Group 4 - 42

Project Diminuentia

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Abstract

"Diminuentia" is a blended word consisting of the musical term "Diminuendo", meaning to "decrease in volume" and "Dementia". Thus, in this project, we hoped to decrease Dementia symptoms in the elderly with the help of music. To accomplish this, we designed online music resources in the form of a website. We then conducted a pilot test to examine the effectiveness of our resources.

Introduction

As the heightened risk for Dementia typically starts at ages 65 and above, we chose the seniors of this age as our target audience. As studies have shown that music does help in alleviating symptoms of Dementia, slowing down its onset, we believe that the elderly would find help in our product.

Our website consisted of video tutorials about basic piano playing. The elderly would then either use a Piano to try playing the notes, or would use the "GarageBand" app on a Tablet, which features a keyboard, to tap on the keys. Activities such as singing and hand movements were also incorporated. The seniors also got to listen to different genres of music. The pilot test that we conducted found positive results that music helped the elderly alleviate symptoms of Dementia.

Review

Firstly, we reviewed the effects of Dementia.

According to Better Health Victoria, Dementia is the term used to describe the symptoms of a number of illnesses that affect the brain. Symptoms include memory loss and mood changes such as anxiety and depression.

About 95 - 98% of people with dementia are over the age of 65, hence explaining why our target audience is 65 years old and above.

Secondly, we researched on the ability of music to alleviate the symptoms of Dementia. According to research done at the University of Iowa's Institutional repository, using auditory materials (music) does help out in the retrieval of materials in short term memory.

Music also helps with mood changes. According to social researcher Cretien van Campen, Music helps [with Dementia] because it triggers vivid memories by listening to music. It also lessens stress by assisting people to recall difficult parts of their lives that were not as bad as they had thought.

Thirdly, we analysed the need for the project in Singapore.
According to the Singapore Alzheimer's Disease Association, the number of elderly aged 65 and above who have dementia will increase to 187,000 by 2050, from just 22,000 in 2005. Hence, it was crucial for us to come up with a resource package to slow down the rapidly increasing rate of dementia among elderly.
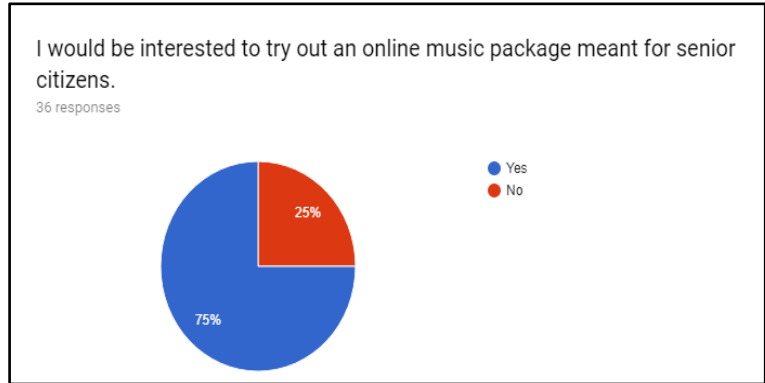
Fourthly, we compared our resources to others in the market.
There were some music packages for the elderly, but were mostly limited to just listening to music. We looked at the music resources at http://www.elderlycareministry.com/music/. The resources consisted of many songs for the elderly to sing, but there was no teaching of a musical instrument. We felt that this was not engaging enough for the elderly.

Hence, our package was different because it engaged the learner through physically playing the keyboard, which helped to stimulate their minds. Singing and other hand movements would also keep them active.

Methodology

For our needs analysis survey, we gathered feedback from 36 senior citizens. 75% of respondents were interested to try out our resource package.

This pie chart illustrates the results:

I would be interested to try out an online music package meant for senior citizens.
36 responses

- Yes
- No

25%

75%

We then let the participants rate their interest on the courses that we came up with. We used a point system to tabulate the results, wherein the option "strongly agree" held 5 points, "agree" held 4 points, "neutral" held 3 points, "disagree" held 2 points and "strongly disagree" held 1 point.

