DIGITAL radio mondiale

NEW WORLD NEW RADIO
EVOLUTION, INNOVATION, CONNECTION
10th WORLD RADIO DAY 13.02.2021 EDITION

DRM Digital Radio
Delivers Education for All

DIGITAL radio for all

UNESCO
10th WORLD RADIO DAY 13.02.2021 EDITION

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Introduction

Radio is more than 110 years old; the World Radio Day (WRD) adopted by the UN General Assembly as an international day in 2012 is 10 years old and the pandemic only one; but it looks already like COVID-19 has changed our lives in a most profound way.

Radio is a powerful medium and remains worldwide the most widely consumed medium. We are one with UNESCO also stating that radio can shape society, stand as an arena for all voices to speak out, be represented and heard.

The international, not-for-profit DRM Consortium feel defined by and support all three themes of the WRD celebration this year: evolution, innovation, and connection. We are practically demonstrating it by focusing on digital radio as another sustainable, innovative learning platform for all. On February 13th day we are also launching our **DRM Delivers Education for All**, which is a project you may want to learn about, get involved in, support and implement. (If so, please get in touch with: projectoffice@drm.org)

Digital Radio Mondiale (DRM) is one of the three main terrestrial digital audio broadcasting standards known and used in the world. Developed as an innovative substitute for large coverage and later local radio coverage, DRM has been mainly tested, demonstrated, and rolled out for its excellent audio qualities, even in the less forgiving shortwave and medium wave analogue bands, as well as its spectrum and energy efficiency.

Many times, and on many occasions, we, in the DRM Consortium, have mentioned the extra benefits brought by digital radio DRM (when compared with analogue) all to do with the data carriage opportunities. Data means files, and files represent anything from pop song titles and singers' pictures to stock market prices or maps and RSS feeds made available through the universal medium of radio. At least this was the kind of illustration we used to give before 2019.

As the pandemic turned our lives upside down and played havoc with the normal education process for millions of students, data suddenly acquired a new role and meaning. It is this extra data channel, sitting neatly alongside the up to three audio channels made available through DRM, that could be used now for a purpose maybe not first envisaged by the inventors of DRM, distance education.

And it is for highlighting this extra and current purpose that we devote our first DRM e-book solely to the idea of distance education, now a necessity for students all over the world. In the e-book you will find data about the challenges of learning in COVID-19 times, despite the myriad of platforms and devices, some expensive, others in short supply or in insufficient in numbers that have been touted as a response to this global information and education crisis.

The DRM e-book makes a strong case for using DRM for distance learning. TV, online, mobiles (WhatsApp) have been used patchily for e-learning, but radio brings something unique to the table. Being a "one-to many" platform, digital radio can deliver audio and text over vast areas and, therefore, to all the schools and students in villages far away or in busy cities, with the same content and quality and without any discrimination.

Apart from the coverage advantage, the medium of radio allows for storing and replaying as many times as necessary the "lessons" in the wished language or even using a native language in audio and a more widely spoken language like English on the screen. Digital radio cannot emulate totally online, so it will be more synthetic, simpler, and very concise. How this can be done is what you will find in our e-book.

This first virtual education book by the DRM is also an invitation to participate in an exciting adventure, our DRM Delivers Education for All, will introduce radio as the new friend, the trusted guide and companion for a whole new generation and for millions of students left out now.

What better way than supporting evolution, using innovation, and enhancing connection through DRM in order to bring a hundred-year-old friend to the new generation in the guise of a knowledgeable, patient and encouraging teacher!

The Moment to Relaunch Digital Radio Anew Could be Now

The current crisis has demonstrated that radio as an enabler of distance learning is more accessible and realistic than universal broadband, highlighting the importance of radio and its unique qualities. This could be the moment for digital radio to come of age. Progress to realise digital radio's long promised benefits necessitates a technology neutral approach, as outlined in an article by DRM Chairman, Ruxandra Obreja, in *Asia Radio Today*.

If a quarter of mankind or so is in under lockdown and a lot of things we had in our lives are no more, one thing is there, more valuable and used than ever, radio.

