**The Effect of Using Blog on Project Based Learning for Students with Visual Impairments between Two Coasts -Take the Music Curriculum for Example**

**Abstract**

The purpose of study is to identify the process and effects of using the Blog on project based learning for students with visual impairments between two coats. The study selected university students with visual impairments as study participants. This study utilized qualitative methods-in-depth interview, video recording and reflection of students of teacher in special education to conduct data collection and analysis. The findings revealed study participants encountered obstacles of assistive technology application and internet environment using. Moreover, study participants indicated importance of collaborative learning and peer support that influence effectively the success of project based learning.

**Keywords**

visual impairments, project based learning, Blog, assistive technology

**Introduction**

In recent years, researchers have often published papers and academic visits to the mainland, and found that assistive technology can facilitate the living and learning of visually impaired students, and visually impaired students on both sides of the strait can cooperate in learning through the Internet. Music is usually the most common pastime for visually impaired students. Therefore, the researchers selected musicians with local cultural characteristics from mainland China and Taiwan as the theme, and used blogs as the learning environment to conduct research on the topic-oriented learning of blogs for visually impaired students on both sides of the strait. It is hoped that this research will examine the learning process and effectiveness of the blog of visually impaired students on both sides of the strait, and create a new interactive learning model for visually impaired education on both sides of the strait.

Traditional education methods, emphasizing teacher-based one-way knowledge transfer, may inhibit students' creativity and knowledge construction, but affect their learning effectiveness. Therefore, the current important educational issue is how to cultivate students' independent thinking and problem-solving skills. Topic-based learning can allow students to actively participate in and discuss, and thus arouse students' interest in learning (Polman, 1995); Solomon (2003) argues that topic-based learning is a way of working together in small groups to collect information, organize and analyze the knowledge gained, and not only solve problems, but also acquire real skills.

As early as 1991, Blumenfeld et al. pointed out that topic-based learning can increase students' opportunities for cooperative learning, enhance learning motivation, and use technology as a learning tool. It can also enhance interpersonal interaction; Due to the characteristics of topic-based learning, many teachers will encourage students to complete a subject task through topic-oriented. However, in the process of reading the literature, the researchers did not find that the visually impaired students had used the topic-based cooperative learning mode to complete the learning tasks, so the researchers selected the visually impaired students as the research participants for the research on topic-based learning. Therefore, this study selects visually impaired students from Tsinghua University and Changchun University as research participants to conduct research on topic-oriented learning for visually impaired students on both sides of the strait.

**Purpose**

There is no relevant research on the possible learning changes of visually impaired students in cross-strait blogs, which leads to the motivation of researchers to cooperate with cross-strait college students. If we can combine the shortcomings of special teacher training education with the needs of the teaching scene of primary schools and establish a cooperation model, it will not only be a win-win situation, but also bring breakthrough educational innovation to visually impaired students on both sides of the strait.

**The research questions were as follows:**

(1) To examine the course of project-based learning for visually impaired students.

(2) Apply the research results to the special teacher training courses.

(3) Formulate strategies for online learning for visually impaired students.

**Methods**

This study collected and analyzed data in a multi-faceted manner, including (1) interviews before and after the topic-based learning activities; (2) video recordings of the learning journeys of the study participants; (3) Notes on the experience of special teacher trainees. Through data collection and analysis, this study examines the effectiveness of project-based learning among visually impaired university students on both sides of the Taiwan Strait.

1. Qualitative research

Qualitative research is characterized by the ability to delve into complex details that are difficult to express in statistical data, and to overcome the shortcomings of traditional quantitative research in answering questions, studying hypotheses, and manipulating variables. The purpose of qualitative research is to provide an explanatory and in-depth understanding of the personal experience and meaning construction of the research participants, and the characteristics of qualitative research can be consistent with the purpose of this study.

