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Inclusion into what? Education provision for students with disabilities and additional learning needs in Papua New Guinea

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ABSTRACT

This case study examines education provision for students with disabilities and additional learning needs (DALN) in a 'model' inclusive primary school in Papua New Guinea. It is based on classroom observation and semi-structured interviews with selected teachers. It analyses the pedagogical practices of the teachers, their inclusivity, and the variables shaping them. It was found the teachers struggled to meet the needs of students with DALN, particularly deaf learners, due to multi-level constraints. In the light of the findings, strategies for promoting inclusive education within the country are discussed.

1. Introduction

This article is a case study of a 'model' inclusive primary school in Papua New Guinea. Drawing on lesson observation, interviews with teachers, and other sources of information, it discusses the pedagogical practices of selected teachers and assesses their inclusiveness for students with disabilities and additional learning needs (DALN) – a term applied in Papua New Guinea to learners experiencing difficulties with hearing, seeing, moving, understanding, learning, communicating, and behaving, as well as those with multiple impairments (National Department of Education [NDOE], 2023).[2] In the light of the findings, the new national inclusive education policy (*ibid*) and its associated implementation guide (NDOE, 2024) are evaluated.

2. Provision for students with DALN in Papua New Guinea

2.1. Country overview

Papua New Guinea is located in the South-West Pacific and constitutes the eastern half of New Guinea, the world's second largest island and a number of smaller offshore islands. It forms part of Melanesia, a group of countries connected by proximity and linguistic, cultural, and geographical similarities (Sillitoe, 1998). The land area of Papua New Guinea is 464,000 square kilometres (United Nations Children's Fund [UNICEF], 2004) and consists of coastal areas, river-plains with "large, meandering rivers" (Sillitoe, 1998, p. 3), and rugged mountain-ranges. The country had a projected population of 13.25 million in 2024 (National Statistical Office, 2024) and is characterised by great linguistic, cultural and ethnic diversity with over 700 languages in regular daily use, although the main languages are English, Motu and *Tok Pisin* (a creole language spoken throughout the country). It ranked 154 out of 185 countries on the *2023/2024 Human Development Index*, performing particularly poorly on indicators related to gender equality and vulnerability of households to multi-dimensional poverty (United Nations Development Programme [UNDP], 2024).

2.2. Historical context

Western-style education was introduced in Papua New Guinea by missionaries in the 1870s and 1880s (Crossley, 1998). Before then, there existed what McLaughlin (1994) has termed a "a forty-thousand-year education tradition" (1994, p. 63) in which children were taught "technical" and "revealed knowledge" (p. 65) in village-settings by parents and selected elders.

For most of the colonial era, there was minimal investment in the country's education system due to the parsimony of the Australian

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[2] The term also covers 'gifted' students, but these are not discussed in this article.

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government and the low estimation of the intellectual capacities of the local population by the colonial administration (Dickson, 1976). However, prompted by international criticism and the realisation that Papua New Guinea would have to be granted full independence sooner rather than later, the colonial administration significantly increased educational expenditure in the 1960s which meant "primary education was brought within the reach of a large proportion of the population for the first time" (Smith, 1987, p. 233). These years also saw a dramatic expansion in secondary education provision (Smith, 1985) and the introduction of tertiary education, with the University of Papua New Guinea being formally established in 1965 (Murphy, 1985).

Until the 1990s, government policy excluded children with disabilities from mainstream schools (Aiwa, 2013), despite the passage of the 1983 Education Act affirming their right to education. Any education provision for these children was segregated, small scale, sporadic and delivered by (primarily Catholic) church agencies (Leach, 2024). In response to international trends and pressures, a National Special Education Policy and Plan was approved in 1993 which said (where feasible) children with special educational needs should attend regular schools and the government provide necessary support (NDOE, 1993).

2.3. Present day realities

Since then, a network of 23 Inclusive Education Resource Centres (formerly known as Special Education Resource Centres) has been established, covering 17 of Papua New Guinea's 20 provinces. These IERCs have 178 teaching staff in total (Leach, 2024), and their primary responsibility is supporting the inclusion of children with DALN in mainstream schools (Kett et al., 2016). These centres are overseen by a Special Needs and Inclusive Education Unit based in Port Moresby, the national capital. Special and inclusive education is covered in pre-service teacher training and can be studied at Diploma and Bachelor level. As well as ratifying international agreements such as Convention on the Rights of Persons with Disabilities (United Nations, 2006), the government has passed legislation and produced policies and plans endorsing disability-inclusive education (UNICEF, 2022).

Despite these achievements, large numbers of learners with DALN are either excluded from or not recognised by the Papua New Guinea education system. While UNICEF have estimated 7.5 % of children in East Asia and the Pacific aged 0–17 have disabilities (UNICEF, 2021), EMIS data from 2023 show 17,972 students with DALN enrolled in elementary, primary and secondary education (NDOE, 2023), equivalent to only 0.78 % of the estimated total school population for that year (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2023).[3]

The educational exclusion of these learners can be put in the micro-context of under-resourced schools with high student-teacher ratios, inaccessible infrastructure, and staff who lack specialist expertise, combined with some parental resistance to enrolling children with disabilities in schools (Kett et al., 2016). It can be put in the meso-context of under-resourced IERCs (*ibid*) and over-worked provincial inspectorates which do not prioritise inclusive education as it is not included in inspection checklists (J. Knox, personal communication September 19, 2024). This is combined with patchy provision of health and rehabilitation services of variable quality, and a lack of assistive device manufacturers (Karthikeyan and Ramalingam, 2014; Jenkin et al., 2017; Marella et al., 2017). Finally, it can be put in the macro-context of sustained under-investment in education provision for students with DALN (NDOE, 2020); a national unit with overall responsibility for DALN provision but only four staff; and an EMIS that lacks the capacity to collect reliable disability data disaggregated by types and levels of functional difficulty (Goro, 2020). The teacher training system has been criticised for being more focused on special education than inclusive education – i.e., on prescribing resource-intensive, impairment-specific pedagogical approaches rather than assisting teachers to adopt multi-layered pedagogies that meet the needs of all learners, including students with DALN (Kett et al., 2016). At all levels of the system, organisations of persons with disabilities are excluded from policymaking and implementation, exacerbating the above problems (Coussy, 2023). On top of this, the Papua New Guinea education system continues to face enormous challenges, impacting on educational outcomes for all students, especially those with DALN. Results from the Pacific Islands Literacy and Numeracy Assessments in 2015 and 2018 showed Grade 5 students were on average performing less well in literacy and numeracy than their counterparts in other Pacific countries (NDOE, 2020).

