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Design of Webinar Information System for People with Hearing Impairments

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ABSTRACTS

This research aimed to design a webinar platform that can help the deaf understand information while attending online seminars using sign language interpreter features. That way, the deaf will have no difficulty understanding the material being delivered by the speaker. This research method used descriptive methods to describe the problems faced by deaf webinar participants, where the difficulty met when attending online seminars using webinar media. In general, webinar applications lack sign language interpreting features, confusing webinar participants with hearing loss in understanding what the speaker is talking about. This webinar platform can display sign language translators according to the sentences spoken by the speaker. These study results are expected to help create a webinar platform with features that make it easier for participants with hearing disabilities to understand the material quickly.

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1. INTRODUCTION

The computer-mediated communication system has become essential to support online learning activities. The use of online learning can be seen through several activities, such as webinars. Webinars are a combination of "web" and "seminars". Web means network, which means seminars using internet media (Verma & Singh, 2010). Webinars are virtual events such as presentations, workshops, and seminars that allow participants to use their computers or mobile devices.

Furthermore, webinars may be the only option to present information to groups of participants when it coincides with the emergence of the Covid-19 pandemic [3]. The virus's spread has stopped classroom activities, lectures, group meetings, conferences and restricts us from traveling [4]. During this pandemic, webinars present various perceptions for participants, such as cost, webinars are considered more economical and facilitate information sharing across institutions and professions. Webinars can be held anywhere and at any time. Webinars are also very easy to implement. It starts from announcements, gathering participants, implementing, and even distributing e-certificates to participants who have participated in webinar activities (Farooq *et al.*, 2016; Gegenfurtner *et al.*, 2020; Febryan *et al.*, 2020).

Research similar to the development of webinar applications has been conducted before. It produces applications with available viewing time, location, and seminar costs; knowing whether his name is registered or not, and can count participants' entry (Febryan *et al.*, 2020). Another research has functional login, managing user data, a recap of participant data, and payment of seminar fees (Febriadi & Putra, 2019). The development of webinar applications for new entrepreneurial coaching has available user authentication, displaying seminar materials, managing materials, chatting with participants, and providing webinar implementations (Durahman *et al.*, 2019). Another research about an application can make it easier for seminar participants to download e-certificates independently that have been equipped with each participant's names (Nurjana, 2020). This application facilitates the distribution of e-certificates and without any distance constraints in the Covid-19. Smart seminar application design has useful display information related to announcements, event registration, attendance absence, and participants can submit questions (Mayorga *et al.*, 2014).

The immediate need for information encourages and leads to the development of web-based technologies. Anyone should utilize technology. The problem is that not everyone can attend webinars properly, such as people with hearing impairments. They often find it difficult to convey messages and understand messages, so that people with hearing disabilities need a language that suits their needs by using sign language. Sign language is a language done using body movements and facial noses as a symbol of the meaning of spoken language. The deaf is the leading group that uses this language, usually by combining hand shape, orientation and hand gestures, arms, and facial expressions to express their thoughts (Mursita, 2015). A sign language translation system is needed to realize an interactive system that can interact like regular communication (Abiyev *et al.*, 2020). The increasing spread of the Internet holds much potential for enhancing opportunities for people with disabilities to use it (Chadwick *et al.*, 2017). For people with hearing impairment, internet technology users are associated with rates that are quite far below ordinary people in general. The main reason is not because of lack of interest or education, but because the internet is inherently unfriendly to many people with different disabilities (Lazar & Jaeger, 2011). The internet is considered a medium that facilitates communication, making people with hearing

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impairments participate in any activities through the internet. There are interesting differences between how people with hearing impairments choose to use the Internet compared to Internet users by the general population. They are more likely to use the Internet to search for news, health, or employment information and access online banking, email, and chatting (Hamill & Stein, 2011). Gadgets are beneficial, and even if they do not use a voice phone, they can still use the video call feature to keep in touch. So, even if their hearing is not functioning, their intellectual abilities can still be enabled. If their abilities are developed optimally, they will have no difficulty learning, especially in using the internet (Debevc *et al.*, 2011).

The study aims to design a webinar platform that can help people with hearing impairments effectively follow webinars by providing special visual features such as sign language displays. With this feature, they will have no difficulty understanding what the presenter is discussing or talking about. This research uses a descriptive method by conducting literature studies in several journals related to hearing impairments.

