning.

Personalised learning does not seek to supplant teachers or traditional classroom experiences but rather equips educators with the data and strategies necessary to make informed pedagogical decisions and foster self-directed learning among students. It serves as a dynamic complement to classroom instruction, enabling teachers to facilitate

and empower each student's unique learning trajectory. To realise the full potential of personalised learning, comprehensive utilisation of technology is essential to engage, enrich, and empower learners, bridging the gap between classroom instruction and students' daily realities while preparing them for future challenges. It entails delivering relevant learning experiences tailored to individual needs and learning styles while also fostering the pursuit of students' specific interests.

5.4 Personalisation and Student Choice

Personalising learning entails crafting experiences that empower students to make decisions regarding what and how they learn. By fostering a culture of choice, teachers not only enhance student engagement but also cultivate a sense of ownership and pride in their learning journey. Consequently, curricula should be tailored to accentuate skill development, prioritising individualised pathways to mastery. In this context, educators must possess profound and comprehensive expertise within their respective disciplines, coupled with nuanced insights into students' cognitive processes, prevalent misconceptions, and common pitfalls. Merely adhering to a rigid instructional framework devoid of consideration for students' unique characteristics is unlikely to yield the desired outcomes.

5.5 Personalisation and Student Ownership of Learning

By affording students' choices, they attain a sense of control and ownership over their learning process. When students have the autonomy to determine what and how they learn, as well as how they showcase their understanding, they begin to cultivate strategies for assuming accountability for their academic journey. Under the guidance of standards and a knowledgeable educator, students can establish objectives, monitor their progress towards these objectives, and adapt their approaches as needed to enhance their efficacy as learners. Granting students agency over pivotal aspects of their learning fosters the development of self-efficacy and cultivates independence among learners. While it is imperative to hold all students accountable for certain goals and subject area standards, it is essential to recognise that goals may vary for students with diverse learning needs. Empowering students with greater autonomy does not imply abdicating teachers' responsibility to facilitate student learning. Various applications and tools, such as wikis and blogs, enable educators to access student work and track their progress. Moreover, formative assessment furnishes teachers with valuable insights that can inform goal-setting and instructional strategies. Cloud-based applications, such as calendars, can be shared to enable teachers to ensure students meet standards while simultaneously fostering crucial self-directed learning skills.

5.6 One-to-One Computing and Personalised Learning

Students who seamlessly integrate mobile devices into their everyday lives outside of school demonstrate a readiness to utilise individual computers for educational endeavours. Presently, the vast majority of students capitalise on the wealth of high-

calibre online resources available, including platforms like YouTube, for studying and research purposes. These resources offer comprehensive tutorials and explanations across diverse subject areas, readily accessible to students. Moreover, mobile devices such as smartphones, tablets, and laptops serve as invaluable tools for content consumption and research activities. With fully equipped laptops, students can effortlessly import content, such as videos or photos, from their mobile devices into software programmes, affording them the opportunity to manipulate these materials and craft innovative, sophisticated projects.

5.7 One-to-One Programme Formats

The growing accessibility of diverse, powerful computing devices increasingly renders the implementation of one-to-one computing programmes feasible for schools. With the proliferation of tablets, laptops, and other mobile devices, many educational institutions can now contemplate adopting a one-to-one programme format. Numerous schools furnish students with devices such as laptops and tablets, complemented by requisite infrastructure, thereby establishing a conducive environment for one-to-one programme implementation. However, it is crucial to acknowledge that one-to-one programmes, regardless of scale, represent significant undertakings financially, culturally, and pedagogically. Thus, meticulous planning is imperative to ensure the success of such initiatives.

5.8 Personalized Learning Environment

A personalised learning environment inherently offers students a breadth of choices and opportunities. It fosters a culture prioritising ongoing growth and development rather than a rigid dichotomy of academic success and failure. While technology serves as a potent tool for educators to personalise learning experiences, the ethos of personalisation hinges on inclusivity and providing pathways to success for every student. It is founded on emerging principles encompassing social, emotional, and academic learning, eschewing a fixation on mere seat time in favour of fostering a genuine passion for learning and continual enhancement of performance. Moreover, it cultivates self-awareness in students regarding their learning preferences and the resources necessary for their academic progression.