3. Theoretical framework: Zone of pedagogical validity

This framework proposes that pedagogical approaches need to both meet the needs of students with DALN and be feasible to be valid (i.e., fall within the zone of pedagogical validity). It draws on the work of scholars and practitioners who have raised concerns about the non-inclusiveness of supposedly inclusive pedagogical approaches (Young, McNamara, and Coughlan, 2017), as well as those who have raised concerns about the uncritical transmission of educational practices from the North to the South, due to "inequalities of knowledge, infrastructure and resources" (Mason, Crossley, and Bond, 2019, p. 7) – a phenomenon particularly affecting Small Island Developing States such as Papua New Guinea (Crossley, 2019). The framework will be used to assess the inclusiveness of the case study teachers' practices and examine the variables shaping those practices.

To be inclusive for students with DALN, pedagogical approaches must meet educational needs "common to all" learners (Corbett and Norwich, 1999, p. 119). For instance, if teachers skilfully select mathematical examples and discuss them with their classes, this can enable all their students, including students with DALN, to better understand concepts and operations (Muir, 2008). Similarly, if teachers introduce new vocabulary at text, paragraph, and word levels, this can improve their reading and writing (Wray et al., 2000). However, to meet needs that are "specific to some (learners), not others" (Corbett and Norwich, 1999, p. 119), teachers will need to adapt or supplement their pedagogical practices. This can involve accommodation (changing how they teach, and therefore how children learn) or modification (changing what they teach, and therefore what children learn) (McGlynn and Kelly, 2019).[4] For instance, learners who are blind or severely visually impaired need to be provided with sustained opportunities to learn through their non-visual pathways (accommodation) and may also benefit from being provided with opportunities to (for instance) learn braille and acquire orientation and mobility skills (modification) (Douglas and McLinden, 2005). Finally, teachers should individualise their pedagogical practices to meet needs "unique to (the) individual" (Corbett and Norwich, 1999, p. 119), such as the heterogenous needs of deaf children that reflect their degree of hearing loss, age of hearing loss onset, previous academic experience, parental hearing status, and other variables (Marschark, 2007). Teachers can again employ modification (see above) to provide students with access to an 'expanded core curriculum' tailored to their particular requirements.

While, broadly conceptualised, the educational needs of students with DALN are the same across contexts and cultures (such as their need to acquire literacy and numeracy), the specific forms these needs take will be shaped by context and culture. For instance, children who are blind or severely visually impaired living in predominantly oral cultures

[3] The student data in the NDOE document is not sex-disaggregated but is disaggregated in terms of type and level of functional difficulty.

[4] Sometimes approaches beneficial for all learners will need to be 'intensified' for students with DALN, such as phonics-based literacy instruction for children with dyslexia. In this study, 'intensification' is regarded as a form of accommodation.

(in which little or no information is available in braille) must acquire the oracy to engage with these cultures. Nevertheless, contextual factors should not be used as a justification for denying children their rights. These children should still learn braille as otherwise they will be denied access to literacy and associated opportunities for self-realisation and self-expression (Clark, 2014). Furthermore, contexts can change. In the future, it is likely that these children will have more opportunities to use braille as a medium of communication due to technological developments, such as the advent of low-cost electronic braille displays (*ibid*).

To be feasible, pedagogical practices need to be aligned with material realities (i.e., physical and human resources). For instance, classroom teachers will struggle to provide individualised support for struggling learners if they teach large classes and lack teacher aides. To partly compensate for this, they may decide to use selected students as peer-tutors. Consequently, the 'zone of pedagogical possibility' is both circumscribed and shaped by material realities. Non-material, as well as material, realities can constrain (as well as enable) teachers. These realities can take the overt form of national curricula or the more covert (and potent) form of norms and values (which not only underpin the hidden curriculum but inform curriculum content and delivery) – although teachers may challenge these non-material realities if they feel they are oppressive and, in so doing, change them.

Table 1 identifies the various criteria for assessing if pedagogical approaches fall within the zone of pedagogical validity.

4. Methodology

4.1. Research setting

The research was carried out in a 'model' inclusive primary school with over 1800 students enrolled in Grades 3–8, one of 23 in the country "established to show exactly how inclusive education can be institutionalised in mainstream schools" (NDOE, 2020, p. 42). It is situated in a coastal province and draws its students primarily from nearby squatter settlements. The school is atypical in terms of its urban location and access to associated services but was selected for the study because it has a significant number of students categorised as disabled, including eight deaf children. These students are enrolled in the school by the nearby Inclusive Education Resource Centre (IERC) when it is believed they are 'school ready'. As became clear during the study, there were many other students experiencing significant difficulties with learning. The research was carried out between May and June 2024 over a four-week period.

Table 1
Zone of pedagogical validity.

Domain	Criteria
Zone of pedagogical inclusiveness	Addresses common educational needs (shared by all students) Addresses specific types of educational need (such as the needs of deaf learners) Addresses the needs of individual learners
Zone of pedagogical feasibility (practicality/appropriateness)	Constrained/enabled by material realities Constrained/enabled by non-material realities

4.2. The researchers

Researcher 1 is an expatriate with extensive international development experience who previously worked for six years in Papua New Guinea as a lecturer in special and inclusive education. Researcher 2 is a Papua New Guinean national who lectures in the subject at a teachers' college. As a former student and primary school teacher, Researcher 2 has first-hand experience of the country's education system. She is fluent in Melanesian sign language[5] so was able to converse with the deaf students.

4.3. Research rationale and questions

The study was commissioned by the provincial Division of Education which wanted to identify ways of strengthening education provision for students with DALN within the school and across the province. Prior to the research, relevant documents were submitted to the Division for approval. The Division in turn obtained informed consent from the senior leadership team and teachers at the school. Introductory meetings were organised with school staff which provided them with opportunities to ask questions, raise concerns and make suggestions.

The research focused on teachers' classroom communication and task selection for three reasons. First, these activities are important in any classroom, but likely to be particularly important in Papua New Guinean classrooms given the historic prevalence of teacher-centred, transmission-based pedagogical practices (Avalos, 1991; Guthrie, 2003; Le Fanu, 2013). Second, these processes (unlike, say, lesson planning) are particularly accessible for researchers carrying out classroom-based observation. Third, given the multi-faceted complexity of teaching and learning processes, research needs to focus on selected phenomena to be manageable.

There were therefore two research questions.

