A Study on Anthropomorphic Animal Characters Search System Visualization for UX Design

Young-Suk Lee[†]

ABSTRACT

This paper presents to design User eXperience(UX) of anthropomorphic animal characters search system (hereinafter, AACSS) for efficient user search. To this end, meta data were utilized herein to elevate the search efficiency of multimedia information and text information. Anthropomorphic animal characters require the human elements and the animal elements, thus this paper extracted the key elements of meta data as below; phenotypic element in animal system classification (Morphologic property elements, Ecological property elements, Behavioral property elements), emotion classification, which is the trait of personification and the Step of Anthropomorphic Animal Characters.

Key words: AACSS, Anthropomorphic Animal Characters UX, Phenotypic Element in Animal

1. INTRODUCTION

It is necessary to have various kinds of characters to produce animations and games and in particular, a lot of the anthropomorphic animal characters appear in the commercialized or the best selling digital contents under the influence of the development in recent contents industry[1]. In the digital contents market, animal characters have accounted for more significant parts. In the area of smart phone contents, particularly, animal characters are playing almost unrivaled roles. Currently, along with the South Korean government's policy of nurturing one-person creative startups, small digital contents production companies are increasing. In this situation, AACSS becomes more necessary for them to refer to, in order to produce contents with lower cost. Also for easier search of desired data, a more intuitive UX is urgently needed. This paper, recognizing these and the perspective

of users, seeks to develop an information search system in a more efficient manner information access to converged sets of data. This research realizes as follows: first, it presents AACSS meta data elements. Second, by adopting the data visualization technique, it designs UX which enables an intuitive search of anthropomorphic characters. This paper utilizes meta data to elevate search efficiency of multimedia information and text information and by developing an intuitive UX system, it helps users search data easier under its newly proposed AACSS UX design plan[7,9,12,14].

2. RELATED WORK

2.1 Anthropomorphic Animal Characters

In most of the digital contents fiddle, human, animal and monster characters enter. In the animation area, in particular, animal characters rather than human characters, have been reported to have been

※ Corresponding Author: Young-suk Lee, Address:
(100-272) Center for Digital Image & Contents 2, Toegye-
ro 36-gil, Jung-gu, Seoul, Korea, TEL: +82-10-8313-9825,
FAX: +82-2-2264-0159, E-mail: tonacoco@dongguk.edu
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[†] Institute of Image and Cultural Contents, Dongguk
University, Korea
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more popular. In the animation history, animal characters' significance and play have been continuously expanded and diversified in their looks, behavioral characteristics, habits and other features[2]. Currently however, only few researches have been conducted on anthropomorphic animal characters by separating their emotions and accompanied expressions and building into a database. For this reason, necessary meta data elements have not been fixed. Most meta data were actually developed for system information management. There are fewer meta data developed for efficient search of information by users. Lee(2010) reported in a paper about anthropomorphic characters appearing in animation films from an engineering approach for the first time. Lee also compared animal features with human emotional expressions and suggested guidelines for animal anthropomorphic phase classification. This paper aims to further develop Lee(2010)'s classification in order to extract more appropriate meta data for users' search of anthropomorphic characters.

2.2 UX designing through effective visualization elements

UX refers to a whole set of experiences a user comes to feel and think while the person uses a certain system or product service directly or indirectly. UX design means to create or unify general related elements so that a user can reach a positive effect in his or her recognition and behavior while using a product service or system.

Ackoff(1989)[3] defined UX as the process of turning data to wisdom. Nathan Shedroff(1994) presented a function of understanding in the process of converting data into wisdom[Fig. 1]. That is to say, data are symbols to convey a certain fact or numerical value, and are the product of research, creation, and gathering. Information is data to which a meaning is added, and it is the processed product so as to be helpful to user's purpose. Knowledge is a method of how data and information is applied after information is interpreted and a meaning is added. And it was said that wisdom was an idea for utilizing knowledge.

