Revolution of Books and Education

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Abstract—**The objective of this study is to promote digital books, to make education resource available to people anywhere equally. This paper presents an analysis on the development of books, offering the conceptions of E-edu, indicating that it starts from education and textbooks as well as its function-designs and routes of implementation. It also analyses its economic and social benefits compared with similar products in the end. E-edu is surely the revolution of books and education with the development of science and technology. It is expected to become a national data, promote the education and help to individual learning. The existing electronic technologies have already offered the conditions for E-edu, however, we also need the participation of you.**

Keywords—E-edu; revolution; books; courses

I. INTRODUCTION

During the process of human evolution and development, the appearance of letters owned recorded history and the carrier of letters went through a long time from the rock paintings, oracle bones to bamboo slips. The invention of paper promoted the rapid spread of civilization[1], the modern printing promoted the production of books and the computer typesetting and the explosion of knowledge nowadays take books into the explosion in numbers[2] .The National Library owns ten million books, every university has beautiful and huge library, big piles of textbooks and reference books on the desk of Middle school students as well as more than 10 pounds of big bags of pupils. With the further expansion of knowledge, one year, ten years, one hundred years, and one thousand years later…the books will be our heavy burden.

People learn about history and deliver scientific knowledge through books which being the carrier of education, it is very difficult for books constituted with letters and simple pictures to describe the whole of a phenomenon, a process, a scene and a thing exactly and even the descriptions of the writer bring in deviation of personal awareness and language. Readers have deviation to the comprehension of letter as well. However, it could not complete the whole education with books only and then the teachers and schools appear[3]. They explain the content of books (called texts) because the words are too abstract to describe matters. Reading takes the content of books through comprehension and visualization to be memorized in brains. It could not be understood with wrong comprehension. It still exists today. But nowadays the teachers help the students to understand the contents of books through popular languages, teaching tools, movies, cartoons and pictures. They also learn about their levels of comprehension through their homework. Books could not satisfy our requirements of education.

II. DIGITAL E-BOOK

At the end of the last century, the digital technology of books appeared thanks for people's intelligence. A book with 350 pages only occupies 1.1 M computer memory after digitization. Nowadays, the storage space of a thumb-sized U-disk is 36G which means that a U-disk could store 30,000 books. SuperStar Corp, Sursen Corp and Hanvon Corp in China stands at the forefront of digital books in spite of many problems with intellectual property etc. [4]. Book-digitization is still a revolution of books. Paper books are still strong alive since the reading habits and existence of so many presses and there are only 10% of new books are published in digital. The appearance of e-book[5] promotes the digitization of books. Hanvon, Kinle, Shengda, Aili, Niuman etc. Replace screen with radiation by electronic paper. It owns the features of longtime –harmless, flicker safe and nonradioactive reading with the price less than one thousand RMB. The achievements of e-books bring a round of another attack to printed books[4].IPad and the expansion of mobile phone' functions (e-book reading) speed up the popularity of e-books. In 2013, Bowker Market Research Company united with Pearson, tata consultancy services, Kearney, US Book Industry Study Group to release a survey that the global e-book market formed gradually in 2012. Frankfurt Book Fair in Germany's "global e-book market" report shows that in Western market, American e-book market occupied 20.2% of the whole book market in 2011; the biggest on-line bookstore-Amazon sells more e-books than printed books today. In 2014, the amount of Chinese e-book reading was over 1.4 billion. In the past year, 1/5 American read at least one e-book. 43% American adults said that they read e-book or other long texts (electronic magazines, journals, news reports etc.) through e-book, tablet PC, computer and mobile phone etc. 28% American own at least one electronic reading device. Digital books of Chinese college libraries become popular for teachers and students. Millions of e-books only need very small storage. Some schools purchase many tablet readers for e-books[6]. Amazon's successful marketing on e-book lays the foundation of e-book's rapid development in future[7]. The reading habits are being changed and the structure for better comprehension of knowledge is more acceptable.

However, e-books are still digitalized printed books that with the same problems. There is a new idea for integrating books and teaching process to explain the contents of a book.