1. In what ways and to what extent, were selected teachers in the 'model' school including students with DALN in their classes, in terms of classroom communication and task selection?
2. What variables were shaping their practices?

4.4. Research methodology

The research took the form of a qualitative case study, an appropriate method for studying "a complex entity operating within a number of contexts" (Stake, 1998, p. 91). Such an approach promotes the democratisation of research as it provides opportunities for local stakeholders to discuss familiar issues in depth and detail (Crossley and Vulliamy, 1984). As the study was a "single case design" (Yin, 2003, p. 85) and had only two "embedded units of analysis" (*ibid*) (namely, selected practices of the teachers, and the variables shaping those practices) the study had specific and attainable objectives. Limiting the scope of the study also meant social phenomena could be examined in greater depth.

4.5. Research methods

The research involved classroom-based observation and semi-structured interviews, enabling "methodological triangulation" (Cohen et al., 2000, p.113). As five teachers chose to participate in the study, it also possessed "data-source triangulation" (Hammersley and Atkinson, 1995, p. 230). All the teachers were female, and all were highly experienced senior teachers, except for the Grade 7 teacher who had been

[5] The students used Melanesian sign language which is Australian sign language (AUSLAN) with some PNG-specific signs added. Since 2012, the deaf community has endeavoured to develop, document and disseminate an indigenous Papua New Guinea sign language. Unfortunately, these efforts have recently stalled.

teaching for several years.

Over a three-week period, 30 hours of lessons were observed (six hours for five classes spanning Grades 3–7). The researchers adopted a "participant as observer" stance (Hammersley and Atkinson, 1995, p. 104), periodically interacting with teachers and students to 'break the ice' and collect information, while maintaining a degree of distance and detachment to reduce reactivity. A "stream of consciousness" approach (O'Leary, 2020, p. 80) was adopted for notetaking to capture classroom complexity, while smartphones were used to film data-rich stretches of teacher-class interaction. To assess the extent students grasped what was taught, we spoke/signed with them and periodically reviewed their work.

After the lesson observation, semi-structured interviews were held with the teachers which were digitally recorded and transcribed. They were asked open-ended questions about their pedagogical practices and the variables shaping these practices. The interviewers then used "probes" and "invitations" for the purposes of "clarification" and "elaboration" (May, 1997, p. 111). Subsequent discussions were held with IERC staff and the Provincial Education Advisor and his inspectors to collect further information. Curriculum documents were reviewed to contextualise the teachers' practice.

4.6. Data analysis

Thematic analysis, involving "constant comparison" (Strauss and Corbin, 1998, p. 72) between "specific incidents in the data" (Taylor and Bogdan, 1984, p. 126), enabled codes to emerge from the classroom observations and the teacher interviews. These were then grouped into themes. These showed that the teachers' practice had certain characteristics (see Table 2) and was shaped by teaching and learning conditions, normative frameworks, and the fragility of support systems (see Table 3).

4.7. Research limitations and constraints

The study was limited in scope as it focused on one school and the pedagogical practices of five teachers, particularly in terms of literacy and numeracy instruction (as this tended to happen in the morning when the researchers were present in the school). However, as discussed, this enabled selected pedagogical practices to be examined in depth and detail. It was also inevitable because we only spent four weeks in the school.

The school was not representative of other schools across the country in the sense that it was better resourced than most schools and had smaller classes and greater access to service providers (such as the IERC). However, it was selected for this study as it was only the school in the province with large numbers of learners categorised as DALN. While the school was atypical in certain respects, it was typical in other respects as it was required to deliver a complex, Western-style curriculum to children with diverse learning needs. Although better resourced than other schools, it was not adequately resourced, as will be discussed. We therefore believe some of the research findings are generalisable to other schools in the country – a subject worth exploring thorough further research, such as a large-scale quantitative survey of schools across the province backed up by smaller scale qualitative research.

Due to the school closing unexpectedly early due to teacher participation in the national census, we were unable to provide the students with DALN and their parents with structured opportunities to express their views as originally intended. We hope to be able to do this in the future.

5. Results

5.1. Illustrative teaching and learning activity

We will begin this section by briefly describing an illustrative teaching and learning activity.

The Grade 4 teacher (G4T), a senior teacher with 25 years teaching experience, is standing in front of her Grade 4 class of 32 students – 14 girls and 18 boys, most of whom are aged from 11 to 13. Two of the children are deaf, a boy (aged 17) and a girl (aged 16), but only the boy is present today. He is seated towards the front of the class, side-on to the teacher. Seated next to him is a girl who knows some sign language as her brother is deaf.

G4T is revising a question-and-answer sequence introduced to the class the previous day which they have copied into their exercise books:

"Can you speak your mother's *Tok Ples*?"[6]

"Yes, I can."

"Can you speak your father's *Tok Ples*?"

"No, I can't."

The teacher and her class chant the auxiliary verbs in this sequence: "can", "can't", "will", "won't". She then explains the words are "talking about something in the future tense" meaning "it has yet to happen, or it has not happened yet, or the activity is yet to be done, it's in the future". She pauses before the words "future" and "done", prompting the students to say these words along with her. She provides examples of what she means by the future: "ten o'clock", "recess", "twelve o'clock", before re-defining future. She explains the meanings of the four verbs in the context of their sentences, before asking her class to chant the verbs again.

After she has read through the question-and-answer sequence with her students, she asks the questions to two of the more confident English speakers in her class who stand up to answer them. She then defines 'future' for a third time, saying "it is something that is yet to happen", pausing before the word "happen" to prompt the students to chorus the word. She then asks the class to identify words that can be used an alternative for "speak". In response, students provide semantically similar verbs ("talk" and "whisper") which the teacher writes on the board. To indicate that she wants a semantically broader range of verbs, she says "What else can you do in the future, what is another word? Can you *walk*?" This prompts some students to contribute 'run' and 'play'. To further broaden the selection, the teacher adds 'read', 'write', and 'love', incorporating them in simple three-word questions. Throughout this activity, the teacher has turned her back to the class to write the vocabulary on the board.

G4T explains the task to her students: to write "question-answers, one positive and one negative" using the verbs on the board, before explaining it in more detail, dividing it into its constituent stages. After the class have chanted the day's date, she tells them to "pick up their pencils and start writing". She then explains the task for a third time, emphasising that one answer will start with the word "Yes" and the other "No". Again, she pauses before these words, prompting the class to chant the words with her. She also instructs her class to write neatly, informs them she will be patrolling the class to mark their work, and tells them that, if "everybody is doing what they are supposed to be doing", she will teach them a song about the environment (at which, some of the students excitedly hiss "Yes!").