As a result, "relaxation techniques", "learn to play the keyboard" and "listen to various genres of music" were ranked the first, second, and third choices respectively. We chose these choices to be included in our resource package. The following table illustrates the results:

Courses	Uninterested (1-2 points)	Neutral (3 points)	Interested (4-5 points)
Listen to different genres of music	3.7%	25.9%	**70.4%**
Learn basic music theory	7.4%	48.1%	44.4%
Relaxation techniques	3.6%	28.6%	**67.9%**
Learn to play the keyboard	11.1%	22.2%	**66.7%**
Learn the benefits of music	14.3%	28.6%	57.1%

To construct our resources, we sought advice from a music educator, **Mdm. Oh Chuan Chuan,** B.A. (Hons in Music). Following her advice, the musical skills we taught the seniors were developed through enabling them to experience music first-hand through singing, moving (clapping), instrumental playing and listening. This picture on the right shows the seniors at the elder-care centre that we went to participating in a clapping activity during our pilot test.


Musical notation was also simplified to numbers. Musical notes were represented in an interesting visual way through the use of different colours. (See the picture below.)
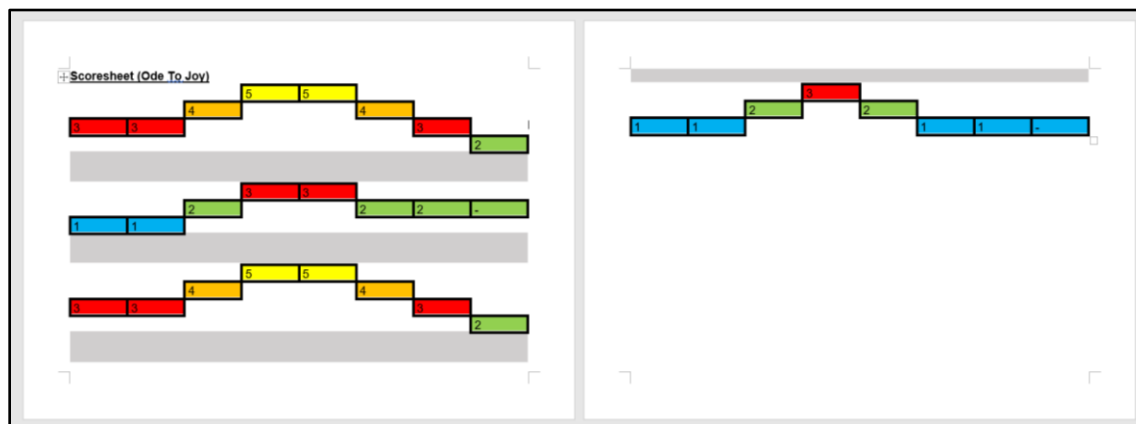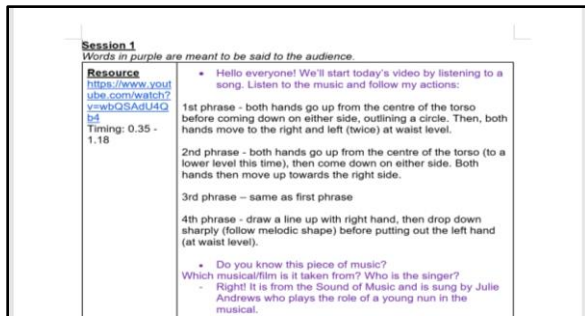