This study is difficult to understand the expectations and expectations of visually impaired college students on both sides of the Taiwan Strait. In view of the fact that the experience itself involves the subjective feelings and interpretation of the event by the individual, and the in-depth interview technique is relied on to get a glimpse of the in-depth interview. Conducted in-depth interviews with visually impaired college students on both sides of the Taiwan Strait to understand the acceptance of technology integration into learning among visually impaired students on both sides of the Taiwan Strait, and the considerations that teachers should consider when applying technology in teaching.

1. Research participants

In this study, deliberate sampling was used to collect data. Purposive sampling is a sampling method often adopted in qualitative research institutes, in which the research participants are carefully selected by the researcher from the accessible parent population, and each research object is provided with different depth of data due to its different characteristics. The number of samples to be taken is intended to be closed when the data is saturated. Therefore, six visually impaired students from Tsinghua University, who were taught by the researchers, were selected as research participants. In addition, this study selected six visually impaired college students from Changchun University as the participants, because the researchers have had a lot of professional experience exchanges with professors of Changchun University when they visited or published papers in mainland China in recent years, so they were selected to conduct cross-strait topic-oriented learning research.

In this study, visually impaired students from Tsinghua University and Changchun University were selected as study participants. Research participants should meet the following conditions: 1. Those who have the basic ability to use a blind computer, such as being able to use voice reading software to read and write text materials on the blog. 2. Those who have the willingness and motivation to self-describe. 3. Those who are willing to cooperate with the research needs such as interview recording, transcription of manuscripts and assistance in corrections. 4. The study participants should include two types of students with severe visual impairment and low vision as much as possible.

1. The researcher is an investigative tool

According to the characteristics of qualitative research, the researcher himself is a research tool. Visually impaired and blind in secondary school, the researcher began to receive visually impaired education services and learn visually impaired assistive devices, and was able to use voice reading software to browse and search for information and perform word processing on the Internet. After graduating from university, the researcher has been engaged in teaching visually impaired education in primary and secondary schools for many years. After obtaining a doctorate degree from the United States, he entered the university to engage in research and teaching, and continued to conduct research related to visually impaired education in a qualitative research manner. In many academic visits to the mainland and academic seminars at home and abroad, the researchers had many exchanges with the principals and teachers of blind schools in the mainland to understand the current situation of the development of visually impaired education in the mainland and the expectations for cross-strait exchanges on visually impaired education. In this study, the informed consent of research participants, the concealment and use of personal information, the data collection, the storage method and the retention period are all reviewed and supervised by the Ethics Review Committee.

4. Data analysis

In this study, six visually impaired college students from Tsinghua University and Changchun University were selected for data collection and analysis through in-depth interviews. For visually impaired college students on both sides of the strait, this paper compares and analyzes the difficulties, support and expectations encountered before and after the blog topic-oriented learning activities. With the consent of the study participants, the interviews were recorded for about 100 minutes each time until the data were saturated.

In the process of data collection and analysis, the investigators will use different English codes to indicate different sources of information and the identities of the study participants. The "PreI-T1-date" code is used to indicate the interview results of the study participant T1 before the activity; The "ProI-C1-date" code indicates the results of the interview with study participant C1 after the activity. At the end of each interview, a member of the research team acted as a transcriber, and the transcript was converted into a verbatim transcript of the interview based on the content of the recording. After the verbatim transcript of the interview is completed, it will be sent to the study participants for review and confirmation, and finally, the research team will add, delete and modify the feedback provided by the research participants to create an accurate source data file. In addition, if there are any ambiguities or contradictions in the original data during the data collation process, the research team will seek clarification from the study participants by phone or e-mail.

In this study, we collected data on the interview topics designed by visually impaired college students from both sides of the Taiwan Strait. This study uses the data decoding procedures and principles of continuous comparative method to analyze the interviews of visually impaired college students on both sides of the strait through qualitative research and analysis software. Data were collected and analysed using a continuous comparative approach.

**The steps to analyze the data are as follows:**

(1) Preliminary collection of information.