As this is happening, Researcher 2 signs with the deaf learner to make sure he understands the task. While they are communicating, the deaf learner signs the original question-and-answer sequence but substitutes the sign '*Ples*' (place) with the sign 'please', indicating he had not been taught or had forgotten the sign for '*Ples*'. When left alone, he struggles to complete the activity, initially writing "Can you reading" (with no punctuation). He is rescued by his classmate who signs the full question to him ("Can you read the book?") before amending his work by crossing out "-ing", writing "the book", and adding a question mark. She signs the correct answer to the question to him: "Yes, I can". With her assistance, he completes the activity, taking a full ten minutes while other students complete it in less than a minute and then sit chatting to

[6] *Tok Ples* = Indigenous language

their neighbours. While most of the students write a full sequence of questions and answers, one student (who perhaps missed the previous lesson) writes a single unpunctuated line: "I wisper to my friend I can" (*sic*).

Afterwards, selected students come to the front of the class to relay what they have written, including the deaf student whose classmate provides simultaneous translation in spoken English. G4T instructs the class to give him "three big claps".

5.2. Classroom communication approaches

Classroom communication involved oral communication supplemented with visual communication.

Oral communication involved teachers standing at the front of the classroom combining succinct definitions with more elaborate explanations and real-life examples to maximise understanding, and using pitch, tone, and volume to convey meaning (see Section 5.1). This was often done with great skill, although one teacher thoroughly confused her class on two pedagogically stressful occasions – when she needed to explain a mathematical operation in a short period of time prior to a test, and when she had to explain why some nouns were countable and others not. When the teachers verbally interacted with their students, it was to ask straightforward, easy-to-answer closed questions (such as "What is 5 +7?") or pause just before the end of sentences – strategies which prompted chorused responses from their students. Closed questions were only directed at individual students when the teachers were confident that they could answer them (see 5.1), thus avoiding unnecessary shame and embarrassment. On the only recorded occasion on which an open-ended question was asked ("Who wants to tell me what music is?"), the Grade 7 class was reduced to disconcerted silence, presumably due to the question's cognitive and linguistic demands and because the students were unused to being asked to express their opinions, especially in public.

Despite the teachers' communicative capacities, their lack of sign language skills meant deaf students were largely excluded from the communication loop. When talking, some of the teachers also had the habit of moving about the classroom or even writing on the board with their backs turned (see 5.1), a habit which reduced their audibility for hearing students but particularly disadvantaged the deaf students who were reliant on lip-reading to understand what the teachers were saying. The murkiness of the classrooms and the fact the deaf students were seated 'side on' to the teachers exacerbated the difficulties of lip-reading, which even in the most conducive conditions is "difficult, tiring, and error prone" (Marschark and Hauser, 2012, p. 43). Finally, classroom communication was almost invariably carried out in English (the second, third or even fourth language of the students) with occasional 'lapses' into *Tok Pisin*, such as when G3T berated a student: "*Yu writim em no gut, you mas tingting*" (You haven't written it properly, you need to think). If the teachers had felt free to 'code-switch' from English to *Tok Pisin*[7] and back, they would have communicated more easily, clearly, and interactively with their students.

As the teachers knew little or no sign language, visual communication primarily involved the teachers writing on the blackboards, which stretched across the front of the classroom, to demonstrate operations and upload information. The students were sometimes expected to copy this material in their exercise-books, a time-consuming and taxing exercise, given the murkiness of the classrooms and poor state of some of the blackboards, combined with the low literacy levels and lack of cursive handwriting skills of many of the students. Visual aids – such as posters, diagrams, and illustrations – were rarely used by the teachers. This, too, was unfortunate as such materials would have been particularly helpful for the deaf students, especially if they had taken the form of "visual-spatial displays (representing) schematic, relational aspects of a problem" (Marschark and Hauser, 2012, p. 117).

5.3. Task selection

As Section 5.1 illustrates, classroom tasks were tightly circumscribed in various ways. First, they were not differentiated, as students were expected to carry out the same tasks, with no extension exercises being provided for students who finished early. The only student exempted from this rule was a girl with quadriplegia who was excluded from physical education as unfortunately this subject was perceived as beyond her sphere of competence. In other subjects, certain tasks requiring fine motor skills were carried out for her by her classmates. Second, tasks tended to take the same recurring forms: seat work which required students to produce a written output in English or Western mathematical language that demonstrated understanding of spoken and/or written instructions. The seat work requirement was particularly irksome for a Grade 5 boy diagnosed with attention deficit/hyperactivity disorder (AD/HD) who sometimes absconded from the classroom to roam the school grounds. Third, the tasks provided little or no room for flexibility of interpretation and performance, resulting in the students producing the same or similar outputs if the tasks were carried out correctly (see Section 5.1). To take two examples from opposite ends of the spectrum, the Grade 3 class were required to write the letter D in upper and lower case between lines drawn to precise specifications, and the Grade 7 class were required to write the nine 'gifts of the spirit' on paper leaves which were then hung on the branches of miniature trees they had constructed. Fourth, the students were required to carry out the tasks in short periods of time, usually 10–20 minutes – although in practice some students finished the tasks early while others struggled to complete the tasks in the allotted time.[8]

The tasks were clearly focused on providing all the students with the building blocks for learning. As students were expected to reproduce teacher-transmitted content, the tasks were arguably aligned with traditional epistemological practices and thus culturally appropriate (see Section 5.4.2). As students were set the same tasks, task-setting did not highlight differences of ability among students, thus avoiding shame and embarrassment. However, this pedagogical uniformity was non-inclusive because it prescribed the repetitive forms classroom tasks should take despite considerable learner diversity.

The pressures placed on struggling learners were exacerbated by the requirement they work on their own, rather than together, with the teachers only providing sporadic support when patrolling the classroom – although this requirement was waived for deaf students who were paired with classmates who knew some sign language (see Section 5.1). When this requirement was rigorously enforced in frequently administered tests, the pressures placed on these learners were particularly intense. After one such test, a Grade 3 student was distraught because she had not answered any of the multiple-choice questions, presumably because she did not understand the task requirements. (In a gesture of solidarity, her classmates answered the questions for her behind the teacher's back.)[9] During tests, these students' plight was worsened by the poor quality of some of the question-setting due to the low literacy skills/lack of subject knowledge of some test-setters. The competitive ethos engendered by some teachers ("Those who got less than five don't get any claps") must have further demoralised these learners.

