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RESEARCH BRIEF

Support Multigrade Schools with Digital Technology: Learning recovery from Typhoon Odette in the Philippines

Background

Multigrade education is a pedagogical method where one teacher is responsible for teaching learners of different ages, grades and curricula in one classroom. Since the Department of Education (DepEd) launched multigrade education in 1993, it has been an integral part of the Philippines education system to provide education in remote and sparsely-populated communities with low enrolments and limited number of teachers.[1] Multigrade schools are the key component of DepEd's Last Mile Schools Program, which aims to address the gaps in resources and facilities of schools in geographically isolated, disadvantaged and conflict-affected areas, and serve as one of the major strategies of DepEd to ensure inclusive and equitable quality basic education for all Filipino children.[2]

In School Year 2022–2023, 5,870 public schools across the Philippines offered either pure or mixed multigrade classes that are managed by DepEd or local government units. This accounts for 12 per cent of public schools in the country. There are 277,908 learners and 28,364 teachers in multigrade schools.[3] The largest number of multigrade schools are found in Region VIII (1,276 schools or 22 per cent of total multigrade schools), followed by Cordillera Administrative Region (599 or 10 per cent) and Region II (433 or 7 per cent). Nearly all or 98 per cent of multigrade schools run pure elementary schools, while 2 per cent offer the combination of elementary and junior high schools or kindergarten to senior high schools. Nearly all (99 per cent) of multigrade schools are in rural or partially urban areas in the country. Several (15 per cent) of the schools are either off-grid or have no electricity supply, and half (51 per cent) have no access to the internet (*see **Figure 1***).

Typhoon Odette hit the Philippines in December 2021, destroying many classrooms and essential school supplies. Affected were 29,671 schools from 11 regions, equivalent to 89 per cent of the total 33,471 schools in those regions. There were 5,635 totally damaged and 10,557 partially damaged classrooms across the affected regions. As a result, 711,360 children were in need of education in emergency support.[4] Moreover, in the face of the coronavirus (COVID-19) pandemic, schools were closed from March to October 2020 without any type of formal learning, and education was delivered entirely on distance learning from October 2020 to November 2021, during which many children struggled to keep up with their education.[5] Typhoon Odette, with the long closure of in-person schools during the pandemic, has exacerbated challenges in education for learners in multigrade schools in rural communities who were already disadvantaged prior to these disruptive events, depriving them of quality, inclusive learning.[6]

Figure 1: Breakdown of multigrade schools in the Philippines by characteristics, School Year 2022–2023 (n=5,870 schools)
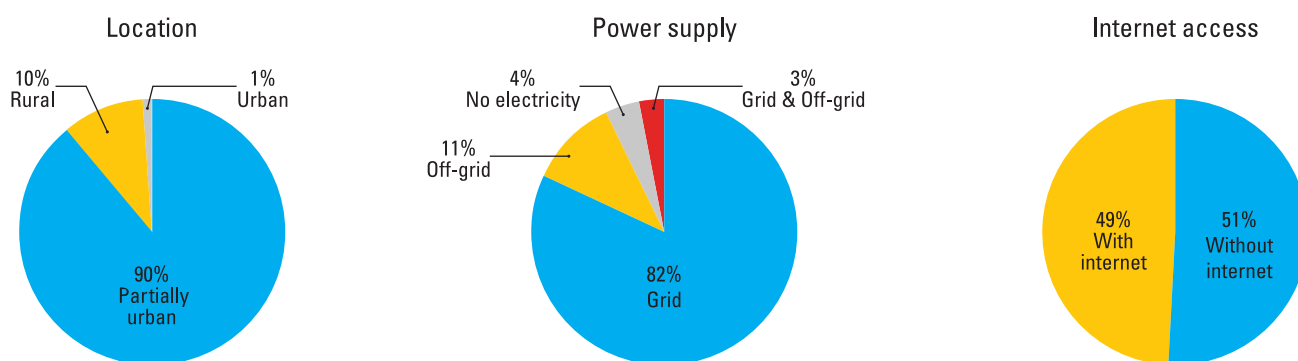
Notes: Grid – electricity coming from major or local power distributors; Off-grid – electricity coming from alternative sources of power (e.g., solar power, generator, hydroelectric, micro hydro, wind turbine, windmill); Grid & Off-grid – schools using both grid and off-grid as means of electrification; No electricity – without existing electrical supply at all.
Source: Department of Education

[1] SEAMEO Innotech, *Profile of Multigrade Schools in the Philippines*, 2020.
[2] DepEd, 'DepEd's Last Mile Schools Program to address gaps in isolated, disadvantaged areas', Press release, 22 July 2019.
[3] Data was generated from the DepEd Learning Information System in January 2023.
[4] Philippines Humanitarian Country Team, *Humanitarian Needs and Priorities Revision: Super Typhoon Rai (Odette) Philippines*, 2022.
[5] A story of a learner in a multigrade school during the COVID-19 pandemic.
[6] Data from the Southeast Asia Primary Learning Metrics 2019 show that Grade 5 learners in rural areas of the Philippines fall behind in acquiring foundational skills compared to children in urban areas, prior to the pandemic.

Intervention

In response to these challenges, the United Nation Children's Fund (UNICEF) Philippines with DepEd's Bureau of Learning Delivery (BLD) and Fundación Educación y Cooperación (Educo) implemented the Learning Recovery Programme for Children in Multigrade Schools in Typhoon Odette Affected Areas in the Philippines.[7] The objective of the project is to support multigrade schools that were severely affected by Typhoon Odette and the long closure of schools during the pandemic to mitigate learning losses and expedite learning recovery. The activities implemented in this project are as follows.

