# Ambient Insight Comprehensive Report

## The Worldwide Market for Mobile Learning Products and Services: 2010-2015 Forecast and Analysis

*A Nascent Market Surges – The Emergence of Lucrative Mobile Learning Value Added Services (VAS)*

***"We Put Research into Practice"***
www.ambientinsight.com


**Quantitative Market Analysis by:**
Sam S. Adkins, Chief Research Officer



Published: September 2011


***To learn more about our research services, email: info@ambientinsight.com***

# Table of Contents

# List of Tables



# List of Figures

**This is a Comprehensive Report. Ambient Insight has five types of syndicated market research reports:**

**Comprehensive Reports** are 50-65 page reports that provide detailed analyses and revenue forecasts for content, content services, technology services, and technology for a specific product type and break the revenue out by multiple buyer types and segments.

**Targeted Reports** are 25-40 page reports that identify buying behavior in a specific buyer segment, isolate revenue opportunities and forecast revenues for a particular product type, or pinpoint revenues for a specific sub-category of content, service, or technology.

**Research Briefs** are 20-35 page competitive intelligence reports that that provide global or regional analyses, industry-wide analyses, trend analyses, supply chain analyses, or an analysis of the competitive landscape.

**Revenue Snapshots** are 2-3 page reports that include a single revenue forecast table from a current market report. Please review the free Executive Overview for each report for a list of available tables. Contact us at info@ambientinsight.com to request a specific Revenue Snapshot.

**Radar Reports** are 5-10 page reports that identify leading indicators, emerging products, new buyers, promising markets, novel business models, and untapped revenue opportunities for suppliers. These reports provide recommendations on how to monetize learning technology innovations, create new customers, generate new revenue streams, and compete in emerging markets.

**"We Put Research into Practice"**
www.ambientinsight.com

# Executive Overview

The worldwide market for Mobile Learning products and services reached $3.2 Billion in 2010. The five-year compound annual growth rate (CAGR) is 22.7% and revenues will reach $9.1 billion by 2015.

The country-by-country dynamics of the worldwide market are changing fast. In the 2010 market, the US was the top Mobile Learning buying country, followed by Japan, South Korea, the UK, China, and Taiwan. By 2015, the top buying countries will be the US, China, India, Japan, Indonesia, and Brazil, respectively.

The countries with the highest growth rates (all over 60%) are China, India, and Indonesia. The countries with the lowest growth rates (all under 5%) are Japan, South Korea, and Taiwan, the three most mature Mobile Learning markets in the world.

Mobile Learning VAS represents a new type of Mobile Learning product – a fusion of packaged content and services.

It has only become possible to speak about a worldwide Mobile Learning market in the last 18 months. Prior to 2010, Mobile Learning was heavily concentrated in just a handful of countries, mostly in developed economies.

Mobile Learning has spread like wildfire across the planet primarily due to the launch of dozens of successful Mobile Learning value-added service (VAS) products sold directly to consumers by telecom network operators, device makers, and content suppliers. The content is usually delivered via audio, Short Message Service (SMS), or Interactive Voice Response (IVR).

Subscription-based Mobile Learning content sold as a value-added service is quite new on the market and ***essentially represents a new type of Mobile Learning product – a fusion of packaged content and services. Ambient Insight has labeled this new product type "Mobile Learning VAS".***

The operators initially launched their Mobile Learning VAS products in developing economies and are now expanding into the developed economies. Combining the Mobile Learning VAS products with the "legacy" Mobile Learning market in the developed economies exposes the clear contours of a cohesive worldwide Mobile Learning market.

The catalysts for Mobile Learning tend to be different in developed and developing economies. These catalysts combined have created the foundation for a thriving international market. The current worldwide Mobile Learning market offers clear long-term revenue opportunities for suppliers. The demand-side analysis in this report forecasts the revenues for Mobile Learning products and services across seven regions:

- North America
- Latin America
- Western Europe
- Eastern Europe
- Asia
- The Middle East
- Africa

Asia will be the top buying region throughout the 2010-2015 forecast period. In the 2010 market, the top buying regions were Asia, North America, and Western Europe. By 2015, the top buying regions will be Asia, North America, and Latin America.

The regions with the highest growth are Africa, Latin America, and Eastern Europe, respectively. Each of these three regions represents significant long-term revenue opportunities for Mobile Learning suppliers.

Western Europe and North America have healthy growth rates, although modest compared to the other regions. These are both mature markets and while growth has slowed somewhat, revenues are still high. The growth rate for Asia is unique in that it is a combination of very high growth rates in many countries weighed down by the slower growth rates in the more mature markets such as Japan and South Korea.

**Figure 1 – 2010-2015 Worldwide Mobile Learning Five-year Growth Rates by Region (across all products)**


There are distinct regional differences and the buying behavior is quite different in each region. North America and Western Europe are "app" and handheld edugame ecosystems. While Mobile Learning apps and edugames are popular in other regions, Asia and Latin America (and increasingly Africa) are evolving rapidly into subscription-based service ecosystems.

