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The Application of Micro-Video Technology in the Promotion of Digital Reading in Children's Libraries Under the Background of Media Fusion

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ABSTRACT

Digital reading is now an important way for children to read. This article defines the concept of children's digital reading based on the current situation, reading needs, and research progress of reading promotion methods. Aiming at the problem that only simple matching method is used for entity extraction in BAG model, this paper proposes an entity extraction method based on reference words and an entity graph construction method based on problem-related entities. Experiments on data sets verify the effectiveness of the model. The results show that the BAG model is improved by 2.4% on the verification set and 4.1% on the test set, which proves the effectiveness of the improved method. Based on the graph convolution algorithm of the central node, the local subgraph convolution and the global graph convolution are connected in the entity graph behind the central node, so that the model can obtain local and global information at the same time and enhance the reasoning ability of the model.

KEYWORDS

Children's Library, Digital Reading, Graph Convolutional Network, Media Fusion, Micro Video

INTRODUCTION

The Application of Micro-Video Technology in the Promotion of Digital Reading in Children's Libraries Under the Background of Media Fusion

In April 2021, the 18th National Reading Survey Report and the 2020 Digital Reading Report for Chinese Children were released. The two reports investigated and analyzed the reading behavior, reading choice, reading habits, and overall development trend of adults and minors, respectively, showing two major trends: on the whole, the reading volume of children and adults continued to rise. In terms of specific reading behaviors and forms, paper reading coexists with digital reading, and the latter's users have increased for five consecutive years (Chaabani & Azouz, 2021). Digital reading is irreversible. According to the survey of digital reading methods (including online

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reading, mobile phone reading, e-reader reading, pad reading, etc.) of minors aged 0–17, more than 70% of them have been exposed to digital reading, with a rate of 72.3% (Cheng et al., 2022). This generation of minors was born with the Internet. Digitalization has been integrated into children's learning and life in a multi-dimensional and all-round way, and is brewing a huge change in the way children acquire knowledge and information (Carvalho et al., 2022). The digital resources of children's libraries include e-books, periodicals, comic books, cartoons, videos, etc., which are rich in content and huge in resources. However, compared with traditional paper reading resources, the utilization rate of digital resources is low and there is a certain degree of resource waste. There are many reasons for this phenomenon, such as publicity efforts, the particularity of children's reading groups, the search methods of digital resources, the restrictions on the places where digital resources are used, and the shortcomings of children's digital resources in the promotion and utilization of reading (Davidson et al., 2021).

"Humanized and emotional service" means that in addition to regular services, special services should be added to make the service move the guests and make the guests feel true and close. Emotional service is one of the concrete manifestations of high-quality service (Coogle & Nagro, 2022). For now, humanized and emotional services are more prominently favoured no matter what industry they are in (Baxter et al., 2021). Therefore, in the traditional service model in the past, a certain emotional factor was introduced to allow users to experience the inner scene while enjoying ordinary services, which not only attracts the interest of more readers but also makes readers more engaged with the content. A deep understanding of the content will favour such a service model (Huang & Kong, 2021). For example, in recent years, many industries have developed service models with contextualization as the basic concept, such as contextualized games, and contextualized tourism (Hou et al., 2021). At present, this concept is not only favoured by many users, but also many organizations are also committed to research in this area. As an existence that provides a spiritual carrier for contemporary children, the children's library should naturally be committed to following the pace of the times and vigorously develop new service methods (Hou, 2021). It will be an activity with great research value to promote situational reading to the reading service of children's libraries and transform the traditional service mode of children's libraries (Kim et al., 2021). "Situational reading" refers to a new reading service mode in which children's libraries, based on their functional characteristics, take readers as the centre, design diversified virtual or real scenes, organize readers to participate in them, stimulate readers' reading interests, improve their reading comprehension, cultivate their thinking and spirituality, and promote readers' reading EQ and comprehensive quality.

At present, although there are several reading platforms established for the promotion of children's digital reading (such as the Happy Reading platform for young and middle-aged students, Nezha Kanshu, Swan.com, etc.). There are still many deficiencies in this aspect, which require further in-depth research by scholars (Lu, 2021). This paper will identify the current problems in the promotion of children's digital reading through empirical investigation, and then propose optimization strategies (Lina, 2022). The target of children's digital reading promotion is children (Li, 2021). Therefore, children's digital reading needs, children's digital reading behaviour, and children's satisfaction with digital reading are related to the effectiveness of children's digital reading promotion (Araújo & Moro, 2021). Most of the existing digital reading promotion for children is based on the construction of digital resources, and the content of resources and the form of promotion may not meet the actual needs of children or even waste digital resources (Oskouie et al., 2014). In addition, through literature research, it is found that the research on the promotion of children's digital reading is not in-depth, and the literature on the theme of "children's digital reading promotion," retrieved by the author, is not prolific, especially the empirical research literature on children's digital reading promotion, which is less. In terms of research on the construction of children's digital reading promotion resources, most children's digital reading platforms have many resources, but the content of the resources has the problem of slow content update, lack of childlike interest, and lack of exploration of children's psychological needs and usage needs (Qian et al., 2011). Therefore, on the basis of previous studies on

children's digital reading (Serra & Gilabert, 2021), this study will use the Children's Digital Library of Jiangsu Province as the research object to explore the current situation of children's digital reading promotion activities carried out by the Children's Digital Library of Jiangsu Province.