At its core, personalised learning revolves around the individual student, necessitating the expertise of adept educators who leverage appropriate tools to facilitate a learner-centred approach within the learning environment. Such an environment should actively engage, motivate, and inspire all learners to embrace diversity, surmount challenges, and demonstrate mastery.

5.9 Devices and Services

Technology empowers students to assume ownership of their learning journey. In personalised learning, every aspect of a student's educational experience - from their path of learning to the curriculum, instruction, and schedule - must be tailored to meet their

individual needs. The continuous evolution of technology, alongside increased accessibility, presents educators with a plethora of opportunities to personalise learning experiences for a broader spectrum of students efficiently and effectively. A fundamental principle of personalised learning lies in individuals' ability to select the most appropriate tools for specific tasks. As device capabilities expand and individuals harness applications and tools conducive to personalised learning, students may opt for a blend of devices, each carefully chosen to support distinct educational objectives.

Students need to utilise tools that reflect their contemporary environment, including social media platforms, online classes, mobile devices, and other resources, enabling them to evolve as global communicators and lifelong digital learners adept at navigating the swiftly evolving technological landscape. Mobile devices, laptops, tablets, and Chromebooks play pivotal roles in facilitating personalised learning. Cloud computing services such as Google Apps, Gmail, Microsoft, Facebook, LinkedIn, Twitter, and YouTube, alongside social media platforms like online chats, discussion boards, and blogs, foster self-directed learning, remediation, and collaborative learning environments. Moreover, they stimulate student interaction and facilitate discourse on course content both within and beyond traditional classroom settings.

5.10 Assessment in a Personalised Learning Environment

Assessment stands as a paramount instrument in tailoring instruction, and one-to-one devices offer avenues to elevate all facets of assessment. Today, many large-scale standardized assessments can be administered via mobile devices, with summative assessments commonly delivered online. Collaboratively, teachers and students leverage mobile devices to administer formative and benchmark assessments, enabling them to utilise the data garnered to establish personalised goals and strategies. Consequently, this informs the design of the most efficacious and adaptive learning programmes.

5.11 Dimensions of Personalized Learning

A personalised learning system is centred around the individual learner, emphasising learner engagement as a pivotal component in its design. As articulated by Desai *et al.* (2024), motivational factors should be tailored to incentivise and acknowledge learners for their deliberate efforts towards learning collaboratively with others, fostering mutual recognition and reflection. The motivation of learners within personalised environments is underpinned by three primary pillars: intrinsic motivation, extrinsic motivation, and social motivation (Desai *et al.*, 2024). Intrinsic motivation stems from engaging in an activity for its inherent enjoyment and satisfaction. Extrinsic motivation, on the other hand, arises from participation in an activity for the outcomes it yields. Social motivation encompasses engagement in an activity to garner approval or admiration from others or to foster a sense of belonging and cooperation within a group.

Among these motivational foundations, intrinsic motivation holds particular significance for learners. Personalised learning environments can be structured to accommodate learners' interests, age, accomplishments, and preferred learning styles.

Such environments should incorporate elements such as personalised video content, customisation of self-representation, and personalised agents aimed at facilitating learners' self-reflection on their engagement. In a personalised learning framework, the curriculum is tailored to meet the unique needs, interests, and expectations of individual learners. Key dimensions of personalised learning encompass learning behaviours, styles, domain knowledge, learning trajectories, and learner engagement, as illustrated in the figure below.