(2) Organize key concepts, cyclical issues or activities for classification.

(3) Continue to collect new information.

(4) Organize similar key concepts or topics into categories, and establish new categories for incompatible concepts.

(5) Repeat steps 3 and 4 until all data processing is completed. Compare related theories for each concept and establish interrelationships and attributes to develop an integrated theory.

Through the analytical steps of the continuous comparative approach, this study attempts to examine the research participants' views on the difficulties they may encounter, the support they should receive, and the learning outcomes of blog-based learning.

In order to enhance the validity of the content of this study, two experts who are familiar with continuous comparative research were invited to participate in the data coding analysis test of this study, so as to strengthen the verifiability of this study. At the same time, the research team recorded the research participants' process-based writing process in the form of video, so as to record the research participants' journey and behavior in topic-directed learning.

**Results and Discussion**

1. Research Results:

The data sources of this study include: 1. Notes on the experience of special teacher Pearson, 2. Video observation data of the behavior observation of the research participants, and 3. Interviews with the research participants before and after the activity. The process of building and collecting data on participants' blogs was studied.

**Topic-based pre-learning interviews have the following findings:**

**Can the application of learning technology in the curriculum enhance your interest in learning?**

**1. Make the curriculum more interesting and enriching**: Teachers use technology to integrate into teaching, and study participants generally say that it can enhance their interest in learning. Make abstract course content easier to understand, learn and memorize. Through careful design and timely integration of technology, the curriculum can make the whole course more lively and enriching.

**2. Learn to be impressed and attentive:** use the physical model to turn the abstract into the concrete and produce a deeper impression.

**3. Convenience of online learning**: Remote teaching overcomes the limitations of time and space, and can make learning more flexible and adaptable. Applying the function of real-time search and search on the network, learning is ubiquitous and far-reaching.

**What do you think are the considerations for using technology in teaching?**

**1. Students' pre-requisites:** When integrating technology media into the curriculum design, consideration should be given to whether students can smoothly receive the course information. For example, when playing on a large screen, the quality of students' eyesight should be considered. Documents, files or presentations should be prominently formatted and coloured. Some visually impaired students rely heavily on computer application software, so the compatibility between the software and the application software should also be considered in the selection of technology media, so as to prevent the visually impaired student from being unable to use the student's own mastery of technology, and whether he needs additional guidance. Choose the appropriate technology equipment according to the course content and use it.

**2. Physical models and multiple prompts:** A number of students who practice meridians, acupuncture points, and massage said that with voice or tactile prompts, they can provide timely feedback when learning, and the learning effect is good. Recess learning and after-class practice are like one-on-one guidance, which can repeatedly confirm familiar locations, confirm sounds, and a variety of prompts can also supplement visual deficiencies.

**3. Synchronous learning with assistive devices:** The personalized tablet can freely adjust the font size and viewing angle to see more clearly. The tablet computer synchronized with the teacher's course content can follow the teacher's progress and thinking more efficiently, and the effect is good.

**4. Early development of information literacy:** The research participants were quite confident in the pervasiveness of technology, believing that sooner or later technology would be able to compensate for the physical obstacles. At present, the proportion of reading in basic subjects is still heavy, and if you can cultivate scientific and technological literacy as early as possible, you can learn faster and better.

**What difficulties have you encountered in your learning experience of integrating technology into the curriculum?**

**1. Limited reading of materials:** Information technology can process or present a large amount of data, and students with low vision find it difficult to read without using application software. Students with low vision have partial vision, and in the era of information explosion, it is particularly difficult to use their eyes, and they can also see the thirst for knowledge of students with low vision.

