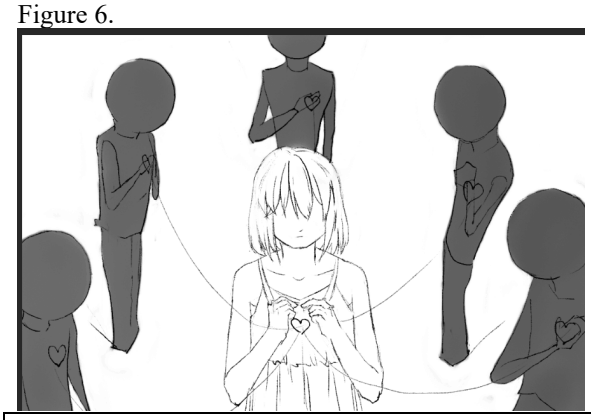
4.3.3 Design of end-game interface

The end of the game interface is designed as a animation format, which will be automatically played after the game is finished, in order to sublimate the meaning of the work. Game art style is the visual appearance of the game product, which determines the most intuitive visual feeling the game gives to the player, and it is the entrance to the game world where the player really begins to feel immersive [21]. In order to make the game art style in line with the original design of the game product, the end of the game interface style is clean and simple. The main element of the interface is the game's heroine, a little black man. The heroine is designed with short hair and a loose dress, which makes the game's target audience feel intimate. Little Negro represents the anonymous warm-hearted people in this society.

The average gamer likes games with good graphics, because visuals are as good as even the best storylines [22].At the beginning, the color of the game interface is only black, white and gray. The heroine is in the center of the screen, surrounded by only a few little black people. Each little black person in the screen has a heart, which is connected with the heroine's heart through lines. In the following picture, more and more little black people appear around the heroine, and the picture gradually becomes colorful and warm. In this way, it reflects the change of the heroine's state of mind after being helped by more and more people in the society, and appeals to people to care for the visually impaired. As shown in Figure 6.



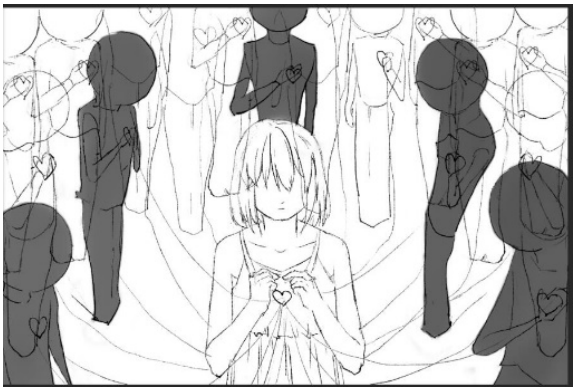


Figure 6. The end-game screen

4.4 Core technologies

4.4.1 Protagonist moving

The movement of the character in this game is to create a new script role on the first-person virtual character as a control character movement script, set a movement speed move speed and set an offset speed rotate Speed on the inspector interface. Use the Move Joystick (Input. Get Touch (touch Index). position); method to monitor the direction of the user's finger movement. If the dynamic joystick is controlled to slide up, trigger the statement transform. Rotate (Vector3.up × rotate Speed, Space. Self) method to dynamically remotely sense the lower left The angle shall prevail, determine the offset of the relative moving position, and call transform. Translate (new Vector3(moveVec.x,0,moveVec.y) × move Speed, Space. Self) method to calculate the movement of the character in the scene by creating a Vector3 object Position; can make the first person move in the specified direction, so as to complete the movement control of the first person character[23]. Part of the code is as follows:

```
Begin
touchIndex=0
void Update(){
  if touchLeft == true
  {
      transform.Rotate(Vector3.down*rotateSpeed,Space.Self);
  }
  if touchRight == true
  {
       transform.Rotate(Vector3.up*rotateSpeed,Space.Self)
  }
  Call CheckJoystick ();
}
void CheckJoystick()
{
  If joystickTouchDown
```

```
  {
    joystickTouchDown = false
    touchIndex=i; break
  }
  if joystickTouching == true {
    MoveJoystick(Input.mousePosition)
    MoveJoystick(Input.GetTouch(touchIndex).position)
    resetJoystick () method
  }
}
```