Provision of digital learning and teaching materials

School in a Bag, a portable digital classroom package from Smart Communications, Inc., was provided to 96 multigrade schools. Each bag contains digital education devices, including 10 tablets for learners and 1 laptop for teachers.[8] These devices are preloaded with educational materials from DepEd and partners and can be used without internet access.[9]

In addition, the project introduced the Learning Passport, a digital learning management system developed by UNICEF and Microsoft Community Training. The online instance that is unique to the Philippines' basic education was created and set up. The Learning Passport enables learners and teachers to access learning content and track their performance.[10]

Learners and teachers from 96 multigrade schools were given access to the online platform. Hub devices, which enable access to the learning content offline in low- to no-connectivity areas, were provided to 77 schools that have stable electricity supply.

To enrich digital learning with School in a Bag and the Learning Passport, television (TV) monitors and HDMI cables were supplied to all 96 multigrade schools. In addition, 19 schools from Dinagat Islands and Southern Leyte that do not have stable electricity supply were given a solar panel set.[11]

Professional development for teachers

Along with the provision of digital learning and teaching materials, teachers from the partner schools received training on the use of these resources in the classroom. The objective of the training was to familiarise teachers with the features of School in a Bag and the Learning Passport and capacitate them to use the resources effectively in multigrade education.[12] To strengthen support to teachers, staff from Educo and DepEd Dinagat Islands and Southern Leyte divisions were also oriented on School in a Bag and the Learning Passport.[13]

In total, 6,170 learners and 345 teachers from kindergarten to Grade 6 in 96 multigrade schools in Dinagat Islands and Southern Leyte have benefited from these interventions.

Box 1: Achievements of the Learning Recovery Programme for Children in Multigrade Schools in Typhoon Odette Affected Areas in the Philippines

PEOPLE	ITEMS	EVIDENCE	POLICY	COMMUNICATION

• **6,170** learners received School in a Bag and the Learning Passport
• **345** teachers trained
• **37** DepEd division staff trained
	• **96** School in a Bag
	  - 96 laptops
	  - 960 tablets
	• **77** hub devices and plug adapters
	• **96** TV monitors and HDMI cables
	• **19** solar panel sets
	• Philippines Learning Passport created
	• Simplified Learning Passport manual developed; **267** copies distributed
		• ICT assessment surveys
		• Post-implementation monitoring
		  - Online surveys
		  - Focus group discussions
		• **1** research brief
		• **1** policy brief
			• **2** DepEd memos on the ownership and management of School in a Bag and the Learning Passport	• **2** human interest stories
				• **2** videos
				• Various Facebook, Twitter (X), Instagram posts
				• **10** thank-you videos received from schools

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[7] The project duration was from May 2022 to April 2023. The implementation in Southern Leyte started in May 2022 and in Dinagat Islands in July 2022.
[8] The main contents of School in a Bag include 1 laptop, Microsoft Office Home and Student 2019 software, 10 tablets, 10 microSD cards, 1 pocket Wi-Fi, internet load and 1 64 GB flash drive.
[9] The educational materials were curated by Educo and approved by DepEd-BLD.
[10] Like School in a Bag, the educational materials were curated by Educo and approved by DepEd-BLD.
[11] School in a Bag, the Learning Passport and the associated equipment were handed over to schools in Southern Leyte in September 2022 and in Dinagat Islands in December 2022. The hub devices were delivered to 77 schools in April 2023.
[12] Teacher training was held in Southern Leyte in October 2022 and in Dinagat Islands in January 2023.
[13] Orientation for the Educo staff took place in August 2022; for DepEd Southern Leyte, in September 2022; and for DepEd Dinagat Islands, in December 2022. An orientation on the hub devices took place in April 2023.

Objectives of the study

This research brief examines the enabling factors for introducing School in a Bag and the Learning Passport and presents how these resources are adapted in multigrade schools. After investigating the opportunities and challenges in the context of information and communications technology (ICT) in education in the partner schools, the research looks into the utilisation of School in a Bag and the Learning Passport as well as the benefits and challenges in using these in multigrade classrooms. The study answers the following research questions:

1) What is the context of ICT in education in the partner multigrade schools before the intervention?
2) How are School in a Bag and the Learning Passport utilised in multigrade classrooms?
3) What are the benefits and challenges, as perceived by teachers and learners, in using School in a Bag and the Learning Passport in multigrade education?

By answering these questions, the research provides examples of how School in a Bag and the Learning Passport support teaching and learning in multigrade classes in remote and disadvantaged areas. The findings may inform DepEd in strengthening multigrade education with ICT-enhanced pedagogy and provide lessons learned in expanding ICT-enhanced pedagogy in other multigrade schools. The research also shares experience from the Philippines for other countries that implement similar digital learning interventions.

Methods

This research uses data collected from the project's partner schools, teachers and learners.

Survey on ICT in Education in Multigrade Schools

The Survey on ICT in Education in Multigrade Schools was conducted prior to the introduction of School in a Bag and the Learning Passport in the classroom. The survey objective was to gather baseline information on the availability of ICT devices and digital resources in partner schools, their use to support various teaching tasks and teachers' views on the use of ICT in education and professional development needs.[14] The respondents were teachers who answered the survey while participating in teacher training. Note that only the first answer was maintained for analysis for some respondents who mistakenly answered the survey multiple times. In total, responses from 316 teachers (92 per cent of the surveyed teachers) were included in the analysis. The data provide answers to the first research question: What is the context of ICT in education in the partner multigrade schools before the intervention?

Post-implementation monitoring

Post-implementation monitoring was conducted on learners, teachers and school heads to understand how School in a Bag and the Learning Passport are utilised to support learning, teaching and other functions in multigrade schools.[15] It also examined the benefits and challenges of utilising these resources to improve the quality of learning in multigrade classes, based on the experience and perception of learners, teachers and school heads. Questions related to the use of the offline Learning Passport hub devices were excluded in the survey due to their recent implementation at the time of monitoring. There were 85 school heads (89 per cent of the school heads of partner schools),[16] 289 teachers (84 per cent) and 2,584 learners (42 per cent) included in the analysis. Only the first answer was maintained for analysis for respondents who answered the survey multiple times.