[7] It would not have been possible to use *Tok Ples* as the sole or principal language of classroom communication because the students came from different parts of the country and therefore spoke different *Tok Ples*.

[8] The lesson observation was carried out in the morning when academic subjects were taught. In the afternoon, when arts and physical education were taught, the task-setting would have taken freer, less desk bound forms.

[9] We saw no signs of bullying of children with disabilities in the school. However, outside lessons, the deaf children socialised with their deaf peers in other classes, as they were unable to converse freely with their hearing classmates who knew little or no sign language.

When required to write in English, the deaf students were highly disadvantaged, as illustrated in Section 5.1. Despite Researcher 2 signing the task, the student wrote "reading" rather than "read", presumably because he was used to using the present participle when writing in the present tense (as in "I am reading"). He also omitted the question mark, either because he had forgotten he needed to add this, or he was unaware he was writing a question. As it was too complicated for his classmate to sign that he needed to change the main verb and add a question mark, she did it for him. The first sentence he wrote "Can you reading", was very short, even by the standards of his peers, and was expanded by his classmate to include "the book" – illustrating the difficulties many deaf students face with writing tasks due to their more limited vocabularies, less secure grasp of concepts, and lack of familiarity with English grammar which is different from the grammar of sign languages (Marschark, 2007).

Table 2 outlines the teachers' pedagogical practice.

5.4. Variables shaping the teachers' practice

5.4.1. Teaching and learning realities in the case study school

The teachers struggled to provide individualised support as there were between 32 and 40 students in each class, of whom at least 12 were perceived by their teachers as experiencing significant difficulties with learning. The shortage of syllabuses, teachers' guides and textbooks produced for the new curriculum added to the teachers' difficulties. In particular, the lack of textbooks meant the teachers had to upload large quantities of text on their blackboards which students laboriously copied into their exercise-books (see Section 5.2). The teachers further bemoaned the absence of flash cards, phonics-based graded readers, and other resources which would have enabled them to meet the individual needs of students. In the words of G4T, "If there are insufficient materials in the classroom, that's when we treat them as all the same". Unlike the other teachers who wanted resources to support their existing pedagogies, G5T wanted resources such as manipulatives that would transform her pedagogy, enabling students to learn experientially, kinaesthetically, and collaboratively.

Due to the design of the case study, it was not possible to examine in depth the extent to which school-based systems facilitated or impeded disability inclusion. However, the handover report, passed on to G5T at the start of the new school year by the Grade 4 teacher, provided very little information on her new students with DALN. As the Deputy Head was responsible for inclusion and consequently over-burdened, it might have been better if this responsibility had been passed on to the three teachers with specialist qualifications in the subject. Finally, talking to the teachers, it became clear that there was very little teacher-parent interaction, other than the once-a-semester meetings in which teachers handed over the students' report cards. If this communication was more regular and meaningful, it would have been possible for teachers and parents to provide joined-up support for students with DALN.

Table 2
Key features of the case study teachers' pedagogical practice.

Type of pedagogical practice	Features
Classroom communication	Teacher-dominated Oral communication combining teacher monologue with closed questions/uncompleted sentences (prompting chorused responses from the classes) Visual communication, primarily in the form of board work with very little signing for deaf learners
Task selection	Undifferentiated tasks, circumscribed in terms of learner demands, flexibility of interpretation and performance, and duration Solitary tasks, with some allowances made for deaf learners

5.4.2. Normative frameworks

In education, normative frameworks can either be explicit, such as curricula, or implicit in the form of culturally embedded beliefs and values (which inform curriculum selection and delivery).

The teachers' pedagogical approaches were shaped by the standards-based curriculum introduced in 2017. While the previous outcomes-based curriculum allowed teachers to design their own programmes of work (NDOE, 2003), the new curriculum prescribes what students will be taught and when – although teachers are given some freedom to design activities that accommodate the needs of all learners (NDOE, 2017a; 2017b). The previous curriculum encouraged the use of vernacular, so students could transfer their vernacular skills to English, and emphasised the need for schools to prepare students for their future lives in predominantly rural communities (NDOE, 2003). By contrast, its successor prescribes English as the sole language of classroom communication and stresses the importance of students acquiring the skills to succeed in an increasingly globalised world (NDOE, 2017a). Cultural mathematics is excluded from the new curriculum despite the existence of "complex, different, and diverse" forms of indigenous mathematical knowledge pre-dating colonialism and still in use today (Paraide et al., 2022, p. 21).

It has been argued that the type of 'formalist', transmission-based pedagogical practices observed in the case study school represent "cultural continuity in teaching style" (Guthrie, 2003, p. 57) as they reflect the country's centuries-old tradition of formal education in which knowledge was passed down by elders from generation to generation. However, this tradition also involved informal education in which children acquired practical knowledge through "real life activities" (McLaughlin, 1994, p. 71), involving learning "by observation and imitation" (p. 70) and "personal trial and error" (p.70) "in the absence of the institutionalised office of the teacher" (p. 71). This parallel tradition creates space for a much broader range of culturally appropriate pedagogical practices than those observed in the case-study school – and provided the rationale for the discarded outcomes-based curriculum and earlier curriculum initiatives, such as the production of instructional materials in local languages in the 1980s. It is also noticeable that the pedagogical approaches of the case study teachers closely resemble those prescribed by the colonial authorities in the 1960s (Barrington-Thomas, 1976), indicating "formalism is both indigenous and imposed" (Wallangas, 2003, p. 91). The selection of English as the sole language of classroom communication further illustrates the degree to which the Papua New Guinea education system has been shaped by exogenous processes, namely colonialism, post-colonialism, and globalisation.

5.4.3. Support systems

Although there was a nearby Inclusive Education Resource Centre (IERC) with five full-time staff, four of the staff largely focused on supporting the 53 students aged 5–19 plus enrolled in the centre, of whom 17 had multiple disabilities. While the primary purpose of resource centres is to support the inclusion of students with DALN in mainstream schools, these students, if enrolled in mainstream education, would have been even more educationally marginalised than the case-study students, given the complexity of their needs and unconducive teaching and learning conditions. The member of staff designated to provide outreach was rarely present in the school, as he was expected to provide one-to-one support for a secondary school student who was blind. When present, his primary duty was to assist deaf students during tests rather than provide other necessary services, including sign language interpretation and tuition for the deaf students and sign language training for their peers and teachers.