III. E-EDU EDUCATION CONCEPTION

A. E-edu definition

Electronic education (E-edu) ---- the multiform carrier of

software teaching with electronization. An educational system (Diversified knowledge expression platform) with letter, voice, video, cartoon, picture, record, software, interaction, information, internet, management as well as demonstration.

E-edu requires software system (production platform) as well as the "knowledge contents".

E-edu owns mature hardware and software technology. The "platform" has similar software like ePub, and INDESIGN [8-11]. The "content" could choose the past and present knowledge. New knowledge needs to be complied by E-edu platform and old knowledge needs to be "rewritten" to form the new "E-edu contents".

E-edu's contents are spreaded by the websites and internet, and taken by computers, special pad and mobile phones.

B. E-edu conception

As a project, E-edu should start from education and build a "study platform". E-edu begins from the courses and classes, using the "section" of courses to form basic units of contents. The choices of knowledge start from mature texts of junior high school, senior high school and university. E-edu should be used as supplementary reading materials at first to help teachers explain the texts.

The implementation of the item:
- E-edu function designs;

- E-edu software system (building a platform, an educational studying platform) building;

- E-edu content making (choosing 8 courses at first);

- E-edu project application and technical team building;

- E-edu content database and website construction; (which requires the promotion of a huge amount of teachers).

- PC, mobile phone, PAD developing and management of team operation.

C. E-edu functions

Combined with existing textbooks, multimedia, network technology and habits of human being, we design E-edu with functions as follows:
- Cartoon--- Planar and three-dimensional animation which expresses a process and story. For example, slow-down or speed-up process, enlarged or shrunken images, imagination that is unable to realize in the nature, strengthened idealized process and environment and historical stories. Of course, it also includes popular anime at present.

- Picture--- The colorful screen with background and a real scenario record and 3D pictures as well.

- Movie--- Description of the background and stories. It could also be a manner to record compressed things in detail.

- Writing and drawing board--- A variety of standard tools and convenient communication and writing as well as drawing. It sets various text-input methods, fonts and sizes. In particular, its handwriting input and key board input functions introduce in various drawing tools and whiteboard for written communication at any time.

- Video--- A face-to-face communication among students, teachers and parents that is convenient for asking questions and solving problems. On-class real-time playback, which is convenient for students to study lessons in anywhere through the video when they are unable to go to the class. It can also be used proctored. Through video, it supervises exams, sending and collecting papers and saves as records.

- Self-test exercises and exam system--- Assessing the level of mastery. There are sections of the test and examination courses. Each section has self-practices and course-tests. Tests balance correctness of conception and clear correct knowledge with standard answer or reference answer and interpretation analysis.

- Homework--- Homework-finish, homework-hand in and homework-response systems like WeChat. Students finish the homework with entering hand-in and their homework will be shown in the teachers' system. Teachers check the homework and enter response, and then the homework comes back to the students. They could also help students at any time through video, voice and board to pick up problems in the homework.

- Voice--- Combination of videos and music. It also includes the record of voices.

- Lecture--- Different levels of difficulties of domestic good teachers' lecture videos. Different levels of domestic excellent teachers' lecture videos will be stored in the E-edu and every student would enjoy the good learning resources fairly.

- Website--- Connecting the dedicated E-edu education websites. A special website will be established for students to download new lerning contents and database administrators will enrich the course database in time.This mainly refer to study management and school roll management. The function will often remind you of the difficulty of the course. Your learning process and mastery degree and some places should be strengthened will be also pointed out. Of course, you can also consult your learning progress and achievement.

- Expression of the points and difficulties of the courses and related requirements, outlines, knowledge and abilities.According to different countries and different language, the system of E-edu will include different languages to replace each other for you.

- Mobile phone--- Being convenient to contact with classmates, teachers and parents with related functions.

- Management--- The teaching records management and check of individuals and groups.

- Multi-language--- Chinese and English-based multilingual format. According to different countries

and different language, the system of E-edu will include different languages to replace each other for you.

- References. The function mainly refers to our E-edu can be easily connected to the database to facilitate the students access to information and new knowledge.

- Store, call, modify and upload with functions of OFFICE.