Recent figures from commercial stations in the UK show staggering increases to streaming but also traditional radio. "Nation Broadcasting, which owns Nation Radio and a network of local stations in Wales as well as stations in England and Scotland, has recorded listening increases of around 40% across the majority of its portfolio, with some stations boosted by as much as 75%," reports Mediatel on April 6th.

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Lockdown drives radio listening and not just as pop sound wallpaper for working from home. Exercising, cooking, learning about art forms that were never on your radar (opera, plays etc.) and schooling have regained their place on radio.

While we were deploring the waning interest of "youf" in radio, this harsh time will help form and reform habits and radio must be ready for it. If lockdown gives a radio listening boost, the great advantage gained now will allow radio and especially digital radio a reboot, or rather an even stronger relaunch, for all those who never put their heart in the digitisation of radio.

The lockdown has also demonstrated that broadband is great, when you have it, laptops are fantastic, if you can afford them and there are enough to go around your family. It has also proved that the one cheap, widely available, and very easy to use gadget is the radio set.

Big UN organisations wish for a fast ICT development in African, Asian countries, in the Pacific islands and the countries of Latin America. This is laudable but hard to achieve. The reality is that the internet is more of a first world advantage and even there it is not universally available.

If you want to educate children in rural areas, even in more developed countries, what you need is digital radio. If you use a DRM shortwave or medium wave transmitter you will be able to cover vast areas with up to three programmes in different languages and data (like maps, sums, pictures etc.) to accompany them.

Radio as an enabler of distance learning is more accessible and realistic than universal broadband now. Recently several organisations in Africa have clubbed together to offer exactly this type of material to students across the continent via radio, analogue and not digital yet.

After the COVID-19 will be extinguished, the regulators, other main stakeholders and the industry must be persuaded that digital radio, and I can only speak about the DRM standard here, needs to be viewed more holistically. DRM does not offer simply excellent sound in all bands at lower energy prices. It is not to be used just for pop-up music stations but for distance learning, emergency warning text and audio messages broadcast directly to radio sets, but also to large public signage screens. DRM enables the broadcast of traffic information and above all of news (including the increasingly important financial and economic news), entertainment to an unlimited number of listeners. Rich or poor, in the outback or in faraway regions, on islands and ships, DRM can reach everyone in a region or the whole country at once with sound, text and other data.

It is time to build resilience in our communities as we have seen how quickly our modern gadgets and fiber glass links can become useless.

Coronavirus, so invisible and so lethal, will die down and then the time will come to take a fresh look at radio, at digital radio, at DRM, too, and all its benefits. They are to do with a better audio quality in all bands, for sure, but digital radio DRM offers so much more. Its data carriage potential is practically unexplored, though there are quite a few interesting developments.

Digital radio DRM can offer full country coverage without gaps, with clear advantages for normal times and extra services in times of crisis. DRM alone, or in combination with other standards and platforms, can be part of a national arsenal of assets to be fully exploited when unexpected events occur. For this reboot or rather radio relaunch, DRM must prepare in new and persuasive ways to engage all the stakeholders. And they themselves must engage fully and in an unbiased way, without letting themselves be influenced by long-standing lobbyists, uninformed "experts" and those who put commercial gains before the listeners' needs and the national interest.

