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Retraction

Retracted: A Recommended Approach to Classical Literature and Art Exhibition Activities Oriented towards Interactive Modelling

Security and Communication Networks

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] X. He and Y. Li, "A Recommended Approach to Classical Literature and Art Exhibition Activities Oriented towards Interactive Modelling," *Security and Communication Networks*, vol. 2022, Article ID 5491714, 9 pages, 2022.

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Research Article

A Recommended Approach to Classical Literature and Art Exhibition Activities Oriented towards Interactive Modelling

XiaoLing He[1] and Yifei Li[2,3]

[1]*School of Art Theatrical Performance and Theoretical Practice, Yunnan Art University, Yunnan 650500, China*
[2]*School of Hotel and Tourism Management, Polytechnic University, Hong Kong 999077, China*
[3]*Yunnan University of Finance and Economics, Yunnan 650221, China*

Correspondence should be addressed to Yifei Li; 201605007091@stu.ynufe.edu.cn

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Chinese classical literature and art exhibition activities have a special role to play in improving the humanities of students. Introducing elements of classical literature into cultural activities can effectively complement the current humanities education in universities. To improve the efficiency and intelligence of classical literature and art exhibition activities, this paper proposes an interactive modelling-oriented method for recommending classical literature and art exhibition activities in response to the characteristics of existing art exhibition event management systems (AEEMS) in supporting process modelling and the interactive modelling needs of audiences. By using exhibition event segments as the recommended reference model, the process includes steps such as data preprocessing and calculating the matching degree and can recommend reasonable classical literature art exhibition events based on the art exhibition model under construction and the modelling needs of the audience. Experimental data are obtained by using a questionnaire survey method, and the experimental results show that it outperforms existing methods in terms of evaluation indicators such as accuracy, recall, and F_1, indicating the effectiveness of the proposed method.

1. Introduction

In the 21st century, China has entered a period of rapid economic and social development, and higher education has also entered a period of comprehensive development [1, 2]. The comprehensive and universal development of higher education has certainly played a great role in promoting social development and economic prosperity, but the problems in the development should not be ignored. On the one hand, with the expansion of higher education, students of all quality levels may be absorbed into higher education, which makes the quality of students vary. In order to promote the all-round development of students, we need to update the educational philosophy and teaching methods of colleges and universities in a timely manner and at the same time attach importance to the teaching of scientific knowledge, so that the teaching methods can keep pace with the times.

In the current cultural activities of universities, academic and scientific competitions are in full swing, but cultural activities with humanistic qualities are less organized. Even if they are organized, it is difficult to make them a high standard and high-level cultural feast, so that they have to absorb elements of popular and popular literature to attract audiences, in order to achieve the effect of pandering to the vulgar. Chinese classical literature has developed over thousands of years [3, 4] and has left behind countless glorious and great classics, which are models of Chinese language and art.

In the history of classical Chinese literature, both the writers and the themes of their works advocate the cultivation of a noble and realistic ideal of active initiation into the world and celebrate the spirit of enterprise that is indefatigable in order to achieve it. The persistent pursuit of lofty ideals that permeates classical literature has positive significance for the humanistic education of contemporary

university students. When college students encounter difficulties and setbacks, it is easy to lack the support of their ideals and beliefs. Instead of working hard to overcome difficulties and meet challenges, they should rise to the challenge and believe in themselves.

The theme of shaping the national spirit is even more prevalent in classical literature. The theme of patriotism has been a constant and deafening cry throughout the history of classical literature. In the face of the tragic reality, literature is full of voices expressing national spirit and patriotic fervour. In today's globalised economy and world integration, international competition is still a war without smoke and mirrors, and it is inevitable to strengthen patriotic education for university students [5, 6]. The introduction of classical literature into the construction of university cultural activities can not only overcome students' aversion to ideological and political theoretical preaching, but also play a good educational role. Cultural and artistic activities [7] are an important platform for teachers and students to exchange and interact, learn from each other, and demonstrate campus culture. Although almost all universities offer courses on ancient literature, a few courses are far from enough to meet the needs of students' quality education. The absence of classical literature in the cultural and artistic activities of contemporary universities is a pity, and this situation must be changed.

The introduction of classical literary elements into the performance of cultural and artistic events. When it comes to art programmes in universities [8], they are often popular in the form of singing, dancing, sketches, and comedy, but the content is also full of modern popular elements. If it is possible to introduce modern popular elements into campus cultural activities, it is inevitable that classical literary elements can also be introduced. Universities can organise seminars on classical literature through academic departments or student groups. Classics teachers can organise lectures on a variety of topics, so that students are free to choose their own studies according to their interests. By organising these high-level cultural activities, the university will continue to enrich and enrich the content of its cultural activities, expand student-to-student exchanges, and cultivate students' interest in revering classical culture as well as their innovative spirit.