In-person focus group discussions were also organized with 123 learners, 64 teachers and 20 school heads in 20 selected schools in Dinagat Islands and Southern Leyte. The data from the survey and focus group discussions provide answers to the second and third research questions: How are School in a Bag and the Learning Passport utilised in multigrade classrooms? What are the benefits and challenges, as perceived by teachers and learners, in using School in a Bag and the Learning Passport in multigrade education?

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[14] The survey was patterned after the ICT in Education Teacher Readiness Survey, developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) Bangkok in 2014.
[15] This was conducted in March 2023. Monitoring tools were developed by UNICEF Philippines in consultation with DepEd-BLD, DepEd-Dinagat Islands, DepEd-Southern Leyte, Educo, Smart Communications, UNICEF global Learning Passport team, UNICEF East Asia and Pacific Regional Office and UNICEF Innocenti.
[16] Five school heads in Southern Leyte served multiple schools.

Findings

## Use of ICT in multigrade schools before the intervention

Weak internet connection is the major challenge to access to online education resources at school.

The findings suggest that the partner schools generally have basic power supply and digital learning devices and resources. Nearly three fourths (74 per cent) of teachers either strongly agreed or agreed that their school has sufficient power supply to use computers (*see **Figure 2***). Moreover, two thirds (67 per cent) reported that their learners have access to a functional tablet at school as part of their learning process and 64 per cent have access to sufficient digital learning resources that they can use in the classes. About half of teachers had access to a functional computer for administrative tasks (53 per cent) and teaching tasks (51 per cent). Nearly half (46 per cent) answered that technical support for ICT is readily available in school.

However, in terms of internet connection, only one in three teachers (35 per cent) either strongly agreed or agreed that their school computer is connected to the internet. Even when they had internet connection in school, only a small share of teachers said that it is fast enough to load websites for teaching (32 per cent) and stable enough to view online teaching videos (27 per cent). Possibly due to limited internet connection, 84 per cent of teachers preferred to use their own devices in school and 72 per cent used their own mobile phone data.

Figure 2: Availability of ICT devices and digital resources at school (n=316 teachers)
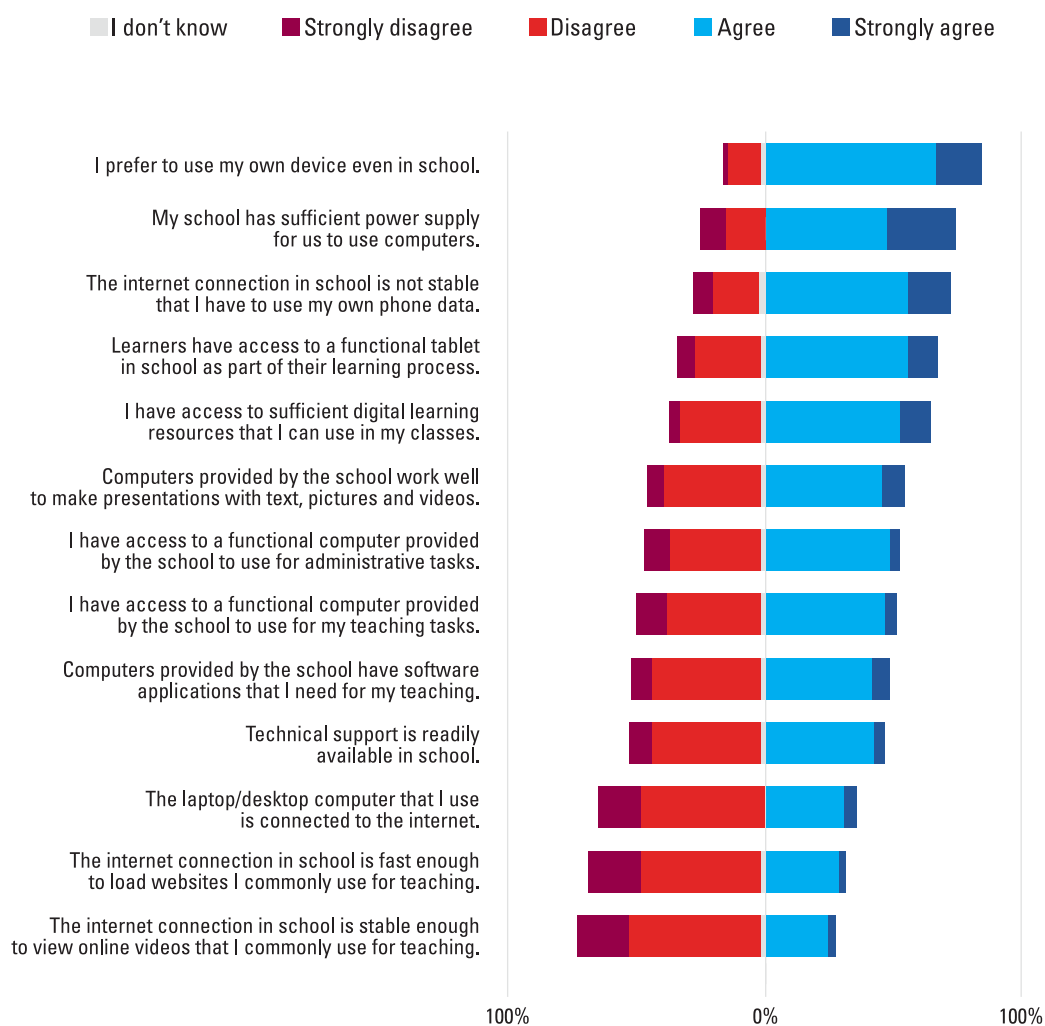
Source: UNICEF Philippines, Survey on ICT in Education in Multigrade Schools, 2022