Peter Moville(Ambient Findability, 2005)[4] expanded information architecture to make it in a bee-hive-shaped diagram to propose 7 different areas of the significance of user experiences. Jesse James Garrett(2000)[5] said that users contact a system via interface, the outside of the interface is a space supporting users' perception with visual elements, and its inside should be made of visual elements, perception elements, behavioral elements and elements necessary for users' task, referring to these elements as The Elements of User Experience. Steve Psomas(2007)[6] proposed the Five Competencies of User Experience Design which were information architecture, interaction design, usability engineering, and prototype engineering. The previously discussed UX is realized via information visualization. Information visualization requires novel, informative, efficient and aesthetic aspects. In this sense, this research seeks to establish a user-oriented meta data system and propose a data-visualizing UX for improved information usefulness and search efficiency.
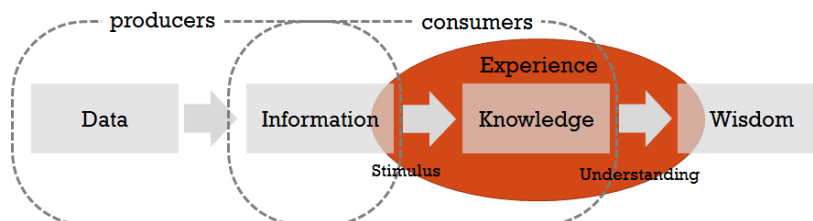

Fig. 1. DIKW hierarchy.

3. UX DESIGN STRATEGY THROUGH USER-ORIENTED META DATA

3.1 AACSS meta data extraction

This paper tries to re-establish AACSS database meta data for a more well-organized search by users. The anthropomorphic system model has to types of information elements[Fig. 2]. First is systematic zoological features of animals themselves originally and second is animation-extracted video clips. The video clip elements, according to Hampapur and Jain (1998)[7]'s classification, are grouped into semantic contents and audiovisual contents. The audiovisual contents then, further divided into their own bibliographic information and actually expressed visual information. Semantic contents are classified according to two types of technical criteria which is emotional classification and anthropomorphic phases - keywords of AACSS database. This means that it functions as meta data for' extraction information based on necessary user elements' beyond just a simple 'information for information'. 'Animal Data' elements that classify animal species are further divided into each animal-specific basic data and systematic trait elements[8]. These systematic trait elements, in turn, comprise morphological, ecological and behavioral factors and function as a measure to calculate the distance between each animal. These can be specified under the logical

Fig. 2. AACSS meta data extraction.

phased model of information search from the user's perspective as follows: The two types of information that can be searched are video contents and each animal's unique information and these, in turn, are further divided into different elements.

3.2 AACSS establishment

As discussed above, we, in this research, have inferred a search logical model through a system model and based on this, produced a scenario by extracting search elements and using overlapping or necessary elements. Based on this hierarchical relations of information search, we referred to and re-organized existing standard meta data in previous studies and established a meta data structure appropriate for the system proposed herein[Table 1].

Agent corresponds to the bibliography of an animation and belongs to the video clip identification. Video clip identification is a unique element that does not appear repeatedly. Agent title, and character name are dependent on the video clip identification and include sub-elements of each agent and character. Each sub-element repeatedly appears in its higher-level data. By extracting such meta data, this research has laid the foundation for a more efficient information search by users and UX design. Even though it is a same character, its emotion and the degree of emotion were made for users to choose, thus enabling them to more efficiently search the complicated information they desire. And user manual was simplified through each element's repetition.
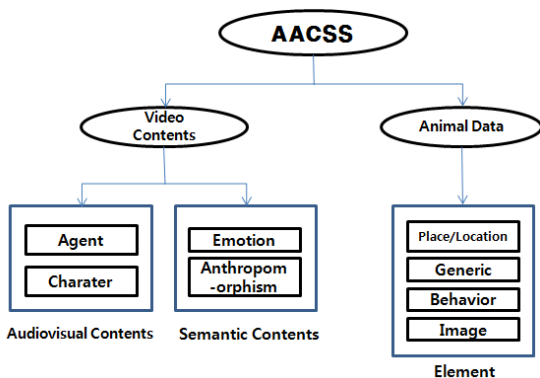
3.3 Visualization of anthropomorphic animal characters system UX