One significant trend driving the adoption of Mobile Learning in developing economies is the "mHealth" initiatives being launched by NGOs, carriers,

device makers, and governments. Mobile Learning is now recognized as an integral component of mHealth and the rapid adoption of mHealth across the planet is a significant catalyst for Mobile Learning.

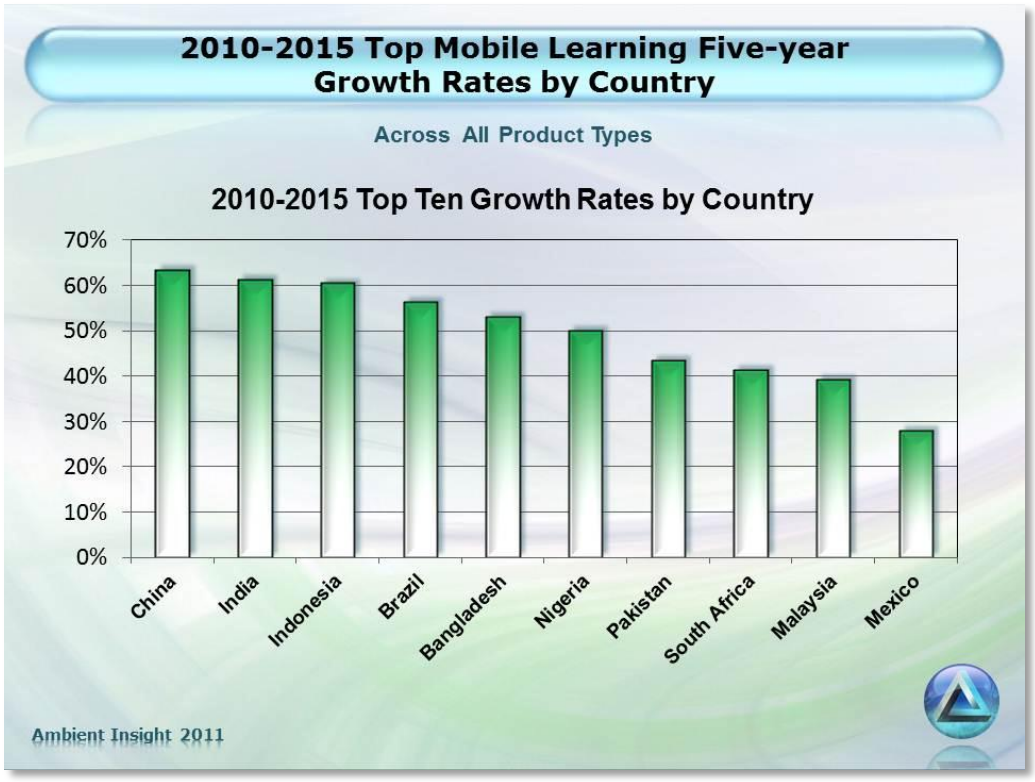
Not only are rural teachers and healthcare workers being provided with professional development, procedural support, and decision support; but consumers and patients are being provided with a range of educational content, including mobile game-based learning content. The programs have been enthusiastically received by the users.

There is now a category of content called "mobile healthcare education," which is Mobile Learning on healthcare topics.

Houghton Mifflin Harcourt (HMH) and the iheed Institute sponsored the world's first mobile healthcare education event called mHealthEd in Africa in June 2011. They report that mobile healthcare education "leverages the proliferation and relative cost effectiveness of mobile phone devices to improve the training and skills of front–line health workers." At the event an HMH executive stated that, "Houghton Mifflin Harcourt is pleased to be working at the forefront of mobile learning technology."

There are mHealth products that are designed exclusively for patient education. Bharti Airtel launched their "m-health services" VAS in India in June 2011. For 2 cents a day subscribers get access to Mobile Learning in four categories: "women's health pack, men's health pack, and two lifestyle packs."

**Figure 2 – 2010-2015 Worldwide Mobile Learning Five-year Growth Rates by Top Ten Countries (across all products)**




This report identifies the top buying countries in each region and provides a five-year forecast for each of those countries. In some regions, such as Africa, Latin America, and the Middle East, the revenues are still heavily

concentrated in a small number of countries. This will change over the forecast period as Mobile Learning VAS products expand across those regions.

The patterns in the country growth rates are clear. Six of the top ten growth rates are in developing economies in Asia, two are in Latin America, and two are in Africa. Mobile Learning is now being embraced as an essential strategy to improve education in these developing economies. In the past, the adoption of learning technology was widely believed to be a phenomenon in developed economies. Obviously, the evidence indicates otherwise.

The supply-side analysis in this report analyzes seven types of Mobile Learning products and services:

- Packaged content and edugames
- Custom content development services
- SaaS tools and platforms
- Installed authoring tools
- Installed platforms
- Dedicated personal learning devices
- Mobile Learning VAS

Packaged content and edugames will generate the highest revenues throughout the forecast period followed by personal learning devices and custom content development services. The products with the highest growth rates are Mobile Learning VAS, followed by custom content development services and packaged content.