A questionnaire survey was conducted on the participation of parents and children in digital reading promotion activities to try to understand the needs and use of parents and children for digital reading activities (Tuzani & Grandson, 2021). On the one hand, the current problems in the promotion of children's digital libraries in Jiangsu Province can be found from the survey results, and an optimization plan can be proposed to provide reference for the promotion of children's digital reading in public libraries (Vicient et al., 2013). On the other hand, it summarizes parents and children's willingness to use digital reading and their doubts, and enriches the practical research on children's digital reading promotion (Sharma et al., 2021).

MATERIALS AND METHODS

Children's Digital Reading

In China, people aged 10–13 are often called teenagers. For the definition of juvenile age, there are different laws and regulations on juveniles in different countries in the world. Internationally, the classification of children under the age of 16 is considered as juveniles (Wang & Yin, 2021). Through comprehensive analysis, it is concluded that children refer to minors under the age of 18. There is no clear definition of the concept of digital reading (Wang et al., 2021). According to some scholars, digital reading can be defined in different ways. One perspective suggests that it is a form of shallow reading, while others view it more broadly as reading content presented through digital means such as e-books and electronic maps. Another perspective emphasizes the use of digital technology and code in the editing, processing, and storage of content, with reading taking place through devices such as computers (Meng et al., 2021). The research object of digital reading in this study is to carry out reading in electronic format text, audio, and video forms through digital devices (Zeng, 2021). Through the above, according to the analysis of the standard definition of children, children refer to people under the age of 18. From this, we can infer that children's digital reading refers to the digital reading activities of children under the age of 18. According to the age stage of these children, children's digital reading mainly refers to the digital reading of primary and secondary school students. Children's digital reading is achieved through the interaction between children and the text on the screens of digital devices; children can obtain a new reading experience.

With modern digital new media platforms, mobile terminal equipment, and other digital reading to obtain information, its development speed is fast and its scope is wide, including not only the e-reader reading and online reading favoured by most current readers, but also the increasingly popular mobile phone reading, and so on. Digital reading has the characteristics of a large amount of information, fast update speeds, diverse presentation forms, strong interactions, diverse types, and it is easy for readers to copy. With the popularization of digital reading and the increase of digital products, children have more and more contact with digital reading forms.

In the primary school stage, children like books with strong interest, and also have some understanding of books of knowledge, such as fairy tales, children's literature, popular science encyclopaedia, and so on. In particular, primary school students in grades 4–6 take "reading books, newspapers, and periodicals" as one of their main digital reading activities. At the middle school stage, children begin to integrate the knowledge they have learned with real-life practice. They begin to read biographical books and pay attention to current affairs, news, and network information. The Internet-based information transmission has changed the nature of children's reading. In the *Second Survey Report on Internet Use of Chinese Minors* released in 2014, it was found that children's digital reading activities mainly include "reading novels," "reading news," "reading posts," and other digital reading activities. Two thirds of children enjoy reading news materials on computers, mobile

phones, or e-readers. One half of children enjoy reading novels, stories, non-fiction literature, etc. Few children search for learning materials online.

Digital reading has the characteristics of convenience, economy, and breadth, and while children's digital reading also has these characteristics, children's digital reading has its own uniqueness, and should be easy to understand and interesting.

Children's digital reading presents the characteristics of circle grouping and entertainment. A survey conducted by the China Youth Research Center, in 2015, found that children like news, novels, and other content, but little knowledge about online learning is involved. Reading is an important way for children to learn, and digital reading is just a change in the carrier. Using digital reading as a shield for entertainment, parents, schools, and public libraries should pay attention to the trend of digital reading, and correctly understand and guide students in digital reading.

Compared with traditional reading, the biggest advantage of digital reading is convenience and speed. Children can read directly through mobile electronic devices without being limited by time and space.

The types of digital reading resources for children are comprehensive. Digital reading can be updated instantly, and digital reading is gradually accounting for a large proportion of reading methods.

Internal and External Motivations of Library Form Innovation

For a long time, the form of libraries has been in a constant state of change and innovation. Daryl Mohn, a famous American revisionist, once said, "A living library should constantly find better ways to report and explain the world to its readers. Every five years, there will be no new form. Form innovation is an effective way for libraries to actively participate in competition, improve products, optimize services, and enhance market competitiveness.