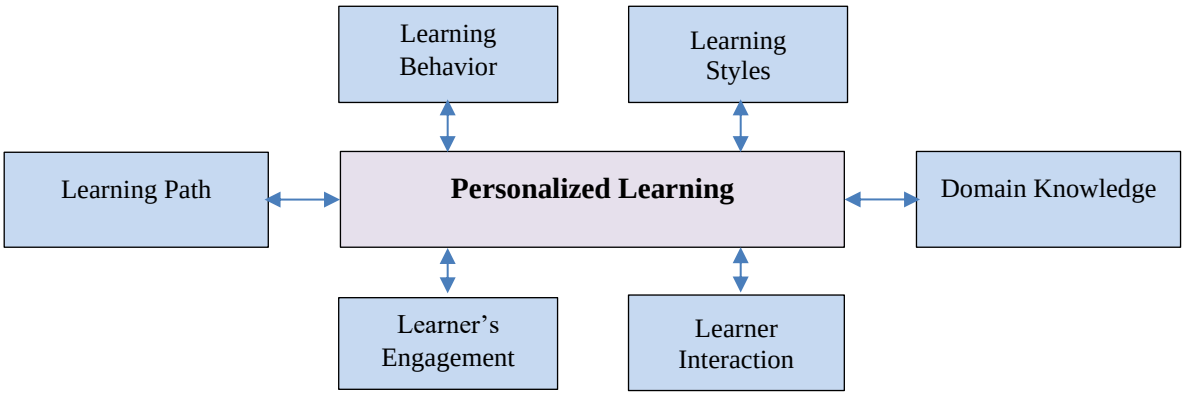

Figure 1: Dimensions of Personalized Learning
(Adapted from Desai, *et al.*, 2024)

Understanding learners' learning behaviour is crucial for identifying their learning capacity. It encompasses various factors, including physical aspects such as age, health, substance influence, and meditation, as well as personal factors like beliefs, emotions, cognitive abilities, and personality traits that influence learning behaviour. Additionally, social factors such as family background, cultural influences, environmental factors, and life events play a significant role. Learners can be categorised based on their learning behaviour as either slow or advanced learners.

For slow learners, systematic stimulation of learning activities and continuous engagement are essential to enhance their grasping capacity and attitude towards learning. Personalised learning systems play a crucial role in promoting success and building confidence among slow learners, thereby motivating them to strive for improvement. Conversely, fast learners demonstrate a rapid ability to grasp new concepts, accept challenges, engage in problem-solving, and set high self-expectations. Personalised learning focuses on aligning with learners' expectations and provides tailored learning paths to optimise learning efficiency, thereby encouraging fast learners to enhance their skills and performance.

Learning style refers to the preferred method of learning employed by individuals, which can vary significantly among learners. Some learners excel through auditory learning, while others prefer visual or kinesthetic learning methods. Recognising and accommodating diverse learning styles is integral to outcome-based education, aiding teachers in delivering information effectively and catering to students' preferred learning

modalities. Various dimensions of learning styles, such as Active/Reflective, Visual/Verbal, Sensing/Intuitive, and Sequential/Global, contribute to the multifaceted nature of learners' preferences. Identifying learners' learning styles is crucial for recommending study materials in formats that align with their preferences, facilitating a more enriching learning experience.

Domain knowledge refers to specialised expertise in a particular field or discipline, which influences the learning path for individual learners. Pre-tests serve as essential tools for gauging learners' domain knowledge levels and informing educators about the requisite learning time and efforts needed to address knowledge gaps effectively. In personalised learning, identifying learners' domain knowledge is crucial for identifying content gaps, addressing pervasive issues, and devising strategies to foster knowledge acquisition. Throughout the educational process, learners interact with content, teachers, and peers, which significantly impacts their learning experience. Collaborative activities, discussions, and interactive learning materials enhance learners' understanding and engagement with course content, particularly in distance education settings. Effective instructional activities, such as tutorials, quizzes, online quests, and simulations, foster learners' interaction with course material, promoting deeper understanding and retention of concepts.