**Figure 3 – The 2010 Worldwide Mobile Learning Ecosystem**

In February 2011, GMSA's Mobile World Congress added Mobile Learning to their awards program. This in itself is a validation of the international market. Urban Planet Mobile won for their Urban English VAS in Indonesia. The Mobile Learning VAS called BBC Janala operating in Bangladesh won the "Best Product, Initiative or Service for Underserved Segment" category.

## The Global Content Distribution Channels are Expanding Rapidly

Applications are now sold in a growing number of commercial "app stores." As of February 2011, there were over a two hundred app stores across the planet and the number is growing by 1-2 stores a month. There are now global mass-market stores operated by GetJar, Amazon, and Opera.

On average, across all the app, eBook, and audiobook stores, at least 15-17% of all titles are Mobile Learning apps.

In July 2011, Amazon launched their Kindle Textbook Rental service in the US with over two thousand digitized higher education texts designed for the Kindle platform. Amazon promises savings of up to 80% over print-based textbooks. Amazon partnered with the major international education publishers and indicates that they will have "tens of thousands" of eTextbooks available by the 2011 school year. Amazon has online stores in Canada, the UK, Germany, Spain, Austria, Italy, France, Japan, and China.

Network operators, device manufacturers, and operating system vendors now operate proprietary app stores that cater to specific regions, countries, and devices. The regional app stores operated by Nokia, Apple, Google, RIM, and Microsoft are distributed across the planet. There are dozens of global independent app resellers that sell content across all the major platforms.

There are hundreds of international online eBook and audiobook stores with a significant percentage of educational titles. Kobo, the eReader and eBook supplier, has the largest collection of commercial educational eBooks on the planet with over 175,000 titles. They have over 4 million users in over 100 countries, and began rolling out localized content in European countries in 2011.

This report includes the forecasts for Mobile Learning content developed for several types of handheld devices including:

- Dedicated gaming devices (e.g. the Nintendo DS or Sony PSP)
- Personal media players (PMPs)
- Personal digital assistants (PDAs)
- Handheld tablets and slates
- Mobile internet devices (MIDs)
- Mobile clinical assistants
- Handheld eReaders
- Personal learning devices designed solely for learning and performance support
- Mobile phones (feature phones and smartphones)

A major global catalyst is the rapid adoption of tablets and eReaders across all buyer segments. As of 2010, tablets and eReaders were still largely a trend concentrated in developing economies. This is changing quickly with prices falling for general purpose devices and the recent availability of low-cost devices designed for education. The government mandated migrations

to electronic content in school systems around the world are also driving sales of the devices.

Until the emergence of Mobile Learning VAS products, there was very little commercial content and tools for feature phones on the market. In developed economies, developers have focused on dedicated gaming devices, smartphones, and tablets regardless of the fact that the vast majority of devices in use are basic feature phones. In the US, the ratio of feature phones to smartphones is 4 to 1. In developing regions, this ratio can be as high as 8 to 1. This ratio is changing fast in the US and other developed economies, but much slower in developing economies.

As of 2010, there were over 5 billion mobile subscribers on the planet with 4.5 billion of those subscribers still using basic feature phones on 2G (second generation) networks. In Asia, only 15% of mobile subscribers are connected to 3G networks, with the majority of 3G users heavily concentrated in Singapore, South Korea, Japan, Hong Kong, New Zealand, and Australia. It is no surprise that the new Mobile Learning VAS products in developing economies target feature phones.

Sweden, Norway, and Finland were the first countries to launch 4G networks in late 2009, and the US started launching 4G in late 2010 ***at the same time*** South Korea (Korea Telecom) and Japan (NTT DoCoMo) began rolling out their 4G networks. SK Telecom, South Korea's largest operator, won't roll out 4G until the 3rd quarter of 2011. As of March 2011, 4G networks had yet to be rolled out in Singapore or anywhere in Western Europe.

Large rural populations across Asia, Africa, and Latin America are now avid users of Mobile Learning technology, while very few have experienced Self-paced eLearning on a desktop.

There is evidence to suggest that some regions such as Southeast Asia, parts of Africa, and rural India will leapfrog 3G and migrate from 2G to 4G. In developing regions, the adoption of Mobile Learning (mostly on 2G devices) far exceeds the use of desktop-based eLearning. The presence of faster networks and cheap smartphones is a catalyst for Mobile Learning.

Until quite recently, one difference between the North American market and other regions is the tendency outside North America to preload learning content on devices. This is a business model used by device makers and carriers operating in Asia, Europe, and Africa to attract buyers. It is not uncommon for device makers to offer "education editions" of phones.

***In other words, Mobile Learning content is a value-add feature that increases device and subscription sales.*** In 2011, new telephony devices preloaded with learning content appeared in the US.

All of the major educational publishers now offer content in mobile formats. The demand for mobile higher education content is particularly strong in North America, but also gaining traction across the globe.

OverDrive is a digital library supplier serving international schools and libraries with educational content from the major educational publishers. They began offering eBook support for the iOS and Android platforms in December 2010, and subsequently launched Blackberry and Windows Phone support in the first half of 2011. In August 2011, they indicated in the press

that ***they grew their user base by over 500%*** in just the first 8 months of 2011.