Universities can organise large scale classical culture and arts festivals, combining classical literature with modern university festivals. It is well known that classical culture and arts are composed of different small modules. In colleges and universities, this feature allows teachers and students to participate according to their interests, thereby promoting a close relationship between students and teachers. Such activities improve students' classical culture and also enrich the cultural life of teachers and students, such as classical drama appreciation activities and classical poetry recitation activities, creating a strong classical cultural atmosphere on campus. This will help students to develop a healthy aesthetic and psychological personality and will greatly enhance their classical literacy.

In recent years, with the widespread use of AEEMS, a large number of recommended models for art exhibition events have been collected in online platforms such as myExperiment, CrowdLabs, and SHIWA [9]. Although these platforms provide functions such as keyword search to facilitate sharing, reusing, or repurposing the models. However, it is still challenging to derive valuable information from these models to aid modelling. Moreover, unlike other models, researchers in AEEMS applications need to improve the model based on the current execution of the model, such as modifying the activity nodes, which is often not done efficiently by researchers who are not professional model designers. Therefore, it is necessary to investigate how to recommend a set of activity nodes as candidates for the next activity node in the current art exhibition activity recommendation model through interaction with the user, in order to effectively assist the user to complete the modelling.

In terms of recommendation method research, a recommendation framework that can improve the efficiency of workflow model design was proposed and a prototype system was constructed in the literature [10]. The system can select models from the model library that match the model currently under construction in terms of syntax and semantics according to the model currently being constructed by the user and recommend them to the user for reference. A recommendation method called FlowRecommender has been proposed in the literature [11]. This method first mines the patterns between the active node and its upstream subpaths and then recommends the node that best matches the requirements based on the structural similarity between the current patterns. However, the method does not consider the scientific workflow modelling needs of the people involved, nor does it consider factors such as the semantic similarity between current modelling needs and historical workflow segments as a basis for recommendations. The literature [12] considers the social network and interaction information between developers and proposes a connection-aware rule-based recommendation method that can recommend the required model based on the user's requirement description text. However, the method does not consider the current modelling situation of the people involved.

To address this problem, this paper proposes an interactive modelling-oriented recommendation method for classical art exhibition activities, which can interact with researchers or model designers through an assisted modelling tool to recommend a set of candidate activity nodes that meet the current modelling needs of art exhibition activities. We use the exhibition activity fragments as the recommended reference model and recommend reasonable classical art exhibition activities based on the art exhibition model under construction and the modelling needs of the audience through operations such as data preprocessing and calculating the matching degree.

2. Relevant Definition Principles

There are three main core issues from the study of art exhibition event recommendation systems. The first is the user modelling problem, which is to build a user model according

to the user state. The second is the recommendation object modelling problem, which is to build the recommended object model according to the user parameters. The third is the recommendation algorithm design problem, integrating user resources to improve the efficiency and precision of operations. In addition, the recommendation activity is a process of user cognitive construction and is continuous and coherent; therefore, the evaluation and tracking of the recommendation effect is also an important issue that should be addressed by the recommendation system.

Sequential and parallel control structures are most common in classical art exhibition activity recommendation models in AEEMS application environments, and some AEEMS do not support modelling of conditional, selective, and cyclic control structures. Moreover, an interactive approach to assist art exhibition activity recommendation modelling can help to recommend the next available or referenced activity for those involved and improve their modelling efficiency. Therefore, this research focuses on the next art exhibition activity construction scenario, and the proposed problem can be described as follows: assuming that the person concerned is performing process modelling, given an unfinished art exhibition activity recommendation model and a search requirement for that activity, recommend suitable art exhibition activities to meet the current process modelling requirements.

In this regard, this paper proposes an art exhibition activity recommendation strategy based on art exhibition fragments, starting from the graph structure characteristics of the art exhibition activity recommendation model. The concepts and definitions related to art exhibition event fragments are introduced as follows.

(1) Art exhibition event recommendation model: an activity recommendation model can be described as $sw = < nm, sw\_dsc, sw\_D, sw\_A, sw\_L, sw\_s >$, where nm is the name of sw, $sw\_ds\ c$ is the descriptive information of sw, sw_D is a set of subart exhibition activities contained in sw, sw_A is a set of activities contained in sw and each activity has a different activity name and descriptive information, sw_L is a set of edges connecting the subworkflows in sw_D to the activities in sw_A, sw_s is the starting point of sw, and $sw\_s \in sw\_DUsw\_A$.