A variety of musical genres, from classical music to Broadway Musicals (e.g. The Sound Of Music) were also used to garner the seniors' interest. The picture below shows some of the music videos that we sourced for the seniors' listening.
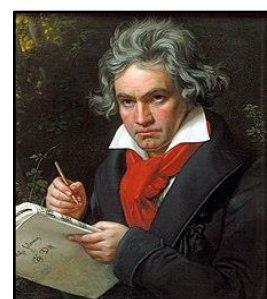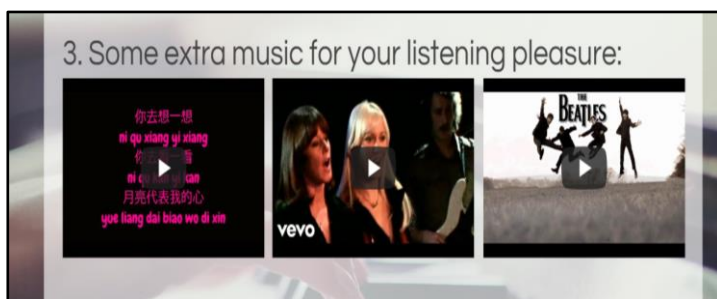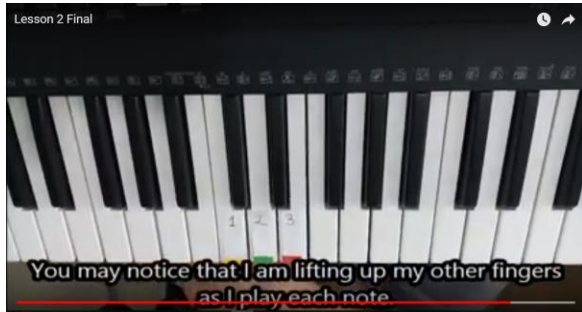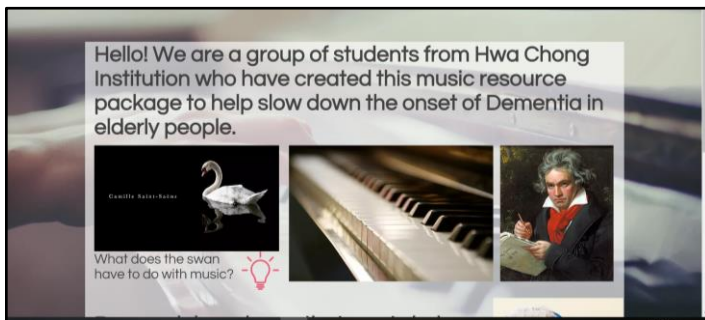
Subtitles were included for the videos.

We also included an instructional booklet for caregivers to conduct the session.

Large fonts were used throughout the website.

We interviewed another expert in this field, **Ms Joy Khau,** who has a Master's Degree in Music and is the boss of a music school named *Music Solutions.* She gave us some advice on how to present the project to the elderly.

We presented our project to the elderly in a way that would relate to and engage them. For example, when we were teaching them the song "Kueh Pisang", we asked them what they liked to eat and replaced the words "Kueh Pisang" in the song with the name of the food item they liked.

Besides the keyboard, we also let them use other instruments and features in the GarageBand app on the Tablet (such as drums, pentatonic scale, live loops) to make music to further engage them in the activity.

For the relaxation techniques part, we let the elderly wind down with soft background music, letting them close their eyes or draw while listening. After the session, we reminded them on what they had learnt to boost their memory.

Next, for our pilot test survey, we gathered feedback from 20 seniors (aged 65 and above) at the CareElderly centre at Circuit Road.

We did 2 surveys with them - one before the session and another after the session. We asked the seniors 3 questions: how happy, active and relaxed they felt before and after trying the music package.
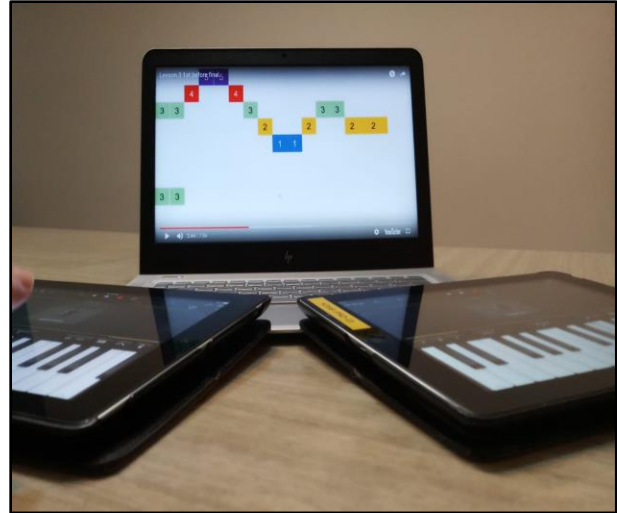
We used a point system to tabulate the results. The percentage of participants who chose each option (strongly agree, agree, neutral, disagree and strongly disagree) was also reflected.

Table of data (**before** trying the project):

Questions	Strongly agree (5 points)	Agree (4 points)	Neutral (3 points)	Disagree (2 points)	Strongly disagree (1 point)	**Total (points)**
I feel **relaxed** before trying the music package.	5%	45%	40%	10%	0%	**69**
I feel **happy** before trying the music package.	5%	55%	35%	5%	0%	**65**
I feel **active** before trying the music package.	5%	50%	30%	15%	0%	**69**

Table of data (**after** trying the project):

Questions	Strongly agree (5 points)	Agree (4 points)	Neutral (3 points)	Disagree (2 points)	Strongly disagree (1 point)	**Total (points)**
I feel **more relaxed** now than before trying the music package.	55%	40%	5%	0%	0%	**90** **(Increase of 21 points or 21%)**
I feel **happier** now than before trying the music package.	40%	50%	10%	0%	0%	**86** **(Increase of 21 points or 21%)**
I feel **more active** now than before trying the music package.	25%	40%	30%	5%	0%	**77** **(Increase of 8 points or 8%)**

Outcome and discussion

From the data that we collected from the pilot test survey, we found an increase in the general mood of the elderly, thus concluding that our music resources did help in alleviating the symptoms of Dementia.

