The influence of marine animal and plant picture book on promoting the understanding of marine culture of children

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ABSTRACT

With the current development of marine culture and the continuous upgrading of animal and plant collection devices, these technologies can now be applied to current research. The research on the influence of marine animal and plant pictures on promoting children's understanding of marine culture is proposed. The quantitative analysis of marine animal and plant characteristics is carried out, and then the simulation technology is used to construct the model, so as to provide a reliable standard of animal and plant for the teaching and learning of the marine culture science. It is proved that this research can correct the problem of animal and plant irregularities in current marine culture learning, which is of great significance.

Key words: Marine culture, animal and plant picture books, simulation modeling.

INTRODUCTION

China's marine culture, at present, is in the process of transforming from a grand cultural nation to a cultural power. It not only faces enormous opportunities brought about by economic development, such as social progress and culture, but also faces social challenges and institutional reforms that are challenging (Leao et al., 2017). Therefore, it is necessary to seriously consider and study and solve the current problem of building a strong marine culture (Liu et al., 2016). In the process of marine culture management and construction, it is necessary to cultivate social marine culture and citizens' awareness of marine culture. For young children, cultural education and human behavior research is also a very important link. All models can be built using modern simulation systems and input data can be standardized by models (Koc et al., 2016). Through the simulation of the model, it is possible to guide in the simulation system, pre-set the problems that may be encountered in practice, and solve the problem in specific situations. Since the whole process is not true, through technology, it will not be harmed during the learning process (Zimmerman et al., 2016). Therefore, in this case, the adoption of technology and animal and plant simulation technology are very useful, which can promote the rapid development of Chinese marine culture (Maharaj et al., 2016). Most beginners who come out of marine culture have different mastery of standard animals and plants. At this time, they can rely on animal and plant simulation to correct their non-standard models in the process. Under the guidance of the goal of building a strong marine culture, it is necessary to strengthen the development of marine culture in China and further improve the speed of reform of our cultural level.

STATE OF THE ART

The main kinetic characteristics of animals and plants require a limited number of discrete particle systems in the process of dividing animals and plants (Kim et al., 2017). Different adjacent forces of animals and plants have different forces and all the torques at the center of the joint point change the state between adjacent parts.
to construct the model. During the research, the body of each part of the plant and animal is modularized and then study separately using medical methods. In the course of the research, the physical properties of the rigid body mass and centroid of each part of the plant and animal are studied and analyzed (Koc et al., 2016). Then connect all adjacent rigid bodies together by correlation. The soft tissue of the plants and animals is then simulated by the device, and the animals and plants can be simplified into a rigid body system with limited degrees of freedom. To simulate the combined effects of external forces and internal forces on animals and plants, it is necessary to achieve the influence of external forces through certain means in the construction of the model (Carragher et al., 2016). The behavior of plants and animals is identified by camera, and the characteristics of the animals and plants of the collected video sequence are extracted and described, thereby forming an effective classification means and recognition model. To be able to satisfy the process of analyzing and understanding the video content, it is possible to carry out the automatic identification of animal and plant behavior through the technique of simulation (Fievisohn et al., 2016). The local features are optimized in different ways. The animal and plant behaviors of the global characteristics are used to detect animals and plants as real-time information on animals and plants (Fievisohn et al., 2016).

**METHODOLOGY**

**Collection and treatment of marine cultural and marine animals and plants characteristics**

In the process of constructing the model of the quantitative mapping of marine culture animals and plants characteristics, a model for capturing and identifying animals and plants behavior is constructed, which needs to have good accuracy, adaptability and high reduction degree simulation effect. In the process of constructing the system model, the process of information extraction requires the use of animal and plant harvesters for the extraction of animal and plant behavioral characteristics. Based on the feature representation information and the location of time and space, the behavior is described and learned. Before the process of collecting data on animal and plant behavior, it is necessary to combine the video preprocessing technology to analyze the quality of the video image. By detecting the characteristic points of behavior and using animal and plant behavior as local features for description, the behavioral characteristics of expressing animal and plant behavior are classified. In the search process, genetic algorithms are used to finally reach an optimal solution. The improved genetic algorithm based path planning algorithm is a mathematical algorithm formed by simulating the improved genetic algorithm path of higher animals, and constitutes a complex network system by abstracting the neural operation of the human brain. After optimization by genetic algorithms, there is a more standard animal and plant specification. The effects of the behavior of various parts of animals and plants are shown in Figure 1.