Full article available from Asia Radio Today

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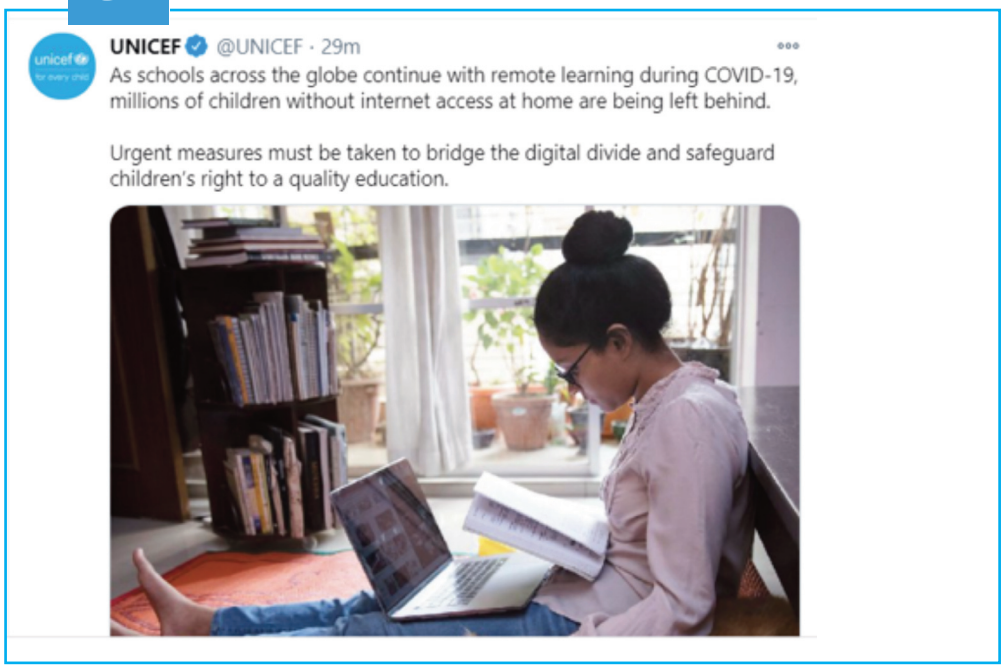

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DRM for Education – Can Digital Radio Enhance Distance Learning?

When schools closed down hundreds of thousands of children and older students started to use the internet intensely to continue their education. But to do so these students need a computer and access to broadband and secure connections. In addition, we are already experiencing the limitations of Working from Home (WFH). The broadband is not infinite, and neither is spectrum, a rare commodity indeed.

Big players like Netflix and Amazon are already trimming their offerings to save some bits. Providers are also asking us to use this precious commodity with care. Broadband itself is also of different grades, better when glass fiber than copper etc.

And then there is the physical laptop. What if your mother is distance teaching, your father is conference calling, you are distance learning and your siblings are just skyping friends? How many laptops does a household need? Maybe not all these activities are simultaneous but the laptop (and the cell phone, too) are our gateway to a world blighted by an invisible enemy.

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And this is where free-to-air radio broadcasting in its digital format can be of real help. Unlike analogue radio, digital and certainly using DRM will allow you to use a receiver with a LED colour screen, not smaller than what you have on a cell phone. This screen transforms radio into an aggregating platform that delivers quality audio, no matter which band is used.

In digital DRM, audio is accompanied by data. It offers the possibility of carrying up to two audio channels and one data channel just on one of the existing frequencies. This is different from analogue, which delivers just one audio programme on the same frequency and no data. Data can be anything: A geometry lesson with drawings, a quiz, a poem, any text or picture or diagram, etc.

And if you use Journaline, an open, internationally standardised data application for advanced text information in digital radio systems, you will get hierarchically structured information, giving users easy and immediate access to topics of interest and in the desired language.

Users can browse all received information — both audio programme-related but also programme-independent text information — and select what is of interest. Journaline is not DRM specific and works with virtually any broadcast platform due to its low transmission bandwidth consumption. It even delivers a “Hot Button” feature that allows broadcasters to trigger backchannel interactivity, such as linking to online websites, initiating phone calls, or sending short text messages.

Digital radio has been introduced over many years, but we could argue that its full potential has not been presented in a compelling way or been fully explored. Digital terrestrial broadcasting is limitless in the number of users it can reach with audio but also extra data. It is a resilient and cheap service. It does not consume a lot of bandwidth or electricity and it can reach everyone over large areas (when broadcast in DRM shortwave and medium wave) or locally (DRM in the FM band).

Digital radio reaches vast numbers of peoples at the same time without a lot of intervention, delivering so much more than audio. Having it as a backup to internet, in some places, or as a main source of information, in others, allowing access, when there is no laptop available, is now becoming a necessity. What is more, DRM digital radio delivers emergency information or disaster warnings over large or local areas, a feature which seems to be growing in importance.

When we get back to the new normality, we must not forget this lesson about the great possibilities of digital radio. Full digital broadcasts and full-feature digital receivers are a necessity and not a cottage industry any longer.