- Distance teaching--- Real-time remote network lectures, Q & A, exam and registration management.Through the mutual recognition, you can go to school to learn their own courses of any countries and through the network to obtain the degree when finish the school courses.

- Experimental software---running a variety of experimental software.This system design a software for purchase, download, run system and a lot of learning software directory will be also provided.

- Courses making platform and submission system. It is used to expand the contents of E-edu.This is the essence part of E-edu . Books in the future will obtain breakthrough in this part. To get this function a variety of software system integration will be composed .

- GPS--- Confirm the position of students.

- Course database and management system.This is the core of the E-edu, which is made up of a large number of courses.With our E-edu a huge database will be formed, which will replace paper library in the future.

D. Similar systems with E-edu

E-school bag[12]

It is reported that Liaoning Publishing Group cooperates with Taiwan Bijou Electronic Industrial Company, Peking University Founder Electronics Company and Qinghua LCD Technology Engineering Research Center to develop "e-school bag" products. Hanwang Technology, Central South Media, Founder, and other enterprises all focus on E-school bag business. E-school bag means the portable terminal using information equipment to teach, being studied for the educational functions of its types both at home and abroad.

Zaoshang E-school bag

The original handwriting handwritten technology: Electromagnetic capacitive dual-touch screen handwriting; Using IPS high-definition eye shield LCD screen, effective protection of youth vision with the whole viewing angle.

Massive handwriting applications: Using email endorsement, OFFICE, notes, microblog and QQ etc. with "one" point. Universal writing presents the original notes.

Special functions: Taking photos, videos and recording every wonderful moment. Making a video meeting and distance learning in the hotel, airport, and at home at anytime and anywhere.

Long lasting life: 8000mAH high capacity battery, providing up to 10 hours of continuous use. There is no worry about the longtime of study and training.

Huge amounts of learning resources: It gathers rich digital courses teaching resources involving e-textbook, Huang Gang masters' videos, exams, mathematical Olympiad counseling, knowledge expansion, preschool education and classics of sinology etc.

At present, E-school bag in China is still in its experimental stage in most areas. It has taken the lead use in some big cities in some primary and middle schools but the effectiveness of education is still controversial[13-15]. Under the lead of State Press and Publication Administration of Radio, E-book related technical standards are carried out systematically. E-school bag is attracting the attention of the publishing enterprises and it technology enterprises. It becomes a hot topic that how to achieve the goals to change print publications into e- school bag. Whether the market size of 100 billion RMB is only a legend, every enterprise renews its power to grab the market dominance.

IV.   E-EDU EFFICIENCY ANALYSIS

Our goals are revolutions of books and education which are the inevitable results of the development of science and technology. The technology of computer and network has brought changes in learning and imagination can be presented through the visual screen, so that it can be controlled to become slower and bigger. Even unthinkable things can occur with the help of a computer, the large capacity storage, high speed calculation, the miniaturization of device, all leading to the revolution of books and education. What we need is a leap of understanding and ideas. Finally, who can promote and lead the revolution? Let's wait and see!

This revolution which is the expression of a language and the revolution of education are global, for it occurs in each of the country throughout the world, and is an action of the whole country. Therefore, E-edu belongs to the country even the whole world and, in the end, its "contents" database will contribute to the education of the country. For countries and regions lacking of educational resources, E-edu can provide the most advanced national education resources, as the saying goes all men are equal facing to the education.

For the individuals, a lifelong learning will become the consensus of human beings so that E-edu will be your friend of the whole life. E-edu is always on your side, no matter   you are working, traveling, and you can spend even 20 minutes of spare time on learning.To introduce a knowledge, you no longer need pens and paper, a variety of modern description means will let you play the most vividly. After many years, what could you imagine of books and education? We hope that we all are the participants of the revolution.

Amazon's e-book business model gives us the inspiration that it is possible to go the way of market, combine the national and folk capital to promote the development of E – edu. In China, the current population birth rate is 16 million. All of them will go to school learning thousands of courses from elementary school to university. If ¥0.1 for each, a market containing hundreds of billions fortune is not a legend but the pursuit of courageous entrepreneurs. Not only China, any country is facing the challenge of E-edu.

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