A Report on the Digitalization Status of Local Cultural Data and Material in Korea

Jang Nohyun

This article is a report on the development process, the contents, the character-istics, and early results of the Digital Encyclopedia of Korean Local Culture publication project, which is designed to establish a digitalized library of Korean local cultural aspects. This article also includes a couple of suggestions regarding the direction that the project should be heading in the future.

The EKLC project succeeds the proud and age-old Korean tradition of compiling and publishing local cultural details, and is certainly a new kind of cultural compilation project that serves the needs of today as well. The EKLC project launched in 2004 is comprised of five main phases: (1) The Project of Surveying and Researching Local Culture, (2) The Project of Producing Knowledge/Information Contents Based upon Local Culture, (3) The Project of Developing a Framework for the Local Culture Knowledge/Information Library, (4) The Project of Managing and Operating the Local Culture Knowledge/Information Library, and (5) The Project of Educating Human Resources Joining the Development Efforts of Local Cultural Content.

As the first result of the EKLC project, the *Digitalized Encyclopedia of the Local Culture of Seongnam* was completed in February 2005. Hundreds of expert researchers created the texts, and those texts went through meticulous processing to be transformed into electronic texts. Also, a total of 198,065 tags were designed and tagged to the texts to maximize the utility of the contents. As a result, words, text, and multimedia resources were inter-connected with each other, therefore creating a cross-referencing environment. This *Digitalized Encyclopedia of the Local Culture of Seongnam* is also equipped with a user interface that considers the users' convenience as its top priority. It allows the viewers and visitors to approach and examine the information from various directions and perspectives.

The EKLC project is not a project that merely intends to create another digitalized encyclopedia. It is a process of constructing a new structure of knowledge/information system which the new age requires of us. In order to

understand the intentions and aspirations of those in charge of the task, we should all grow more accustomed to the concept of a narrative mode of thought instead of the traditional paradigmatic mode.

Keywords: local culture, the Digital Encyclopedia of Korean Local Culture (EKLC), compiling system, Digitalized Encyclopedia of the Local Culture of Seongnam, hyper-text, narrative mode of thought

Introduction

It was around 1998 when the efforts to digitalize massive data and material related to Korean studies and Korean culture were launched substantively in Korea. The Gyujanggak Archives at Seoul National University, the National Institute of Korean History, and The Academy of Korean Studies combined their efforts and launched the Korean History Information Database system, while also embarking upon a project of establishing the Digital Library of Korean Studies. The Koreans' journey to secure digitalized sources of information on various Korean studies was shortened at least 13 or even 14 years by the accomplishments. Especially, The Academy of Korean Studies established the Korean Studies Information Center in 1997, and started to provide visitors with Internet services involving themes from Korean culture under the name of *Digital Korean Studies.*[1]

Ever since the announcements of these efforts, other national institutes and organizations also grouped together and began to establish various Korean Studies databases of their own. These databases were all established based upon materials related to Korean studies and Korean culture, yet those materials were all selected and chosen because they were perceived as materials which fit the "general boundaries of Korean studies as a whole." Strictly speaking, other materials related to local and regional cultures which had been representing the characteristics and qualities of individual local areas throughout the Korean peninsula are either not included much in the digitalization process yet or they have been part of other relevant efforts. There have been cases in which local authorities launched their own projects of digitalizing local cultural materials, but systematic results from those efforts are yet to be reported.

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1. Refer to the following website for more information: http://www.koreandb.net.

The Academy of Korean Studies has been aware of this problem, and is currently developing a major digitalization project which aims at digitalizing all local cultural materials and data sources scattered throughout Korea. The project is entitled *The Digital Encyclopedia of Korean Local Culture* (EKLC).[2] EKLC is a project in which various local cultural materials will be searched, recovered, gathered, and collected from a total of 232 cities and districts of Korea, and then examined, analyzed, and sorted in systematic fashion, and finally brought into a digitalization process which will develop them into a serviceable format on the Internet. The project was officially launched in July 2003 with the authorization of the Korean government. The project itself is still in its early stages, but when completed the project is expected to provide us with a lot of merits. An on-line managing system, which would contribute to the updating of the information managing techniques, will be established, and high-quality digitalized information which would eventually serve a variety of needs and requirements of researchers and related personnel will be continuously produced. Also, an "open-to-everyone" kind of access, through which general users would be allowed and enabled to participate in the process of producing digitalized information, is expected to be established as well. The project itself will take us to the next level of digitalized information consumption, and considerably upgrade the current environment in which everyone is appreciating digitalized information.

This article is a report upon the development process of the EKLC project, and it also includes a couple of suggestions regarding the direction that the project should be heading in the future. The primary objective of this article is to elaborate and introduce the on-going process, the contents and characteristics of the project, and also the accomplishments achieved in the initial stages of the project.

The Tradition of Local Culture Compilation and the Need for Such Effort Today

In Korea, there has always been the tradition of compiling facts and aspects derived from the local cultures in a huge, substantive fashion. Those efforts orig-

2. Refer to http://www.grandculture.net. A website used for the compilation process and also advertising the project is now in operation. Materials and results from the compilation process are continuously being registered and uploaded on this site.

inated from the people's sincere interest in the land, which alongside natural phenomena, has sustained the public and nourished them. Those very interests led to the publication of topographical manuals and almanacs.

The Korean tradition of compiling and publishing cultural and topographical details of local societies is believed to have existed since the Three Kingdoms period, but no concrete evidence has yet been secured through historical texts. The Topography sections inside the *Samguk sagi* and *Goryeosa* were fairly brief, but the historical experience of creating such portions and inserting them inside publications of National history was inherited by the people of the Joseon dynasty, and projects of compiling and publishing such materials became an active trend in the period.