We need this new and resilient platform called digital radio because in the invisible fight between viruses floating in the air and radio waves reaching us from a lonely transmitter far away, we can always bet on the radio waves.

Abridged version full article in RedTech Tribe

Digital Radio DRM Serves Communities with Radio Schooling and Distance Education – No Internet Required

This is an abridged article on the details of delivering distance learning via radio.
Original article written by Thimmaiah Kuppanda & Alexander Zink, Fraunhofer IIS that appeared in **IEEE** in 2020 Q4.

Why DRM?

DRM is the modern successor technology of the analog radio broadcast standards AM and FM. It propels radio listening to the 21st century, while giving listeners, broadcasters and device manufacturers a wealth of innovation and new business opportunities.

DRM is the universal, openly standardized digital broadcasting system for all frequencies: from large-area and international coverage using the AM bands (Long Wave LW, Medium Wave MW, Short Wave SW) all the way to local and regional services in the **VHF Bands I, II (FM band) and III.** DRM is designed to deliver high quality audio and data services for mobile, portable and fixed reception. It allows broadcasters to upgrade their radio offerings to meet the quality and feature expectations of today's and tomorrow's listeners.

In light of **existing technology divide**, governments are setting up or wish to develop education services on mass broadcast media such as radio in order to reach greater numbers of listeners – especially the most vulnerable. Radio enjoys wide coverage and **DRM Digital Radio offers revolutionary advantages that can deliver distance education to all.**

DRM technology empowers broadcasters to enhance their radio offerings. Listeners benefit directly from DRM's additional capacity for audio programmes, along with all the new data services such as Journaline advanced text, slides show images, etc. Additionally, DRM receivers can cache and store the data obtained as Journaline text locally on the device, allowing the user to access the information instantly and at any time. This combination of audio and multimedia services available on a standard digital radio set via free-to-air broadcast has the potential to tackle the disruption in education posed by Covid-19 pandemic.

Distance Education using DRM – Use Case

DRM can deliver the typical classroom education as well as lessons for personal self-study by combining its audio and multimedia service capabilities, as depicted in ***Figure 1.***

The DRM audio service carries a teacher's classroom lectures at certain times with a pre-announced schedule ("Radio Lessons"). In parallel, DRM's advanced text application Journaline carries the complimentary lecture notes, full textbooks including graphics and formulas, illustrative images, etc. ("Radio Book"). This is created and fed through the content server, the heart of the digital transmission, as a data file. This is on a loop and therefore, the complete textbook information is constantly available as part of the DRM transmissions, not just during the live audio lectures; it can serve as lesson-accompanying lecture notes during a live audio lesson, and as a full textbook for self-study of the subjects by students at any time. The Journaline content can be structured carefully and in advance by language, class level, subject, topic and chapters, for easy and instant navigation and content access by the students.

Figure 1: DRM Transmission Chain (Use-case Distance Education using DRM)