A large share of teachers use ICT as part of the teaching and learning process prior to the intervention.
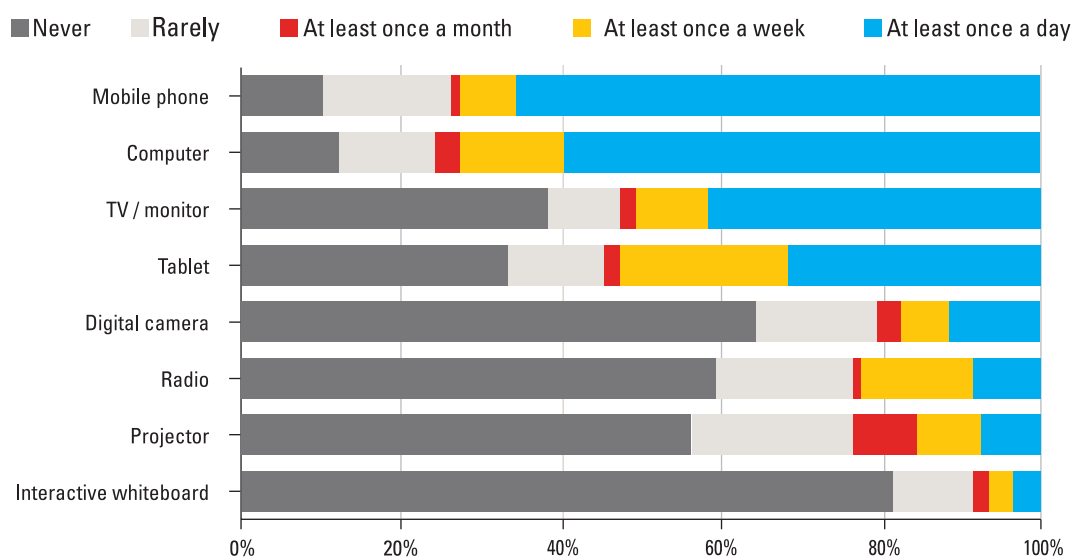
Teachers frequently used ICT devices in teaching even before the intervention. A large share of teachers described that they use a mobile phone (66 per cent), computer (60 per cent), TV monitor (41 per cent) and tablet (32 per cent) at least once a day for their classroom teaching (*see* **Figure 3**). In terms of digital resources, the highest share of teachers use various educational websites (22 per cent) for their classroom teaching, followed by mobile apps (18 per cent) and open educational resources (15 per cent).

Nearly three fourths (73 per cent) of teachers answered that they also allow learners to use ICT in school as part of their learning process. Two thirds (66 per cent) reported that learners use the devices that teachers specifically use in class or are provided by schools, while 7 per cent said that learners use their own devices. Among teachers who permit learners to use ICT in school, 45 per cent let learners access ICT via portable laptop/tablet carts moved from classroom to classroom while 30 per cent said they used classroom-dedicated ICT devices and 11 per cent at computer labs.

About 39 per cent of teachers reported that learners may access the internet in school as part of their learning process, with 24 per cent of teachers allowing access on learners' own personal accounts/connections and 15 per cent with school internet connection.

In general, learners come from households with limited internet connections and only few have a computer or tablet at home. According to the post-implementation monitoring, only 3 per cent of learners had a computer and 8 per cent had a tablet at home.

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Teachers in Southern Leyte participate in the training on the use of School in a Bag and the Learning Passport in teaching and learning delivery.

Figure 3: Frequency of use of ICT devices in teaching (n=316 teachers)

Legend: ■ Never ■ Rarely ■ At least once a month ■ At least once a week ■ At least once a day

Categories (top to bottom): Mobile phone, Computer, TV / monitor, Tablet, Digital camera, Radio, Projector, Interactive whiteboard

X-axis: 0%, 20%, 40%, 60%, 80%, 100%

Source: UNICEF Philippines, Survey on ICT in Education in Multigrade Schools, 2022

Teachers demonstrated a positive view on the use of ICT in education – nearly all agreed that ICT contributes to innovative pedagogy, teachers' professional development and positive feedback from learners.

Teachers generally had a positive perception towards ICT in education. More than 95 per cent of teachers either strongly agreed or agreed that they can innovate their teaching more easily with ICT, that ICT plays an important role in their professional development and that learners evaluate their teaching more positively when they use ICT (*see Figure 4*). Additionally, more than 90 per cent of teachers answered that ICT may support learner-centred learning and provide useful resources to support their learning.

However, two thirds (66 per cent) of teachers either strongly agreed or agreed that it requires a lot of resources and time to use ICT in teaching. Over half (53 per cent) of teachers were skeptical that ICTs have the capacity to provide benefits in the classroom.

Although teachers have basic ICT competencies, they need professional development opportunities in ICT in education – more than half of teachers have never attended any ICT-related training provided by DepEd in the past 24 months.

Teachers appear to have basic ICT competencies. Less than 10 per cent reported that they are least competent[17] in conducting ICT-supported tasks such as sharing ICT in education trends with colleagues in school, instructing colleagues on ICT in education practices, accessing educational websites and engaging in a virtual community of practice with teachers from different schools (*see Figure 5*).

In terms of professional development opportunities, two in three teachers (66 per cent) have participated in training on the use of ICT before and/or after taking on a teaching profession, while one in three (34 per cent) have never received one throughout their teaching career. Among those who have received training,

Figure 4: Teachers' views on ICT in education (n=316 teachers)
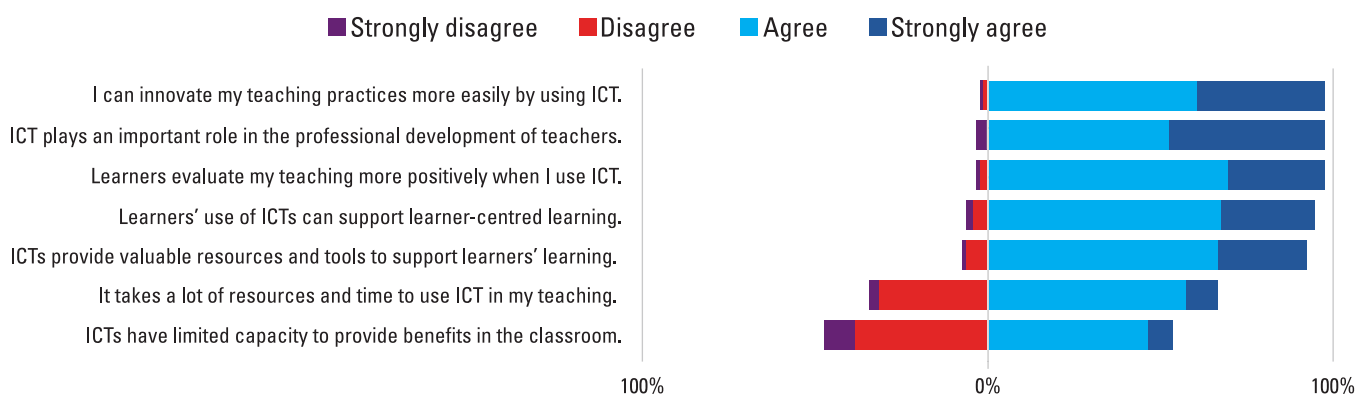
Source: UNICEF Philippines, Survey on ICT in Education in Multigrade Schools, 2022