It is worth noting that activities in the description of an art exhibition activity recommendation model are those directly included in that art exhibition activity and do not relate to activities in that art exhibition activity subcategory. Alternatively, an activity in a subcategory may be described as an art exhibition activity recommendation model.

(2) Art exhibition activity subgraph: given an art exhibition activity model sw, an art exhibition activity subgraph is a connected subgraph extracted from sw and can be described as $psw = < psw\_D, psw\_A, psw\_L, sw\_s >$ and satisfies the following conditions:

(1) $psw\_D \subseteq sw\_D$, $psw\_A \subseteq sw\_A$, $psw\_L \subseteq sw\_L$, $sw\_s \in psw\_DU\,psw\_A$

(2) $\forall swd_i \in psw\_D$, there is a path from sw_s to swd_i in psw.

(3) $\forall a_i \in psw\_A$, there is a path from sw_s to a_i in psw.

(3) The upstream subgraph of an art exhibition activity: given an art exhibition activity subgraph psw and an art exhibition activity a in psw, the upstream subgraph of activity a is a connected subgraph obtained by extracting activity a from psw, which can be described as $psw' = < psw\_D', psw\_A', psw\_L', sw\_s' >$, where $sw - s'$ is the start point of psw and satisfies the following conditions:

(1) $psw\_A' = psw\_A - \{a\}$, $psw\_D' = psw\_D$, $psw\_L' \subseteq psw\_L$.

(2) If sw_s' is empty, then psw_D', psw_A', psw_L' are empty.

(3) If sw_s' is not empty, then $\forall swd_i \in psw\_D'$ holds, there exists a path from sw_s' to swd_i in psw'. $\forall a_i \in psw\_A'$ holds, a path from sw_s' to a_i exists in psw'.

(4) Art exhibition activity fragment set: the set of art exhibition activity fragments can be described as $WF = \{Wf_1, Wf_2, \ldots, Wf_i, \ldots, Wf_I\}$, where $Wf_i = < a_i, psw_i' >$ is the i rd art exhibition activity fragment and satisfies psw_i' as the upstream subgraph of art exhibition activity a_i.

(5) User's recommendation requirements for art exhibition activities: in an interactive modelling environment, a user's recommendation requirement for an art exhibition event can be described as (Q, ISW), where Q is the activity query submitted by the user and ISW is a recommendation model for an art exhibition event currently under construction by the user.

(6) Semantic and structural similarity: the semantic similarity between art exhibition activity segments and users' recommendation needs for art exhibition activities is the similarity between their related text descriptions, and the structural similarity is the similarity in terms of the connection relationships between the related art exhibition activities they contain.

3. An Interactive Modelling-Oriented Approach to Recommending Classical Literature Art Exhibition Events

For the art exhibition event recommendation system, the first problem to be solved is the modelling of the user and the recommendation object. By transforming the explicit features of users and recommended objects or extracting latent features, we can complete the modelling of recommended objects, that is, to constitute their uniqueness or similarity representation. In a recommendation system, user characteristics including learning preferences, style, and background should be taken into account. The audience representation module uses algorithms to efficiently represent the personalised parameter values that are reflected in the learning process and to make them as rich as possible in terms of personalised semantics. The role of the recommendation object representation module is to extract the

features of the recommendation object and to further transform the recommendation object model. The recommendation algorithm module processes the user and recommendation object models to achieve recommendations.

Unlike other recommendation systems, the recommendation object for an art exhibition event can be a single resource or a recommendation path consisting of a combination of several related resources. This is because single resource recommendations can lead to a number of problems in a complete process. The first is to ignore the user's preferences for different resources, and recommending only one resource may discourage users who do not themselves like such resources. The second is to ignore the progress and changes that users make in the process, thus losing the guiding role of activity recommendations. As can be seen, the problem of recommending activities for classical literature and art exhibitions should also consider the impact on the effect of user liking, based on the matching of multiple resources to user characteristics.

3.1. Basic Idea. This paper presents a recommended method for classical literature and art activities (RMCLA) for interactive modelling. The basic idea is to use fragments of classical literature and art exhibition activities as the recommended reference model. To ensure that the classical literature and art exhibition activities in the reference model can match the activity query submitted by the user, the corresponding classical literature and art exhibition activities can be matched. Exhibition events will be recommended.