Learner engagement is a key determinant of educational outcomes, influencing learners' attention, focus, critical thinking abilities, and motivation. Various forms of engagement, including procedural, conceptual, consequential, and critical engagement, contribute to meaningful learning experiences. Clear articulation of learning goals and expectations, coupled with user-friendly interfaces, interactive study materials, and open communication channels, fosters active learner engagement. Furthermore, personalised e-learning systems facilitate the correlation between learners' engagement patterns and academic performance, ultimately leading to academic success. A learning path delineates the systematic approach towards the learning process, tailored to individual learners based on their learning behaviour, domain knowledge, and learning goals. It serves as a roadmap for learner-centred e-learning, empowering learners to acquire and retain knowledge and skills effectively. Personalised learning paths enable learners to engage in self-assessment, seize opportunities for growth, and evaluate their progress and comprehension, thereby facilitating a more personalised and effective learning experience. Evaluating and assessing individual learners' progress ensures the optimisation of their learning paths, enhancing overall learning outcomes.

6. Discussion and Conclusion

The master's programme in nursery and primary education at the University of Buea predominantly employs a traditional face-to-face instructional format complemented by various components of online learning. Undoubtedly, the integration of personalised e-learning methodologies fosters a learner-centric paradigm within the educational framework, enabling individuals to engage with the material according to their unique

interests, requirements, learning objectives, and expectations. Recognising that learning is a multifaceted process influenced by psychological variables including attitudes, cognitive capacities, analytical skills, and emotional states, a personalised learning system encompasses various facets such as learning behaviours, styles, interactions, engagements, and pre-existing domain knowledge. Thus, the adoption of personalised technological learning strategies emerges as a paramount approach towards cultivating an interactive, personalised learning environment.

In light of this, it is imperative for the distance learning programme at the University of Buea to earnestly pursue avenues for enhancing effective student learning experiences by embracing a personalised online learning paradigm, which serves as a universal platform catering to learners globally. Furthermore, with the advancements in technology and the escalating pace of computing capabilities, there arises a pressing need to advocate for the adoption of a personalised e-learning model adept at intuitively accommodating diverse learning styles, affective states, and cultural backgrounds.

7. Recommendation

The transformation of our current educational model necessitates a fundamental shift in the mindset of educators and policymakers regarding the concept of schooling. Educational authorities play a crucial role in this transformation by endorsing personalised learning plans, ensuring equitable access to technology, developing purpose-driven and personalised professional development opportunities for teachers, structuring work in iterative phases, and leveraging collaborative networks. Moreover, they can engage parents and the community to elucidate the significance of supporting personalised learning initiatives aimed at addressing learner diversity, while highlighting how teachers are crafting experiences that foster the holistic development of academic, social-emotional, and other essential skills, equipping all students for success in higher education and the workforce.

On the governmental level, initiatives can be undertaken to promote personalised learning for every student, encompassing the adoption of competency-based progressions, embracing broader educational objectives, facilitating the development and implementation of personalised learning plans, and investing in innovative educational practices. For instance, competency-based education, serving as a cornerstone of personalised learning, holds the potential to enhance academic achievement for all students, provided that rigorous expectations are upheld for each individual learner. Indeed, the transformation of our current educational paradigm necessitates a radical reimagining of the role of educators and policymakers in shaping the future of schooling. However, despite the innovative efforts of teachers and educational leaders, they often encounter bureaucratic hurdles and regulatory constraints that hinder the progress of student learning initiatives.

It is imperative for the University of Buea to embrace flexible policies at both faculty and institutional levels, thus eschewing the constraints imposed by a rigid, one-

size-fits-all educational model. Such policies ought to integrate the perspectives of educators and students within a holistic framework, fostering inclusive decision-making processes towards the adoption and execution of personalised learning methodologies. Moreover, the involvement of parents and the broader community as collaborative partners in the learning journey is paramount, acknowledging that learning transcends traditional boundaries of time and space and occurs ubiquitously.

Conflict of Interest Statement

This paper is the original work of the author duly conducted for the purposes of knowledge creation and advancement.

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