While the centre has optical and audiometric units, potentially capable of providing screening, assessment and assistive devices for learners with sensory impairments, these units only functioned intermittently as staff salaries were no longer covered by an international non-governmental organisation. Unsurprisingly, we encountered a

Grade 4 boy with albinism in the case study school whose needs were entirely unmet. Some of the deaf students in the school may also have benefited from hearing aids and associated support. However, students in Papua New Guinea are often reluctant to use assistive devices, like glasses and hearing aids, due to teasing from other children, so a supportive school environment would have to be created first.

The local provincial education division struggles to provide quality assurance for the school as the small team of inspectors is responsible for 800 elementary schools, 300 primary schools, and 36 high and secondary schools. Furthermore, disability inclusive education is primarily seen as the responsibility of the small, overworked unit in the national capital (see Section 2.3).

Table 3 outlines the variables shaping the teachers' pedagogical practices.

6. Discussion and conclusion

This case study has been informed by a theoretical framework which posits that pedagogical practices must meet the multi-layered needs of students with disabilities and additional learning needs (DALN) to be inclusive. While, broadly defined, these needs are universal, the specific forms they take reflect context and culture. It has also posited that the capacity of teachers to employ these practices is constrained and enabled by material and non-material realities (see Table 1). Drawing on data collected through lesson observation and interviews, the classroom communication and task-setting of five teachers in a mainstream primary school were examined and concerns raised about the extent to which they met the 'common', 'group', and 'individual' needs of students with DALN (see Table 2). Deaf students were particularly disadvantaged by lack of access to sign language. Finally, the practices were placed in the immediate context of teaching and learning realities and the broader context of normative frameworks and support systems (see Table 3). In summary, the case study found the capacity of the teachers to teach inclusively was severely constrained by material and non-material realities.

Subsequently, the researchers met the school leadership team, Inclusive Education Resource Centre (IERC) staff, and the Provincial Education Advisor. In the light of these discussions, a report was produced identifying ways in which provision for students with DALN could be strengthened through utilising existing resources more effectively. To ensure the deaf students were more socially and pedagogically included, it was recommended that the IERC provide sign language training for staff and hearing students and sign language tuition for the deaf students. To complement this, Melanesian sign language dictionaries should be made available and pictures of the signs for the alphabet posted on the walls of the classroom. Teachers were also requested to stand at the front of their classrooms facing their students when speaking – a strategy which would not only facilitate lipreading but make them more audible for the hearing students. To make lessons more inclusive for students with diverse learning needs, it was recommended the students be provided with more opportunities for group work, thus facilitating the transfer of knowledge and skills and reducing the pressures on struggling learners. Specific strategies were recommended for the learner with AD/HD, such as allowing him periodically to leave his desk. Finally, the school was requested to refurbish the blackboards so the teachers' writing was more legible – an initiative that would benefit all students, especially the more visually-reliant deaf learners. However, it was not recommended the teachers provide extra tuition for students with DALN – although the Grade 3 teacher (G3T) was already doing so, as they were already overburdened. Neither was it recommended that the teachers adjust the pace of instruction to accommodate these learners, as they were already doing so (and were concerned this practice was 'holding back' the other students and preventing them delivering a complex curriculum).

Table 3
Variables shaping pedagogical practices of the case study teachers.

Domain	Elements
Teaching & learning realities	Large class sizes/many students experiencing difficulties with learning
	Lack of resources
	Limitations of in-school systems
Normative frameworks	Prescriptive standards-based curriculum
	Cultural traditions
	Exogenous influences, including colonialism, post-colonialism & globalisation
Local support systems	Resource centre prioritising centre-based provision
	Lack of services for screening, assessing & providing assistive devices
	Over-burdened provincial inspectorate

In contrast, other recommendations necessitated significant investment. These included providing the school with curricular and instructional materials, creating new inclusion-focused positions in the school and IERC, employing sign language interpreters and classroom assistants, and funding the audiometric and optical clinics to screen learners with sensory impairments across the province.

Some of the less demanding no/low-cost recommendations have already been implemented (such as the refurbishing of the blackboards) or are in the process of being implemented (such as the sign language training). While it is possible the teachers will be willing and able to make small changes to their pedagogical practices (such as standing at the front of the classroom and facing their classes when speaking), it will be harder for them to make the more radical change of promoting group work in their classrooms, given their pedagogical ethos, curricular demands, and lack of appropriate instructional materials, as well as potential opposition from some students and their parents (due to the competitive, test and examination-oriented nature of the education system).[10] Unfortunately, the more costly recommendations are unlikely to be implemented in the foreseeable future due to financial realities.

To improve the situation nationally for students with DALN, the government has recently published a new inclusive education policy and associated implementation guide (NDOE, 2023; 2024). This envisages a transformation of teaching and learning so "all students with disabilities and additional learning needs can fully take part in lessons and access… quality educational opportunities" (NDOE, 2023, p. 9). For this to be accomplished, schools will provide inclusive learning environments (Objective 1) in which students receive inclusive learning support (Objective 2), a process facilitated by inclusive educators in schools and IERCs (Objective 3) and inclusive planning and management at school, provincial, and national levels (Objective 4). To ensure all stakeholders understand what is expected of them, the policy contains policy rules, allocates roles and responsibilities, and provides minimum standards.

The policy is significant as it clearly establishes that the National Department of Education is the primary duty bearer for the education of students with DALN at every level of the system – a responsibility which in practice had previously been delegated to a significant extent to Catholic church agencies. It also stresses IERCs should primarily focus on including these learners in mainstream schools rather than providing centre-based provision. The implementation guide is potentially useful for schools as it provides guidance on developing inclusive school learning improvement plans, assessing the accessibility of school infrastructure, and providing individualised support for these learners. Interestingly, there is no reference to 'model schools' in the policy, presumably because of concerns that this approach has resulted in the creation of 'islands of inclusion' and absolved other schools from responsibility for educating students with DALN in their catchment areas.