Specifically, the method consists of four steps: the construction of a classical art exhibition fragment set and preprocessing of clusters, the selection of a subset of similar classical art exhibition fragments, the screening of similar classical art exhibition fragments, and the recommendation of candidate classical art exhibition activities. The key point of the method is the calculation of the matching degree between the classical art exhibition segments and the user's recommendation requirements for classical art exhibition activities.

The steps of the RMCLA algorithm are shown in Figure 1. The detailed steps are as follows:

Step 1: construction and clustering of classical literature and art exhibition activities fragments: firstly, the classical literature and art exhibition activities model is obtained from the scientific workflow library, and according to the starting point of this model, algorithms such as graph mining (for example, the gSpan algorithm [13]) are used to extract the subgraphs that meet the requirements. Then, based on these subgraphs, a hierarchical traversal algorithm is used to obtain different classical art exhibition activities with their upstream subgraphs, so as to construct a set of classical art exhibition activities fragments that meet the requirements. Finally, based on the information of the upstream subgraphs in the classical art exhibition activity fragments, the fragment sets are clustered based on the classical art exhibition activity clustering method [14] to classify the classical art exhibition activity fragment sets.

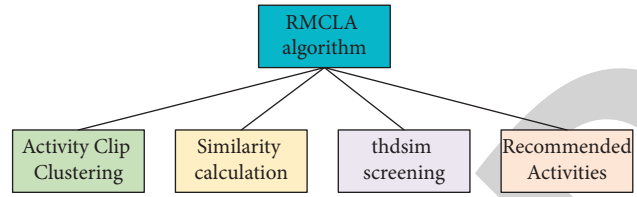

Figure 1: Basic steps of the RMCLA algorithm.

Step 2: selecting similar classical art exhibition activity fragment subsets: firstly, the subsets of fragments that have been divided are obtained based on the subset centre of gravity finding method [15–17] to obtain the centre of gravity fragments in the subsets. Then, based on the Doc2vec model [18] and the graph editing distance, the matching degree between the user's recommendation needs and the centre of gravity classical art exhibition activity fragments is calculated, and the subset of fragments with the maximum matching degree is selected. The Doc2vec model can be trained using a corpus of texts describing classical literature and art exhibition activities.

Step 3: screening similar classical art exhibition segments: according to the preset matching degree threshold thd_{sim}, the segments with higher semantic similarity and structural similarity to the user's recommendation needs are screened out in the subset of similar segments and added to the segment selection set.

Step 4: recommending the candidate classical art exhibition activities: in the candidate set of snippets, select the workflow activities in the top K snippets with high matching degree, and use them as the final classical art exhibition activity recommendation results.

3.2. Matching Degree Calculation Based on Doc2vec and Graph Editing Distance. The Doc2vec model is based on the Word2vec [19] model, which can effectively convert paragraphs or sentences into a vector representation with fixed dimensions and has been widely used in text processing related tasks. This paper adopts a method based on Doc2vec and graph edit distance. According to the steps in Algorithm 1, the matching degree between the classical literature and art exhibition activity segment and the user's recommendation demand for the activity can be calculated. This algorithm can be used directly to construct the IsMaxSimFragment and SimFragment methods in Algorithm 1.

Algorithm 1 consists of the following main steps.

4. Experimental Evaluation

4.1. Dataset. In order to establish a data set for the recommendation research of classical literature and art exhibitions, this paper sends out questionnaires to students, teachers, and people who are interested in classical literature and art exhibitions to solicit the wishes of different people. Consult experts and practitioners in the industry. The experiment was conducted according to the principle of five-fold cross-