2. METHODS

This research used a descriptive analysis method to describe the research object's situation by using certain data collection methods. The data collection method used was the interview and observation method in XYZ Organization for the case study. After discovering the problem, then collect the material in the system design. System design is handy for development. It can determine the outcome of a webinar system built for secondary data obtained from existing sources, such as documents related to research.

3. RESULTS AND DISCUSSION

The XYZ Organization is one of the largest organizations that accommodate people with hearing disabilities. The organization often creates several activities for its members, including webinars. However, members often face the problem when attending webinars (especially when the presenter is talking about an information material) is the lack of accessibility systems, such as sign language or other explanatory information during the seminar. Because of these problems, we want the convenience for people with deaf people to stay informed according to what the speakers are talking about at seminars by building a friendly webinar platform for them and anyone who wants to attend seminars online. However, this webinar platform can also be used by anyone, not only for people with hearing impairments. The webinar platform design can be seen in **Figure 1**.

On the first page, this is called home. The home page is the page that is displayed when a user first opens this webinar's information system application. This page can be accessed without first logging in. There is much information related to the schedules of seminars to be held. Details button if the user wants to get clear details of the next webinar event. There is a login button in the upper right corner that can be seen in **Figure 2**.

The login option can be found in the upper right corner with a pop-up menu so that users do not have to leave the main page when logging in. Users who have created an account can simply enter their username and password, but visitors can register themselves by selecting the signup button if they do not have an account. Sometimes, a user may forget details about their account.

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There is a forgotten password button that works when users want to reset their password. An email with a link to change the password will be sent to their email. The next page is the seminars list which contains much information about the seminar to be held (see **Figure 3**).

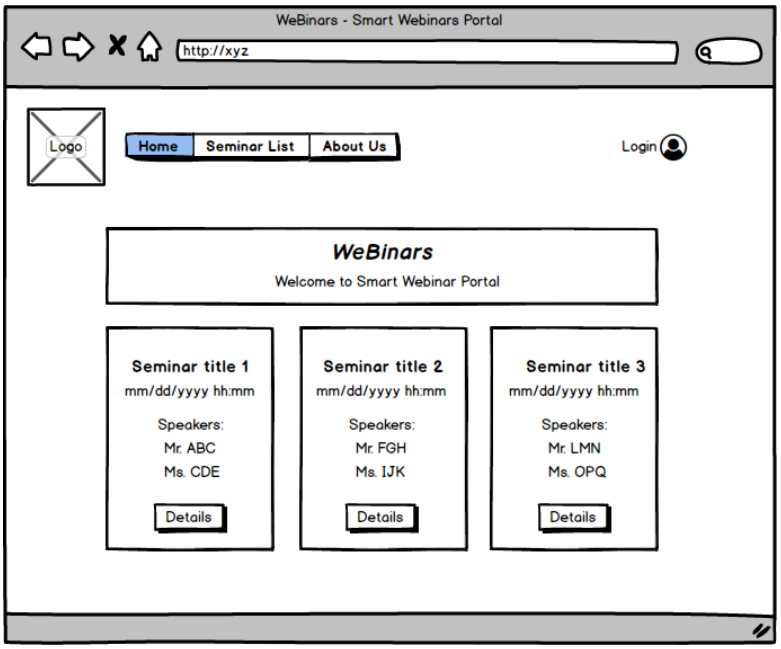

Figure 1. Home Page.

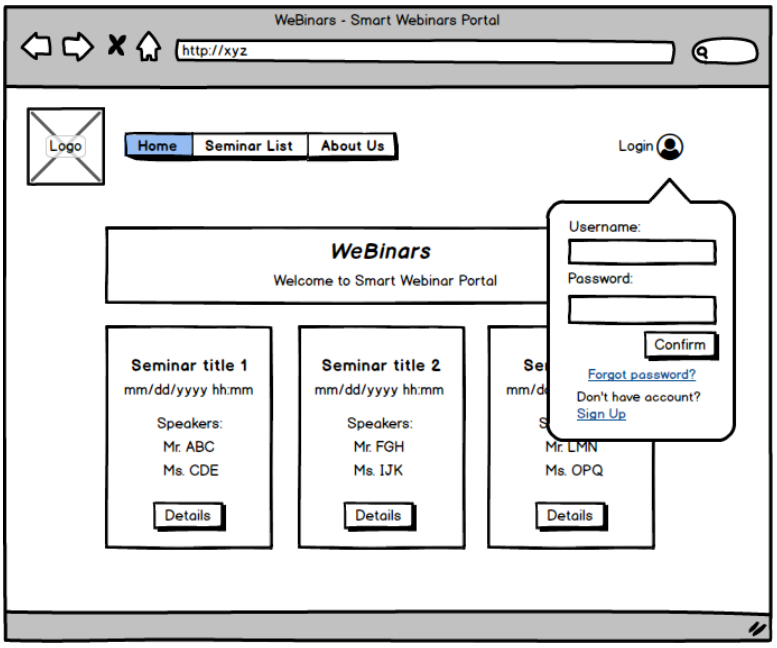

Figure 2. Login Button.