In August 2011, OverDrive released updated statistics, "regarding the ***unprecedented*** demand in school markets worldwide for its global catalog." OverDrive now offers cross-platform mobile educational content to schools and libraries in the US, Belgium, China, India, Japan, Netherlands, UK, Thailand, Turkey, South Africa, Australia, and Canada.

Clearly, there is strong international demand for educational content formatted for mobile devices.

Ingram's VitalSource is another digital textbook platform with a library of digital content from the major global education publishers. Ingram's VitalSource launched their iOS format in September of 2010. In August 2011, Ingram executives stated in the press that ***their user base had tripled*** in the previous 12 months. "Our strongest presence is, naturally, in North America, but we're experiencing tremendous growth across Latin America, the Caribbean, and Europe — especially Spain and Germany."

Pearson and the Eminata Group launched their "postsecondary institutional initiative for iPad-based eTextbooks" in August 2011. The Eminata Group has more than 14,000 students at 38 campuses in 22 cities across Canada. The Eminata Group claims this is the largest single deployment of mobile eTextbooks in the higher education segment in North America so far.

A significant global catalyst driving the sales of Mobile Learning content is the migration to digital textbooks in the PreK-12 buying segments throughout the world.

There are now major digitization efforts going on in the school systems in South Korea, Thailand, Turkey, Brazil, Russia, France, Poland, Spain, the Ukraine, Mexico, Japan, Singapore, United Arab Emirates (UAE), and in various school systems in the UK and the US. Indiana, Virginia, Idaho, West Virginia, Texas, California, and Florida are examples of US states that are implementing statewide policies mandating the use of digital content in the schools.

Obviously, this is a boon to device makers. The Turkish government is seeking bids for the purchase of 15 million tablets for school children in the country, a deal touted to be worth over $6 billion, even with heavily discounted prices.

Once states, provinces, and countries execute on the new system-wide policies for Mobile Learning, the delivery channel for commercial packaged content, personal learning devices, and custom development services is in place. For example, Microsoft is one of the first suppliers to offer courseware (on IT subjects) for the Thailand initiative.

## Learning Gets Personal

Personal learning devices are quite popular with consumers and academic buyers in Asia and are now gaining traction in other parts of the world. New international and domestic suppliers continue to enter the market with new products designed for young children and PreK-12 academic buyers.

The growth rate for personal learning devices is 20.1% and the revenues are second only to packaged content. One common feature in most of the new products is the use of touch screens. In essence, these are dedicated educational tablets. The devices are attractive to consumers (parents) and academic buyers because they are:

- Designed solely for education
- Preloaded with vetted educational content
- Priced significantly lower than general-purpose tablets such as the iPad or the Galaxy.

Since mid-2010, over 20 new personal learning devices have come on the market. Some are being marketed in specific countries, while others are global offerings.

Inexpensive personal learning devices have come on the market in developing economies. In early 2010, Marvell announced their new $99.00 "Moby" tablet device. The third-generation One Laptop Per Child (OLPC) device released in 2011 is a tablet based on the Marvell technology. The phrase "One Tablet Per Child" entered the lexicon in 2010.

The governments in India and the Philippines have subsidized the development of personal learning devices and launched them in 2011. Asia is the only region in the world that sells inexpensive "education editions" of smartphones preloaded with content, effectively making them personal learning devices.

The burst of academic content digitization efforts underway across the globe are the major catalysts for personal learning devices. Although many school systems will use commercial general-purpose devices, the devices will be configured for dedicates educational use. A conservative estimate is that by 2015, over 300 million PreK-12 schoolchildren across the planet will be carrying personal learning devices.

The rapid adoption of personal learning devices represents significant revenue opportunities for content suppliers. ***Essentially, personal learning devices represent a new distribution method for packaged content suppliers.***

This report identifies both the legacy personal learning devices suppliers and the new suppliers. A discussion of the regional business models, pricing plateaus, revenue-sharing models, and supply chains surrounding personal learning devices is included in this report.

## A New Product Type: Mobile Learning as a Value-added Service

The telecom network operators are now major Mobile Learning suppliers in Asia, Latin America, and Africa. Mobile Learning offered as a VAS is virtually unheard of in the Middle East. There are new commercial Mobile Learning VAS suppliers in North America, mostly selling test prep content. The free Text4Baby service in the US has been very popular. Mobile Learning VAS products have only recently appeared in Western Europe and Eastern Europe.

The first Mobile Learning VAS in Western Europe launched in Italy in February 2011. In July 2011, Vodafone in the UK launched a Mobile Learning VAS for field-based healthcare workers. The first Mobile Learning VAS in Eastern Europe launched in Kazakhstan in February 2011.

All of the top five telecoms in India have launched Mobile Learning VAS products in the last 18 months. Combined, they have a potential customer base of over 500 million subscribers.

There are over 650 telecoms across the planet and they are all looking at VAS as a way to increase revenues. When telecoms talk about increasing VAS revenues they consistently cite two major areas with the greatest promise: education and healthcare.