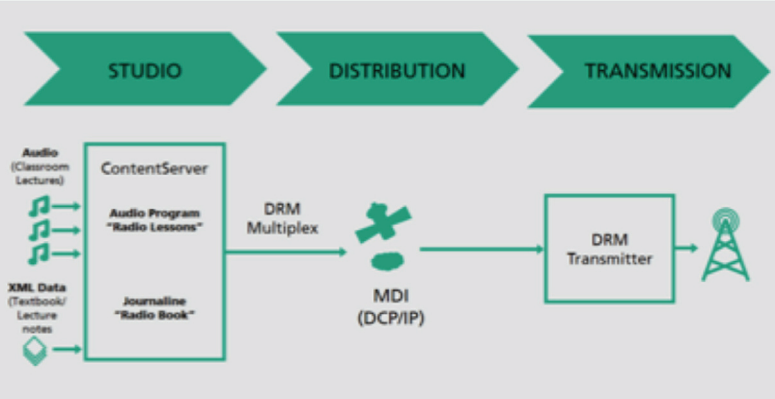
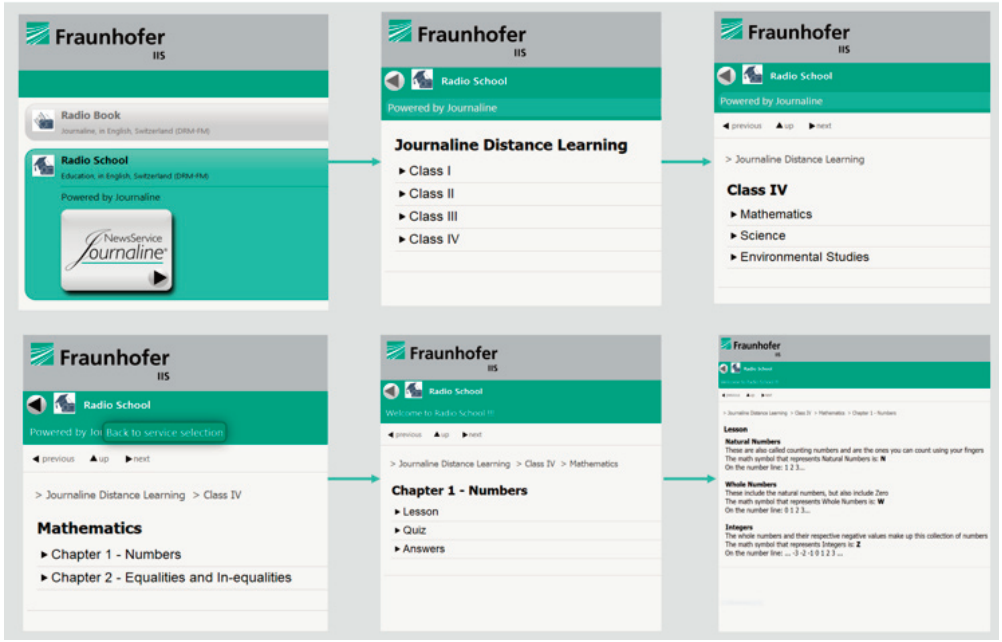


Figure 2 paints a generic picture of the user experience during a live lesson. The audio service presents the teacher's voice. The teacher will point to specific Journaline chapters during the lesson, equivalent to how they would work with a physical textbook in class.

Fig 2: DRM Distance Education – Example DRM School User Experience



Thanks to the standardised MDI format containing the full DRM multiplex signal, digital receivers can easily allow users to record live lessons including all the associated data (and signaling components) of DRM to a local memory for later access.

DRM radio sets that are optimized for the radio schooling use-case may provide a built-in WiFi hotspot feature, allowing anybody nearby to access the full content of the DRM lessons – audio and Journaline textbooks – using any device that supports an HTML web browser. This enables the sharing of a single DRM receiver for communities, households, or classrooms, and still gives every user full control over navigating the Journaline content at their own pace.

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Enabling radio schooling and distance education services in the field requires the close cooperation of all stakeholders – from education specialists, professionals in the audio-visual sector, broadcasters, receiver manufacturers, regulators and more.

There are some costs involved in creating a new type of educational content, in setting up the whole broadcast chain, in providing the receivers or screens for access. But this is not an expense for the students who do not have to pay to listen to the audio broadcasts or to see the data on the radio screens. Once all the pieces are in place, the results will be impressive. As somebody once said, "If you think education is expensive, try ignorance."

Digital radio for education can bridge the digital divide and bring great advantages to many, even students with little access to any other delivery platform like IP. Thanks to DRM, the tools to support and elevate societies even in times of crisis are all available. Now is the time to make use of them!

DRM Digital Radio for Education – During and Beyond Covid-19 – An Effective Solution

In the e-learning age a lot has changed, not least presentation and delivery. Even to those self-motivated, communication savvy students with great time-management skills (how many of those, do you know?) who engaged in online learning, it is clear that e-learning is now focused on the learner and not on the teacher.

But internet penetration varies between about 95% in the United States (where 73% own a personal computer), to slightly above 50% in Asia and under 40% in Africa. This has created — yet another — information and education gap, as amply documented in loads of articles worldwide.