Figure 5: Teachers' professional development needs on the use of ICT in education (n=316 teachers)
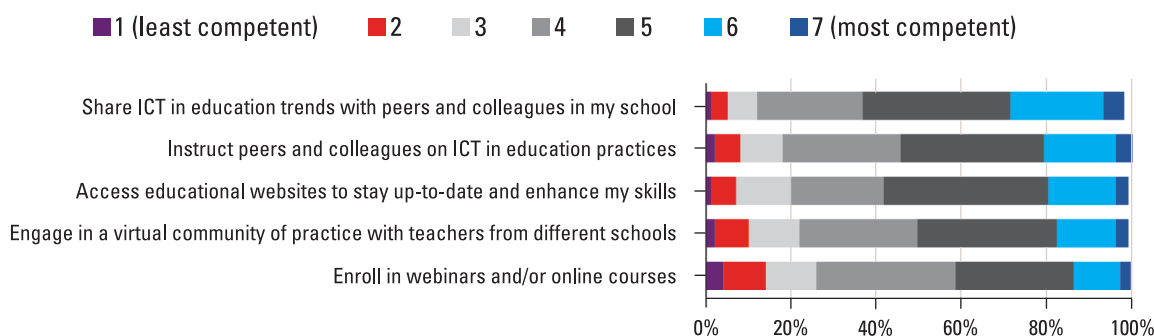
Source: UNICEF Philippines, Survey on ICT in Education in Multigrade Schools, 2022

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[17] Those who reported 1 and 2 in the scale.

half (49 per cent) have undergone in-service training on ICT in education only after becoming a teacher.

The COVID-19 pandemic has significantly amplified the role of digital technology in education. About 71 per cent of teachers reported that they had been surveyed on the need for ICT-related training with 32 per cent approached by both DepEd and their school, 21 per cent by DepEd and 18 per cent by the school only. However, over half (52 per cent) of teachers have never attended ICT-related training provided by DepEd in the past 24 months. One fourth (25 per cent) of teachers have received DepEd's ICT-related training for 1 to 4 hours, followed by 18 per cent for 5 to 15 hours and 5 per cent for 16 to 40 hours. Similarly, 60 per cent of teachers have never attended informal ICT-related training in their school during the same period.

Utilisation of School in a Bag and the Learning Passport

More than 70 per cent of schools have established a plan for utilisation, safe storage and maintenance of School in a Bag and the Learning Passport.

School-level planning on the use and management of School in a Bag and the Learning Passport plays a key role in their effective and sustainable use. Over half (55 per cent) of school heads from Dinagat Islands and Southern Leyte reported that there is a general written school policy for using ICT in their school, which stipulates the standard operating procedure and rules of conduct in ICT, and 91 per cent of schools have an ICT focal point. These facts indicate that schools have some level of readiness towards digital learning.

More than 90 per cent of schools had already established a schedule and plan (e.g., who will use, how often, simultaneous use or scheduled use, what time of the day) on the use of School in a Bag and the Learning Passport within three to six months of project implementation. In addition, almost all schools have a plan to safely store School in a Bag and the Learning Passport hub devices. The most popular option for safe storage is a regular classroom or a teachers' room. The school heads reported that these rooms are generally secured with a lock. About 88 per cent of schools have a maintenance plan on School in a Bag and 74 per cent on the Learning Passport. **Figure 6** presents details of the maintenance plan.

Moreover, 88 per cent of schools that have received the Learning Passport offline hub devices have a plan to synchronise the content in places like school (reported by 52 per cent of school heads), home (12 per cent) and division office (6 per cent). However, 88 per cent of school heads said that the internet connection is weak or very weak in these locations. Synchronising the content is assigned to teachers (at 55 per cent of the partner schools), school ICT focal point (39 per cent) and school heads (38 per cent).

Figure 6: Maintenance plan on School in a Bag and the Learning Passport (n= 85 school heads)
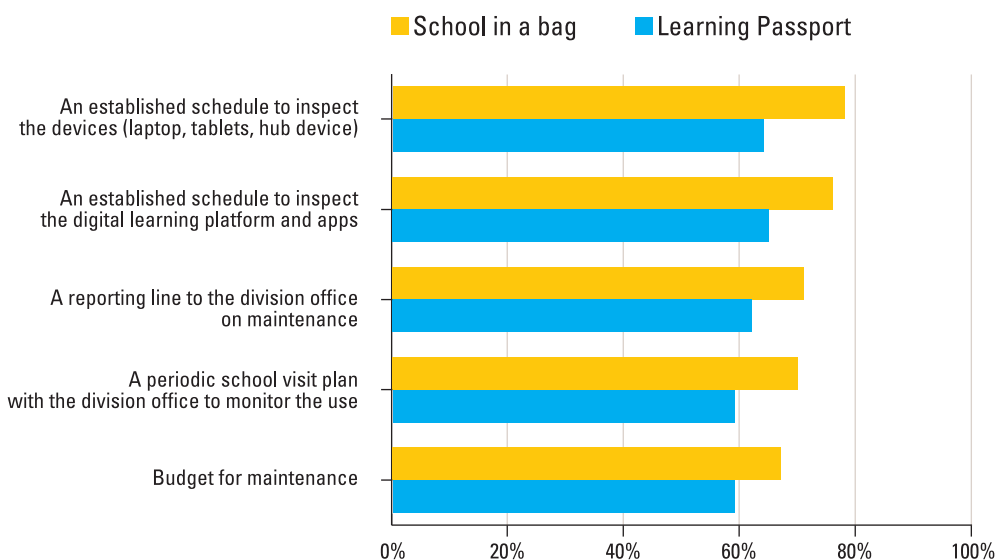
Notes: Percentage refers to the share of school heads who answered "there is a maintenance plan" among those who participated in the survey.
Source: UNICEF Philippines, Post-implementation monitoring, 2023