Step 1: Training the Doc2vec model: the main process of its training can be described as follows: 1) Construct a text set of descriptions of classical literature and art exhibition activities by extracting relevant description texts of classical literature and art exhibition activities, subcategories, and activities. The text set is preprocessed with lowercase, word splitting, stemming, and deactivation to form corpus $Q = \{x_1, x_2, \ldots, x_j, \ldots, x_N\}$, where x_j denotes the j word and N is the total number of words in the corpus. The Doc2vec model is trained using the contextual data $P = \{x_{j-k}, \ldots, x_{j+k}\}$ from corpus $Q = \{x_1, x_2, \ldots, x_j, \ldots, x_N\}$ as the input layer data, and the trained word vector matrix W and paragraph vector matrix R are obtained.
Step 2: Calculate the semantic similarity between the activity query submitted by the user and the activity fragment of the classical art exhibition based on the Doc2vec model. Firstly, the activity description text of the activity query and the activity fragment of the classical art exhibition are input into the trained Doc2vec model to obtain the corresponding vector representation of these two texts. Next, the semantic similarity between the two texts is calculated using cosine similarity.
Assuming that the event query is Q and the event description text is *dsc*, the semantic similarity between Q and *dsc* can be described by equation:
$\text{sim}_{\text{sem}}(Q, dsc) = ((v_i \cdot v_j / \|v_i\| \cdot \|v_j\|) + 1)/2.$
where v_i and v_j denote the vector representation of Q and *dsc*, respectively, after input into the Doc2vec model, and the symbol $\|v_i\|$ denotes the mode of the vector.
Step 3: Calculate the semantic and structural similarity between the classical art exhibition activity fragment Wf_i and the classical art exhibition activity *ISW* currently under construction based on the graph editing distance. In this paper, we calculate the similarity between Wf_i and *ISW* based on the cost of the transformation operation, based on the similarity measure of the process model based on the graph edit distance in the literature [20]. Firstly, the cost of the node addition and deletion operation is denoted as 1, while the cost of the node replacement operation is denoted as $1 - \text{sim}_{\text{sem}}(n_i, n_j)$, where $\text{sim}_{\text{sem}}(n_i, n_j)$ denotes the semantic similarity of the two activities. Secondly when a node is added or deleted, the cost of each edge corresponding to the node to be added or deleted is recorded as 1. Finally, based on these costs, the semantic and structural similarity is calculated.
Step 4: Combine the semantic similarity and structural similarity obtained in the first two steps, and output the final match between the classical art exhibition segment and the user's recommendation for the classical art exhibition event.

Algorithm 1: Matching algorithm.

validation by first dividing the entire dataset into five randomly sized data subsets, then taking one of the subsets as the test set and the remaining four subsets as the training set each time without repetition and conducting a five-fold cross-validation process to obtain the evaluation results on different indicators on the five test sets. Finally, these evaluation results were averaged by different indicators to obtain the final evaluation results. The datasets are shown in Table 1.

As shown in Table 1, RMCLA_200 contains 200 classical art exhibitions with a total of 800 activities, and each classical art exhibition contains between 2 and 120 activities. According to this dataset, by applying the gSpan algorithm and setting the parameter minSup in this algorithm to 1, 8500 subgraphs of activities of classical art exhibitions that meet the experimental requirements can be obtained.

4.2. Experimental Evaluation Metrics. In order to evaluate the effectiveness of activity recommendations, the desired recommended activity list A_{ept}, and the actual recommended activity list Arec are constructed. Based on this, three evaluation metrics, accuracy, recall, and F_1 (F-Score), are defined and described as follows:

$$\begin{aligned} \text{precision} &= \frac{\left|A_{\text{rec}} \cap A_{\text{ept}}\right|}{\left|A_{\text{rec}}\right|}, \\ \text{recall} &= \frac{\left|A_{\text{rec}} \cap A_{\text{ept}}\right|}{\left|A_{\text{ept}}\right|}, \\ F_1 &= \frac{2 \times \text{precision} \times \text{recall}}{\text{precision} + \text{recall}}, \end{aligned} \tag{1}$$

Where $|A_{\text{rec}}|$ and $|A_{\text{ept}}|$ describe the number of activities in lists $|A_{\text{rec}}|$ and $|A_{\text{ept}}|$, respectively, and $|A_{\text{rec}} \cap A_{\text{ept}}|$ indicates the number of activities that coexist in both activity lists.

4.3. Evaluation of Recommendation Results. The results of the experiments in FlowRecommender (notated as FlowRec) were compared to the results of the experiments, and the results were evaluated and analysed in the following two ways.

Analysis of the effect of matching threshold thd_{sim} on recommendation results: to investigate the effect of the matching threshold thd_{sim} on the RMCLA method in terms of accuracy, recall, and F_1, the recommended number of activities K was set to 10 and thd_{sim} assigned to the values 0.74, 0.78, ... , 0.94, respectively, 0.94. The specific data of accuracy and recall with the increase of thd_{sim} are shown in Tables 2 and 3, and it can be seen that the RMCLA method has improved in terms of accuracy, recall, and F_1.

A comparative image of the two cases is shown in Figure 2.