These Mobile Learning VAS offerings in developing economies have relatively low subscription prices, yet have millions of customers. Consequently, the revenues are quite high. This is a classic "rags to riches" story ***with suppliers across the planet collectively generating hundreds of millions of dollars in new revenue in just the last 18 months.***

The telecoms have begun to roll out higher-priced Mobile Learning VAS products in developed economies as well. In July 2011, SK Telecom launched their "T Smart Mobile Learning Platform" in South Korea. The service offers premium high-quality content from the major educational publisher in South Korea including Chungdahm Learning, Daekyo, Visang, Chunjae Education, and SMEnglish. SK Telecom intends to offer the Mobile Learning VAS in Singapore as well.

The telecoms depend on third-party commercial suppliers for content, custom content development services, tools, and platforms. They often pay subject matter experts to provide tutoring to subscribers, so the revenue opportunities for suppliers are significant across the supply chain. Analyses of the Mobile Learning VAS regional supply chains, high-demand content types, revenue-sharing models, and pricing models are included in this report.

## Mobile Learning is Now a Product Substitution Threat

Mobile Learning now represents a product substitution threat to Self-paced eLearning and there is clear evidence that it is cannibalizing revenues, particularly in North America and parts of Asia.

This threat is particularly acute for academic test prep products. The mobile device is near ideal for test prep and new mobile test prep products are inhibiting the sales of both print and online test prep courseware. So far, language learning content is the most popular type of Mobile Learning VAS, which obviously threatens the revenues of the other language learning products. It is no surprise that the major educational publishers with language learning content are partnering with the carriers.

Large rural populations across Asia, Africa, and Latin America are now avid users of Mobile Learning technology, while very few have experienced Self-paced eLearning on a desktop. In developing economies, PC penetration is often low, yet mobile subscriptions are relatively high. For example, only 9.6% of the total African population has access to the Internet via a computer. In contrast, 57% of the population accesses the Internet via a mobile device.

Mobile Learning suppliers are targeting the mobile device as the delivery platform of choice in those economies. Essentially, these economies are leapfrogging Self-paced eLearning and other learning-technology products altogether.

The global migration to digital academic content accelerates the use of eReaders, tablets, and personal learning devices in the schools. Self-paced courseware may be compatible with tablets, but not with eReaders and personal learning devices.

When the Nigerian University of Ibadan launched their Mobile Learning platform in December 2010, they explicitly stated that they were "by-passing 'traditional' e-learning," in favor of Mobile Learning.

## The Market Creation Pioneers

Ambient Insight analyst have been tracking the Mobile Learning market for over a decade and we have identified three companies that have been instrumental in creating a global Mobile Learning market - Nintendo, Nokia, and Apple.

Generally speaking, Nintendo's influence has impacted the more developed economies, while Nokia has introduced Mobile Learning into developing economies. Apple has managed to create a global Mobile Learning ecosystem for higher education.

### *Nintendo Pushes the Envelope*

Nintendo greatly expanded the buying demographic for edugames by encouraging developers to design games on a range of topics including early childhood learning, language learning, yoga training, music, test prep, cooking, general academic topics, and more recently, art instruction.

Nintendo has been very aggressive about expanding edugames into new demographics and new content categories such as cooking, language learning, and most of all, brain training.

Nintendo single-handedly created the international market for a new typs of mobile edugame called brain trainers. Nintendo has defined this new category of games as "mental training." Not only are brain trainers a fundamentally new type of edugame, they are also designed for a demographic not known to play games at all – the older generation.

- Brain Age and Brain Age 2 combined have sold over 37 million copies worldwide since their launch in 2006 - 9.3 million sold in the US.
- The number one best-selling game in Europe in 2007 and 2008 was Brain Age.
- In December 2009, Amazon placed Brain Age as the ***top selling game of the decade across all platforms including consoles.***
- Until August 2010, the top selling game in the UK across all platforms (including consoles) was Brain Age.

There are now dozens of suppliers that sell mobile brain training games. The Professor Layton series of brain trainers has sold 10.1 million copies worldwide with 1.7 million sold in the US. Nintendo dominated the mobile brain trainer market in 2010 and will continue to be a strong contender throughout the forecast period.

Schools across the planet have used the Nintendo DS device for educational purposes, but on a relatively small scale. Nintendo is now focusing on the academic segment. In early 2010, Nintendo executives announced that they were launching a Mobile Learning ***platform*** called DS Classroom based on the DS device designed for primary and secondary schools. It was first

deployed in Japanese schools in late 2010. It comes with a PC-based content management system (for the teachers), assessment tools, and devices preloaded with learning content.

Nintendo continues to push the Mobile Learning envelope, essentially beyond traditional gaming. In August 2010, they launched a new art instructional title called Art Academy. Art Academy can hardly be called a game. Nintendo stated in the press that, "The launch of Art Academy is the latest effort in Nintendo's ongoing commitment ***to provide unique experiences***." In March 2011, Nintendo announced an agreement with the National Art Education Association (NAEA) to distribute DS devices preloaded with Art Academy across schools in the US. They have sold over 2 million copies of Art Academy across the globe as of July 2011.

### *Nokia Spreads Mobile Learning VAS Across the Globe*

Nokia has been promoting and implementing Mobile Learning across the planet since the launch of their Mobiledu product in China in 2007. Nokia has over 20 million subscribers to their Mobiledu product in China, with 1.5 million active users. Mobiledu offers English language learning with content from the BBC, Wall Street English, The British Council, ETS, and most recently, Pearson.