**2. Reading restrictions of screen reading software:** In order to improve the speed of reading comprehension and make up for the vision problems caused by the impairment, visually impaired students generally use screen reading software to read web pages or e-books and other materials, but there are still many inconveniences in the use of screen reading software, and the main problem is that they cannot read the pictures or picture verification codes in the web page. Many participants also mentioned the following problems: the beautiful and simple visual design of the web page caused many obstacles for the visually impaired to read online materials. Animations or advertisements pop up from time to time on the web page, which makes it difficult to operate the application software, and the screen application software does not support some of the formats commonly used by students, which is also a big limitation.

**3. Difficulties in learning abstract concepts:** Most of the research participants were very positive about the benefits of integrating new technologies into teaching and learning, and still looked forward to more technological inventions in the future, which could improve the learning outcomes of visually impaired students as a whole, especially in the learning of abstract concepts such as mathematics.

1. Topic-based learning journeys

**The following is a four-stage research process that presents the findings and findings.**

**Stage 1: Introduction to Topic-Oriented Learning for Visually Impaired Students**

In this phase, it is expected that the visually impaired students on both sides of the strait will be introduced to the concepts and objectives of topic-based learning, as well as the operational use of blogs. A total of 12 participants from the cross-strait research were divided into two groups, one group of six members. At this stage, the trainees and participants from both sides of the strait introduced themselves through the online QQ icebreaker activity to promote mutual understanding.

The research team encouraged participants on both sides of the strait to use the Internet as a tool for connection and discussion. Participants from both sides of the strait conducted ice-breaking activities through QQ to promote mutual understanding and exchanges. Special teacher trainees assist participants on both sides of the strait to apply for accounts and familiarize themselves with the blog environment. Members of the cross-strait group published new articles on their blogs to introduce themselves. The members of the cross-strait group each elected a leader.

Researchers avoid mentioning the term topic-oriented learning, and try to introduce the concept and purpose of topic-oriented learning in a more colloquial way. The reactions or questions of the study participants made sense, and they were also the reactions of beginners who were new to blogging.

Students with low vision have limited vision and have difficulty receiving and processing large amounts of information. Although assistive technology can assist visually impaired students in learning activities, such as word processing or searching for information on the Internet, they still encounter many difficulties in the process of learning activities. Study participants noted that when they searched for online materials such as photos or images, they experienced difficulties in reading the content of these online materials.

Non-visually impaired people are accustomed to and prefer visual information such as pictures or photos, but these data make it difficult for visually impaired students to read online materials. Visually impaired students are also not easy to read tables with many fields, which is also a barrier that non-visually impaired people have not encountered.

In addition, the effect of different screen reading software is different, the study participants used a guide mouse to browse the blog, the guide mouse could not read a lot of the blog data, if you try to switch to NVDA or Jaws and other screen reading software, the difficulty of the software to read the blog text is greatly reduced. Although the study participants encountered different problems in the operation of blogs, they still showed a high degree of interest in using blogs for learning activities, hoping to solve the problems encountered and discuss them smoothly.

**Stage 2: Familiarize yourself with the blog platform and decide on a topic**

This phase is expected to take three weeks for research participants from mainland China and Taiwan to familiarize themselves with the use of blogs, discuss and decide on blog research topics, and assign work. First of all, the research participants will leave messages and write articles on the blog, such as life essays, learning experiences, travel moods, upload photos, video links, etc., to increase the interaction between members and improve their familiarity with the functions and use of the blog. The research team introduced several blog examples for the study participants to refer to and discuss. Example: Taiwanese blogs take Kai Zikai and Fei Tianxuan's pockets as examples; Mainland Weibo takes Yang Mi and Xie Na as examples.

Study participant T3 is less flexible and slower to type due to upper limb injury, and study participants T2 and T5 will take the initiative to help him familiarize himself with the environment of the blog, so that he can type more fluently. The study participant T2 was accustomed to using a Braille monitor to learn and read, and due to the revision of Windows, he often encountered the problem of downtime when he was familiar with the blog environment.