During the early days of the Joseon dynasty, several topography manuals and books were published and issued by the government. *The Topography of Gyeongsang Province,* the topography section of the *Sejong sillok* (The Annals of King Sejong), the topography section inside the *Topography of the Gyeongsang Province* [Supplemental Edition] (慶尙道續撰地理志), and the *Dongguk yeoji seungnam* (東國與地勝覽) were all prime examples. These topographical texts were published in series in a rather concentrated fashion since the reigning days of King Sejong through to the days of King Seongjong, which was roughly a 60-year period. The *Sinjeung dongguk yeoji seungnam* (增東國與地勝覽, Newly Expanded Edition of the *Dongguk yeoji seungnam*), which is currently the most widely circulated edition of the text, had gone through multiple expansion processes during the reigning days of Kings Seongjong and Yeonsan-gun, and then was finally completed in 1531, which was when King Jungjong was in reign. These topographical texts did not only introduce the viewers to certain changes that occurred in the titles of locations or the process of verifying those changes, but also provided them with detailed information regarding various aspects of human lives including politics, economy, society, people, protocols and customs, literature, and administration etc., in a systematic yet also individual (independent) fashion. And most importantly, the authorities had those topographical texts go through periodic revisions so that they could mirror the changes in real life and pick up the latest information.

These projects of compiling and publishing topographical texts and books, which were planned, overseen, and executed by the government during the early days of the dynasty, led to a new trend of topographical text publications as such projects began to be developed by local authorities such as the Suryeong prefects, or civilians (the Sarim figures to be exact) after the latter half of the 16th century.

These new topographical manuals were usually referred to as *Gwanchan eubji* ("Official" Town Chronicles) or *Sachan eubji* (Town chronicles compiled and published by civilian individuals). Among many of these new chronicles and topographical texts of local areas, *Taekni-ji*, authored by Lee Jung Hwan, not only described the people's lives inside the Korean peninsula from a rather wide point of view, but also described local characteristics, local history, geographical features, and the current situation of land usages (which was where humans and nature tended to meet with each other literally firsthand) with substantive details. In 1757, in the 33rd year of King Yeongjo's reign, a suggestion was made to revise and upgrade the *Sinjeung dongguk yeoji seungnam*, of which the contents were already 230 years old at the time, so a new official topographical text containing details of the Korean peninsula at the time was compiled and created and entitled *Yeoji doseo*. This compilation informs us the exact feature of Korea from 200 years ago, and this information is supported and verified by not only official comments of the compilers (and the government) but also by detailed statistical data. Enhanced visual accessibility established by inserting maps in the topographical texts is also one of the characteristics of this *Yeoji doseo*.

The EKLC project developed by The Academy of Korean Studies is not only a project which succeeds this age-old, historical tradition of the Korean people but also a project which serves today's needs of establishing a new method of gathering, compiling, and developing cultural assets of the Korean people nowadays. And now we shall delve into the question of what exactly today's needs are.

First of all, in order to launch a full-scale, wide-ranged management project regarding all things related to Korean culture, we should maintain a balanced perspective which not only views things and materials from a point of view that considers materials from the center of the country representing the finest and most exemplary qualities of the Korean culture, but also view things and materials from a point of view which would consider materials from all over the country as being just as equally important and also representative of various aspects and dimensions of the entire Korean culture. As a vivid example, the project which resulted in the publication of the *Encyclopedia of Korean National Culture* and continued from the 1980s for almost twelve years was mainly developed based upon a point of view which considered collecting themes and qualities from the center of the country as a top priority, and therefore the project practically failed to fully collect various and versatile local cultural data and materials. As a result, it became a rather imperative task for the Korean people and researchers in fields

related to the Korean culture to collect and analyze various data mirroring the lives and cultural consciousness of the local population from a point of view which did not consider them as either supplemental or marginal figures.

Second, since the 1990s the social climate and cultural environment of Korean society has been changing rapidly, and in the wake of those changes, local cultural resources and materials turned out to be the most vulnerable ones to being damaged and obliterated. Local cultural resources are usually comprised of traditional ones and contemporary ones. As the traditional way of life continues to fade away from our lifestyles and our minds, the necessity of developing ways and means of protecting, preserving, and transferring them to the next generation is becoming only more imperative. And as our ancestors had done, it is also equally important for us to systematically collect and preserve the cultural aspects of our own time and deliver the details to our descendants. In order to do so, a wide-range data collecting and systematical analysis of those gathered data based upon field surveys and researches are duly required.

Third, there has been an explosive breakthrough in the development of Media/Information technology which forced the fashion of producing, processing, circulating and utilizing information/knowledge to change irrevocably, and therefore, the fashion of compiling and publishing general information and knowledge should mirror such changes as well. Our generation requires a new information delivery system which would serve our new needs and develop new kinds of cultural information that would fit the boundaries of Information technology and the Internet. This is also the primary reason that the EKLC project is being established as an On-line, digitalized information library.

Fourth, the necessity of establishing an entire Cultural Contents industry which would answer many of this era's immediate needs is growing everyday. Yet basic and primary cultural data and materials that could prove helpful in establishing this kind of industry are not yet fully secured. A country-wide gathering and collecting of local cultural materials just might solve this problem, and reinforce the very basis of such industry.

As we can see, the *Digital Encyclopedia of Korean Local Culture* project is one which was developed under the intention to succeed the age-old proud tradition of compiling and publishing aspects of local culture, with the intention to serve the present need to collect and determine the local cultural identity of our own time. This is a meaningful task which would make Koreans more ready to meet the world of the 21st century, which will be an era in which the so-called "globalization" and "localization" could coexist. Through this project, the tradi-

tional way of Korean life, and the present way as well, will be processed in certain fashions, and eventually emerge in a format of digitalized information.

Contents of the Project

The EKLC project is currently proceeding with five major individual sub-projects.