Internet access is also different from internet literacy. Even in the OECD countries (that is developed countries with high-income economies) about a quarter of the people are computer illiterate.

Online learning is definitely a different experience from the bricks and mortar model. But so is education by TV and radio. Using radio for education is not new. It is a vital, effective system for the delivery of education to large numbers of people overcoming the hurdles of internet literacy, affordability, location, audience targeting and language.

According to a recent UNICEF report "Stepping forward connecting today's youth to the digital future," one in three students worldwide was unable to access remote learning when schools closed because of the pandemic.

But just as the crisis is unique, so is the opportunity at hand. To quote the UNICEF report: "The good news is that at a local level, there are many successful solutions and promising innovations. But we need to scale them—and we need to do it fast."

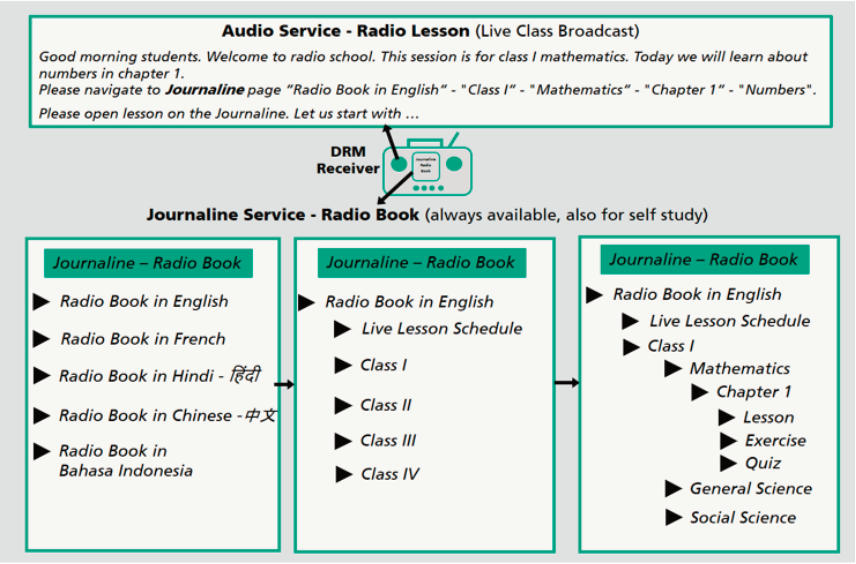
One such existing solution that can be scaled up quickly to reach those vulnerable students with no access to the connected modern technology, is free-to-air radio.

We know that TV and internet services have one main advantage over radio - they provide the information in text and graphics too, in addition to audio (sound), which increases the effectiveness of education.

And DRM digital radio came a long way to match such audio-text hybrid solution as it provides not only audio but also multimedia services consisting of text, slides, graphics and images. It also ensures up to three audio programmes on one existing analogue frequency which usually carries only one programme and no text. DRM digital radio also enables students and teachers to access the information immediately "live" or later "on demand". As such the DRM digital radio, which is available totally free of cost, is a complete and new distance learning option in these unprecedented times.

The setting up of distance learning via DRM digital radio is possible without extra additions. A broadcaster can use one of the up to three available digital channels to broadcast a teacher's lectures or lessons (marked as "Radio Lesson" in our Fig 1) at certain times with a pre-announced schedule. In parallel, the DRM multimedia capability carries the complimentary lesson notes, full textbooks including graphics, formulas, and images (marked as "Radio Book" in the same Fig 1).

Fig 1: Lesson Structure on DRM Digital Radio - Radio Lesson and Radio Book



To prepare for lessons or to self-study after the lesson has been delivered in audio, students can access the complete body of lesson information at any time, as this material is cached and stored in the digital radio receiver. This stored “treasure chest” can also include extra reading material or quizzes. The textbook content can be available in several languages simultaneously. A student could, for example, access the text version in a regional dialect, while the live lesson is provided in a country’s or regions official language.

The digital radio receivers also have the feature to record live lessons including all the associated data and signaling components of DRM to a local memory for later access. Practically, a student would have to treat the screen like a structured introduction to the lesson.