There may be less activity in A_{ept} when the threshold thd_{sim} is set to a relatively large value. As a result, a significant amount of activity in A_{rec} is not present in 4, resulting in a reduction in accuracy. In Figure 1, it can be seen that when A_{ept} is varied from 0.74 to 0.82, the accuracy of the RMCLA is relatively stable, as most of the expected fragment similarity values fall within these two ranges. When thd_{sim} is set to 0.86 to 0.98, the number of activities in A_{ept} decreases sharply, as there are very few of these extremely similar expected activities and the RMCLA method can focus on both semantic similarity and structural similarity.

Table 1: Distribution of datasets.

Dataset name	Number	Total number of activities	Range of activity numbers
RMCLA_200	200	800	2~120

Table 2: Accuracy of classical literature and art exhibition activity recommendations under different thd_{sim}

thd_{sim}	RMCLA	FlowRec
0.74	0.94	0.78
0.78	0.92	0.76
0.82	0.90	0.70
0.86	0.84	0.58
0.94	0.38	0.25
0.98	0.29	0.18

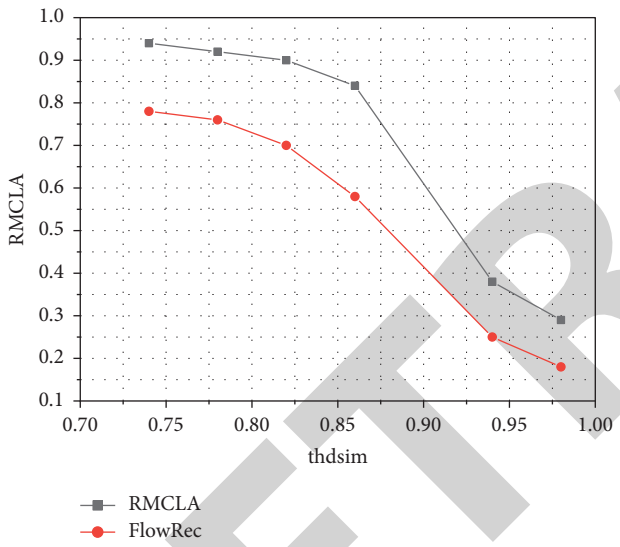

Figure 2: Comparison of the accuracy of recommendations for classical literature and art exhibition activities under different thd_{sim}.

A comparison of the recall data for the two methods is given in Figure 3.

The data for the effect of thd_{sim} on the recommended outcome F_1 values are shown in Table 4.

A comparison of the F_1 value data for the two methods at different thd_{sim} values is shown in Figure 4.

The effect of the number of recommended activities K on the recommendation results: to investigate the effect of the number of recommended activities K on the recommendation results of the RMCLA method, thd_{sim} was set to 0.86, while K was set to 6, 10, ..., 30, respectively. As shown in Tables 5 and 6, as the value of K increases, the accuracy and recall show a decreasing and increasing trend, respectively, and the RMCLA method outperforms the FlowRec method in terms of accuracy, recall, and F_1.

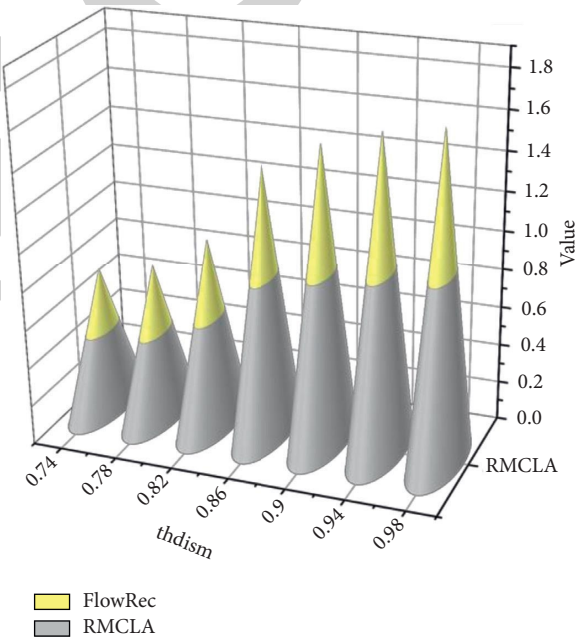

Figure 3: Comparison of recommended recall rates for classical art exhibition events under different thd_{sim}.