1. The Project of Surveying and Researching Local Culture.
2. The Project of Producing Knowledge/Information Content based upon Local Culture.
3. The Project of Developing a Framework for the Local Culture Knowledge/Information Library.
4. The Project of Managing and Operating the Local Culture Knowledge/Information Library.
5. The Project of Educating Human Resources Joining the Development efforts of Local Cultural Content.

Basically, Sub-project (1) is designed to establish the most basic environment for the entire project, and Sub-projects (2) and (3) could be considered as the core of the project. Sub-project (4) would constitute the finishing-up phase of the project, and Sub-project (5) is a supplemental yet crucial one to the entire project.

1. The Project of Surveying and Researching Local Culture

This project of surveying and researching local culture is sort of an Advance-task that should proceed before the core portions of the project kick in, and this sub-project itself is comprised of two phases, preliminary research which had already begun before the EKLC project was initiated, and preliminary surveys and research which have continued as part of the EKLC project since 2004.

Since 1994, The Academy of Korean Studies has already begun its efforts of developing a nation-wide Cultural Compilation and Publication project, an effort which has succeeded the intentions of our ancestors who created the magnificent *Dongguk yeoji seungnam* and therefore will help us determine the very way of the lives we are leading today in the era of globalization and localization, allowing our descendants to be aware of those ways and styles. As a result, in 1995 a

compilation of academic studies under the title of *Research for the Task of Compiling and Publishing the "Minguk yeoji seungnam"* (Vol. 1) was released. This publication dealt with the sorting and classification matters involving local cultural materials, which would serve as the very basis for data compilation. And in the following year, *Research for the Task of Compiling and Publishing the "Minguk yeoji seungnam"* (Vol. 2) was released as well, containing further developed discussions of the matters covered in the first volume.

Also, in 1997, The Academy of Korean Studies also initiated a series of tasks to collect the real life aspects of various local provinces and compiled them individually, under the title of *The Local Culture of Gyeonggi Province, The Local Culture of South Gyeongsang Province,* and *The Local Culture of South Jeolla Province.* We shall examine the contents of those publications through *The Local Culture of Gyeonggi Province.*

- Understanding the Local Culture of the Gyeonggi-do Province area
- Locations and Geographical Environment
- River areas and Human Activities
- Climate, and the Basis of Culture
- Historical Background
- Roads and Development of Transportation
- Changes and Markets
- Lands and Land Ownership Registers (地籍)
- Modern Industries and Local Development
- Names and Clans
- Residences
- Villages
- Cities
- Population Shifts and Moving Fashions
- Cultural Properties and Vestiges
- Royal Mausoleums
- Seowon Schools, Sawu Shrines, Hyanggyo Schools
- Culture of Walled Fortress
- Topographical Books, Local Chronicles, Age-old Maps
- Historical Introduction to Folklore Culture
- Seasonal Customs and Games, Entertainment
- Clothes, Foods and Houses
- Religious Beliefs and Services

- Folklore Songs and Shaman Songs

Other than these tasks, The Academy of Korean Studies conducted advance preparations for the EKLC project through publishing books such as *What Is Local Culture?* and *Preliminary Surveys and Research for the Digital Encyclopedia of Korean Local Culture Publication.* All these efforts turned out to be considerably helpful for the project's official launch in 2003.

Since 2004, there have been other preliminary surveys and research designed in the confines of the EKLC project, such as *Studies of the Existing Surveys and Research of the Candidate Regions* and *Establishing Archives of Local Culture Materials.*

The EKLC project has been operating on every level of the local authorities, such as cities, districts, and *gu. Studies of the Existing Surveys and Research of the Candidate Regions* is a sub-project currently in progress, and the primary objective of this sub-project is to gather detailed information regarding the current situation of local cultural assets and properties located in various local regions such as cities, districts, and other smaller local units which are designated as candidate areas to be included in the overall project in the following years. Studies of pre-existing surveys and research of those assets and properties are allocated to either the local aspects of the culture in those areas or local universities and research institutes. Then these experts, universities, institutes or other related organizations are instructed to survey all the local culture-related publications or advertisement materials that have been published from the past through to the present, and also meticulously analyze all the specifics of those local areas, such as special products from particular regions, historical events, historical figures, cultural plans, and industries run by local authorities. Finally they are expected to file an extensive report detailing the previous surveys and research of regional local culture and all related assets, which would later help developing and promoting the execution of the project in each area.

The sub-project of *Establishing Archives of Local Culture Materials* is also an advance task to establish the basis for the ultimate compilation process. This task essentially aims for creating a vast database of data and material which would bring authority (典據) and reference sources (參考) crucial for the entire EKLC to the project. The personnel directly involved in compiling data for the EKLC will be provided with a singular interface to a vast library of local cultural references that are not casually accessible to them. This task is set to be launched in 2005 and is expected to continue for years. When the archive is completed,

the archive alone would be considered a meaningful source of knowledge and information regarding local culture, and users of the *Digital Encyclopedia of Korean Local Culture* will be able to consult this archive as well, and therefore get access to more versatile and more in-depth knowledge and information.

2. The Project of Producing Knowledge/Information Contents Based on Local Culture

This sub-project of producing knowledge/information content based upon local cultures is one of the main projects of EKLC and is also designed to operate on every level of local authorities such as cities, Gun units, and districts. Personnel involved at this stage are instructed to survey and recover contents of local culture-related materials produced, owned, or managed by local authorities, then to examine them, and finally build them into a format of a local culture knowledge/Information contents group. In early 2005, the knowledge/information contents group for the local culture of Gyeonggi province's Seongnam City was completed, and currently cities like Cheongju, Gangneung, Jinju, and Namwon are going through similar processes.

The knowledge/information of local area culture is classified into total of nine classes. These nine classes were determined by the Standard Classification System of Local Cultural Aspects, which was established by individual surveys and research of local culture.