In recent years, the rapid development of emerging media, represented by the Internet and mobile media, has strongly impacted the operation of traditional media. For libraries, the impact of new media is mainly reflected in two aspects: the loss of readers to digital media and the loss of advertising revenue to online advertising platforms. This can lead to higher costs for traditional advertising and a shift towards more online advertising.. As early as 2004, a survey conducted by the Institute of Public Opinion of Renmin University of China showed that 11.6% of young library readers under 35 years of age in Beijing had changed from reading newspapers frequently to hardly reading newspapers, and turned to the Internet to obtain information. Over the years, the number of readers in the library has decreased year by year. What is more serious is that young readers under the age of 35 account for a large proportion of the lost readers. The attraction of new media to young readers lies in its ability to provide massive real-time news information, rich interactive experiences, and more flexible and livelier information text. Combined, readers can easily receive information anytime and anywhere.

The promotion and popularization of emerging media technology has enriched the way for the public to accept information and directly affected the audience of traditional television news media. The public no longer simply obtains news information from the outside world through traditional television news media such as libraries, radio, and television, but has been replaced by emerging media technologies such as the Internet and mobile phones. In this context, traditional media technology should fully combine the development characteristics of the current society, find the convergence point between traditional TV news programs and emerging media, and ensure that it can adapt to the media communication environment of media integration as soon as possible.

Based on the perspective of library user service mode and the research results of domestic and foreign scholars on media integration, this author believes that libraries should refine the core content of media integration into: 1). The integration of information resource content; 2). The integration of information dissemination channels; and 3). The integration of information service technologies, so as to further analyse the comprehensive and profound impact of media integration on libraries, and further clarify the transformation trend of library service mode driven by technology.

Digital Reading Related Technologies

How to convert text into expressions that can be recognized by computers is a key step for models in natural language processing to achieve good results. Early word embedding techniques include one-hot encoding and TF-IDF (Word Frequency-Inverse Text Frequency Index), etc. The most popular methods are distributed representations of words, such as Glove and ELMO. By converting the text language into the form of a vector, information such as similarity and semantic correlation between each text sentence can be better calculated. The word embedding methods used in this model are Glove and ELMO. These two words embedding methods are based on the distributed representation of words. The following two word embedding methods will be introduced. After obtaining the co-occurrence matrix, the relationship between the co-occurrence matrix and the word vector is obtained by formula (1):

$$w_i^T w_j + b_i + b_j = logX_{ij} \tag{1}$$

Among them, wi is the word vector of word i, wi is the word vector of word j, and bibj is the bias term of words i and j, respectively, is the jth element of the ith row of the co-occurrence matrix. Based on the above formula, the loss function in the Glove model is constructed as shown in formula (2):

$$J = \sum_{V}^{i,j=1} f\left(X_{ij}\right)\left(w_i^T w_j + b_i + b_j - logX_{ij}\right)^2 \tag{2}$$

Among them, V is the size of the vocabulary, f(Xij) is the weight function, and the weight function is shown in formula (3):

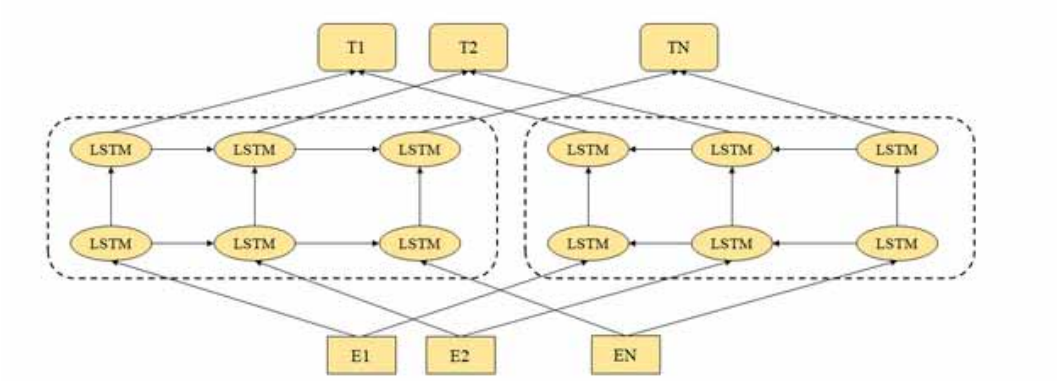
$$f\left(X\right) = \begin{cases} \left(\dfrac{X}{X_{max}}()^{0.75}\right) & X < X_{max} \\ 1 & X \geq X_{max}\{ \end{cases} \tag{3}$$

ELMO (Embeddings from Language Models) is a word embedding method that can dynamically adjust word vectors according to context semantics. The ELMO model will also get a word embedding representation through training at the beginning, but unlike Glove, in the actual word embedding process, the ELMO model can dynamically adjust the word embedding of each word according to the different contextual semantics of each word representation, so that each word can be obtained in different contexts; a word embedding representation that matches its semantic context information. The specific neural network structure of the ELMO model is shown in Figure 1.

