

2021 HONORS IN ACTION PROJECT

1. Provide a brief abstract or summary of your Honors in Action project including the following components: academic research into and analysis of sources related to the Honors Study Topic, action that addresses a need in your community that was discovered through your research and analysis into the Society's current Honors Study Topic, and the impact of your project. (NOTE: Recommended word count for the abstract is no more than 300 words.)

Chapter officers began our project by reviewing the Honors Study Topic, "To the Seventh Generation: Inheritance and Legacy." We explored several themes and conducted preliminary research. Committee members discussed their findings and decided to focus on language and culture. Further research led us to discover learning a second language could benefit those who suffer with Alzheimer's Disease. Several studies focused on the prospective benefits of learning a second language in delaying the onset of Alzheimer's, while others indicated other methods were preferable. In addition to bilingualism, research indicated culture also plays a role. The Mediterranean and DASH diets provide healthy brain benefits. Engaging in brain-stimulating activities is extremely important to building cognitive reserve as we age. To gain a full understanding of the effects of Alzheimer's Disease on memories and brain function, we collaborated with the Program Director of Coastal Alzheimer's Association and an Horry-Georgetown Technical College (HGTC) Psychology professor. Committee members believed our research and information on memory and Alzheimer's Disease was so important, we decided to share with our college. To accomplish this, our visual arts designer created an informative tri-fold board including our research and facts about Alzheimer's Disease, and it was displayed during Alzheimer's Awareness month. We also surveyed students to assess what they learned from our display. The overwhelming majority of respondents learned something and wrote it on our survey. We added the link to alz.org to HGTC's Mental Health and Wellness web page. Lastly, a team participated in the Walk to End Alzheimer's® and were thrilled to raise \$520. Researching Alzheimer's Disease helped us better understand it and have a greater appreciation for the difficulties those with the disease face in passing on their legacy. If our display helps to delay the onset for even one person, it will have a huge impact on preserving inheritance for future generations.

2. What theme in the current Honors Program Guide did your chapter focus on?

Theme 7 – Life and Death

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3. Summarize your research objectives. In other words, what did your chapter set out to accomplish in terms of its research? (See Research Objectives Rubric in the HiA Rubrics for more detail.)

During officer training, we reviewed the themes within the Honors Program Guide. At our next meeting, we shared our discoveries and determined we were most interested in exploring Theme Seven, Life and Death, for further research. We set the following objectives:

- Learn how to conduct academic research by attending a research workshop with the HGTC research librarian
- Review at least 20 academic sources on our topic
- Narrow research to 8 sources with varying perspectives
- Educate ourselves on Alzheimer's Disease and memory function
- Complete Research Edge

4. Describe your academic research into the Honors Study Topic, your research question(s), your analysis of your research findings, and your research conclusions.

Research committee members reviewed over 20 academic sources using the HGTC library guide developed specifically for our project and determined our research question would be: Is it possible to preserve inheritance and build legacies if you are diagnosed with Alzheimer's Disease? We also investigated if there are ways to slow the development and progression of the devastating disease. We learned Alzheimer's Disease is fatal, which led us to choose Theme 7: Life and Death.

At the beginning, the goal was to provide data on how bilingualism could positively affect the onset of Alzheimer's. According to the Mendez study (2020) and two additional sources, learning a second language in older ages is important to delay functional decline from early dementia. We realized we did not fully understand Alzheimer's Disease, so we explored the alz.org website. A chapter officer subsequently contacted the Coastal Alzheimer's Association's Program Director for a virtual chapter meeting, and our conversation with her revealed additional strategies. She shared these facts:

- 1 in 3 seniors dies with Alzheimer's or other dementia
- More than 6 million Americans are living with Alzheimer's
- Between 2000 and 2019, deaths from heart disease decreased by 7.3% while deaths from Alzheimer's increased 145%

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- 95,000 cases have been diagnosed in South Carolina and expected to rise
- Cost will bankrupt Medicare
- Alzheimer's Disease causes "spongiform encephalopathy," where the brain becomes like Swiss cheese with holes scattered throughout
- The Mediterranean Diet is beneficial in delaying the onset of Alzheimer's Disease
- Doing brain exercises even after being diagnosed is beneficial

Our focus shifted to alternatives that can delay disease onset or aid in longevity. In our research, physical activity, playing games to stimulate brain cells, speaking more than one language, and even dietary changes are all possible ways to prevent development of the disease.

According to the Anastasiou (2017) study, Greek elders consuming a Mediterranean diet showed better cognitive performance and lower dementia rates. The Bialystok study (2021) concludes, "it is key for aging individuals to engage in activities that can maintain brain function and contribute to cognitive reserve."

We analyzed our research and concluded there is no cure for Alzheimer's Disease; however, certain activities can delay the onset. Because the disease is fatal, we wanted to change the narrative of life and death to offer ways of delaying its onset and development, thus ensuring the building of legacies.

5. List the 8 academic/expert sources that were most enlightening regarding multiple perspectives of the Honors Study Topic theme you selected. Briefly explain why these were the most important sources and what you learned from each of them as you researched your theme. (NOTE: Please use full, formal APA citations for your entry.)