The local culture knowledge/information contents group is based upon the primary element which could be referred to as "items," just like other encyclopedias are based upon individual items as well. There are general items, pre-determined items, and village chronicle items. The general items group is again divided into introductory items, standard items, and supplemental items. Introductory items refer to items that help viewers perceive and understand the local culture and various aspects in terms of both historical point of view and a contemporary point of view. The supplemental items are ones which contain supplemental information regarding specific standard items. Pre-determined items and Village chronicle items refer to items which demonstrate the characteristics of local cultures and complement the shortcomings of the general items, and because of such nature these items are collected and documented with extensive research. By collecting, sampling, and managing the local culture with systemized classification methods, the EKLC project will be able to not only collect individual aspects of local cultures, but also include all levels of cultural

Standard Classification System of Local Cultural Aspects

The Basis of Life (Nature and Geography)	Natural environment, Geographical features and Geological traits, climate, animals and plants, scenery, etc.
The History of Life (History of the Region)	Local regions' history since the pre-historic age through the present
The Traces of Life (Cultural Heritage)	Pre-historic artifacts and vestiges, vestiges of compounds, sculpture, calligraphy, age-old art, etc.
The Leaders of Life (Names and People)	Residences, clan names, historical figures
The Boundaries of Life 1 (Politics and Administration)	Local politics, local administration, local judiciary and security activities, local social movements
The Boundaries of Life 2 (Economy and Industries)	Economical figures, agriculture and fisheries, mining and manufacturing industries, finance and insurance, commerce and service industries, transportation and communication, construction business, tourism
The Contents of Life (Religion and culture)	Religion, education, culture and art, media, physical fitness
The Way of Life (Living Customs and Folklore)	Clothes, food, houses, customs, entertainment
The Tales of Life (Tales, Legends and Linguistics)	Origins of local names, mouth-to-mouth tales delivery, linguistic studies

activities and existence inside human lives, from introductory pieces of information to specialized knowledge and in-depth information.

All the items are created and documented after receiving counsel from specialists in many areas, after they have had the chance to survey and research the details. And after being proofread they are finally turned into XML type digital documents. Especially, regarding the Pre-determined items and Village chronicle items, the survey and research teams armed with extensive knowledge of the areas go on field visits on a regular basis. They also develop items and create documents, and every step of the survey process is recorded either audibly or visually. These audio and video materials will also be processed and delivered to the viewers.

All the text data are created in XML format, and the inter-classical relationship between senior and junior items, the relationship between relevant materials, and the relationship between XML texts and the multimedia data files are fully disclosed. All the people's names, regional titles, names of the administrative bodies and names of books, in other words, all the proper nouns are exhibit-

ed with unique proper-noun identification tags, and all the words used with temporal or regional meanings are exhibited with space-time tags which allows viewers to browse electronic maps and digitalized chronology data themselves.

3. The Project of Developing Framework for the Local Culture Knowledge/Information Library

Another core part of the EKLC project is the sub-project of developing a framework for the local culture knowledge/information library. The aim of this sub-project is to develop and establish ways and methods to manage the knowledge and information efficiently, and to establish a system in which such knowledge and information would be circulated and used properly. The tasks of developing a compilation system and establishing a new service system are included in this sub-project. The former is more related to the management aspect, while the latter is more related to the circulation and utilization aspect.

The compilation system was initially designed as a device which would let the personnel involved in the EKLC project conduct their tasks on-line and proceed with the task more efficiently. Conducting tasks on-line would mean having the entire process, which would include selecting items, requesting for documentation to a specialist, documenting, proofreading, tagging and final checking, to go forward entirely on-line. Currently, most of the functions of this system such as item selection, item management, documentation, request filing, and gathering the documentations are in the final stage of development. In the future, functions such as adding further contents to the system, or revising them, or even deleting them from the system will be available on-line, and the result will be immediately added to the entire library so that change could be mirrored in the most recent search orders and therefore real-time compilation will be achieved.

Establishing a service system is meant to create a service utility so that the viewers could browse through various directories, engage in extensive searches, and view several matters related to each other at the same time. Especially, the GIS (Geographic Information System) is set to be added to the functions so that all the spatial and temporal information inside the contents could represent themselves upon three-dimensional electronic maps or electronic chronological tables.

The compilation system and the service system will be merged with each other in the final phase of the project. Such a merge will bring the management system of local cultural knowledge/information together with the circulation and utilization system. Under this kind of unified control, the knowledge and infor-

mation would continuously be reproduced and expanded inside the system, which would result in forming a "Circulatory Knowledge/information system." This kind of circulatory system will serve as an impeccable framework for not only the studies of local cultural knowledge and information but also for all the areas involving humanity studies, and it will also serve the viewers' need to manage, circulate, and utilize these data themselves.

The final feature of the framework is yet to be witnessed. At the current stage, it is only imagined that it would assume the format of a Distribution system-based environment, and feature hyper-texts in XML linguistic format. In order for the Distribution system to work in terms of information management and utilization, standard information description rules designed to exhibit and represent the characteristics of the individual information sources should be pre-arranged. And the individual information sources should be produced and processed under strict instructions based upon such rules. This does not mean that the contents of every piece of information would be forced to assume similar forms at the cost of protecting the unique meaning of the respective contents, but only that the processing fashion be standardized.[3] In the EKLC project, an "Information schema" was developed and applied for the first time to the *Digitalized Encyclopedia of the Local Culture of Seongnam.* The method is going through continuous revision and supplementation.