The essence of ELMO includes a two-stage process. In the first stage, a large number of predictions are used to train the expression of context independent word vectors, such as “bank.” At this time, it is impossible to know whether it represents “savings bank” or “riverbank.” The second stage is to put each word vector into the language environment of the specific context in the specific downstream task, and fine-tune each word vector to adapt to the specific task. For example, according to the specific context, fine tune to get the context related vector of the word “bank.”

The ELMO model uses the first word to the k-1th word to predict the kth word in its forward LSTM network propagation process. In the process of backward LSTM network propagation, use the k+1th word to the Nth word to predict the kth word, where N is the maximum length of the sentence. The forward prediction calculation formula and the backward prediction formula are shown in formulas (4) and (5), respectively:

Figure 1. ELMO model structure diagram



$$p(t_1,t_2,...,t_N)=\prod_{N}^{k=1} p(t_1,t_2,...,t_{K-1}) \tag{4}$$

$$p(t_1,t_2,...,t_N)=\prod_{N}^{k=1} p(t_K,t_{K+1},t_{K+2}...,t_N) \tag{5}$$

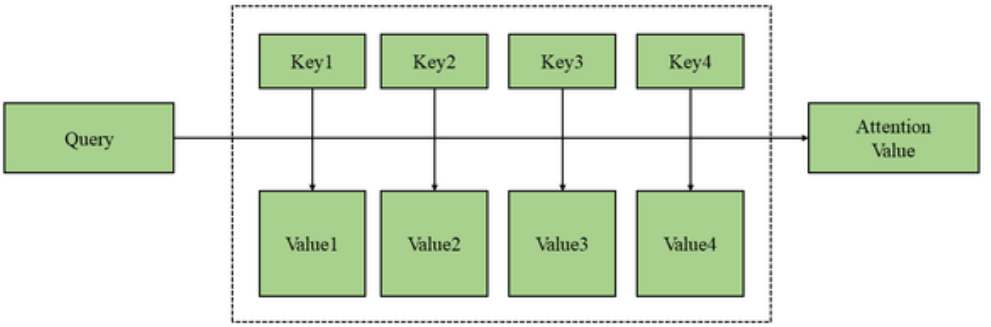
The optimization goal of the ELMO model is to maximize the likelihood probability of logarithm forward and maximize the likelihood probability of logarithm backward. In the actual calculation process, the model adopts the sum of the forward probability and the backward probability. The optimization objective function is shown in formula (6):

$$\sum_{N}^{k=1}\left(\log\left(\prod_{N}^{k=1} p(t_K,t_1,t_2,...,t_{k-1})+\log\left(\prod_{N}^{k=1} p(t_K,t_{K+1},t_{K+2}...,t_N)\right)\right)\right) \tag{6}$$

Neural Networks

The Seq2Seq model generally consists of two parts. The first part is the Encoder part, which is used to characterize the input N length sequence. The second part is the Decoder part, which is used to establish the mapping from the representation extracted by the Encoder to the output M-length sequence. The Encoder-Decoder framework is mainly used in the Seq2Seq model. The Seq2Seq model can convert an input sequence of any length into an output sequence of any length, and there is no requirement for the length of the two sequences. Seq2Seq does not require the length of the input and output sequences, but in practice, the traditional Encoder-Decoder framework is not ideal for processing corpus with too long sentences. As the length of the input sequence increases, the long-distance dependence of the sentence will become more and more serious, and the sentence will lose more information on the front. In actual natural language processing tasks, the attention mechanism is used to enable the model to effectively obtain key information in the input data and ignore irrelevant information in the input information. The calculation process of the attention mechanism is shown in Figure 2.

Figure 2. The calculation process of the attention mechanism



Step 1: Calculate the similarity between Query and each Key to obtain the weight between them. Commonly used methods for calculating similarity are dot product, splicing, etc. Commonly used methods for calculating similarity are shown in formulas (7) and (8):

Calculate similarity by dot product, ● is the dot product operator:

$$S_{(Q,K_i)} = Q \cdot K_i \tag{7}$$

Calculate cosine similarity: $S_{(Q,K_i)} = \dfrac{Q \cdot K_i}{\| Q \| \cdot K_i}$ (8)