Nokia is particularly active in developing economies. Nokia now offers their Nokia Life Tools in India, China, Indonesia, and Nigeria.

The Finnish National Board of Education began deploying Nokia's MoMaths content in Finland schools in late 2010.

***In just two years after launch they have 17 million subscribers***. At their current rate of growth, they could easily have 30 million users by the end of 2014. Nokia Life Tools includes modules priced separately with low-cost content. Two modules are Mobile Learning – healthcare and education. The education VAS includes three sub-modules: English language learning, general knowledge, and exam tips.

In July 2011, a Nokia executive stated in the press that their goal was to reach 70% of the mobile users in India with Life Tools. There are already over 600 million mobile phone users in India.

Nokia's Text2Teach platform is now used in over 850 schools in the Philippines. The platform allows teaches to download hundreds of video-based educational material via SMS to their phone preloaded with Nokia's Education Delivery (NED) application. NED "allows teachers to download and easily access educational audios and videos on Math, Science, and English." Nokia provides a smartphone, a SIM card with pre-paid monthly minutes for one year, a color TV, and three days of teacher training.

The teachers connect the phones to TVs in the classroom to display the content to the students. This is a simple, yet highly effective way to deliver mobile content in the classrooms. The Text2Teach initiative is led by Nokia in partnership with Pearson, the Ayala Foundation, the Philippines Department of Education, Globe Telecom (the local carrier), and SEAMEO-INNOTECH(an educational think tank funded by the Philippine government.) The Text2Teach initiative was piloted in 2004 in a small number of schools. As of August 2011, Text2Teach is now available nationwide in the Philippines.

Nokia has also been active in South Africa. In a partnership with publishers, operators, and local provincial education departments, Nokia has developed a mobile math instruction product called Mobile Learning for Mathematics, or MoMaths. The use of the product has achieved significant improvement in math skills and the project has expanded annually since it launched in 2009. Nokia's goal is to achieve what they call "massification" based on the lessons learned in South Africa.

Nokia plans to take the product to other African countries in 2012 in collaboration with the Commonwealth of Learning (CoL) in an effort, "to replicate the project in three new countries." Nokia currently subsidizes the product and the carriers offer the product (but not the data fees) for free. In the press, Nokia executives indicated that the MoMaths product could pay for itself in two years with a price point as low as $2.25 a month.

In August 2011, Nokia announced a joint project with South Africa's Department of Science and Technology of Africa, Finland's Ministry of Foreign Affairs, and the World Bank Group to provide mobile application development training in the country. Nokia intends to, "train and build both the business and technical capabilities of the developer community." Mobile Learning content was cited as a primary development target.

### *Apple Creates a Worldwide Mobile Learning Ecosystem for Education*

Launched in 2007, Apple's iTunes U has content from over 1,000 educational institutions from 26 countries across the globe. The content is available in over 123 countries. In September 2011, Apple reported that over 60% of iTunes U traffic comes from outside the US.

Apple literally changed the global Mobile Learning landscape with the release of the iPad in 2010.

Apple reports that they have had over 600 million downloads since the launch of iTunes U in 2007. ***Half of those downloads were in the last year coinciding with the release of the iPad in 2010.***

All public content on iTunes U is free, yet it is a major catalyst for the commercial Mobile Learning industry as it increases awareness and drives adoption worldwide. About half of all iTunes U content providers make their content available to the public. The other half provides private access only to their enrolled students.

In 2008, Apple launched iTunes U K-12. Content in iTunes U K-12 is contributed by several state education agencies and supported by the State Education Technology Directors Association (SETDA). According to SETDA, the goal, "is not only to bring state and district resources to K-12 educators within their own states, but to provide nationwide and global access to educational content, curricula, learning materials, news, best practices, and other resources."

One of the largest institutions on iTunes U is the Open University based in the UK. In August 2011, they reported that since their launch on iTunes U in June 2008, they had over 38.7 million downloads by over 4.4 million visitors. They indicate that 89.9% of downloads originate outside the UK, with the US accounting for the largest activity with 10.7 million downloads. The next largest downloads originated from the UK, Canada, China, Australia, Germany, Japan, France, the Netherlands, and Spain, respectively.

Stanford has had over 30 million downloads since they joined iTunes U. Schools with over 20 million downloads include UC Berkeley, Yale, and MIT. Oxford and the University of Munich each have had over 10 million downloads on iTunes U.

Apple has also made great strides in the commercial PreK-12 Mobile Learning industry. In mid-2010, Apple launched a bulk buying method in the Apple app store for academic buyers. This now makes it possible for schools to buy content in volume at discounted rates. This removes a major impediment that has been slowing adoption in the PreK-12 segment.

In October 2010, Apple introduced a new Special Education section in their app store. At launch it had 85 apps in five categories: communication, hearing, language development, literacy and learning, and organization. In the US alone, this expands the reach of Mobile Learning to a potential demographic of over 5 million school children that need specialized content to mitigate cognitive or physical impairments.