However, there were a few limitations of our project. Firstly, the elderly might not be so receptive to using a computer on their own as they might not have had any prior experience with using one. Secondly, some seniors might not have computers to access the website. Others might not have a Piano or a Tablet to use the GarageBand app to experience playing the keyboard. Thirdly, some seniors might not have a prior interest in music, resulting in them not being interested to use the resources. Fourthly, the language medium used throughout the project was predominantly English, which might form a language barrier that disallowed the seniors from using our resources.

Therefore, we could further improve on our project by translating the website and the subtitles of our videos into different languages so that more seniors might be able to understand and use our resources. Furthermore, we could also include songs from a greater variety of cultures for the elderly to learn to play, so that more seniors might be interested to learn music.

<u>Conclusion</u>

This was quite a challenging project to undertake as we had to rack our brains and come up with many different resources to help the elderly through music. We worked for countless hours creating the videos, designing the website, finding suitable songs and collating the data. We also faced some difficulties in finding suitable times to head down to the elderly centre to conduct the pilot test as all of us were free at different timings. However, this project has helped us to develop many useful skills such as critical thinking, creativity, resourcefulness, teamwork and perseverance. It also honed our time management skills as we had to juggle doing the project with completing the tons of schoolwork and revision we had to do. Overall, however, our group felt that we made the correct choice by undertaking this project.

<u>Acknowledgements</u>

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References

Ludwig van Beethoven. (2018, August 14). Retrieved August 14, 2018, from
https://en.wikipedia.org/wiki/Ludwig_van_Beethoven

The Sound Of Music. (n.d.). Retrieved August 14, 2018, from
https://mk0movieguide99l7786.kinstacdn.com/wp-content/uploads/2012/08/The-Sound-of-
Music-movie-poster1-768x1152.jpg

Department of Health & Human Services. (2014, May 31). Dementia - early signs. Retrieved
March 25, 2018, from
https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/dementia-early-signs

Jenkins, T. (2014, October 21). Culture - Why does music evoke memories? Retrieved March
25, 2018, from
http://www.bbc.com/culture/story/20140417-why-does-music-evoke-memories

Music. (n.d.). Retrieved from
http://www.elderlycareministry.com/music

Dementia in Singapore. (n.d.). Retrieved from
http://alz.org.sg/dementia/singapore/

(Rep.). (n.d.). doi:
https://ir.uiowa.edu/cgi/viewcontent.cgi?article=1097&context=honors_theses

Moth, D. (2013, May 28). Six design tips for making your website senior friendly. Retrieved
from
https://econsultancy.com/blog/62815-six-design-tips-for-making-your-website-senior-friendly

[Digital image]. (n.d.). Retrieved from
https://www.brightfocus.org/sites/default/files/styles/full_width/public/causes-of-dementia-800.jpg?itok=yjgN37Sx

[Digital image]. (n.d.). Retrieved from
https://prodstaticdhhs.azureedge.net/assets/img/bhc/logo/vicgov.jpg

[Digital image]. (n.d.). Retrieved from
https://www.illumine.co.uk/wp-content/uploads/2013/05/154964692.jpg

[Digital image]. (n.d.). Retrieved from
https://support.apple.com/content/dam/edam/applecare/images/en_US/mac_apps/garageband/mini-hero-garageband_2x.png

[Digital image]. (n.d.). Retrieved from
https://images.greetingsisland.com/images/cards/thank-you/previews/soft-flowers_1.png?auto=format,compress&w=220

[Digital image]. (n.d.). Retrieved from
https://d2gg9evh47fn9z.cloudfront.net/800px_COLOURBOX19411967.jpg

[Digital image]. (n.d.). Retrieved from
http://www.synesthesie.nl/images/cvc portrait 2006 72dpi.jpg