At present, in the field of natural language processing, the self-attention mechanism has also begun to receive great attention. The Google machine translation team proposed a self-attention mechanism and a multi-head attention mechanism. The method proposed by Google to calculate the attention is to scale the dot product, so that the dot product value will not be too large. The specific calculation formula is shown in formula (9):

$$A \text{ Attention}\left(Q,K,V\right) = Softmax\left(\frac{Q \cdot K^T}{\sqrt{d_k}}\right)V \tag{9}$$

Query, Key, and Value first undergo a linear transformation, and then calculate their scaled dot product. The number of times to calculate the dot product depends on the number of heads of attention h, and the parameter W of each linear transformation of Q, K, and V is not the same. Then, the scaled dot product results after calculating h times are spliced, and then a linear transformation is performed, and the obtained value is used as the result of multi-head attention. The calculation formulas are shown in formulas (10) and (11):

$$Head_i = Attention\left(QW_i^Q, KW_i^K, VW_i^V\right) \tag{10}$$

$$\mathrm{MultiHead}\left(Q,K,V\right)= \ \mathrm{Concat}\left(\ \mathrm{Head}_{1},\cdots\ \mathrm{Head}_{i}\right)W^{o} \tag{11}$$

Graph Convolutional Networks

Graph convolution network (GCN) is a kind of convolution neural network that can directly act on graph and use its structure information. For each node, we should consider all its neighbours and the feature information contained by itself. Suppose we use the average function. After the above operations are performed on each node, the average value that can be input into the neural network can be obtained. The convolution operation is most used in the field of computer vision, and the main features in the image are obtained through the convolution operation. Compared with the traditional image convolution method, the biggest difference in the graph convolution network is that the graph convolution network is aimed at unstructured data; the number of adjacent nodes of each node is not fixed. The original vector of each node in the entity graph is obtained by the context semantic information-embedding module, and the entity graph pre-processed by the context semantic information-embedding module is used as the initial graph of the GCN inference module, that is, the first layer of the graph convolutional neural network. The graph convolutional network of this model is a graph convolutional network with a gate mechanism. The purpose is to make the nodes more selective in information acquisition during the node information transfer process of the graph convolutional network, and also make each node more selective. The nodes have enough discrimination to prevent the information in each node from tending to be consistent after passing through the multi-layer graph convolutional network. The information transfer formula between each node in the graph convolutional neural network with gate mechanism is shown in formulas (12) and (13):

$$\sigma\left(x\right)=\frac{1}{1+e^{-x}} \tag{12}$$

$$h_{i}^{l+1}=\sigma\left(\sum_{r\in R_{N_i}}\sum_{j\in N_i}\frac{1}{c_{i,r}}w_{r}^{l}h_{j}^{l}+w_{0}^{l}h_{i}^{l}\right) \tag{13}$$

Adding a gate mechanism to a graph convolutional network can make nodes more selectively obtain information about their neighbours, and make each node more discriminative. In formulas (14) and (15), the relationship weight matrix obtained by adding the gate mechanism to the graph convolutional network can be obtained, which is used to update the weight matrix of the same node in the next layer of the graph convolutional neural network:

$$g_{i}^{l}=\left(\sum_{r\in R_{N_i}}\sum_{j\in N_i}\frac{1}{c_{i,r}}w_{r}^{l}h_{j}^{l}+w_{0}^{l}h_{i}^{l}\right) \tag{14}$$

$$w_{i}^{l}=\sigma\left(f_{\mathrm{linear}}\left(\ \mathrm{concat}\left(g_{i}^{l},h_{i}^{l}\right)\right)\right) \tag{15}$$

In the model, all parameters of the L-layer graph convolutional network are shared. The information of each node in the graph convolutional network will be propagated through its neighbour nodes for L nodes, so that each node can complete the reasoning process of one L jumps (that is, pass through L nodes), and obtain the L; the final information relation representation of the node after a hop.

RESULT ANALYSIS AND DISCUSSION

Experimental Dataset

Corresponding query entities can be extracted from 36,733 pieces of data when using the traditional string-matching method to extract query entities on the training set. After using the entity extraction method based on referents, the corresponding question entities can be extracted from 39,988 pieces of data. Extracting more question entities means that more information related to the question can be added in more entity graphs, and can also enrich the types of nodes in the entity graph. The programming language used in this model is Python 3.6; the model is built based on the Tensorflow 1.3 framework, the experimental operating system is Unbuntu 16.04. The GPU is GTX Titan XP. The model runs on two GPUs, and the server's running memory is 96 GB. In the parameter setting of the model, the word-embedding model uses the ELMO model, and the dimension of the word vector is the default 1024 dimension of the ELMO model. In order to prevent the input-supporting document from being too long, the machine cannot process the long document, so only the first 500 tokens (either words or phrases) are intercepted, and the part exceeding 500 is directly discarded. Each entity after word embedding pre-processing by the ELMO word-embedding model is used as a node in the entity graph. Each node can be composed of multiple tokens. At the same time, since each node may contain more than one token, each word vector contained in the nodes are subjected to maximum pooling and average pooling operations, and then the obtained feature vectors are spliced to obtain the final information representation vector of each node. In the model, except the final output layer neural network dimension is 256 dimensions, the remaining hidden layer dimensions are 512 dimensions, and the number of layers L of the graph convolutional neural network is set to 5. The training set batch_size is set to 32, and the validation set batch_size is set to 16. The initial learning rate is set to 2*10+, and Dropout is set to 0.2 to prevent the model from overfitting.