2021 Alzheimer's Disease Facts and figures. (2021, March 2). Retrieved from <https://www.alz.org/media/Documents/alzheimers-facts-and-figures.pdf>

This is a statistical resource for U.S. data related to Alzheimer's Disease, the most common cause of dementia. This source provided information about the disease, its prevalence and symptoms, and provided source material for our action component.

Anastasiou, C. A., Yannakoulia, M., Kosmidis, M. H., Dardiotis, E., Hadjigeorgiou, G. M., Sakka, P., Arampatzi, X., Bougea, A., Labropoulos, I., & Scarmeas, N. (2017). Mediterranean diet and cognitive health: Initial results from the Hellenic Longitudinal Investigation of Ageing and Diet. *PloS one*, 12(8), e0182048. <https://doi.org/10.1371/journal.pone.0182048>

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This study from Greece indicated adhering to a Mediterranean diet was associated with better performance in memory, language, and visuospatial perception. The Mediterranean diet primarily consists of olive oil, legumes, fresh vegetables and fruits, fish, cheese, yogurt, and low consumption of non-fish meat products. Greek elders consuming a Mediterranean diet showed better cognitive performance and lower dementia rates. This led us to research the Mediterranean diet and how it affects people with Alzheimer's Disease.

Bialystok, E. (2021, May 1). Bilingualism: Pathway to Cognitive Reserve. ScienceDirect. <https://doi.org/10.1016/j.tics.2021.02.003>

This article stated bilingualism is associated with better cognitive performance in older adults, delayed evidence of dementia symptoms, and a more rapid decline of cognitive function in more advanced stages of dementia. According to the author, "it is key for aging individuals to engage in activities that can maintain brain function and contribute to cognitive reserve." Further, the article stated, "a one-year delay in symptom onset would reduce worldwide prevalence of Alzheimer's disease in 2050 by approximately nine million cases, and a delay of two years would decrease prevalence by 22 million." This led us to further research additional strategies to delay the onset of Alzheimer's Disease.

Bubbico, G., Chiacchiaretta, P., Parenti, M., di Marco, M., Panara, V., Sepede, G., Ferretti, A., & Perrucci, M. G. (2019). Effects of Second Language Learning on the Plastic Aging Brain: Functional Connectivity, Cognitive Decline, and Reorganization. *Frontiers in neuroscience*, 13, 423. <https://doi.org/10.3389/fnins.2019.00423>

According to this article, "learning a new language requires the use of extensive neural networks and can represent a powerful tool to reorganize brain neuroplasticity." In the findings there were neurobiological breakthroughs of reshaping brain networks with a short language learning practice in healthy elderly subjects. Therefore, learning a foreign language may represent a potentially helpful cognitive intervention for promoting healthy aging. The results led us to learn more about cognitive decline and how we can slow the onset of Alzheimer's Disease.

Kelley, B. J., & Knopman, D. S. (2008). Alternative medicine and Alzheimer's disease. *The neurologist*, 14(5), 299–306. <https://doi.org/10.1097/NRL.0b013e318172cf4d>

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This article addressed the use of eight alternative medicines for treating Alzheimer's Disease. The researchers found insufficient evidence that any of these treatments were effective; however, they concluded their use should not necessarily be discouraged. The Coastal Alzheimer's Association Program Director affirmed there is no magic cure for this dreadful disease, but engaging in cognitive activities can delay onset, which we then explored.

Klimova, B., Valis, M., & Kuca, K. (2017). Bilingualism as a strategy to delay the onset of Alzheimer's disease. *Clinical interventions in aging*, 12, 1731–1737. <https://doi.org/10.2147/CIA.S145397>

This study indicated bilingualism improves cognitive reserve at later ages. Research showed us language modifies the brain as people age. This led us to further research bilingualism's effect on people with Alzheimer's Disease.

Mendez, M. F., Chavez, D., & Akhlaghipour, G. (2019). Bilingualism Delays Expression of Alzheimer's Clinical Syndrome. *Dementia and geriatric cognitive disorders*, 48(5-6), 281–289. <https://doi.org/10.1159/000505872>

This article concluded learning a second language in older ages is important to delay functional decline from early dementia. The findings led us to additional research and investigation into the use of two languages as an important delaying factor for dementia symptom onset.

Xu, W., Tan, L., Wang, H. F., Jiang, T., Tan, M. S., Tan, L., Zhao, Q. F., Li, J. Q., Wang, J., & Yu, J. T. (2015). Meta-analysis of modifiable risk factors for Alzheimer's disease. *Journal of neurology, neurosurgery, and psychiatry*, 86(12), 1299–1306. <https://doi.org/10.1136/jnnp-2015-310548>

This meta-analysis concluded certain medications, vitamins, and coffee protected individuals from Alzheimer's Disease. It also found depression significantly increased the development of the disease, as do pre-existing conditions, such as arthritis and high blood pressure, and certain lifestyle choices, such as stress and moderate drinking. This led us to research how to delay the onset of Alzheimer's Disease.