Table 3: Recommended recall of activities for classical literature and art exhibitions under different thd_{sim}.

thd_{sim}	RMCLA	FlowRec
0.74	0.42	0.32
0.78	0.45	0.35
0.82	0.57	0.41
0.86	0.82	0.57
0.90	0.88	0.65
0.94	0.92	0.70
0.98	0.95	0.72

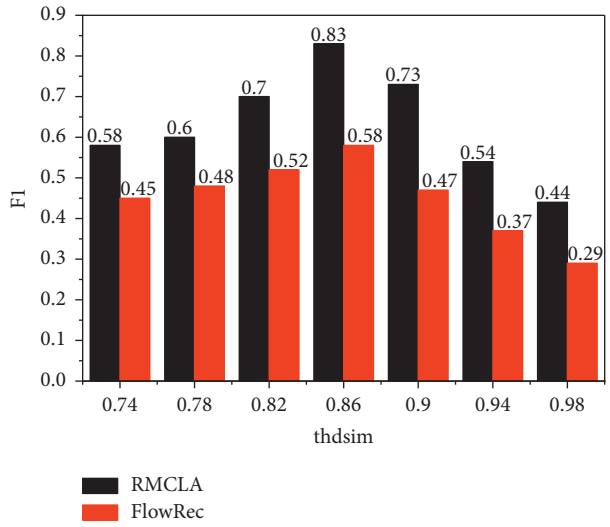

Figure 4: Comparison of F_1 value data for the two methods.

Table 4: Effect of thd_{sim} on F_1 recommended outcome values.

thd_{sim}	RMCLA	FlowRec
0.74	0.58	0.45
0.78	0.60	0.48
0.82	0.70	0.52
0.86	0.83	0.58
0.90	0.73	0.47
0.94	0.54	0.37
0.98	0.44	0.29

Table 5: Accuracy data for different K values.

K	RMCLA	FlowRec
6	0.92	0.83
10	0.86	0.61
14	0.78	0.52
17	0.58	0.41
22	0.49	0.38
26	0.47	0.32
30	0.45	0.30

A visual comparison of the accuracy of the two methods at these seven K values is shown in Figure 5.

As can be seen from Figure 5, the accuracy of both activity recommendation methods starts to decrease when K is set to a larger value, as these methods recommend too many activities that are not actually very relevant to the needs of the person concerned and therefore may not be present in the A_{ept}.

A comparison of the recall data for different K values is shown in Figure 6.

As shown in Figure 6, the recall rate for all methods gradually becomes relatively stable as K changes from 16 to 30, as most of the expected activities in the A_{ept} have largely been identified and recommended to the relevant people at this point, and data on the effect of K on the value of F_1 are given in Table 7.

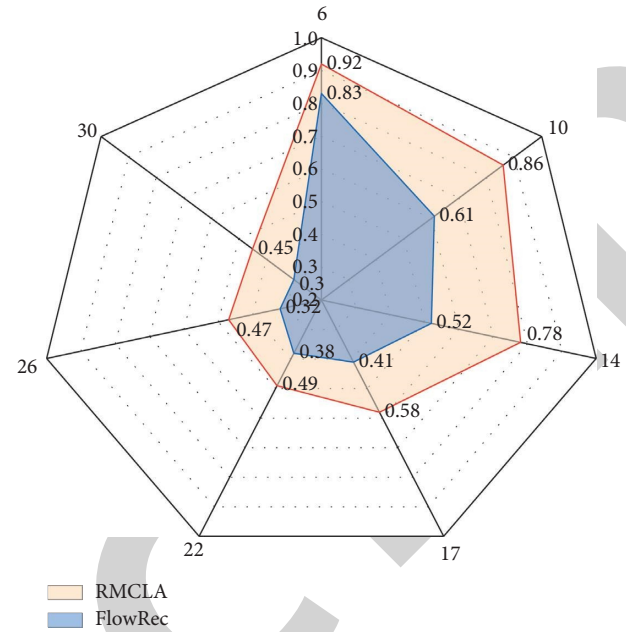

Figure 5: Comparison of the accuracy of the two methods for different values of K.

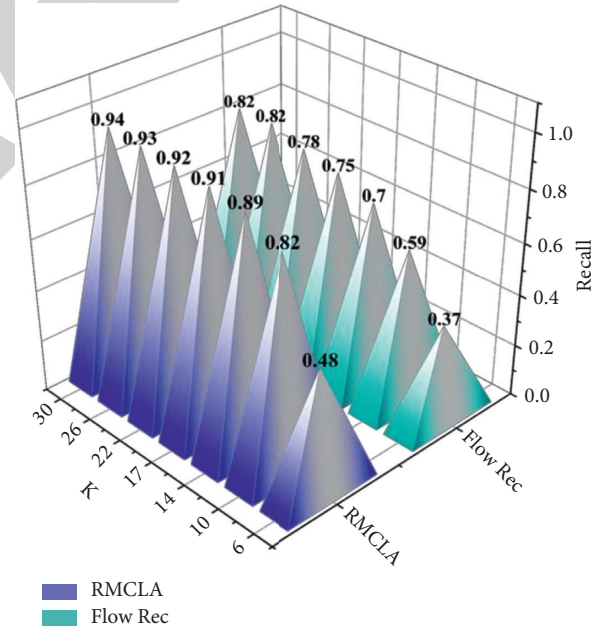

Figure 6: Comparison of recall data for different K values.