Gilson and Raphaely (2008) identify three barriers to health policy implementation which may similarly impede the new inclusive

[10] National Department of Education has recently announced plans to phase out the Grade 8 and Grade 10 examinations so all learners can progress to secondary education. This may ease the situation.

education policy. First, policy is always contested. For instance, parents may be uncomfortable about enrolling children with DALN in mainstream schools, mainstream schools reluctant to accept them, and IERCs prefer to offer centre-based provision. Given the high levels of decentralisation (by design and default) at all levels of the education system (Bray, 1985; Walton, 2019), it will be difficult for education authorities to prevent this. Second, policies often have "unintended and unwanted consequences" (*ibid*, p 303). For instance, in response to the stipulation that IERCs make "every effort…to transition" learners with severe and complex educational needs to regular schools (NDOE, 2023, p. 13), IERCs may simply enforce mainstreaming, to the psycho-social detriment of these children. Third, policy is "socially constructed, wrapped up in and influenced by the meanings different actors attribute to policy content or goals" (Gilson & Raphaely, 2008, p. 303). It is therefore important the policy is clearly communicated nationwide, a difficult task given Papua New Guinea's challenging geography and fragile infrastructure. Furthermore, stakeholders may struggle to implement the policy due to the heavy demands placed on them, such as the request that IERCs and schools produce individual education plans for learners with DALN (which may result in this activity being reduced to a 'box--ticking' exercise). Clearly, to be implemented as intended, effective "policy support programmes" (Hudson, Hunter, and Peckham, 2019, p. 5) will need to be in place, necessitating much higher levels of investment in the education of students with DALN and the system as a whole.

Changing teachers' pedagogy (a central ambition of the new policy) is particularly challenging as pedagogy is a structured phenomenon, constrained and enabled by teaching and learning realities and the functionality of education systems, and shaped by normative frameworks, either explicit (such as curricula) or implicit (culturally embedded beliefs and practices) (see Table 3). Assessing the impact of the inadequately resourced new inclusive education policy in Lesotho, Johnstone and Chapman (2009) unsurprisingly concluded that, while it had "an effect on shaping teacher behaviour in some schools" (p. 142), it had not led to significant pedagogical change.

The teachers in the school desperately wanted to support the students with DALN in their classes. In the words of G3T: "I'm really trying my best, I'm really trying my best…We have to save these children". In their analysis of Melanesian spirituality, Nongkas and Tivinarlik (2004), p. 61 observe, "Community is a key element and value in Melanesian culture…everything is done for the well-being and joy of the community. The community is there to support and care for the value of life". While recognising this ethos has been eroded by "an individualistic mentality" that reflects "capitalistic ideology" (*ibid,* p. 66), they testify to its residual strength. Their analysis indicates community empowerment could be an effective way of promoting sustainable inclusive education of good quality for learners with DALN, as promised by Convention on the Rights of Persons with Disabilities and the Sustainable Development Goals. This strategy could take various forms, including developing the capacity of local stakeholders to provide home and community-based support for these learners; encouraging the use of *Tok Ples*, *Tok Pisin* and an authentically Papua New Guinean sign language in schools; aligning the national curriculum more closely with local realities; and promoting field-based learning.[11] However, as the authors point out, this will only be possible if "Melanesian spirituality and indigenous knowledge are developed and rightfully acknowledged" (*ibid*). The way forward therefore lies within, not outside, Papua New Guinea.

CRediT authorship contribution statement

Mevelyn Kawane: Writing – review & editing, Validation, Project administration, Methodology, Investigation, Conceptualization. **Guy Le Fanu:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Siân Tesni:** Writing – review & editing, Validation.

[11] Self-evidently, many of these initiatives will benefit all students, not just students with DALN.

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References

Aiwa, J.D., 2013. *The education of children and young people with visual impairment in Papua New Guinea*. Unpublished doctoral dissertation, James Cook University, Townsville, Queensland, Australia.
Avalos, B., 1991. Contexts, training theory, and teaching practice. Teach. Teach. Educ. 7 (2), 169–184.
Barrington-Thomas, E., 1976. Papua New Guinea Education. Oxford University Press, Oxford, United Kingdom.
Bray, M., 1985. Education and decentralisation in less developed countries: a comment on general trends, issues and problems, with particular reference to Papua New Guinea. Comp. Educ. 21 (2), 183–195.
Clark, J., 2014. The importance of braille in the 21st century. J. South Pac. Educ. Vis. Impair. 7 (1), 24–29.
Cohen, L., Manion, L., Morrison, K., 2000. Research Methods in Education, 5th ed. RoutledgeFalmer, London.
Corbett, J., Norwich, B., 1999. Learners with special educational needs. In: Mortimore, P. (Ed.), Understanding Pedagogy and Its Impact on Learning. Paul Chapman Publishing Ltd, London, pp. 115–136.
Coussy, F., 2023. Giving Rise to Rights: Barriers & Enablers to Participation of Persons with Disabilities in PNG. World Vision Australia, Melbourne, Victoria, Australia.
Crossley, M., 1998. Ideology, curriculum and community: Policy and practice in education. In: Zimmer-Tamakoshi, In.L. (Ed.), Modern Papua New Guinea. Thomas Jefferson University Press, Missouri, MO, pp. 297–313.
Crossley, M., 2019. Policy transfer, sustainable development and the contexts of education. Comp.: A J. Comp. Int. Educ. 49 (2), 175–191.
Crossley, M., Vulliamy, G., 1984. Case-study research methods and comparative education. Comp. Educ. 20 (2), 193–207.
Dickson, D.J., 1976. Murray and education: Policy in Papua, 1906 to 1941. In: Barrington Thomas, E. (Ed.), Papua New Guinea Education. Oxford University Press, Oxford, United Kingdom, pp. 21–45.
Douglas, G., McLinden, M., 2005. Visual impairment. In: Lewis, A., Norwich, B. (Eds.), Special Teaching for Special Children? Pedagogies for Inclusion. Open University Press, Maidenhead, United Kingdom, pp. 26–40.
Gilson, L., Raphaely, N., 2008. The terrain of health policy analysis in low and middle income countries: a review of published literature 1994–2007. Health Policy Plan. 23 (5), 294–307.
Goro, J., 2020. The status of inclusive education in PNG. Spotlight 13 (1), 1–4.
Guthrie, G., 2003. Cultural continuities in teaching styles. Papua N. Guin. J. Educ. 39 (2), 57–78.
Hammersley, M., Atkinson, P., 1995. Ethnography: Principles in Practice, 2nd ed. Routledge, London.
Hudson, B., Hunter, D., Peckham, S., 2019. Policy failure and the policy-implementation gap: can policy support programs help? Policy Des. Pract. 2 (1), 1–14.
Jenkin, E., Wilson, E., Clarke, M., Campaign, R., Murfitt, K., 2017. Listening to the voices of children: understanding the human rights priorities of children with disability in Vanuatu and Papua New Guinea. Disabil. Soc. 32 (3), 358–380.
Johnstone, C.J., Chapman, D.W., 2009. Contributions and constraints to the implementation of inclusive education in Lesotho. Int. J. Disabil. Dev. Educ. 56 (2), 131–148.
Karthikeyan, P., Ramalingam, K.P., 2014. Physiotherapy training to enhance community-based rehabilitation services in Papua New Guinea: an educational perspective. Disabil. CBR Incl. Dev. 25 (1), 82–94.
Kett, M., Aiwa, J., Wapling, L., Goro, J., 2016. Reviewing Approaches to Education for Children with Disabilities in Papua New Guinea. Summary of findings (May 2016). Leonard Cheshire Disability, London.
Le Fanu, G., 2013. The inclusion of inclusive education in international development: lessons from Papua New Guinea. Int. J. Educ. Dev. 33 (2), 139–148.
Leach, G., 2024. History of Callan Services National Unit (CSNU). A work in progress. Part 1. Unpublished manuscript.
Marella, M., Yu, M., Paudel, P., Michael, A., Ryan, K., Yasmin, S., Minto, H., 2017. The situation of low vision services in Papua New Guinea: an exploratory study. Clin. Exp. Optom. 100 (1), 54–60.
Marschark, M., 2007. Raising and Educating A Deaf Child, 2nd ed. Open University Press, Oxford, United Kingdom.
Marschark, M., Hauser, P.C., 2012. How Deaf Children Learn. Open University Press, Oxford, United Kingdom.
Mason, M., Crossley, M., Bond, T., 2019. Changing modalities in international development and research in education: conceptual and ethical issues. Int. J. Educ. Dev. 7, 1–8.