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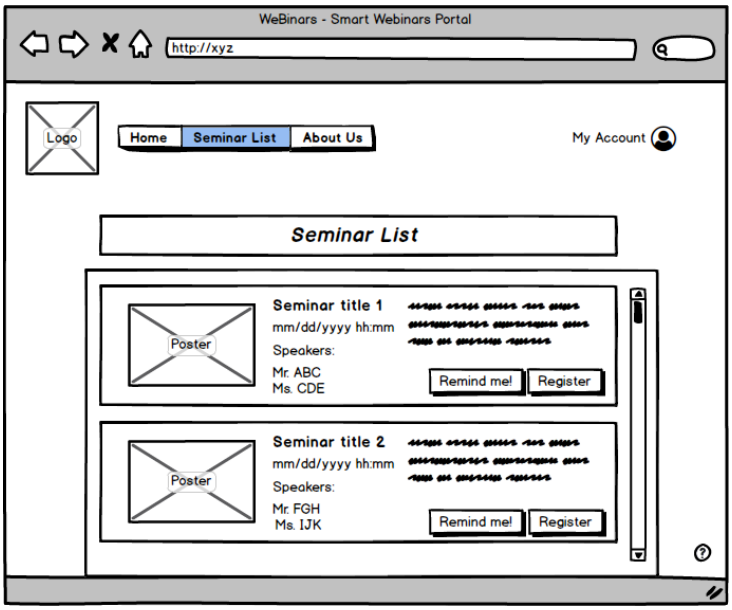

Figure 3. Seminar List page.

The Seminar List page contains the schedule of seminar activities to be held. The list of webinars on this page is more complete than on the main page (**Figure 1**) because there is a more detailed description of the activities. Such as the poster of the event, the event's name, the date of the webinar event will be held, who becomes the speaker, and the event's description of the event. The user is given two option buttons. The Remind me! button serves to alert users if they have not signed up for the webinar, Register button if the user wants to register for the selected webinar. The next page is About Us which can be seen in **Figure 4**.

This page was containing information about the developer company of this platform's webinar. It is important for users to know details about the webinar platform they are using. The next part is the My Account button located in the upper right corner (**Figure 5**).

The My Account button contains a menu with a pop-up style, including Edit Profile, My Upcoming Seminars, and Logout. The next part is the page that appears if we select the Edit Profile button, which can be seen in **Figure 6**.

On this page, users can set up their profiles in this webinar account. For example, users can change their full name, personal phone number, personal email, change their job title, and rename the company they work for. Users can also change their profile photos. The next page in the My Account pop-up menu button is My Upcoming Seminars which can be seen in **Figure 7**. Obstacles to learning media are not only experienced by students, but also by teachers. The teacher is said to be "clueless" with technology stuttering, it is very unfortunate that if during a pandemic like this one does not explore information technology more widely, it should be used as well as possible. In this case, the teacher can only use WhatsApp social media for assignment collection only. They don't understand online learning media. Because not all students have the same economic condition, teachers do not seek information technology.

On this page, users can see webinars that they will attend in the future. Users can also add reminders to those webinar events. The Cancel Participation button is provided so that users

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can cancel their participation in upcoming webinar events. Users will also be notified if webinar activities will begin, which can be seen in **Figure 8**.