4.4.2 Viewing angle trigger and conversion

In the game scene, the user can click the cane button at the bottom right of the game scene and move the angle of view key left and right to trigger the visibility and direction of the angle of view. Create a new test. cs script and use the Camera. Set Replacement Shader() method in the test. cs script to use a shader globally to process all vertex and fragment. Use the Move far Clip Plane() method to control the direction of the perspective, and use the Test Click() method to control The perspective conversion method and the visual visibility method in the Move far Clip Plane() method. Mount the test. cs code to the cane key button. When the cane key button is clicked, a certain visible range can be triggered, and when the view angle conversion key button is clicked, the angle of view will rotate with the click of the conversion key, thereby achieving. The angle of view conversion is shown in Figure 7. Part of the code for the viewing angle trigger and viewing angle switch key is as follows:

```
Begin
void OnValidate(){
    Shader.SetGlobalColor(color)
}
void OnEnable(){
    GetComponent<camera>().SetReplacementShader
(ReplacementShader,"");</camera>
}
void OnDisable(){
    GetComponent<camera>().ResetReplacementShader();</camera>
}
Create TestClick () {
   if movefarClipPlane ! ==null
   Call the stopCoroutine ()
   Call MovefarClipPlane () = MovefarClipPlane
   Start co-forming method startCoroutine (moveFarClipPlane)
}
IEnumerator MovefarClipPlane(){
   CetComponent<camera>().farClipPlane==0;</camera>
   while GetComponent<camera>().farClipPlane
 < maxRange</camera>{}
   yiled return 0
}
Create TestClick2 (){
   StartCoroutine(MovefarClipPlane())
}
```

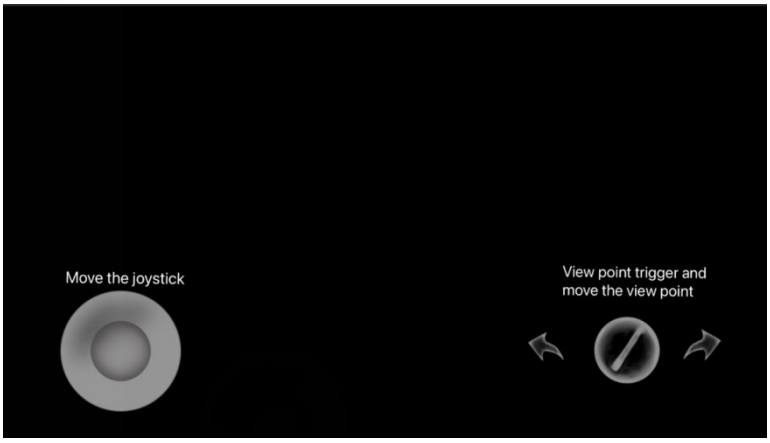


Figure 7. Perspective triggering and moving perspective diagram

4.4.3 Sound control

Music in the game can not only foil the atmosphere of the game scene, but more importantly, it can promote the development of the story, deepen the theme of the game, and play an important role in the overall game interaction [24]. In this game, you can first create a script and mount it on the game camera with the audio device added. Set the script to Play when waking up, and call the audio. play () method to automatically Play the specified background music when the player enters the game scene. But for the game character collision to some objects (such as: barricade, table, etc.) call on Collision Enter () method to determine whether the collision, and then call audio. piay () method to achieve the specified audio playback. Part of the code is shown below:

```
Begin
Using On Collision Enter (Collision Collision)
        If (a collision. The game Object. Name = = "Cube")
        Audio Source adion = Get Component<audio source>()</audio source>
        Adion calls Play() to Play the audio
        Background output "wo beng zhangl"
        if(collision. Game Object. name. Equals("Cube")
Create On Collisin Exit (Collision Collision)
if(collision. Game Object. name. Equals("Cube")
```

4.4.4 Text display

Text display is an important way to guide beginners and convey information in games. First, create a new script Text Type. cs to create a dynamic typewriter effect for the game. Set the typing time and speed in the script Text Type. cs, get the Text component for adding the Text that needs to be displayed, create the on Start Writer () method and the on Finish () method. The on Start Writer () method starts typing and refreshes the display, while the on Finish () method ends typing and initializes the data. Part of the code looks like this:

```
Begin
void Start()
    The timer timer = 0
    The text displays is active== true
    Display speed chars Per Second = mathf. max (0.05f,charsPerSecond)
    My Text== get Component <text>()</text>
Save the text words= matext. text
```

5. Discussions

This game realizes the combination of quality education for special groups and games, which has not yet been innovatively combined in the existing game market. On the basis of 3D game development, the team develops games based on the needs of special groups and the current situation of quality education for special groups. Most games at home and abroad are developed for special groups, or simply develop an experience game.