The local cultural knowledge/information library (system) will provide all the contents in XML documents so that, as the distribution system would require, multi-directional information managing will be secured and expansion of the materials will continue to cover more and more layers.[4] XML documents usually include two types of documentary element. First, the "structural element" would station every piece of information on the documents inside a hier-

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3. The idea of pre-determining all the rules regarding information techniques to process a vast amount of information solely inside the boundaries of those rules may seem unsound, or even impossible to be implemented in real life. Simple technical rules would undoubtedly be welcomed, but as those technical rules become more and more complicated, there is a chance that all those rules might become a mere accumulation of technicalities. So, in this author's opinion, the designers of an information system should adhere to the basic principles of keeping technical rules that would be applied to the production and processing procedures as simple as possible.

4. XML(Extensible Mark-up Language) is an on-line document mark-up language which transforms the structural form of the document and the contents elements to a visible set of information. The standards for XML were first suggested in 1998 by the W3C (World Wide Web Consortium). W3C has recently suggested many more versions and upgrades for this language and also for the standards of many other applicable techniques using XML as well.

archy structure. Then the "descriptive element" would highlight the specific and particular meaning inside the text and create a hyper-text link which would connect them with each other. The "descriptive elements" would be as follows:

- Descriptive elements for Proper Nouns: <In-myeong/Person's name>, <Ji-myeong/A real name>, <Seo-myeong/Book name>, <Gigwan/ Administrative body>, <Yeonho/Title of a particular reign period>
- Descriptive elements for Annotations: <Won-ju/Original Annotation>, <Pyeonja-ju/Annotation from the Compiler or Editor>, <Gyoyeol/ Proofreading>
- Descriptive elements for Relations: <Chamjo/Reference>, <Buchul/ Supplemental>, <Shicheongak/Visual and Audible texts>
- Descriptive elements for Spatial and Temporal information: <Shigan/ Time>, <Gonggan/Place>

These structural elements and descriptive elements, which will be equipped to all XML documents inside the local cultural knowledge/information system, will transform all the information into hyper-text that could be mutually cross-referenced and verified. By cross-referencing hyper-text, simple data bits will become information, and junior-level information will be upgraded to more valuable ones. Also, simple data will keep being discovered and extracted from those high-level, complicated information sources and they will be developed into complex information items themselves. This could be perceived as the typical model of operation of the circulatory knowledge/information system that has been discussed above.

4. The Project of Managing and Operating a Local Culture Knowledge/Information Library

Once the contents are completely digitalized, the quality and value of the contents should be continuously upgraded and enhanced through frequent usage and efficient management. Yet Korean projects aimed at digitalizing contents that have existed thus far tended not to care for such things as ensuring the users' active usage of the contents or enhancing the value of the contents by managing and delivering them in specific ways and designs, at least not as much as we might have hoped for.

Digitalized contents which are not continuously managed and polished by

the developers certainly would not invite viewers or users to sample them. And if they are not visited or used enough, supplementation or enhancement of those contents would neither have any point nor serve any purpose. Established content with no follow-up supplementation or enhancement tend to degrade considerably in terms of quality or value as time passes by, and no other new qualities could possibly be derived from or developed from such content. After several phases of being neglected, such content would probably die off by itself. In order to prevent that from happening, continuing to take care of digitalized content even after it has been completed is imperative to say the least, and an extensive plan should be prepared to do just that.

The personnel involved in the *Digital Encyclopedia of Korean Local Culture* project has been aware of such post-completion necessities since the very early development phase of the project, and have been deeply interested in establishing post-completion management plans for the knowledge/information created during the project. But after plans for the projects were finalized, problems have occurred during the process of budget allocation. Just like other cultural content establishment projects, only the budget for the developing phase was secured, and budget for management and operation issues were never separately established. In order to manage and circulate a local cultural knowledge/information system, an optimal framework and an operating team should be established. The former is being established through the EKLC project. Yet a general plan to establish the latter has not yet been concretely devised.

The *Digital Encyclopedia of the Local Culture of Seongnam,* which was completed and put into service in early 2005, is being managed and operated by the original development team. Budgetary requests for placing enhancements and for management/operation works will be submitted to Seongnam City authorities and are expected to be included in the city budget next year. But this kind of rectification has only happened so far in Seongnam City. Other cities should not be forced to go through this kind of procedural mishap again. General and extensive plans for the management and operation efforts, as considered during the preliminary phases of the EKLC project, should be strongly considered again, in subsequent projects.

5. The Project of Educating Human Resources Joining the Development Efforts of Local Cultural Contents

The *Digital Encyclopedia of Korean Local Culture* publication project is hosting

biannual small banquets twice a year. They are rather a gathering of researchers in the area of local cultural studies. These gatherings are designed to widely advertise the project to a larger population in local areas, and to create a more hospitable environment for the project's continuation. Also, through these gatherings it becomes possible to collect suggestions, propositions, and expert opinions of scholars, researchers, and related personnel from many local cultural bodies, including local history specialists and officials in charge of cultural policies representing local authorities. These collected opinions of the field agents of the EKLC project should contribute to enhancing the productivity of the project, which is being operated in many local cities and districts, and would also make it possible to bring local problems to the discussion table and hammer out a reasonable solution agreed upon by many expert minds.

But these gatherings are also expected to serve another important need of the project. The EKLC project is, as mentioned earlier, being operated on so many levels of local authorities. In 2007 and 2008, when the project is expected to reach its peak activity, the project will be run in scores of cities at the same time. Naturally, in order to maintain such activities, securing human resources is one of the most desperate needs to answer. Documents should be proofread, and should be transformed into XML texts, and should be tagged. These tasks all require personnel who are armed and equipped with both knowledge in humanity studies and a certain level of expertise in information technology. In Korea, the size of a group of personnel who are trained with both kinds of expertise is disturbingly small. Considering the situation, the gatherings were also meant to serve as an opportunity to educate and train candidates who will be joining the projects in the future.