Analysis of Experimental Results

Figure 3 shows the access statistics of children's multimedia library and Le'er popular science and animation resources. Judging from the number of children's visits in different regions in the figure, children's multimedia library is mainly promoted in Nanjing, Suzhou, and Yangzhou. Animation is better promoted in Nanjing and Suzhou areas, but the promotion effect in other areas is not good. The promotion of digital reading in children's multimedia library is best promoted by the Nanjing Library in the Nanjing area, and the promotion of digital resources of Le'er popular science animation is best promoted by the Changshu Library in the Suzhou area.

After running the code under the Python program, you can get positive and negative comment topic analysis keywords. The analysis results are shown in Figures 4 and 5. Figures 4 and 5 show the distribution of positive and negative comment keywords. From the figure, you can see that the distribution of topic 1 and topic 3 is relatively close among the three topic words, and the proportion of topic 2 is relatively more. From this, it can be seen that users are satisfied with the feedback on children's reading use, and words such as "like, easy to use, and good" frequently appear in user application evaluations. For applications with rich software content, various forms, and guaranteed after-sales updates, users will also be willing to buy products in the software to read. Through the user's comments on the application, it provides a favourable reference for those users who are ready to download children's reading software, so that users who have not used it can choose among many children's readings.

Figure 3. Visit statistics of children's multimedia library and Leer popular science and animation resources

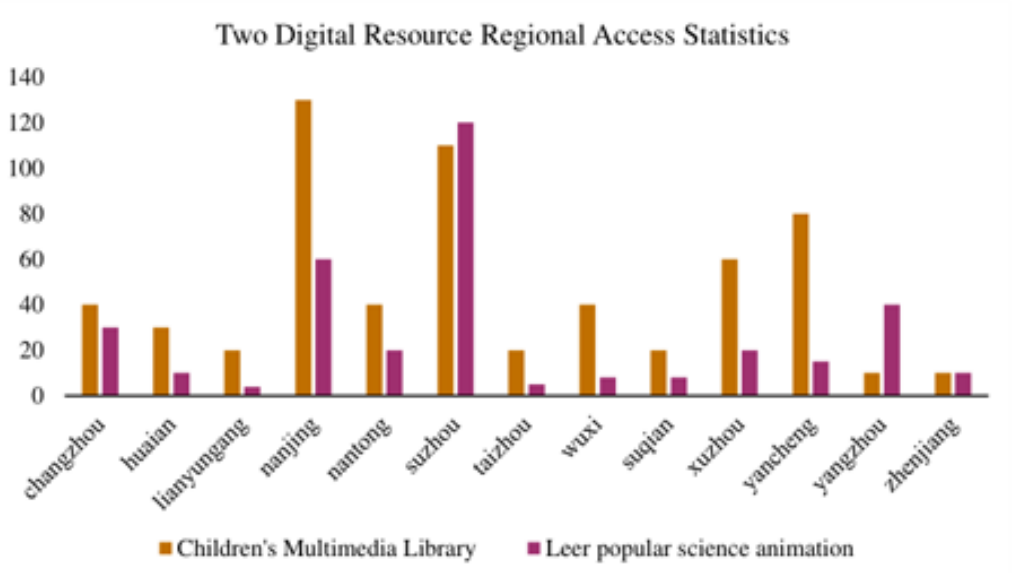
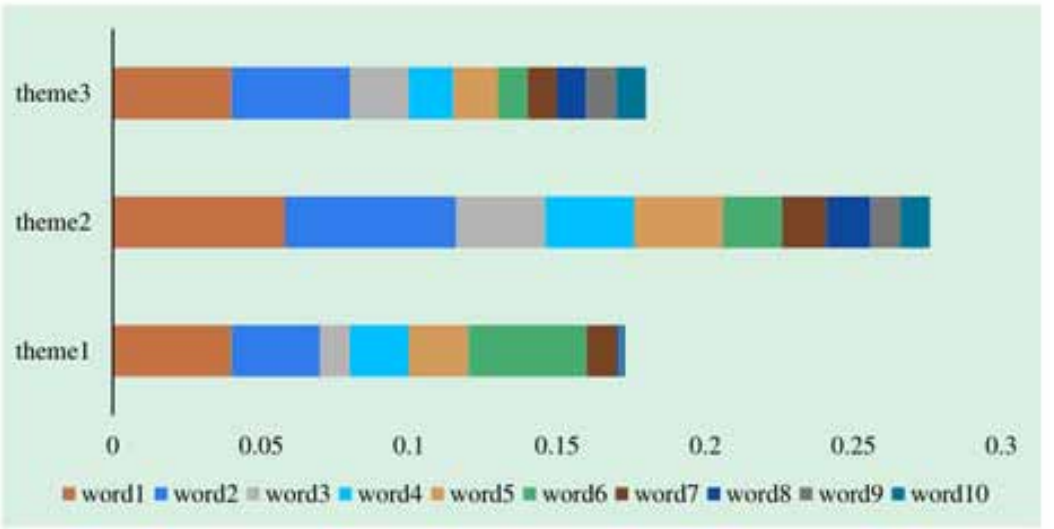