A multigrade teacher in Southern Leyte gives a lesson to young learners using the Learning Passport with devices from School in a Bag. These resources aid teachers in providing continuous access to quality education in remote areas.

A large share of teachers use School in a Bag and the Learning Passport for remedial learning and as supplementary materials during regular classes in Mathematics, English and Filipino for two to three times a week.

Almost all teachers who have accessed the devices reported that they use School in a Bag (97 per cent) and the Learning Passport (93 per cent) for learners' learning in their classes. However, there is a small share of teachers who have not used School in a Bag for a reason such as their school not sharing with them (60 per cent of those who have not used). As to the Learning Passport, poor internet connection (73 per cent) is the main reason why some teachers have not used it.

Half (50 per cent) of the teachers use School in a Bag and the Learning Passport two to three times a week, followed by 30 per cent for once a week. Large shares of teachers use School in a Bag and the Learning Passport for Mathematics (95 per cent for School in a Bag and 96 per cent for the Learning Passport), English (88 per cent and 92 per cent) and Filipino (74 per cent and 83 per cent) lessons.

They generally use School in a Bag in the conduct of remedial learning outside regular lessons (e.g., extra classes, tutoring) (95 per cent) and as supplementary materials during regular lessons (93 per cent). A large share of teachers have not allowed learners to use it for their homework (65 per cent).

This is also true for the Learning Passport. Nearly all teachers use the Learning Passport for remedial learning outside regular classes (99 per cent) and as supplementary materials in regular classes (96 per cent).

The vast majority of teachers have already integrated the use of School in a Bag (93 per cent) and the Learning Passport (94 per cent) in their lesson plans. Roughly 60 per cent received instructional supervision from school heads and about 40 per cent by other teachers during this process.

Moreover, 82 per cent of teachers have used the laptop and tablets from School in a Bag for other than accessing the learning materials, such as searching information online (63 per cent), designing presentations for the class (62 per cent) and sharing information with other teachers (62 per cent).

Additionally, a large share of teachers also use School in a Bag (86 per cent) and the Learning Passport (85 per cent) for their professional development. Almost all teachers have used these resources to enhance their subject-matter knowledge and pedagogical skills via self-learning, while some teachers have used School in a Bag (80 per cent) and the Learning Passport (89 per cent) during Learning Action Cell sessions, which is a school-based continuous professional development strategy for teachers. On average, teachers use School in a Bag (46 per cent) and the Learning Passport (53 per cent) two to three times a week for their professional development.

Benefits of using School in a Bag and the Learning Passport

School in a Bag and the Learning Passport support teachers to manage multigrade classrooms better and increase learners' engagement and interest in learning.

Almost all teachers who have used School in a Bag and the Learning Passport believe that both resources contribute to positive education outcomes for their learners. All teachers who perceived the benefits of these resources report that learners demonstrate increased engagement and interest in learning with School in a Bag and the Learning Passport.

Evidence from the focus group discussions presents in depth how digital learning with these resources has improved teachers' classroom management. When teachers are giving instruction to learners in one grade level, learners from other grades often study with digital learning resources from School in a Bag and the Learning Passport. This has helped learners engage in classroom activities without the teacher's direct supervision and reduced noise and disruptive behaviour in the classroom. Teachers have witnessed that learners are generally more focused, excited and eager to learn when using School in a Bag and the Learning Passport in the classroom. Teachers have found that the content is appropriate and effective in teaching. Some teachers believe that the materials may have enhanced learners' mastery of lessons and foundational skills in literacy and numeracy. Moreover, School in a Bag and the Learning Passport have reduced the burden on teachers to look for appropriate educational videos to supplement their lessons.

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More than 90 per cent of learners found that School in a Bag and the Learning Passport make learning fun, make them want to come to school and help them understand the lesson better.

A vast majority (91 per cent) of learners have used a tablet from School in a Bag. Among them, 93 per cent report that they can access the learning materials in the tablet either very easily or easily. Only half of learners, however, have used the Learning Passport in their classes. About 80 per cent of those who have used it have accessed it by tablet; 88 per cent of learners who have used the Learning Passport can access it either very easily or easily.

The tablets from School in a Bag contain 14–17 digital learning materials.[18] The most popular learning material is Oy! Oy! App, which 55 per cent of learners rated as 'like very much'. It is a gamified app that aims to create awareness among Filipino children about the environment, family, culture and arts.[19] Other popular ones are Bahay Kubo (51 per cent), which teaches the Tagalog alphabet and numbers with fun games and stories for children aged 2–6 years old, and Katao (50 per cent), which is an interactive literacy app meant to teach the Inabaknon language for learners in kindergarten to Grade 3.[20]

Almost all learners who used School in a Bag and the Learning Passport enjoy learning with them. A large share of learners find that School in a Bag and the Learning Passport make learning fun (97 per cent for School in a Bag and the Learning Passport), make them want to come to school (96 per cent and 95 per cent), and help them understand the lesson better (95 per cent and 96 per cent).

Challenges of using School in a Bag and the Learning Passport

Teachers who have used School in a Bag struggle the most in supervising learners when using tablets, while internet connection is the main challenge in using the Learning Passport.