The game is designed to provide an immersive experience for the player. Comparing the third person perspective with the first person perspective, it is concluded that the first person perspective is more suitable for the player to engage in the game. The game page is full of black, bringing a more real experience of visually impaired people[25]. The game developed based on Unity3D can integrate children's English education into the game and combine teaching with fun, so that parents can make full use of spare time to cultivate children's interest in English learning. But the reality is that these games don't start with curiosity, and are more of a forced way to build a player base. The unique

perspective and gameplay of the game studied in this project can stimulate the curiosity of users and enable them to actively use this game. The main gameplay of the developed game is to answer questions of historical knowledge points with progressive difficulty levels. The beautiful screen enables players to consolidate what they have learned in the game, which is more attractive than traditional history teaching. But the game has low playability. The game of this project adds a lot of interaction design in the aspect of game playability, and makes players willing to continue the game through good interaction functions. The research points out that educational games in China tend to be simple and courseware based, and it is concluded that educational games should not be designed with too much emphasis on either game or education, which will make educational games lose their significance. Instead, educational games and games should be combined organically.

6. Conclusion

Through research, we found that under the efforts of many scholars and game workers at home and abroad, a part of games about visually impaired people appeared in the market, but their main design is the physical abstraction of visually impaired people, focusing on the logical design of the game. The team found some unsatisfactory aspects of the use of the method, and summarized the shortcomings of most of the games currently on the market for the visually impaired:

(i) Poor software operation experience: some related games have flashback phenomenon and low version. Frequent flashbacks can cause players to lose interest and also affect the emotional experience of the player, thus doing little to help special groups of people.

(ii) Lack of educational significance of software: Most relevant games on the market lack of educational significance and correct guidance to help visually impaired people. Blindly focusing on the design of the logical structure of the game not only gives players a sympathetic experience of loss, but also makes it impossible for players to give correct help to the blind in real situations.

(iii) The software is not interesting enough: some related games have boring plots and difficult operation. For example, a game produced by Tencent has some defects such as too difficult operation and single game form, which causes some players to fail to fully experience the game, and thus fails to arouse players' sympathy and desire to help special groups.

The design of this project draws on the inexperience of existing related games in the market, and the improvement and innovation belongs to the characteristics and advantages of this project: Firstly, considering the game development cost, operation and maintenance, etc., the project development team chose the current mainstream mobile game development software Unity3D. Based on the professional engine and multiplatform of Unity3D, problems such as low version and game flashback were well solved, and the foundation was laid for future version update and platform release, etc. Second, in the game, the team through a lot of data access, field research methods such as a summary of visually impaired people inconvenience in daily life, the use of adaptive with the game, in the process of the game, the players in the control role to complete tasks at the same time, through the system prompt guidance, simulation of the visually impaired people under different difficulties with the help of the right way, Achieve the right help for visually impaired people in the face of similar difficulties. Finally, we put forward an innovative design method to integrate the reality. The team referred to many real environments and simulated the scenes in the life of the visually impaired people in the real society. Technically, since the whole process is made by static lighting, the final lighting effect is baked in Unity in advance. Secondly, based on the real situation of blind people, the game design is novel and the interface is simple and unique. It abandons the visibility of traditional games, and the player interface becomes dark after entering the game, which gives people a kind of depressed psychology. At the same time, the sense of dual experience is more immersive. In reality, the visually impaired people cannot see the objects clearly, so the level of auditory sensitivity is set to encourage the players to give the players an immersive feeling in the sound.

Education based on Unity3D game "Inverse light" abandoned the traditional game visibility, abandoned the cookie-cutter story, the same game with the real innovation, not only can make the players to experience the game fun and significance of the game, but also strengthen the moral education of teenagers and care for the disabled, which has good social and practical significance.

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