In the following week, the team members will negotiate and arrange the division of labor and responsible work, and each of them will appoint a team leader to coordinate the work assignment of the team members. In order to observe and collect the interaction of the research participants, the research team invited six research participants from Taiwan to discuss the theme and division of labor together in the computer classroom during their spare time, and the research team assisted and recorded the observations. After discussion and voting among the participants, Taiwanese musician Henry Messer was selected as the theme of the blog. Six research participants in mainland China chose Chinese musician Li Delun as the theme of their blog. The content of the division of labor includes the report, background, development process, musical characteristics, analysis of its representative works and fame factors, public evaluation and other information on the research theme of the online search, as the main source of information for the establishment of the blog.

**Stage 3: Discussion and data analysis**

This phase is expected to take three weeks, and the research team will conduct the initial data collection and analysis of the study participants, and at the same time the research participants will collect, organize, discuss and build the blog data.

Visually impaired students on both sides of the strait face differences in expression skills among their peers, which also causes obstacles to interaction and discussion in discussion forumsVisually impaired students need to use words to discuss in blogs, but often encounter communication and text expression problems.

Although visually impaired students can use assistive technology to search for information online, they often encounter the problem that assistive technology is not compatible with the online environment. Visually impaired students on both sides of the Taiwan Strait are faced with the problem of mutual exclusion between assistive technology and the online environment, and often cannot find the information they need.

Study participants were able to assist each other.Participants will meet together to search for information online and discuss it together, which means that they are interested and actively engaged in the activity. Participant T5 responded that it was not easy to collect information on "Henri Messer's creative difficulties and how to overcome them", so after discussion, T2 decided to take over the data collection work by himself. The study participant T3 used the screen reading software to guide the blind mice, and when searching for information on the Internet, he often encountered the phenomenon of no voice feedback, resulting in the phenomenon of getting lost in the network environment. Study participant T4 searched the Internet for the life story of musician Henri Messer, so the participant T2, who was originally assigned to be responsible for this data search, took the initiative to organize the data and show a responsible attitude.

Because the research participant T3 has better eyesight, he will take the initiative to send the photos and pictures searched on the Internet to the severely visually impaired participants who are responsible for the task in the form of text descriptions and accompanying pictures and photos, so as to help them complete the task successfully. This shows that participants can use their strengths and abilities to actively help other participants complete the task. Participants will also use audio descriptions to explain the videos collected on the Internet, so as to help students with severe visual impairment understand the content of the videos and discuss with each other whether the videos are suitable for inclusion as one of the collected materials. Research participant T2 is a competent leader who plays the role of team leader and is able to give full play to his communication and coordination skills and discuss problems with his classmates when writing blogs.

**The fourth stage is the exchange of blog results**

In this stage, participants from both sides of the Taiwan Strait will share the results of the blog. Using the pre-agreed time, both parties will show and explain the characteristics of the blog design and the important content expected to be presented, and broadcast the representative works of the protagonist and the characteristics of his works, and the two parties will discuss and share with each other through the Internet. After the exchange activities, the research team conducted interviews with the cross-strait research participants to examine their satisfaction and effectiveness with the topic-oriented learning process and exchanges.

Through a topic-based learning process, participants are able to construct an understanding of the research topic. In addition to building an understanding of Henri Maker and Li Delun from the perspective of learners, this kind of learning can also help participants realize the convenience of online learning to break through the limitations of time and space.

Through online learning, students can learn more about the customs of other places and communicate with students of different languages and cultures, so that the participants of the research can gain more benefits. In addition to communicating with each other, learn from the strengths and weaknesses of others, and use the shortcomings of others as a mirror.

Through online learning, the degree of freedom and autonomy in learning is enhanced, allowing students to practice planning and implementing their own learning courses and schedules.

In recent years, cross-strait exchanges on visually impaired education have become more and more frequent, and mainland students also have enthusiasm and expectations for the learning aspects of Taiwan's visually impaired students, and they are interested in a wide range of exchanges, such as Taiwan's traditional Chinese medicine training, diversified employment, barrier-free design, etc. In terms of music exchange, due to the large number of Taiwanese pop music creators, the process of music education, music style and overall cultivation training is also a very much anticipated aspect for participants in the future. In short, cross-strait exchanges range from personal life, career, school, curriculum to the overall social environment.