In the process of this study, the three-dimensional detection simulation of marine culture animals and plants is selected, and it is necessary to collect animal and plant features in this time. So the main operational process of this time is to start by basic thinking, basic establishment process and background modeling of marine animals and plants. Then, in the process of simulation, the state of each part of the body is analyzed and compared. The first thing that needs to be
Table 1: Compilation of picture books for marine animals and plants.

<table>
<thead>
<tr>
<th>Data observation</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>First record time</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Second record time</td>
<td>3.1</td>
<td>3.2</td>
<td>3.3</td>
<td>3.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Third record time</td>
<td>2.2</td>
<td>2.2</td>
<td>2.6</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Time difference of real</td>
<td>7</td>
<td>7.1</td>
<td>7.2</td>
<td>7.3</td>
<td>7.4</td>
</tr>
</tbody>
</table>

done is to process the acquired video data. The acquired image signal is collected, and then the process of performing the data quantization picture book is used as image acquisition, and the image in the video needs to be subjected to noise reduction processing. The method adopted this time is a method of eliminating noise in the frequency domain image. This method transforms the image and converts the image from the previous spatial domain to the frequency domain. The transformed coefficients are then calculated, where the frequency domain image. This method transforms the image and converts the image from the previous spatial domain to the frequency domain. The transformed coefficients are then calculated, where the spatial domain of the image is wavelet transformed. Use the following formula to convert:

$$g(x, y) = \frac{1}{N} \sum_{f \in R} f(x, y)$$

(1)

In the above formula, $f(x, y)$ is the image to be processed; $R$ is the internal core; $N$ is the total number of pixels in the kernel; then the function after averaging is $g(x, y)$. This method is called the field average method. It is the most intuitive and easiest way to eliminate noise in image processing. In the process of animal and plant behavior feature extraction, the main step is to classify the video sequences on animal and plant behavior, to extract the pixel information in the video to observe the change, and to understand and calculate the pixel information by the factors that change the information significantly, so as to generate the characteristics of animal and plant behavior. In the process of learning and learning the characteristics of animal and plant behavior by using the method of classification modeling, the process of high-accuracy classification of animal and plant behavior is obtained. When extracting pixel features in a video, it can be optimized by the following formula:

$$p(x_i) = \frac{1}{N} \sum_{j=1}^{n} K_h(x_i - x_j)$$

(2)

This method is widely used in the process of image noise reduction processing that is currently required. In fact, it is to average several pixels in the plate and then calculate the difficulty of changing the new gray value in the pixel points in the region.

By such method, it is possible to represent pixels of other ambient pixel values in the surrounding without eliminating the need for erasure. Then the desired noise-reduced image is achieved. To some extent, the blurred image is transformed into a clear image. Not only the above advantages, but also the advantages of simple and easy processing in the calculation, the speed of the calculation is also very fast. When animals and plants are in the process, they can be divided into layers by the constraints between the bodies. The upper limbs can drive the lower limbs to which they belong to perform corresponding actions, so these features need to be noted during the construction of the model. The processing of specific real-time dynamic data of plants and animals not only has a small amount of data calculation in the process of calculation, but also facilitates obtaining more accurate target data under stable conditions formed in the speed change. There is a great relationship between the quality and speed of the target. The static feature acquisition of the apparent information of animals and plants can effectively detect the complex background of the animals and plants in the video in the real scene.