Table 6: Recall data for different values of K.

K	RMCLA	FlowRec
6	0.48	0.37
10	0.82	0.59
14	0.89	0.70
17	0.91	0.75
22	0.92	0.78
26	0.93	0.82
30	0.94	0.82

Table 7: Effect of K on the recommended outcome F_1 value.

K	RMCLA	FlowRec
6	0.63	0.51
10	0.84	0.60
14	0.83	0.60
17	0.71	0.53
22	0.64	0.51
26	0.62	0.46
30	0.61	0.44

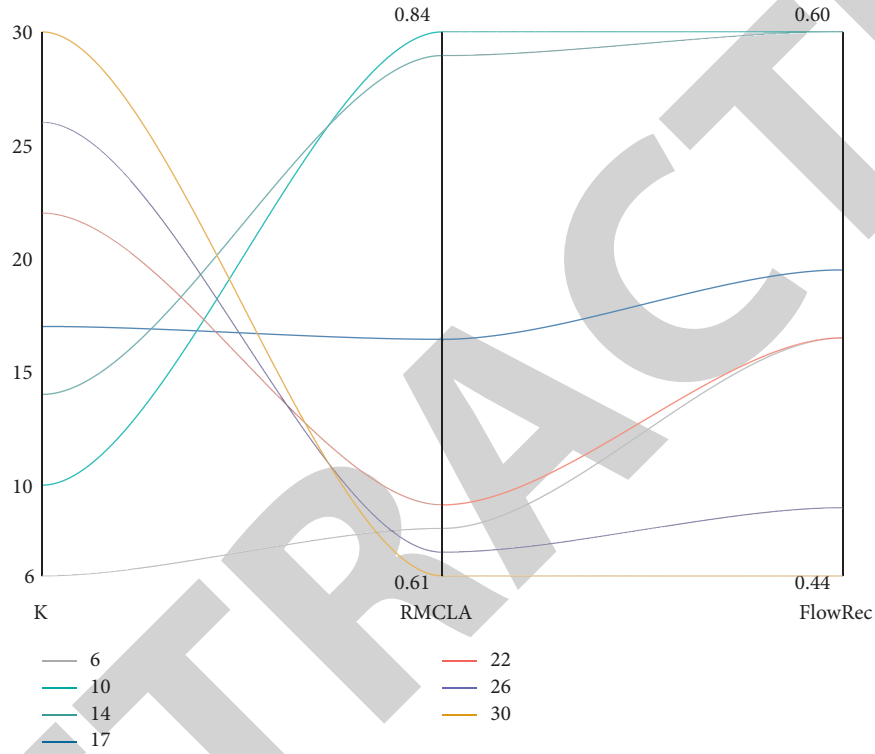

Figure 7: Comparison of the effect of the F_1 value for the same K value.

The comparative results of the two methods for F_1 values at different K values are shown in Figure 7.

As can be seen in Figure 7, the F_1 values for both methods increase when K is set to 6 to 14, while the F_1 values for all the recommended methods for the campaign tend to decrease when K is assigned to 18 or even higher.

5. Conclusion

This paper proposes an activity recommendation method for interactive modelling of classical literature and art exhibition activities and the interactive modelling needs of the audience and collects experimental data through questionnaires and interviews to verify that the proposed method outperforms the comparison method in terms of accuracy, recall, and F_1. The experimental results show that the smaller the matching degree threshold, the higher the accuracy rate of classical literature and art exhibition event recommendations, but the opposite is true for the recall rate. When the matching threshold is fixed, the higher the value of K, the lower the accuracy of the event recommendation, but the higher the recall. The optimal parameter value can be found to optimise the recommendation F_1 results through a comprehensive analysis. Since the dataset in this paper comes from limited questionnaire results, in order to make the proposed method more convincing, future research will broaden the source of the dataset. In future research, we can also consider combining factors such as the modelling theme of the classical literature and art exhibition event to further enhance the intelligence of the event's recommendation.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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