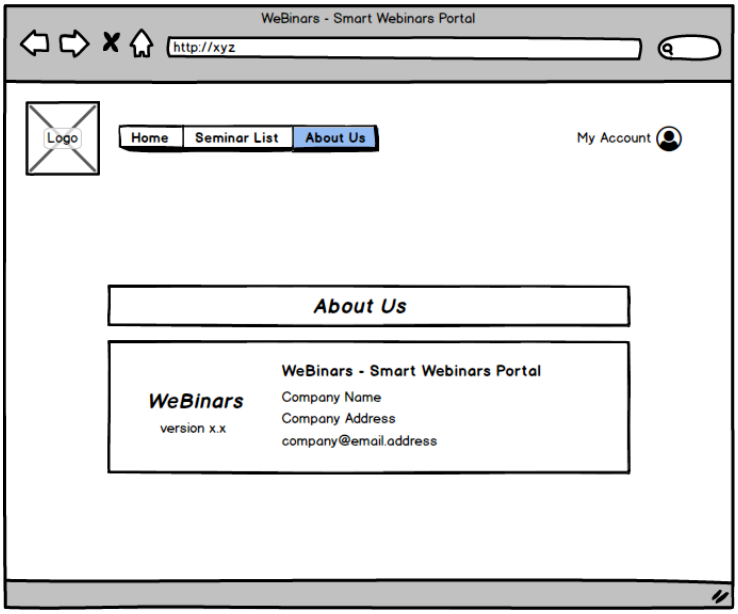

Figure 4. About Us page.

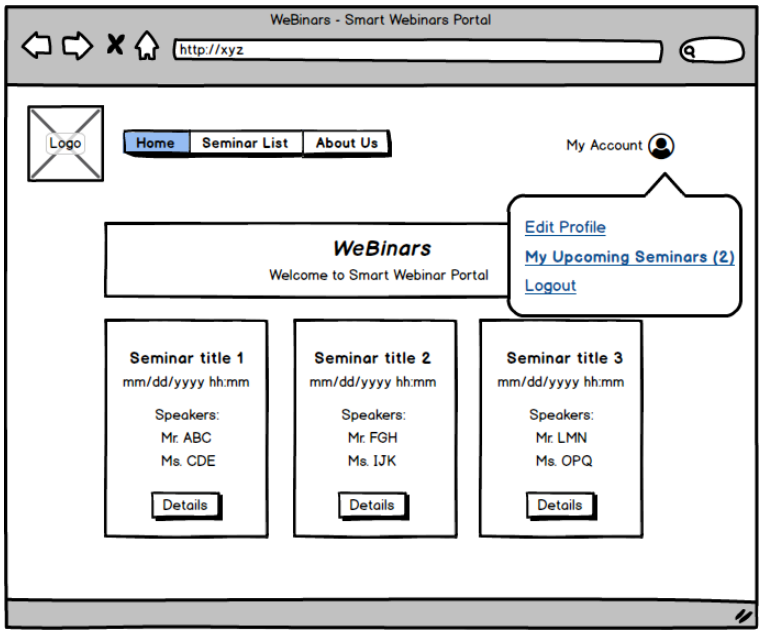

Figure 5. The My Account button

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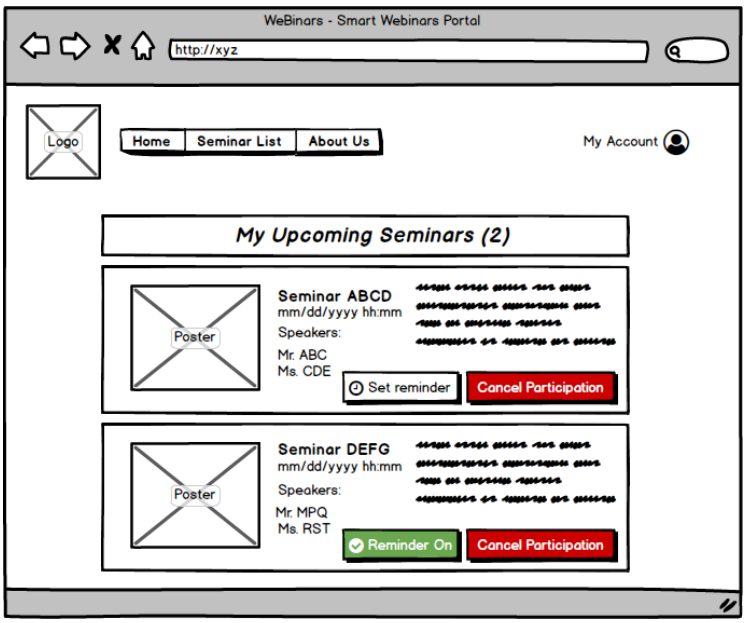