Construction of marine culture animal and plant characteristics picture book model

The animal and plant features of marine culture quantify the image recognition capabilities and data mining techniques that need to be used for pattern analysis. In the process of specific model identification and animal and plant quantitative picture books, the following processes based on animal and plant model identification and animal and plant models are needed. The setting result values of each parameter are shown in Table 1. The animal and plant image simulation model is constructed according to the framework model of
animals and plants to form a relative limb restraint, and the head and the upper part of the animal and plant are used for simulation. In this way, the position of each limb line and joint point is prefabricated. The image captured by the high-speed camera is processed for a period of time, and then the accumulated value is divided by the captured frequency to obtain an average value, which is then used as the background model. It can be calculated using the following formula:

\[ B_n = \frac{1}{N} (f_n + f_{n-1} + \ldots + f_{n-N+1}) \]  

(4)

In the above formula, \( N \) is the average number of frames of the current target, \( f_n \) is an image that can be saved by the coefficient including the current frame number, and \( B_n \) is used as the background of the model based on the image acquired by the current \( n \)-th frame. When the site model is affected by environmental changes and other factors, the background model will be updated after the target has been running for a while. The updated calculation formula is as follows:

\[ B_n = B_{n-1} + \frac{1}{N} (f_n - f_{n-N}) \]  

(5)

Equation 5 shows that each new background model is based on the background model that is calculated in previous time, and is obtained by the recursion of the images of the current frame numbers \( f_n \) and \( f_{n-N} \). This will allow the background model to be updated. Obviously under such an algorithm, the maximum value of the number of image frames can be selected for reference of the current background. The way the model is built is shown in Figure 2.

After the model is constructed, in order to make the animals and plants in the process of the ocean more standardized, it is necessary to add a genetic algorithm in the subsequent optimization process. Genetic algorithm is a universal mathematical algorithm that uses a model that simulates an algorithm for the natural evolution of a living being. It is a search method that uses
the basic problem of genetics to solve the problem. The calculation basis of the algorithm is population. The method of screening is through the self-survival of the fittest in the population, and it finally reaches the search process of an optimal solution. After optimization by genetic algorithm, the ocean can have a more standard animal and plant specification. In the process of children learning marine culture, teaching methods and teaching content are inseparable, and there is an essential and inevitable connection between teaching methods and teaching content. The different nature of the teaching content determines what kind of teaching methods that teachers should adopt. In other words, the application of teaching methods must be based on the flexible and selective selection and application of course content and teaching methods. When the teaching method is selected, it will be used in actual teaching, and the teaching effect will be more effective. On the contrary, it will be unsatisfactory.

RESULT ANALYSIS AND DISCUSSION

In the above, the marine cultural teaching interventions and intervention steps are analyzed and introduced. However, the effect of the application of animal and plant picture books is still uncertain. The following experiments will be carried out several times to prove the effectiveness of the teaching of marine culture in young children through the form of comparative experiments. First, it is needed to establish an experimental plan. The study included five factors of research: cognition, psychology, attitude, focus, and assistance. The higher the score of each factor subscale and the total scale indicates the higher the quality of marine culture teaching. The a-coefficient of the scale total table is 0.85, the test-retest reliability is 0.83, the internal consistency coefficient is 0.92, and the five factors a-coefficient are greater than 0.7.

First, two groups need to be set up for testing. Group 1 is the experimental group, which is based on the marine culture teaching of animal and plant picture books. Group 2 is the control group and no intervention experiment is performed. To prove the accuracy and reliability of the experiment, it is necessary to first test the students in the two groups before the experiment to ensure that the psychological status of the two groups of children is relatively average. Table 2 shows the test results of the previous period.

By comparing and analyzing the data in Table 2, it can be seen that for the items tested in the table, the scores of the experimental group and the control group are different, and the overall level is relatively average, thus ensuring the accuracy and universality of the test results.

Eight children from the experimental group of animal and plant picture books introduced in this study are intervened, the marine culture education assessment is conducted, and then the relationship between the two groups of data and the effectiveness of the interventions are compared. The test results are shown in Table 3. The test passed show that the test results of the control group children are basically unchanged, so only the experimental group data are sorted out.