In February 2011, Apple began soliciting donations of older iPad devices to the non-profit Teach for America. Consumers can donate the devices at the retail Apple stores. Teach for America places teachers in low-income and underserved communities and has a small army of 33,000 teachers and alumni that participate in the program. According to Apple, as of September 2011, over 10,000 devices have been donated.

# Quantitative Methodology, Scope, and Product Definitions

Ambient Insight provides quantitative revenue forecasts based on our proprietary Evidence-based Research Methodology (ERM). The ERM is an iterative process based on predictive analytics used to identify revenue opportunities for suppliers. There are four key components of the ERM process:

- Isolate target market via leading and lagging indicators
- Define the potential market revenue boundaries
- Triangulate the baseline market revenue
- Forecast the Total Addressable Market (TAM) for specific products

ERM progresses from general patterns (the big picture) to very precise granular patterns. It is used to create a forecast model comprised of accurate predictors. The forecast model is refined as additional data become available. Ambient Insight triangulates baseline revenues from three analysis vectors that include:

- Supply-side analysis
- Demand-side analysis
- Product and Service category analysis

Ambient Insight gathers market and competitive intelligence from a wide spectrum of information broadly classified as leading and lagging indicators. Economic and market conditions are subject to change and the data in this report are current at the time of publication.

Many of the companies discussed in this report are publicly traded on various international stock exchanges and their financial disclosures provide baseline data for global sales and specific regional business activity. Many private companies, particularly outside the US, report their revenues as a matter of policy. Those financial disclosures also provide baseline data for the demand for specific types of products in particular countries and regions.

Federal government and industry trade bodies, particularly in the US, Japan, South Korea, Germany, France, Canada, Ireland, India, and the UK, provide extensive data on export opportunities in specific international education markets. The European Union funds ongoing research on the adoption of electronic learning in the EU and Eastern Europe. Several international bodies such as the World Bank, the UN, and the Commonwealth of Learning provide funding for projects and detailed data on the adoption of learning technology in developing countries.

There are now distance learning trade associations in every region of the world. Publications, event presentations, and press from these associations provide valuable insight into the market conditions inside particular countries and regions.

## Geographical Regions Defined

This report provides forecasts for seven international regions: North America, Latin America, Western Europe, Eastern Europe, Asia, Middle East, and Africa.

- North America includes the US and Canada.
- Latin America includes Mexico, Central America, and South America. The Caribbean countries and islands are grouped with Latin America.
- Ambient Insight defines Western Europe as the 27 countries in the European Union as of January 2011. It also includes four countries that, so far, have not joined the EU: Iceland, Norway, Lichtenstein, and Switzerland.
- Ambient Insight defines Eastern Europe as most of the Commonwealth of Independent States (CIS) that were once part of the former Soviet Union: Russia, Belarus, Georgia, Moldova, Armenia, Azerbaijan, Turkmenistan, Kazakhstan, Kyrgyzstan, Uzbekistan, and the Ukraine. It should be noted that several countries that were once part of the Soviet Union are now in the EU.

- Asia is defined as the countries in continental eastern Asia and the countries and island nations in the Asian Pacific including Australia and New Zealand.

- The Middle East includes all the east Mediterranean, Gulf, and western Asian countries, and arbitrarily groups Turkey and Egypt as part of the Middle East.

- Africa includes all the countries on the African continent except Egypt and also includes Madagascar.

## Scope

The analysis in this report focuses on those regions and countries that currently represent the top revenue opportunities for suppliers. The buying behavior in each region and countries within a region can be quite complex and this report limits analysis to the top buying countries in each region. The analysis of long-term revenue opportunities in emerging markets is less detailed.

Within the scope of this report, it is not possible to do a "deep dive" into each country. Consequently, buying behavior at the country level is limited to the identification of overall revenues and the identification of the top buyers, but the revenues are not broken out by those buyers. Ambient Insight does identify the major suppliers across regions and within countries revealing partnering opportunities for non-domestic and international suppliers.

**The revenue forecasts in this report are in US Dollars.** There have been significant fluctuations in currency valuations in 2010 and the forecasts in this report are based on international exchange rates as of July 2011. This report will be updated annually and suppliers are advised that currency fluctuations may significantly alter the year-to-year forecasts.

Several international bodies (such as the UN and the World Bank), many international NGOs (such as the Bill and Melinda Gates Foundation), and dozens of major technology suppliers fund learning technology projects in developing countries. Those expenditures rarely represent addressable revenues for commercial suppliers and they are not included in this report.