But the participants of the gatherings thus far were mainly researchers in the field of local culture, so creating opportunities for educating professional personnel in the current format will not be easy. Thus, the option of establishing a Local Culture Academy is currently in its planning stage. The Academy is expected to eventually replace the biannual banquets. In the Local Culture Academy, the attendants will not only receive classes in which they will learn facts and details of local cultures, but will also have the opportunity to go through practical training sessions regarding the digitalization of local culture-related content. These personnel will be trained and assigned to various local regions to join and take charge of EKLC projects in those regions.

Early Results of the EKLC Project

As the media environment has come to be run in a digitalized fashion, most of the digitalized knowledge/information or related products are being circulated among the producing entities, the managing entities, and the consuming entities of those knowledge/information areas. In order to understand the meaning of the early results of the EKLC project, the results should be reviewed from all those three entities' respective perspectives. But in this article, only the consumers' perspective will be discussed here. And discussions will mainly be based upon the review of the user interface of the *Digitalized Encyclopedia of the Local Culture of Seongnam*. Regarding the producer's and the manager's points of view, the introductory remarks to the characteristics of the *Digitalized Encyclopedia of the Local Culture of Seongnam* will be made here instead.

1. Characteristics of the *Encyclopedia of the Local Culture of Seongnam*

The *Digital Encyclopedia of Korean Local Culture* publication project, which was officially launched in 2004, announced its first official results in February 2005, the *Digitalized Encyclopedia of the Local Culture of Seongnam*.[5] Since June 2003, when a development contract was established with Seongnam City authorities, three billion won from the central government's budget and another three billion won from Seongnam City's own municipal budget was invested in the project. The *Digitalized Encyclopedia of the Local Culture of Seongnam* is part of the *Digital Encyclopedia of Korean Local Culture* series from The Academy of Korean Studies, constituting the Seongnam City portion of the collection. It contains vast knowledge and information of Seongnam City's history, cultural heritage, political, economical, and societal changes and features of development that happened in the past. It is a knowledge/information system which everyone can visit on-line and search as freely as they want.

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5. Refer to the following website for more information: http://seongnam.grandculture.net.

The *Digitalized Encyclopedia of the Local Culture of Seongnam* features several characteristics compared to other digitalized content in the field of Korean cultural studies. First of all, all the text content were written and documented by the most renowned and celebrated experts and specialists, and a wide variety of visual and audible sources were included in order to maximize the content's accessibility for the viewers. Over a hundred researchers joined the writing and documentation process, and another hundred personnel were involved in the project management and system development area. And as a result, a total of 13,000 pages were created with over 2,370 items, and at the same time, it includes 2,000 photographs and blueprints, 114 video clips, and over hundred audio soundtracks that were created or produced.

Also, all the contents were created in XML text format in order for both the structure and the content to be systematically managed and utilized. As a result, a total of 198,065 tags (46,610 structural tags, 17,235 personal name tags, 35,940 real name tags, 7,765 book name tags, 7,953 administrative body tags, 20,842 keyword cross-references tags, and 5,896 cross-checking tags related to each item). All these tags are designed to allow the users to inter-relate multiple contents themselves and enjoy multi-dimensional services provided by the system. The content can also be transformed into various media formats, and can be upgraded as swiftly.

Through this kind of XML mark-up, the *Digitalized Encyclopedia of the Local Culture of Seongnam* came to feature a state-of-the-art hyper-text structure. Hyper-text is a manner of document description comprised of unit texts and hyper links. Hyper-text refers to the structure of the document (or text) itself, and also serves as a user interface. Countless "words and words," "words and texts (documents)," "texts and video/audio texts," and "texts and texts" are inter-connected and mutually interactive with each other through the system. Also, electric maps and electric chronology tables were added and are inter-related as well, so it became a much more exciting task for users to search for information. Thanks to the hyper-text document structure, the individual texts and documents inside the *Digitalized Encyclopedia of the Local Culture of Seongnam* were linked together as part of a collective, and borders or any kind of discernible qualities that have been demonstrated by those individual items have now completely vanished.

The service system of the *Digitalized Encyclopedia of the Local Culture of Seongnam* has adopted an interface design which considered users' convenience as a top priority, and therefore allows the viewers and visitors to approach the

content from various directions and perspectives. The concept of "approaches from various directions" will be elaborated upon later in this article. Also, search tabs can be used in all stages of the search process, and search objects and search parameters can be inputted through various combinations of words related to the search object. Independent searching is also made possible by entering titles, main sections, photographs, schematics and blueprints, video clips, and sound tracks. Even when the viewers themselves are not quite sure what they are looking for, they can consult the standard classification table provided by The Academy of Korean Studies and efficiently search for information they need in various categories such as "type," "area," and "period."

Another characteristic of the *Digitalized Encyclopedia of the Local Culture of Seongnam* is that it is possible to continuously add data to the system and also revise data inside the system. Especially, it is also made possible for users to upload information produced by themselves to the system. This kind of access swiftly turns the information consumers into information producers, and that is important. Recently, personal blogs and mini homepages are reported to be enjoyed by the general public much more than other internet services including personal mail accounts or on-line club activities, in terms of use time and visit counts.[6] This seems to be happening because these personal media devices have allowed traditional consumers to assume a whole new role in the food chain, namely the role of producing, delivering, and circulating information and knowledge, instead of only ending up as users. The phenomena of knowledge and information production being carried out by traditional consumers have a huge meaning in terms of changing the entire environment of media information circulation.

Moreover, an environment in which consumers can participate in the production process themselves signals by itself that the traditional knowledge system is going through some changes. Multiple discourses could be developed and spread, over similar themes, topics, or phenomena. The traditional structure of knowledge usually featured a hierarchy structure filled with knowledge classified into various ranks and validated by the most prominent value and philosophy of the time. But that situation is changing. In that sense, we can say that the *Digitalized Encyclopedia of the Local Culture of Seongnam* is a new departure

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6. KoreanClick is a report on the user situation as regards using portal services on the Internet in Korea. The survey was conducted from April through May of 2005.

in terms of producing and circulating knowledge and information, and the core meaning of this project can be referred to as the development of a "circulatory Knowledge/information system."