6. Summarize your project action and collaboration objectives. In other words, what did your chapter set out to accomplish in terms of its collaborations and action?

Our action objectives were:

- Share information about Alzheimer's Disease with our college

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- Add Alzheimer's Association website link to HGTC's Mental Health and Wellness page
- Participate in annual Walk to End Alzheimer's®

We accomplished our action objectives by collaborating with the following:

- Program Director with Coastal Alzheimer's Association
- HGTC Psychology professor to learn more about brain function and memory
- HGTC Student Engagement department to set up our display on two campuses in highly trafficked areas.

7. Describe the service or "action" components of this Honors in Action project that were inspired by and directly connected to your Honors Study Topic research. (Action can also include promoting awareness and advocacy.) Be sure to include information about the people and/or groups with whom you collaborated, why you chose these collaborators, and the impact they had on the outcomes of the project.

Our research indicated learning a new language, adopting a healthier diet, and engaging in cognitive activities all are beneficial in delaying the onset of Alzheimer's Disease. To learn more about the disease, a chapter officer invited the Program Director of the Coastal Alzheimer's Association to speak at a chapter meeting. She provided extensive data on the disease, which we shared with our college in a tri-fold display. Her presentation provided clarity on what our action component would be. Once we better understood Alzheimer's Disease, we realized we needed to know more about memory function. A committee member contacted an HGTC Psychology professor who prepared an in-depth presentation on how memories are made and stored. Much of her discussion focused on the physical impacts of memory. She also provided information on how to improve cognitive reserve, such as completing difficult puzzles, ballroom dancing, building objects, and learning a new language. Our visual arts designer created a tri-fold board to inform the college about the disease during Alzheimer's Awareness month (see attached). The committee integrated a three-question survey into the display to collect data on what students learned. We used the Alzheimer's Association logo, purple color scheme and infographics from their website, and shared our research conclusions. We collaborated with HGTC's Student Engagement department for assistance with setting up our display. They provided an easel, table, college-logo items, and snacks. Committee members decided to focus on highly trafficked areas to maximize exposure for our display. After being displayed for five days, we coordinated the transfer to our second campus with a chapter member for an additional four days.

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We collaborated with our Web Services Coordinator to add the Alzheimer's Association website link to HGTC's Mental Health and Wellness page.

Our final action component was to participate in the Annual Walk to End Alzheimer's® (see attached pictures). The impact was to support the Alzheimer's Association vision of "A world without Alzheimer's and dementia."

8. What are the quantitative and qualitative outcomes of your project? What impact did your project have on the problem addressed and on opportunities for chapter members and others to grow as scholars and leaders?

The skills acquired by completing Research Edge and the research librarian workshop enhanced our ability to conduct academic research. Our teamwork skills improved as we discussed our research findings, learned to be flexible with schedule changes, collaborated on our action component, and appreciated each other's unique abilities, such as visual arts and research skills. Working virtually made it easier for all to participate and share documents utilizing Google Classroom and Google Docs.

Action committee members developed a student survey to assess if Alzheimer's Disease impacted them and whether they learned anything from our research. While we were disappointed only 35 students responded, 33 said they learned something from our display. Over 50% of respondents made the following comments:

- "Learning new skills and playing games helps keep the brain young and healthy."
- "People with Alzheimer's lose memories not emotions."
- "Alzheimer's kills more than breast and prostate cancer combined."
- "The Mediterranean diet can protect against cognitive decline."

To meet our final objective, fifteen chapter members and their families participated in the Walk to End Alzheimer's®. According to the alz.org website, participants "keep raising funds and awareness for a breakthrough in the fight against Alzheimer's and all other dementia." Our team raised \$520 to help local patients. In response to our follow-up note, the Coastal Alzheimer's Association Program Director said, "Thank you so much for sharing! You all did a fantastic job with your project. It was my pleasure to speak with your group."

This project allowed us to impact our community and bring awareness to students about Alzheimer's Disease. While conducting research, we learned using keywords simplified our search results, narrowing vast numbers to manageable ones. We learned how to

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identify academic vs nonacademic sources using HGTC library databases. Committee members felt overwhelmed and disheartened knowing one in three seniors will die from Alzheimer's Disease. It shocked us to discover more than six million Americans are currently living with this fatal disease. It was disconcerting to discover 43% of students surveyed know someone impacted by Alzheimer's. We grew as scholar-servant leaders by expanding our knowledge about Alzheimer's disease, and we are better equipped to help people who are close to us who may be diagnosed. We felt empowered knowing we potentially made a positive impact on many students' lives if a loved one is diagnosed and the 43% of students surveyed who currently know someone affected by Alzheimer's Disease.

This project taught us many ways to postpone the onset of Alzheimer's Disease. Solving puzzles, learning a new language, and trying new skills challenge our brains to think more critically. These skills help create new neural pathways that may delay the onset of this deadly disease, making it possible to preserve inheritance and build legacies for future Alzheimer's Disease patients. Our hope is our project will help the Alzheimer's Association achieve their vision of "A world without Alzheimer's and dementia."