May, T., 1997. Social Research, 2nd ed. Open University Press, Buckingham, United Kingdom.
McGlynn, K., Kelly, J., 2019. Adaptations, modifications, and accommodations. Sci. Scope 43 (3), 36–41.
McLaughlin, D., 1994. Through whose eyes do our children see the world now? Traditional education in Papua New Guinea. Papua N. Guin. J. Educ. 30 (2), 63–79.
Muir, T., 2008. Zero is not a number: Teachable moments and their role in effective teaching of numeracy. Navig. Curr. Charting Dir. 2, 361–367.
Murphy, P., 1985. UPNG as an agent of social stratification: An analysis of output by sex. In: Barrington Thomas, E. (Ed.), Papua New Guinea education. Oxford University Press, Oxford, United Kingdom, pp. 143–146.
National Statistical Office, 2024. *Population projections 2024-2050*. Port Moresby, National Capital District: Author.
NDOE, 1993. *The national plan, policy and guidelines for special education.* Port Moresby, National Capital District: Author.
NDOE, 2003. *National curriculum statement for Papua New Guinea*. Port Moresby, National Capital District, Papua New Guinea: Author.
NDOE, 2017a. *English syllabus Primary Grades 3, 4 and 5 Standards Based.* Port Moresby, National Capital District: Author.
NDOE, 2017b. *Mathematics syllabus Primary Grades 3, 4 and 5 Standards Based.* Port Moresby, National Capital District: Author.
NDOE, 2020. *National education plan 2020-2029. Port Moresby*, National Capital District: Author.
NDOE, 2023. *Inclusive education policy 2024-2028.* Port Moresby, National Capital District: Author.
NDOE, 2024. *Inclusive education policy implementation guide for schools 2024-2028.* Port Moresby, National Capital District: Author.
Nongkas, C., Tivinarlik, A., 2004. Melanesian Indigenous Knowledge and Spirituality. Contemp. PNG Stud. 1, 57–68.
O'Leary, M., 2020. Classroom Observation. A Guide to the Effective Observation of Teaching and Learning. Routledge, Abingdon, United Kingdom.
Paraide, P., Owens, K., Muke, C., Clarkson, P., Owens, C., 2022. Mathematics Education in A Neocolonial Country: The case of Papua New Guinea. Springer Nature Switzerland, Cham, Switzerland.
Sillitoe, P., 1998. An Introduction to the Anthropology of Melanesia. Cambridge University Press, Cambridge, United Kingdom.
Smith, P., 1985. Colonial Policy, Education and Social Stratification, 1945-1975. In: Barrington Thomas, E. (Ed.), Papua New Guinea education. Oxford University Press, Oxford, United Kingdom, pp. 49–66.
Smith, P., 1987. Education and Colonial Control in Papua New Guinea: A Documentary History. Longman Cheshire Pty Limited, Melbourne, Victoria, Australia.
Stake, R.E., 1998. Case studies. In: Denzin, N., Lincoln, Y. (Eds.), Strategies of Qualitative Enquiry. SAGE Publications, Inc, Thousand Oaks, CA, pp. 86–109.
Strauss, A., Corbin, J., 1998. Grounded theory methodology. In: Denzin, N., Lincoln, Y. (Eds.), Strategies of qualitative enquiry. SAGE Publications, Inc, Thousand Oaks, CA, pp. 158–183.
Taylor, S.J., Bogdan, R., 1984. Introduction to Qualitative Research Methods: the Search for Meanings, 2nd ed. John Wiley & Sons, New York.
UNDP, 2024. *Human development report 2023/2024. Breaking the gridlock: Reimagining cooperation in a polarized world.* New York: Author.
UNESCO, 2023. *Global education monitoring report 2023: Technology in education – a tool on whose terms?* Paris: Author.
UNICEF, 2004. *UNICEF in Papua New Guinea*. Port Moresby, National Capital District, Papua New Guinea: Author.
UNICEF, 2021. *Seen, counted, included: Using data to shed light on the well-being of children with disabilities*. New York: Author.
UNICEF, 2022. *Pacific regional inclusive education review.* New York: Author.
United Nations, 2006. *Convention on the rights of persons with disabilities and optional protocol*. New York: Author.
Wallangas, G., 2003. Formalism is both indigenous and imposed. Papua N. Guin. J. Educ. 39 (2), 96–100.
Walton, G.W., 2019. Fee-free education, decentralisation and the politics of scale in Papua New Guinea. J. Educ. Policy 34 (2), 174–194.
Wray, D., Medwell, J., Fox, R., Poulson, L., 2000. Teaching practices of effective teachers of literacy. Educ. Rev. 52 (1), 75–84.
Yin, R., 2003. Case study research: Design and methods, 3rd ed. Sage Publications, Inc, Thousand Oaks, CA.
Young, K., McNamara, P.M., Coughlan, B., 2017. Authentic inclusion-utopian thinking? Irish post-primary teachers' perspectives of inclusive education. Teach. Teach. Educ. 68, 1–11.