In a "Circulatory Knowledge/Information system," a writing or a documentation environment traditionally provided only to specialists and experts is also offered to general users as well. So, users are allowed to copy documents or change them as much as they want in order to satisfy their own need. They are also allowed to link documents or insert certain pages to create new pages as they desire. In that kind of process, users begin to dismantle the author's authority, and create a new authority of their own by creating new texts. This kind of an open system enables cooperation and joint efforts to be launched between experts and the general public. Printing techniques may have been an optimal device for an innovative person to express his or her expert opinion, but this kind of a joint operation may be perceived as a new vehicle for the individuals of the digital age.

2. The Interface Structure of the *Digitalized Encyclopedia of the Local Culture of Seongnam*

(1-1)	
(1-2)	(1-3)
(2-1)	
(2-2)	
(2-3)	
(2-4)	
(3-1)	
(3-2)	
(3-3)	

The items inside the *Digitalized Encyclopedia of the Local Culture of Seongnam* are the smallest, and final version of "chunk of information." And these were all designed to reveal not only its own information but also relevant information. The formality here is a schematic showing the item pages' sectional divisions. Each section has a specific function as can be seen in the picture below. For example, users can use the icons of (1-2) and freely move to other items inside the same category. Also, users can create their own information relevant to the item they are viewing, and upload their own information through the "opinion posting" icon in (1-3). These newly registered information items are identified and displayed in section (3-3).

In section (2-1) is placed the name of the item, and in section (2-4) is placed a detailed introduction to the item. In sections (3-1) and (3-2) relevant items' information and multimedia information are displayed.

Users can approach and reach the final chunk of information through these items from various directions. They can use the menu bar or use the search function. We shall examine the information approach patterns when using the menu bar.

2.1. First Approach: Table of Contents (TOC)

The table of contents is modeled after the ordinary contents tables in printed books. In books, the contents table allows readers to take a look at the internal structure of an entire book. There is a beginning, and there is an end. And we can get a glimpse of the entirety of the book just by looking at the contents table. In case of the on-line table of contents being discussed here, we can see all the contents of the *Digitalized Encyclopedia of the Local Culture of Seongnam* just by looking at it. This interface was designed in order to provide readers and viewers with an opportunity to feel the cultural continuity inside the system. Readers and viewers are accustomed to ordinary books' contents tables, so this design is intended to take advantage of that factor and provide them with a more familiar surrounding in their usage of the system.

Inside the table of contents, all the elements in the *Digitalized Encyclopedia of the Local Culture of Seongnam* are stationed in line. The location is unchangeable and always remains in the same place. The appearance of the table of contents being fixed into a pre-determined location in an unchangeable fashion seems contradictory to nature considering the potentials of a digitalized text or document. But due to considerations of cultural continuity issues, the personnel in charge of the task decided to make the table of contents be the most primary access port, and thus stay as is.

In the table of contents, the classification standards are designed to unfold in many steps to eventually reach the final state. If you click on an item, a new screen showing the contents in the item appears.

2.2. Second Approach: Meta Data Index, Directory

The Meta Data index provides readers and viewers with a new choice of approach through labeling all the items and elements inside the *Digitalized Encyclopedia of the Local Culture of Seongnam* with key words, areas, types, periods, and regions. The users can approach the contents no matter what route they decide to take. This is made possible because all the elements are meticu-

lously tagged with the associated information as just stated.

- Through「Key Words」users can view all the items sorted following the order of Korean letters (the sorting will be determined by the first consonant and vowel of the selected words).
- Through「Areas」users can view all the items in nine Major categories and 38 minor ones
- Through「Types」users can view all the items classified into 19 types
- Through「Periods」users can view all the items classified into 20 time periods
- Through「Regions」users can view all the items classified into 23 regions

2.3. Third Approach: Keyword Index

The Keyword Index is an index sorted and rearranged following the order of the Korean letters, after personal names, regional names, administrative bodies' names, and the names of books and other creative results' names are extracted from all the items. The Keyword Index is also modeled after the index system of an ordinary book, just like the table of contents was modeled likewise; they will look more familiar to the visitors.

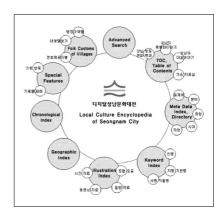### 2.4. Fourth Approach: Illustration Index

The Illustration Index should provide viewers with ways and means to appreciate video and audio sources, which includes photographs, video clips, soundtracks, schematics, and blueprints. These sources are classified into several classes by themes: photographic materials are sorted into total of eight themes, while the video clips and audio sources are respectively assorted into ten themes. The schematics and blueprints do not have any themes to be sorted into. The words are all recorded separately from the visible and audible texts so that viewers can read text documents while also watching or listening to video clips and soundtracks. Also, all the visible and audible texts are designed to be interconnected with text information with meticulously designed multi-directional hyper-links.

2.5. Fifth Approach: Geographic Index

The Geographic Index allows viewers to obtain geographical information through maps regarding the place or region they want to examine and also obtain detailed information of local culture at the same time. In reverse, users can also first examine item information and later access electronic maps. The electronic maps and item information are designed to facilitate for cross-referencing.

2.6. Sixth Approach: Chronological Index

The Chronological Index is designed to feature detailed information regarding the local culture of the Seongnam region in chronological order. The information regarding various time periods is automatically derived from the tagging information. If you select an item inside the chronological table you can browse yourself through and reach the related item.