By comparing the data in Tables 3 it can be

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**Table 2: College students’ psychological test results table.**

<table>
<thead>
<tr>
<th>Test name</th>
<th>Grouping</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>Test group</td>
<td>8</td>
<td>13.75</td>
<td>3.01</td>
<td>0.17</td>
<td>0.870</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>8</td>
<td>13.50</td>
<td>2.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>Test group</td>
<td>8</td>
<td>15.63</td>
<td>4.31</td>
<td>-0.06</td>
<td>0.951</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>8</td>
<td>14.75</td>
<td>4.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>Test group</td>
<td>8</td>
<td>12.88</td>
<td>3.70</td>
<td>1.29</td>
<td>0.218</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>8</td>
<td>12.13</td>
<td>3.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absorbed</td>
<td>Test group</td>
<td>8</td>
<td>14.75</td>
<td>4.21</td>
<td>0.99</td>
<td>0.338</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>8</td>
<td>14.75</td>
<td>4.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assist</td>
<td>Test group</td>
<td>8</td>
<td>12.63</td>
<td>4.55</td>
<td>-2.21</td>
<td>0.044</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>8</td>
<td>12.25</td>
<td>4.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The total</td>
<td>test group</td>
<td>8</td>
<td>73.75</td>
<td>7.21</td>
<td>-0.07</td>
<td>0.945</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>8</td>
<td>74.00</td>
<td>7.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
found that, for the students of the experimental group, the changes of young children are not very large, and basically all kinds of test results do not pay flat. However, for the experimental group, the effectiveness of the intervention is demonstrated by two comparisons. First, the data of the experimental group are compared before and after. Comparing the data before and after the experiment, it can be found that the change in the M value is increased by about 4 and the SD is increased by about 2. This is a very big change, which proves the feasibility and excellence of the model. The scores on the total scale and the other four subscales are significantly improved (p<0.05), which once again shows that the application of animal and plant picture book effectively improve the level of marine culture education for young children. Before and after the use of animal and plant picture books, the intervention group’s total scale and the four subscales of psychology, attitude, concentration and assistance are significantly improved (p<0.05), and there is no significant change in positive recognition of a subscale (p>0.05). This shows that the application of animal and plant picture books can effectively improve the teaching level of marine culture for young children. To further verify the stability of the application, in the management of 100 people, the model is tested. The results of the test are shown in Figure 3.

Based on the results of the experiments, it is proved that animal and plant picture books have good use value in marine culture education management, and can accurately process the results perfectly. Through testing, it is found that in the test of 1800 projects, there is no offset sample in the test results, which is a very stable model. In addition, the calculation error is reviewed and the tie error is found to be 0.00090. This kind of error can basically be ignored, and the theory can be guided as a corresponding idea. Even so, for the model, technical means can be used to reduce the error of education management, and a lot of time will be used to improve it in the future.

**CONCLUSION**

In the process of cognition of marine culture, it is necessary to standardize the animals and plants of the ocean. The simulation model is used to construct the model, and finally the picture book is used to optimize the marine culture and plants. In this way, a reliable standard animal and plant specification for early childhood teaching and learning in marine culture science is provided. Through science and technology, people will not be hurt by the real scene during the learning process. So in this case, the adoption of technology and animal and plant simulation technology is very useful, it can promote the rapid development of marine culture. In the functional test for marine animal and plant picture books, the effectiveness of young children marine culture teaching is proved by the form of comparative experiments. Before and after learning from animal and plant picture books, the intervention group’s total scale and the four subscales of psychology, attitude, concentration and assistance are significantly improved (p<0.05), and there is no significant change in positive recognition of a subscale (p<0.05). This shows that the application of animal and plant picture books can effectively improve the teaching level of marine culture for young children. In summary, future research needs to be conducted to further improve marine cultural characteristics and functions of the maritime powers.

**REFERENCES**


Koc A, Balci G, Erturk Y (2016). Influence of arbuscular mycorrhiza...


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