Through the use of science and technology, we can overcome the limitations of time and space, and also broaden our horizons and communicate with each other, exchange ways of thinking and generate new ideas. On a more positive note, it is the visually impaired who rely on technology to explore and expand themselves as much as possible, build various bridges to the future for their current selves, and create infinite possibilities.

1. Conclusions and Recommendations

Students play the main role in learning, and with the pace of educational reform and scientific and technological progress, the education field should cultivate students' ability to build domain knowledge. In response to the results of this study, the researchers put forward five conclusions, which are described as follows:

**(1) Mutual Cooperative Learning Most**   
 of the past learning experiences of visually impaired students are mainly learning methods based on listening to teachers in the classroom, and students are only passive recipients of knowledge, not active learning and participation, and do not fully apply students' strengths and learning motivations, which is usually ineffective. Through this project-based learning, researchers can find that participants can cooperate and help each other. Students with low vision can assist their peers with severe visual impairment to view visual materials such as photos and pictures, and participants in the same group can assist members with typing difficulties to complete learning tasks. In this way of learning, visually impaired students become constructors of knowledge and can see students learning independently.

**(2) Compatibility of Assistive Technology Assistive**

Technology has become an important support for the learning and life of visually impaired students, but it cannot be denied that the update of visually impaired assistive technology is far from keeping up with the pace of modern information technology. When students with severe visual impairment use on-screen reading software to perform learning tasks, they often find data in PDF or PPT formatNone of the on-screen reading software can read directly, and you need to be assisted by others to crack the file password, convert the file to an inclusive format, or need to recognize the text before you can read it smoothly. In addition, when they search in the online environment, they often lose focus due to the interference of images, advertisements, and pop-ups during the search, and the phenomenon of Internet Trek occurs. These problems often occur in the process of writing special topics for visually impaired students on both sides of the strait, and have become a common and serious problem faced by visually impaired students on both sides of the strait in the use of information technology.

**(3) Characteristics of the Collaboration Platform**

In addition to the limitations of visual impairment, the learning of visually impaired students is often limited by time and physical environment. Now, with the help of a topic-based learning platform and assistive technology, visually impaired students can learn beyond the limitations of physical environment and time. First of all, visually impaired students can go to their dormitories or homes to access the Internet and discuss learning tasks with each other. Secondly, with interconnected, stable and fast network support, they can have direct conversations and learn in the form of synchronous Internet access, and can also carry out learning tasks in an asynchronous way, such as leaving a message to the discussion forum. This way of learning helps visually impaired students grasp more learning opportunities, and can also be more adaptable to the needs and abilities of students.

**(4) Students' Strengths and Abilities**

The researchers found that some students who are not usually good at expressing their ideas in oral language can communicate and discuss with their peers through the interaction of the learning platform. In this way, they avoid the weak ability to communicate and interact with each other in oral language, but highlight their superior abilities and increase their initiative and sense of accomplishment in learning.   
   
 **Based on the objectives of this study and the findings and findings of the study, the following recommendations are made:**

**(1) The process of topic-oriented learning for visually impaired students**

**1. Learning styles of visually impaired students:** In addition to the ability of visually impaired students to use assistive technology and the degree of visual impairment, researchers have found that visually impaired students with different learning styles will encounter different difficulties and solve the difficulties they face in different ways due to their different learning styles.