Other than these approaches, there are several types of approach such as the Federation Search, Advanced Search, Special Features, Folk Customs of Villages, Basic Materials, and On-Line User's Contribution etc.

The Ultimate Aim of the *Digital Encyclopedia of Korean Local Culture*

The publication project of the Digital Encyclopedia of Korean Local Culture aims to create, literally, a digitalized encyclopedia. But referring to the EKLC project as merely a project trying to compile and publish an encyclopedia in digitalized form does not seem proper or appropriate. The EKLC project's objectives include that aim for certain, but it aspires to be and to achieve much more, as it basically pursues to contain and secure information considerably different from that which was previously collected by other more ordinary encyclopedias.

We are living in an era where information literally floods toward us every day to overwhelm us in quantity that goes beyond the data receptive capability of the human brain. It is becoming increasingly harder and harder to have a detailed grasp of our lives by only using techniques such as sorting and conceptualization. Such a prospect invoked fear in the people's mind in terms of their own cognitive faculty, and interested them with the apparent importance of a newly found concept called "the narrative mode of thought." This concept contradicts and is not compatible with the existing paradigmatic mode of thought which pursued either the objective or abstract understanding (unchangeable in nature) of objects and events. On the other hand, this so-called narrative mode of thought pursues

detailed and empirical knowledge, so such a mode would prefer examining discourses with particular meanings to merely receiving pieces of information. Such kind of a new approach to the whole concept of knowledge and information is adopted in every phase of the EKLC project, and that is what makes the project special. Without such a quality, we can not claim that the *Digital Encyclopedia of Korean Local Culture* publication project is particularly worthy of the determination and effort that have been invested into the project so far.

In order to explain and elaborate upon these characteristics and differences of the EKLC project, we have utilized the term, "Circulatory Knowledge/Information System." The difference between an ordinary encyclopedia in a digitalized format and a knowledge/information system with circulatory capabilities is that through the service format of the latter, a single object can be resurfaced, reiterated, and reexamined from many perspectives and points of view.

Let us say that there is a case in which the public's evaluation and judgment of a particular individual varies. In the case of ordinary encyclopedias, a single author would be put in charge and be responsible for writing the section assigned to that individual. As a result, the individual in question would be judged and evaluated based upon the singular perspective and point of view of the chosen author. Other various perceptions of the target individual would be nullified, and only a single voice would survive. The concept of the so-called "polyphony," usually uttered frequently in the field of literature and relevant theories, would not be allowed in this kind of attitude or environment.

But the circulatory knowledge/information system does not authorize a single writer to have ultimate authority on anything. If necessary, other writers and users can add their own writings based upon their own perspectives. Information on a specific object does not get sealed, and instead continues to be revised and upgraded. And those revisions and upgrades will be accumulated. Various perspectives would be offered to an analysis of an issue, and the depth of knowledge would be deepened. All these individual entries would be acknowledged with the same status and authority. And to examine all of them and select a particular material based upon a particular perspective is left as the task of viewers themselves.

In modern society, all information producers (the senders, the initiators) have struggled to have their works assume a more completed, more perfect set of structures and meanings. They tried to build a message that included the key of interpretation of that message itself or the very reason of its own existence inside

such information, and they perceived that information as their own way to achieving the value of universality. But that was only a dream, an unattainable goal. As digitalized information technology progressed, the designers of information systems abandoned humanity's previous dream of creating a self-sufficient source of perfect information, and instead started to take interest in the idea of an information structure which would prove mutually complementing and also exhibit cross-referencing qualities. And they started to link other relevant information sources with various meanings around the original knowledge and information they designed or came up with in the first place. This was made possible because of the hyper-link capabilities of these systems. More links leads to more meanings, and that is what is enhancing the value of the texts.
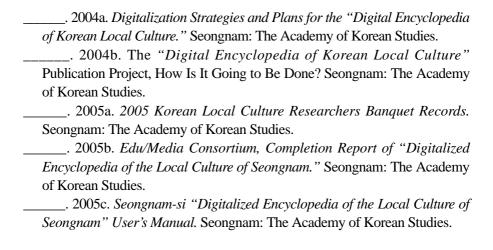
Ordinary encyclopedias provide readers only with information that is already closed and finalized. More so, they provide such information as if they are finalized, but in fact they are not. In the confines of encyclopedias the information is completely separated from all the other related and relevant information. We usually refer to this kind of information as "finalized" information. Yet, sound information needs to be developed through interactions with other pieces of information and should be developed into a piece of knowledge/information. Information inside ordinary encyclopedias is usually prevented from reaching that point. Unlike that, data inside the circulatory knowledge/information system is provided with the opportunity to evolve into information, and the information is provided with the opportunity to evolve into knowledge. Other information that is made available through the links are what make this possible. In the circulatory knowledge/information system the viewers and readers are introduced to varied information (similar information, opposite information, derived information, supplemental information) in many phases and stages through various links, and obtain detailed, complicated and multi-dimensional knowledge inside a particular area.

And finally, all kinds of information should circulate to give birth to new kinds of knowledge/information. All information should be developed in electronic format, and should be shared immediately with many people through communication networks and be allowed to contribute to the creation of new knowledge/information. But in the current environment where document creation and digitalization are proceeding as separate procedures, the digitalization efforts which would maximize the utility and value of knowledge material and property is being challenged. The action of creating and producing information, the R&D activity, should proceed entirely inside cyber-space in order for the

efficiency of knowledge/information production and for the utility of the produced information to be maximized. Thus, the EKLC project should also ultimately aim for the establishment of an Electronic Research and Development (E-R&D) environment based upon a circulatory knowledge/information system.

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Jang Nohyun received his Ph.D. from The Academy of Korean Studies, where he is currently Researcher, Humanities Information Research Laboratory. He studies Korean literature and humanities information and is greatly interested in hypertext narrative studies.