Figure 4. Distribution of positive comments



As can be seen from Figure 5, the distribution of topics 1 and 2 is relatively high, and the proportion of topic 3 is relatively small. The user's evaluation of the reading application focuses on the payment of products in the reading software, membership activation, automatic deduction, application flashback, cards, and other issues. The mismatch between the paid products of some reading software and the reading effect may cause users to uninstall it. This software, and these issues reflected in negative user reviews, is worth the attention of app developers.

Figure 5. Distribution of negative comments

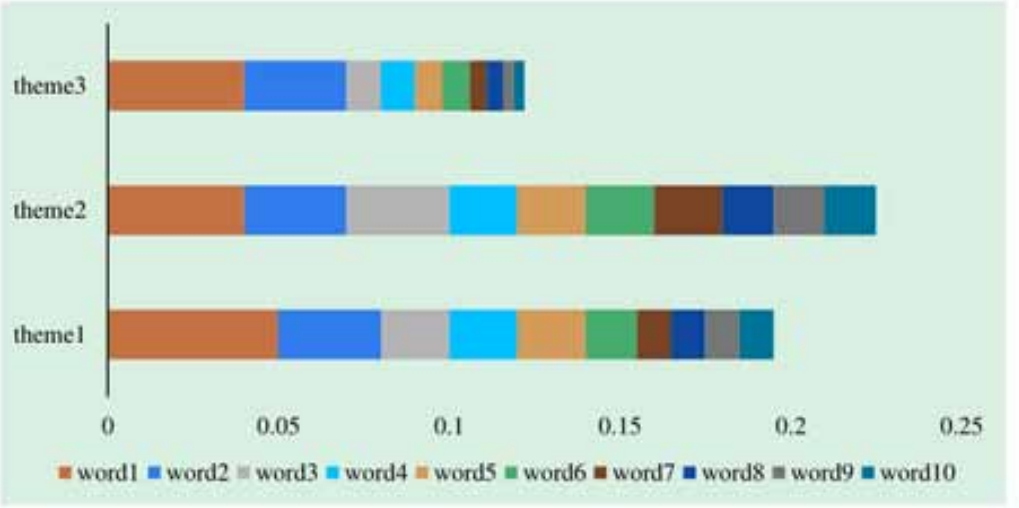
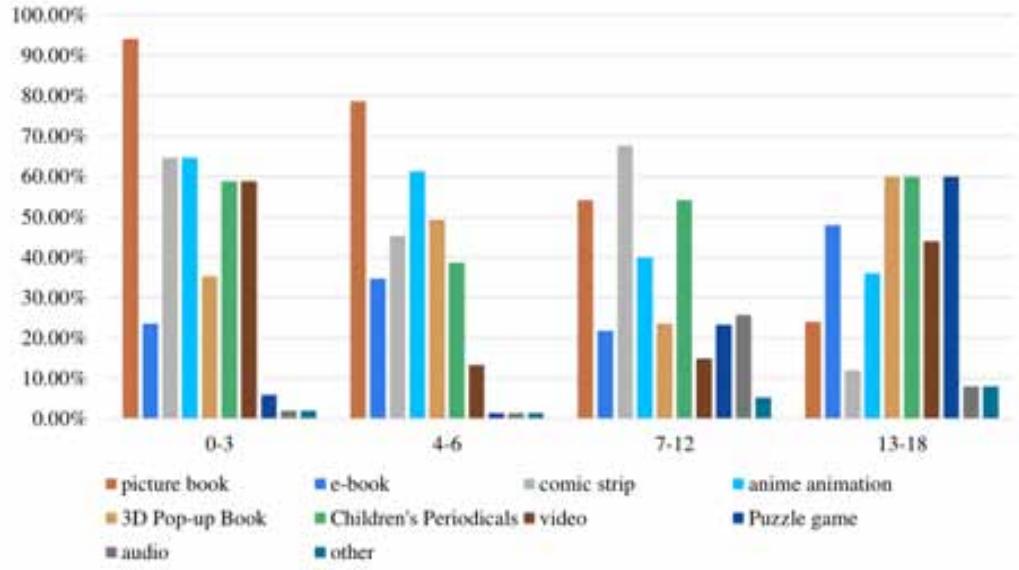