The previously discussed UX(User eXperience) of many scholars, is recognized by human sight. It particularly requires the visualization of information-containing meta data. In this chapter, we try to propose the UX strategy of extracting metal data for information visualization.
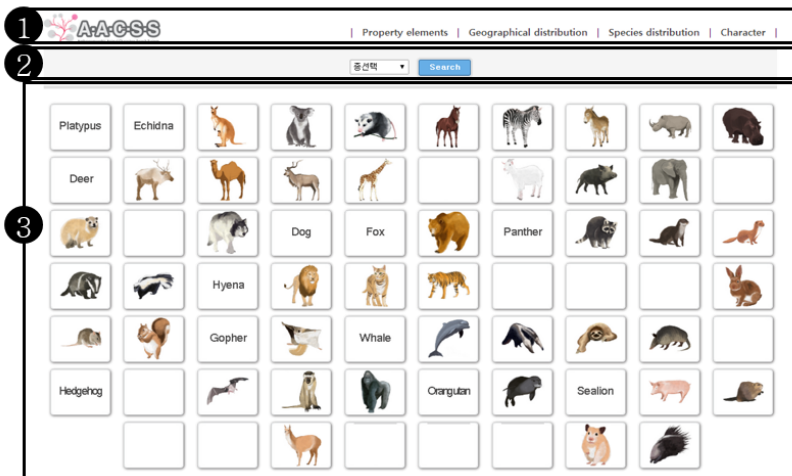
Table 1. Meta data structure establishment

Element	Definition	Repeat	Required
VideoClip Identification	video resource identification		○
Agent.Title	Animation Title		○
Agent.Creator	Animation studio	○	○
Agent.Dates	Year of opening		○
Character.Name	Name		
Character.Sex	Sex	○	
Character.Age	Age	○	
Character.Role	The role of the character in animation	○	○
Emotion	Emotional kind	○	○
Emotion.Level	Level of Emotion	○	○
MediaTimePoint	The temporal position of the video clip		
Technique	Anthropomorphism levels	○	○
Animal	Animal Species	○	○
Animal.Generic	Morphologic property elements	○	○
Animal.Place/Location	Ecological property elements	○	○
Animal.Behavior	Behavioral property elements	○	○

The No. 1 area of the figure below is a menu bar visualized in text button, to improve information delivery. The No. 2 area is the actual search area. This integrated and reduced search elements for enhanced info search. The No. 3 field is data visualization helping users recognize information values intuitively. Based on the information search hierarchical relations and previous standard meta data in preceding studies, we established a meta data structure suitable for the proposed system herein[Fig. 3].

The No. 1 area of the figure presents the emotions of personified animal characters, intensity of emotion and personification step in buttons[Fig 4]. The No. 2 area of the figure are set easily select the trait elements of personified animals by a user [Fig. 4]. The elements are morphological, ecological and behavioral characters. The No. 3 area of the

Fig. 3. AACSS MAIN UI

Fig. 4. AACSS SUB UI.

figure is the results of what user has selected[Fig. 4]. It presents the amount of extracted data which indicates the amount of searched data by a user.

Fig. 5 presents a geographical distribution of personified animal characters. The No. 1 area of

the figure shows habitats of each animal on a world map[Fig. 5]. In other words, it is designed for user to intrinsically realize the habitat of the personified animal characters. The No. 2 area of the figure presents the searched data by the user[Fig 5].

Fig. 5. AACSS SUB UI.

Fig. 6 classifies personified animal characters accordingly to animal classification system. Through the mammalian classification, it is designed for a user to easily realize the position of each animal on the animal classification system. The No. 1 area of the figure can be searched by name of any mam-

mal[Fig. 6]. The No. 2 area of the figure presents the data distribution of the search results visually[Fig. 6]. The No. 2 area of the figure presents the data of the result output in sequence[Fig. 6].