**2. The importance of barrier-free platforms:** Theplatforms operated by the study participants do not meet the requirements of barrier-free design, and most of the current online environments and platforms are not conducive to the accessibility of visually impaired students. The participants of the study generally reported that the voice over of certain brands of mobile phones has become more accessible, and has also become the most common tool for visually impaired students to obtain information in their daily lives. However, when using a computer, due to the accessibility of the overall blind use of the computer, especially the switch between the discussion forum and the network environment, non-visually impaired students only need to click the mouse, but visually impaired students have to use the tab key to switch many times to find the function key, and often get stuck or lost because of this. In addition, the message in the discussion room can be equipped with a voice tone, just like the message of a general communication app, and the visually impaired students need this sound effect, so that they can communicate with each other more smoothly. In the course of research, these unfriendly online environments are a frequent occurrence.

**(2) Apply the research results to the special teacher training course**

**1. The development of school-based curriculum:** In the special teacher training courses, such as visual impairment, Braille and visual aids, the researcher can introduce the outline of the school-based curriculum, the implementation process of topic-oriented learning and the results of this study to the special teacher trainees. Special teachers are also invited to accompany students to make oral and written reports in class, so as to serve as the curriculum content of school-based curriculum and topic-oriented learning in blind schools. In the future, this kind of special teacher training curriculum design can also be applied to the three blind schools to learn the model of technology application in curriculum teaching.

**2. Inter-school professional cooperation:** Researchers can work with professors from other universities to design special teacher training courses such as Braille and visual gathering, and after the researchers introduce the concept and implementation process of topic orientation to the teachers and trainees of the two universities, the special teacher trainees of the two universities will select topics related to the education of the visually impaired for group activities, which can be used as semester assignments for the courses in the two universities, through oral and written reports of the semester assignments of the two universities. It can develop the ability of special teachers to guide students and integrate learning technology into curriculum learning, and at the same time, such inter-school learning tasks can also promote cooperative learning and communication between the two schools.

**(3) Strategies for online learning for visually impaired students**

**1. Web accessibility design**: Based on the findings of this study, many research participants encountered web browsing difficulties and unfriendly web environments, so the researchers assisted special teacher trainees in designing web accessible web pages in two teacher training courses (Braille, Visual Aids and Visual Impairment). To facilitate their application of the concept of Web Accessibility Design to future teaching sites. The design of accessible web pages should include: (1) audio and visual content supplemented by text descriptions, (2) the design of web pages should avoid relying on color alone to provide information, (3) guide information should be provided for web content...Wait.

**2. The concept of universal design**: In the special teacher training courses, such as Braille and visual aids, visual impairment and other courses, researchers should explain the concept of universal design and help special teachers understand that with the increase of the elderly population, everyone may become a handicapped, so universal design meets the needs of each user. The concept of computer or Internet universal design should include: (1) the use of standardized user interface components that are identical to those of general computer software. (2) Visually impaired people can adjust the form of information presentation according to special needs when using computers. (3) Use the keyboard to simulate the operation of the clicking system to replace the function of the clicking system. (4) All buttons and graphics on the screen must be marked with text. (5) The location of all information on the screen must be clear and easy to track. (6) Do not rely solely on color to convey or separate information. (7) Do not set limits on how quickly users can enter information. (8) Allow the visually impaired to install and configure through assistive technology.

**3. Initiative on Barrier-free Internet** **Environment:** Special teacher trainees and visually impaired education teachers should be aware of the difficulties that visually impaired students may encounter when using on-screen reporting software to browse information on the Internet, including: the content of web pages and images are not explained in text, and there is no way to know the information. For complex scientific symbols, no alternative means are provided for the visually impaired to access. Videos and images do not provide an alternative to auditory or textual descriptions. Unable to correctly distinguish the contents of frames, tables, and forms. You can't know exactly where you are on the page.

Through the concept of barrier-free design, special teacher trainees and visually impaired education teachers should make use of various opportunities, such as professional development courses, various workshops and various discussion hearings in schools, to introduce the difficulties of visually impaired students in using the Internet and the concept of accessible web design to the education authorities or relevant leaders, so as to win more people's support and recognition, and effectively improve the problem of digital disparity among visually impaired students.

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