Teachers have encountered some challenges in using School in a Bag (65 per cent) and the Learning Passport (66 per cent) for learners' learning in their classes. Among the teachers who have used School in a Bag, about half struggle to supervise learners when learners are using the tablets, and

The Learning Passport is a digital learning management system developed by UNICEF and Microsoft Community Training. It is accessible online, via a mobile app, and offline to provide high-quality, flexible learning.

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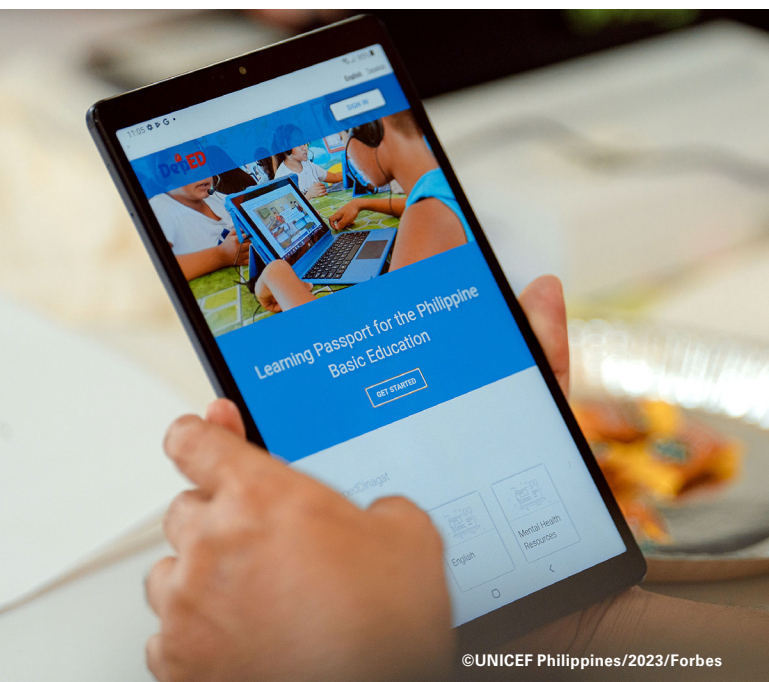
[18] 15 learning apps for Southern Leyte and 17 for Dinagat Islands.
[19] Description is from Smart Communications.
[20] This was installed only in tablets for Dinagat Islands.

they observe that learners have challenges using the devices effectively (*see **Figure 7***). Also, 47 per cent of teachers who have used School in a Bag for learners' learning report that they still have limited technical knowledge on School in a Bag. Moreover, 39 per cent of teachers have a hard time managing the logistics of sharing a device with other teachers and learners, and 34 per cent do not have sufficient time or support to prepare lessons using School in a Bag.

For the Learning Passport, weak internet connection is the common challenge for 63 per cent of the teachers who have used it. Moreover, 55 per cent of teachers still have limited technical knowledge on the Learning Passport. Similar to School in a Bag, more than 50 per cent of teachers encounter challenges in instructing learners when using the Learning Passport, and teachers observe that learners have challenges using it effectively. Also, 44 per cent of teachers struggle with

sharing the devices to use the Learning Passport with other teachers and learners, while 40 per cent need more time or support to prepare lessons using the Learning Passport.

Due to these challenges, more than 90 per cent of teachers find that additional support on pedagogies (92 per cent) and guidance for using School in a Bag and the Learning Passport, such as lesson exemplars and practical examples of forms to incorporate them (91 per cent), would be useful to facilitate the use of these resources effectively in the classroom.

Similarly, learners encounter some challenges in using School in a Bag (42 per cent of those who used) and the Learning Passport (37 per cent). Their main challenge with using School in a Bag is sharing tablets with other learners (64 per cent), while 58 per cent of learners still have limited knowledge on how to use the Learning Passport.

Figure 7: Challenges teachers encounter in using School in a Bag and the Learning Passport for learners' learning the classroom

School in a Bag (n=272 teachers)

Learning Passport (n=188 teachers)
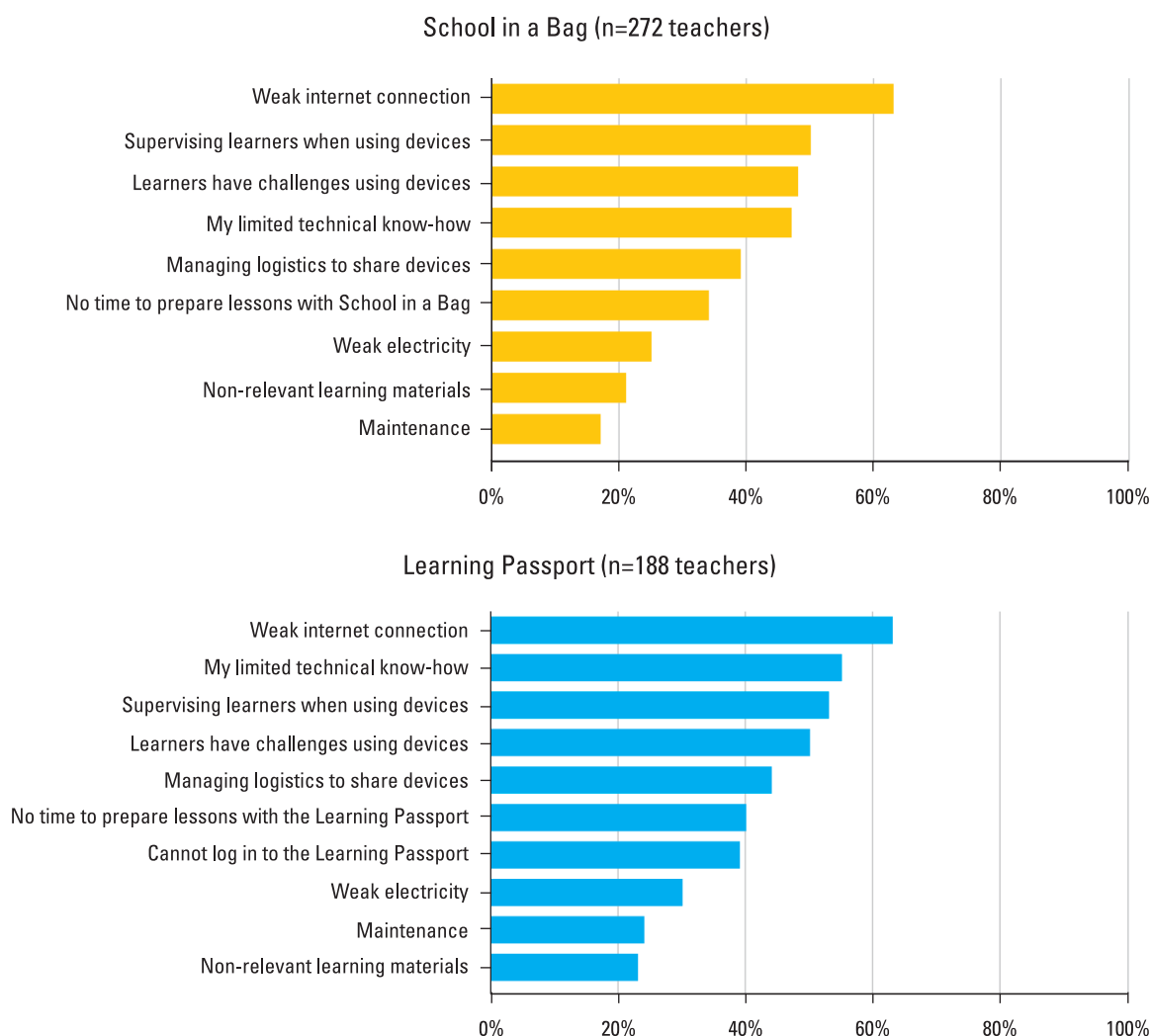
Notes: Percentage is based on teachers who utilised School in a Bag and the Learning Passport among those who participated in the survey.
Source: UNICEF Philippines, Post-implementation monitoring, 2023