Fig. 7 shows properties of the animal movie clip of personified animal characters. It is designed
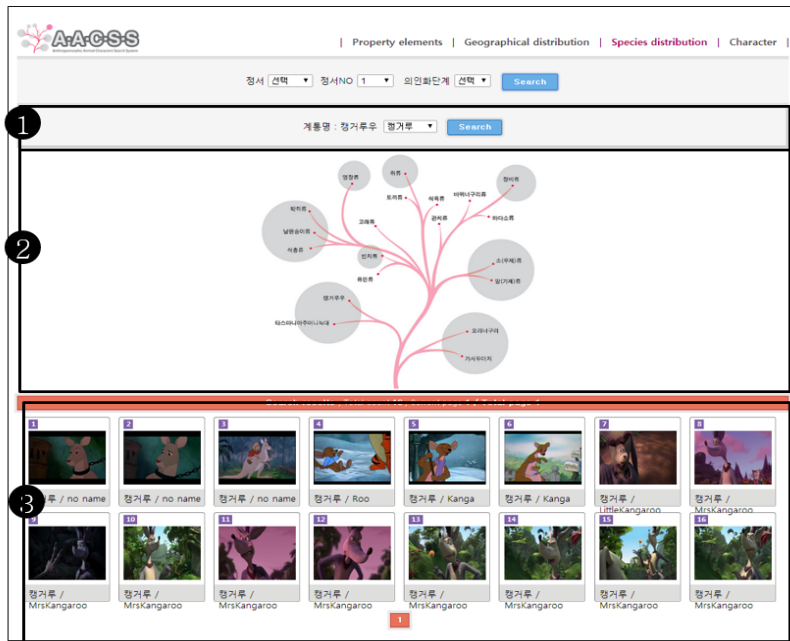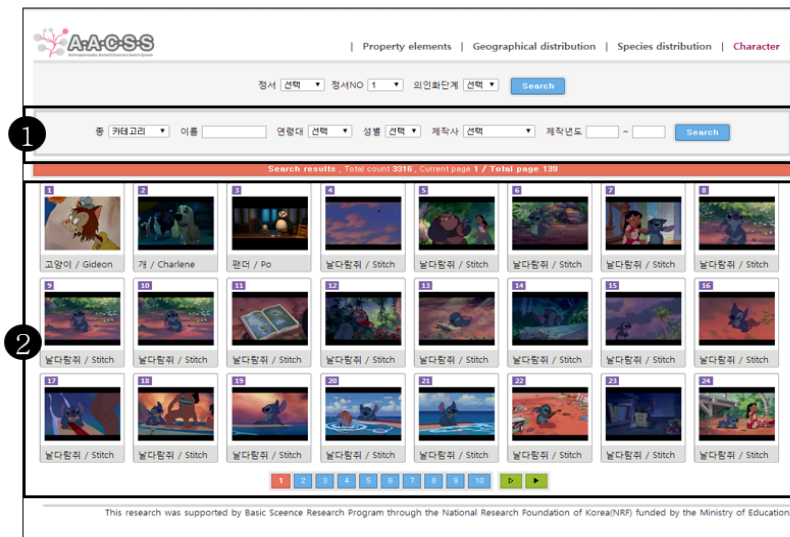

Fig. 6. AACSS SUB UI

Fig. 7. AACSS SUB_Character UI.

with considerations to the name, age, gender, publisher and published year of each characters. The No. 1 area of the figure presents the species, name, age, gender, publisher and published year of personified animals with texts[Fig. 7]. The No. 2 area of the figure presents the data of the result output in sequence[Fig. 7].

4. CONCLUSION

This paper developed the Anthropomorphic Animal Characters Search System (AACSS) for user convenience of efficient data search. First, to maximize information usability and search efficiency, we extracted anthropomorphic meta data as an appropriate element and applied them to UX design. Thereby, we tried to establish an efficient organization of anthropomorphic animal character meta data and propose UX with more useful and efficient information. For future studies, expert group verification will be necessary for the system usability. In the paper, the menu bar and search window were split into and expressed, utilizing the horizontal composition by the distinctive principle of UX. The users can intuitively experience the emotion classification and the Step of Anthropomorphic Animal Characters the letter button in menu bar. Search window visualizes the form element, which is phenotypic element in animal system classification, biological element, thus it intends to enhance the work efficiency of users to cut down the search time and expense. This paper can be utilized as reference in the design process for personification of animal characters in digital contents production field and expects to cut down the production budget and enhance time efficiency.

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Young-Suk Lee

is an Assistant Professor at Research Institute for Image & Cultural Content, Dongguk University. She received B.Des. degree from Tongmyong University in 2002 and Her M.E. & Ph.D degrees from Busan National University in 2004 and 2010. Her research interests include the game of graphic design, animation and character.