Figure 7. My Upcoming Seminars page

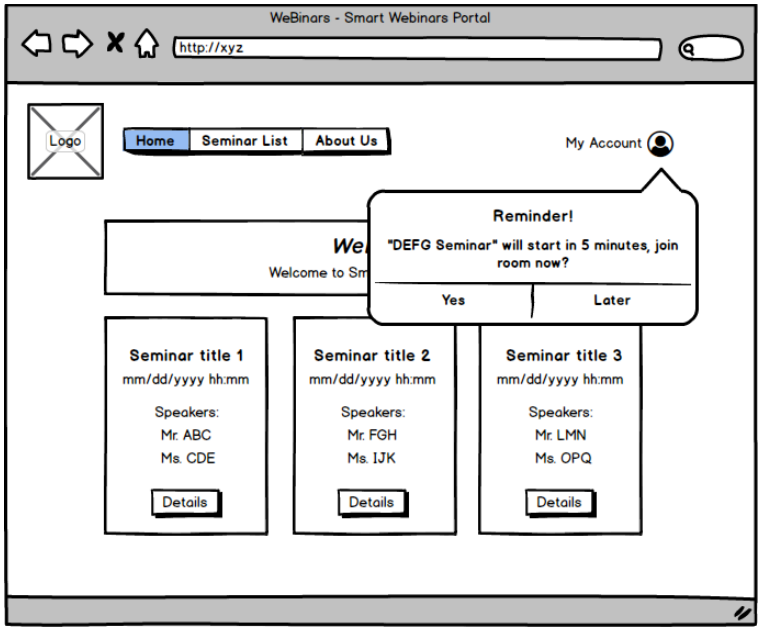

Figure 8. Seminar Notification

The notification will appear with a pop-up style on the My Account button. Notification's balloon will appear with a vibrating effect, allowing deaf users to be alerted. Users are offered two options, a yes button if the user wants to enter the webinar room immediately or a later button if they want to postpone attendance for later. If the users select the "Yes" button, they will immediately enter the Webinar Room, as shown in **Figure 9**.

The user can use this lounge to set some settings before entering the Seminar Room which can be seen in **Figure 10**.

The My Webinar Settings button has a menu with a pop-up style. Users can turn their camera on or off, turn their microphone on or off, and a particular option to enable sign language interpreter mode. The next section is a page if the user has successfully entered the Seminar Room, which can be seen in **Figure 11**.

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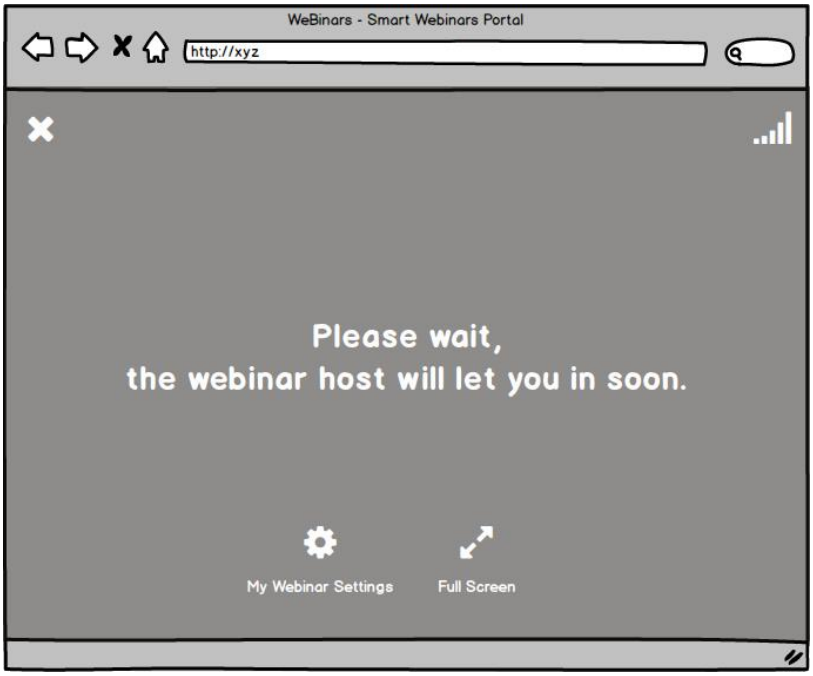