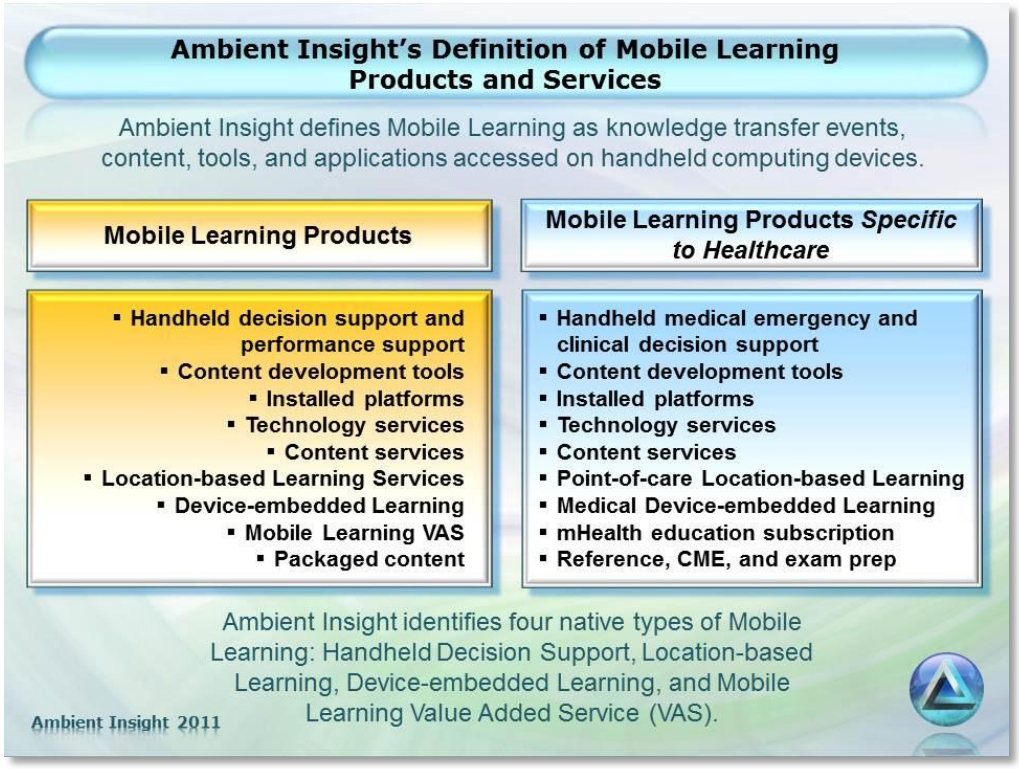
The educational toy market has significant barriers-to-entry and the revenues generated are not addressable to all but a few suppliers.

There is a great deal of revenue generated by the sales of "educational toys" that could be considered personal learning devices. However, Ambient Insight excludes those products because they are more focused on play rather than learning. The line of demarcation from toy to learning device is the presence of academic content – then the toy crosses over into a personal learning device. In general, devices designed for children under 3-years old are usually educational toys.

## Mobile Learning Definition

Ambient Insight defines Mobile Learning as knowledge transfer events, content, tools, and applications accessed on handheld computing devices. In our taxonomy, laptop and netbook computers, while perhaps mobile, are not considered handheld devices.

**Figure 4 – Definitions of Mobile Learning Products and Services**




Ambient Insight defines four major types of "native" Mobile Learning products: Handheld Decision Support, Location-based Learning, Device-embedded Learning, and Mobile Learning VAS (value added service).

- **Handheld Decision Support** is an interactive application that provides sequential performance and decision support based on the input provided by the user. Handheld Decision Support is very common in corporate mobile field force, government first responder, and clinical healthcare environments.

- **Location-based Learning** is based on location-based services (LBS) technology. It is a type of knowledge transfer enabled by wirelessly-networked interfaces and sensors responding to the actions of a user at a specific location ***in space and time*** to create a situated learning experience. RFID chips, GPS chips, barcodes, Quick Response (QR) codes, SMS short codes, image recognition, and augmented reality technologies are often used in this type of learning, particularly in clinical healthcare environments, first responder situations, museums, tourist attractions, consumer and patient education, navigation applications, and in the travel industry.

- **Device-embedded Learning** is when the primary purpose of a handheld computing device is to enhance learning, access educational content, and assess and support performance. The device functions as a personal learning device. This type of product is very common in the consumer and PreK-6 academic segments.

- **Mobile Learning VAS** is a subscription-based product sold directly to consumers by telecom network operators, device makers, and content suppliers. The content is usually delivered via audio, Short Message Service (SMS) or Interactive Voice Response (IVR). The telecoms dominate the market so far. Nokia and Urban Planet Mobile are examples of non-telecoms that sell Mobile Learning VAS products. To date, Mobile Learning VAS products are heavily concentrated in Asia, Africa, and Latin America.

There are mobile versions of the other learning product types tracked by Ambient Insight. To the extent that they have been modified substantially from their original format into mobile formats they are considered Mobile Learning products.

Ambient Insight provides a granular definition of eight learning technology product types in: Ambient Insight's 2011 Learning Technology Research Taxonomy

## Related Research

Buyers of this report may also benefit by the following Ambient Insight market research:

- The US Market for Mobile Learning Products and Services: 2010-2015 Forecast and Analysis
- The Worldwide Market for Self-paced eLearning Products and Services: 2010-2015 Forecast and Analysis
- The Worldwide Market for English Language Education Self-paced eLearning Content: 2009-2014 Forecast and Analysis
- The US Market for Self-paced eLearning Products and Services: 2010-2015 Forecast and Analysis
- Ambient Insight's 2011 Learning Technology Research Taxonomy

**"We Put Research into Practice"**
www.ambientinsight.com