© Radu Obreja

If digital receivers are not available or scarce, it’s possible to send the content over large areas using the terrestrial DRM digital AM broadcast technology and capture it on large screens. These big public screens become “digital blackboards.” This is a new way of using public signage not only for advertising but also for education.

India has already a huge network of 35 high power DRM digital transmitters. If all these transmitters start broadcasting in pure digital, then about 80% population of the country would have access to the DRM digital radio signals. As such this existing network of DRM radio transmitters can easily deliver education in an efficient and relatively easy way for distance education and for fast implementation of the domestic national digital policy.

Full article from Broadcast Cable Satellite available here

In celebration of World Radio Day 2021 Digital Radio Mondiale launches education tool effort

Read more in Radio World

DRM Digital Radio School – Distance Learning & Education

Education Under Threat

On World Teachers Day this year, UNESCO highlighted the great job being done by teachers the high cost of internet and lack of electricity shining a spotlight on the gap in accessibility. With 43% of households globally without internet access, UNESCO called for urgent action and investment to help bridge the digital divide.

Radio has proven to be the best way to ensure equal access for all. DRM digital radio could be the answer to help preserve uninterrupted education to children wherever they are.

Why Use DRM Digital Radio for Education?

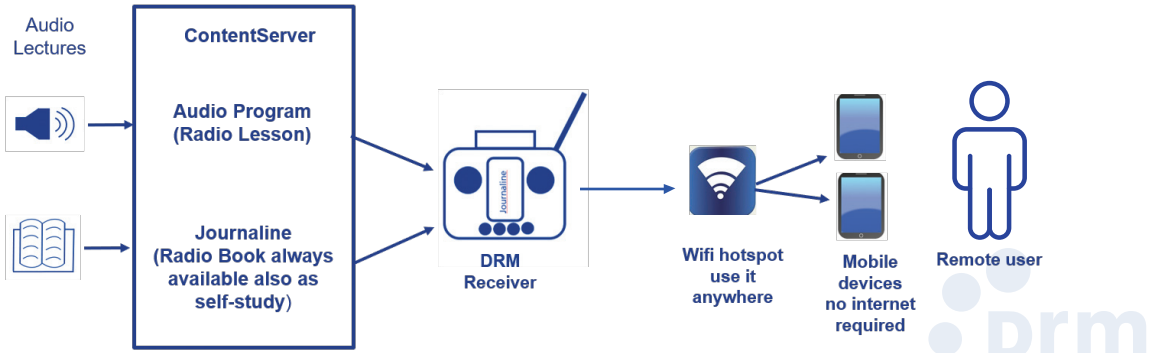
- ✔ Radio enjoys **wide and possibly full country coverage** DRM Digital Radio offers both **conventional audio** and d**ata services**
- ✔ DRM can offer **education** and **information** to people wherever they are
- ✔ DRM can provide **education to remote areas or during a pandemic** or when **distance learning** is required
- ✔ DRM offers education free-to-air to everybody, **without the need for Internet**
- ✔ DRM receivers can **cache information** for convenient **access at any time** (e.g. schooling documents collected over night)
- ✔ Self- and class-based learning option via radio
- ✔ Pure radio broadcast – no Internet required

Distance Learning via DRM Radio – How it works:

✔ Lessons and textbook-content via **Journaline**
➪Always available on-demand, even for self-study

✔ At specific times, accompanied by **live teacher** (audio service)
➪Referencing the current Journaline textbook location

✔ Options for student **interactivity**:
Journaline quiz, Q&A re-broadcast, etc.



Delivery

✔ Lessons will be provided using text, audio and graphics, (**Journaline**)

✔ Journaline is the defined method for providing captioning information in DRM Digital Radio Mondiale

✔ Radio receiver – wifi hotspot, tablets, public signage

A resilient digital radio platform can prove the great possibilities of digital radio now more than ever and continue to deliver one of radio's greatest benefit – equal access for all.

Find out more and be part of the DRM Distance Learning Project: projectoffice@drm.org

DRM Radio – Distance Learning – DRM School Demo Video

https://www.youtube.com/watch?v=r8x21GDcOIE

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