Figure 9. Waiting Room before the webinar session starts

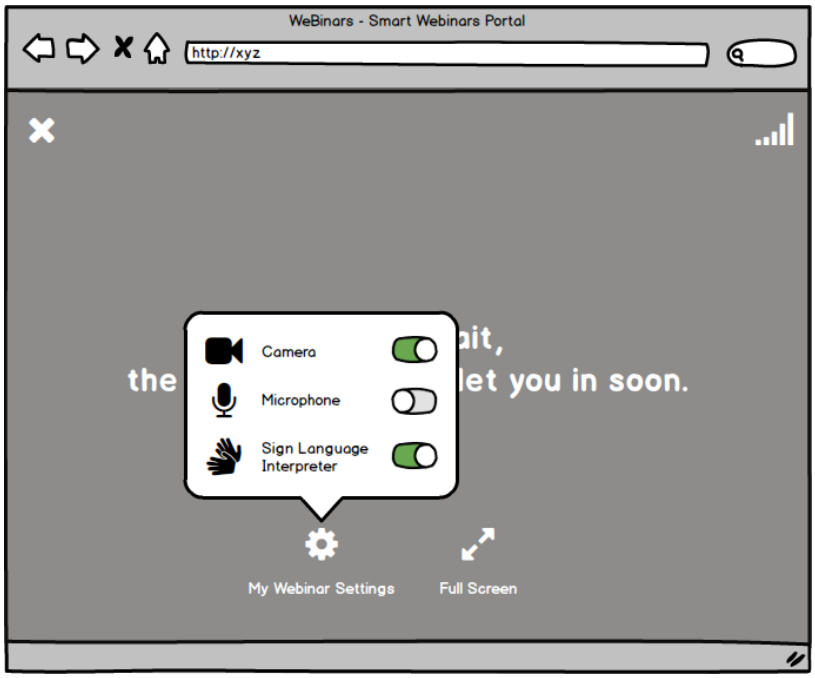

Figure 10. Webinar Settings on the Waiting Room page

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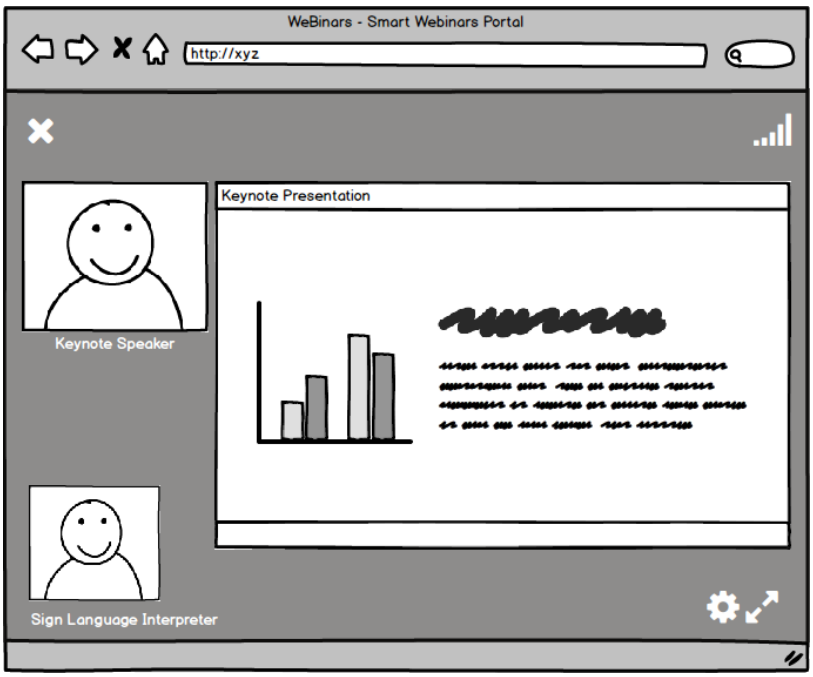

Figure 11. Seminar Room

Seminar Room is a page if the user has successfully entered the Seminar. During the seminar, users can directly see the speaker's face and the screen showing the presentation they shared. Users can also understand what the speaker is talking about because the sign language interpreter feature has been activated in the Waiting Room (Figure 10). Users can also change their webinar settings by selecting the gear icon button. Users can also set their browser window to full screen. In the upper right corner, users can know the webinar network's quality by looking at the signal icon. A cross-marked button is provided in the upper left corner if the user wants to end their seminar activities.

4. CONCLUSION

Using the design of a webinar platform that is friendly for people with disabilities, mostly the deaf, helps them understand the information that seminar speakers are presenting. Besides, this webinar platform's design makes it easy for users to get information about webinars that will be held in the future. Choosing the seminar that we will join, changing the personal profile, looking at the list of seminars that we have listed is getting easier. The Remind me feature allows users to get notifications, so users will not miss the seminars they want to participate in. During the seminar, users with deaf disabilities will get sign language interpreter services, a feature that is very important to them. This webinar platform is not limited to deaf people only, but anyone can use it.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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