Figure 6 shows the needs of children of various age groups for digital reading expressions, and the demand analysis of children's digital reading content expressions. Game forms are in greater demand. Of children who choose digital reading in the form of animation was 63.75%, 61.35% of children choose digital reading in the form of picture books, and 53.78% of children choose digital reading in puzzle games. Therefore, children's libraries should design different levels and forms of situational reading activities to provide targeted, accurate, and personalized reading services according to the different years of readers. In a sense, reading serves people's emotional needs, and the purpose of a

Figure 6. Demand for digital reading representations by age group



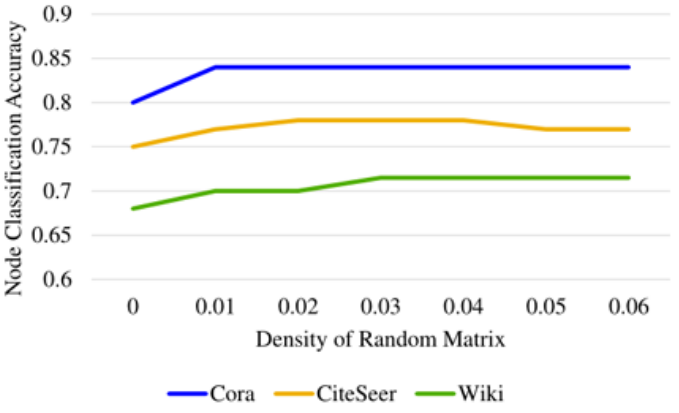
situational reading service is to stimulate readers' emotions. Once reading emotions are mobilized, more reading needs will be triggered.

Since the model is to solve the connectivity problem of the entity graph under the graph neural network, all the graph neural network-based models under the other three datasets, including the Wiki dataset, are selected for the comparison model. In addition, the RNN-based model and the attention-based model are added for comparison. Cora, CiteSeer, and Wiki are three web datasets of literature references. The model is an undirected graph, with nodes representing documents (papers and literatures) and edges representing citation relations. The tag is on the node and can be used to classify tasks. The node feature is a word vector. Each element is a 0–1 binary variable, which describes whether each word exists in the paper. During the statistics, stemming1 and stop words were removed, and words that appeared in less than 10 documents were removed. The results are shown in Figure 7. It can be seen that among the models based on the graph neural network, this model is only lower than the path-based GCN model on the validation set, and is only slightly lower than the path-based GCN model on the test set. Compared with other graph neural network-based models, this model achieves the best results on both the validation set and the test set, which also prove that solving the connectivity problem in entity graphs can effectively improve graph-based neural networks. Compared with other models based on graph neural network, this model has achieved the best results in both verification set and test set, which also proves that solving the connectivity problem in entity graph can effectively improve the effect of a graph-based neural network reading comprehension mode. Compared with models based on attention mechanism, this model is also superior to these models, which also proves that only using attention mechanism cannot obtain the complex relationship between paragraphs. It is necessary to build an entity diagram to obtain the more complex relationship between paragraphs and entities.

CONCLUSION

With the continuous development of scientific information technology and Internet big data technology, in the process of creation and dissemination of current TV news, the organic integration between new media and traditional media, solidarity and cooperation have become an inevitable development trend in the field of children's digital reading. As the children's library, we must also firmly grasp the various advantages it currently has, and strive to create a more perfect situational reading platform based on various advantages to provide more comprehensive reading services. More and more studies

Figure 7. Comparison of experimental results of different dataset models



are currently applying graph neural networks to digital reading comprehension tasks. This model improves the problems existing in the BAG model, and conducts experimental verification and analysis on the unmasked version of the digital reading comprehension data set Wiki Hop. The extracted entities are constructed using the entity graph construction method based on problem-related entities to construct the final entity graph, so that more information about the problem can be obtained in the entity graph, which is more conducive to the final inference of the model. Finally, the experimental verification is carried out on the Wiki data set. The results show that the improvement of this model is not only better than the BAG model, but also better than most models under the current Wiki data set, which proves the effectiveness of the method.

The reform of the library is imperative. The library needs to change its own attributes, from a data storage person to a student of learning habits, so that people can realize the importance of the library. In some ways, this has subverted the meaning of the library itself, but in the era of media integration, this is a change that libraries have to make in order to survive. At the same time, the library will further upgrade the knowledge content structure of the library and enrich the inventory content after integrating media technology.

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CONFLICT OF INTEREST

We have no known conflict of interest to disclose.

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