Conclusion

The research brief analysed data from the implementation of the project and answered the following research questions:

What is the context of ICT in education in multigrade schools before the intervention?

The findings suggest that, given the context in these schools, one of the enabling factors for introducing School in a Bag and the Learning Passport is that the partner schools generally have a policy for using ICT, including a school-level ICT focal point. They have basic power supply, and teachers have been using ICT devices in teaching. Learners have also been allowed to use the devices in the classroom as part of their learning process even before the intervention. Additionally, teachers have a positive perception towards ICT in education, believing that ICT may contribute to innovative pedagogy, teachers' professional development and positive feedback from learners. These facts show that schools have a foundation for digital learning and that teachers have basic digital literacy to make use of School in a Bag and the Learning Passport.

The challenge in introducing School in a Bag and the Learning Passport is that a large share of schools have no or weak internet access. This implies that digital learning that relies on internet connection will be challenging to implement in these schools. Moreover, while teachers have been employing digital learning in the classroom, more than half of them have not attended any official ICT-related training in the past 24 months. This implies that teachers may be familiar with using the devices but may not have sufficient knowledge and skills to optimise digital technology in pedagogy.

How are School in a Bag and the Learning Passport utilised in multigrade classrooms?

Based on the guidance from the division office, a large share of schools quickly made a school-level plan on the use and management of School in a Bag and the Learning Passport, and teachers integrated the use of these resources in their lesson plans within three to six months of project implementation. The existing teaching and learning practices using digital resources – the schools' foundation for digital learning – may have enabled schools to receive School in a Bag and the Learning Passport well and establish a plan for their utilisation, safe storage and maintenance.

In general, School in a Bag and the Learning Passport are utilised for remedial learning and as supplementary materials during regular classes in Mathematics, English and Filipino for two to three times a week. Apart from accessing the preloaded learning materials, teachers also use the laptop from School in a Bag to search information online, design presentations for the class and share information with other teachers.

Additionally, teachers use School in a Bag and the Learning Passport for professional development to enhance their subject-matter knowledge and pedagogical skills via self-learning.

What are the benefits and challenges, as perceived by teachers and learners, in using School in a Bag and the Learning Passport in multigrade education?

Teachers reported that School in a Bag and the Learning Passport improves their classroom management, and learners demonstrate increased engagement and interest in learning. Moreover, the preloaded digital learning content reduces their burden to look for educational materials that are appropriate to supplement their lessons. The majority of learners enjoy learning with School in a Bag and the Learning Passport. They reported that these resources make learning fun, make them want to come to school and help them understand the lesson better. In general, learners come from households with limited internet connection and only few have a computer or tablet at home. Therefore, digital technology-enhanced learning at school may have boosted their interest in learning and engagement in the classroom.

One of the challenges in using School in a Bag and the Learning Passport in multigrade education is that both teachers and learners struggle to manage the sharing of tablets in the classroom and to use these resources effectively. Teachers also have a hard time in managing the logistics of sharing a device with other teachers. Teachers and learners expressed that they have not fully grasped the use of School in a Bag and the Learning Passport yet, thus additional guidance for using these resources in learners' learning and teachers' professional development will be useful. Furthermore, it is evident that internet connection continues to be a major challenge. The Learning Passport that relies on internet connection is accessed less by teachers and learners than School in a Bag that has offline learning content. The implementation of the Learning Passport offline hub devices, which enable access to the learning content without the internet, may mitigate this challenge.

Lastly, despite the benefits of using School in a Bag and the Learning Passport, the changes in learners' learning

performance were not measured with learning assessments during project implementation. As such, the relationship between the use of School in a Bag and the Learning Passport and learners' learning performance should be examined in future monitoring.

Read more

Based on the findings from the research brief, the policy brief presents recommendations for further strengthening and scaling up ICT-enhanced pedagogy in multigrade education.

Learners in a multigrade school in Dinagat Islands study with tablets from School in a Bag that are preloaded with educational materials from DepEd and partners and can be used without internet access.

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