

Dial Down Diabetes Web Based Course

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## **Introduction**

Healthcare is a hot topic these days and it has become evident there is a need for the improvement of our outreach to the population as a whole. The United States is plagued with deaths occurring from preventable diseases, but why? Heart disease, obesity, and diabetes claim millions each year often because of an individual's lifestyle. We are, after all, the fast food nation. We work late and get up early, always on the go, and always with a to-do list a mile long. It is no wonder we do not exercise or pay attention to what we eat. Our poor choices however are having some deadly consequences. The southern states seem even less aware of these consequences than their northern neighbors, and Tennessee in particular is in trouble (Harding, 2011). Diabetes has ripped through the state, ranking it the sixth highest for ratio of those with the disease to the general population.

## **Background**

Regular exercise and a healthy balanced diet can help fight diabetes in a number of ways. Exercise has been known to increase insulin sensitivity in a type two diabetic, as well as improve cardio function and lower blood sugar concentrations (Zisser, Sueyoshi, Krigstein, Szigiato, & Riddell, 2012). By increasing the sensitivity to insulin, the diabetic may even be able to lessen the dosage or even stop using insulin injections (Zisser, Sueyoshi, Krigstein, Szigiato, & Riddell, 2012). This could greatly improve the quality of a person's life, as they would not have to give themselves shots every day. Being that type two diabetes is largely correlated with obesity, it makes sense that weight loss plays a role in the prevention and management of the disease (McKenney & Short, 2011). According to the World Health Organization, obesity is considered a major health risk factor for type two diabetes (World Health Organization [WHO], 2005). The

excess fat causes insulin resistance, thus causing an excess amount of sugar to remain in the blood (Whitmore, 2010). To go a step further, insulin resistance is mostly seen in people with android, or apple shaped, obesity. This is when more fat is gathered about the central abdomen indicating visceral fat, not subcutaneous fat (Whitmore, 2010). These new developments in diabetes and obesity help both healthcare provider and patient understand if they are at risk for developing the disease. If a patient is at risk, or already has the disease, starting an exercise program can help prevent and manage diabetes. According to Dewan and Wilding (2005), “A weight-loss of just 5–10% can significantly improve glucose control, lipid profiles and blood pressure, and reduce the risk of other comorbidities associated with obesity and diabetes, such as cardiovascular disease, sleep apnea and obesity-related malignancy” (Dewan & Wilding, 2005). There is a challenge that exists, however, with weight loss in a diabetic. Not only does the diabetic have to take extra measures to make sure they are being safe when exercising, they also are at a disadvantage. Improved glucose control can cause weight gain because less glucose is excreted through urine, and more is absorbed into the cells, meaning more calories are stored. Also, insulin causes an increased appetite which can lead to weight gain (Whitmore, 2010). It would be ideal for people to lose weight that are at risk of diabetes, before they develop the disease, because it will only become harder to get rid of the excess weight after the development of the disease. After diagnosed with this disease, a number of complications can occur. Diabetes is the number one cause of preventable amputations, blindness in middle-aged individuals, and end stage renal disease. According to the Tennessee Department of Health (2005), diabetes is “the sixth leading cause of death” (Tennessee Department of Health [TDH], 2005). To make matter worse, the diabetes related deaths are expected to double between 2005

and 2030 (WHO, 2005). Patients will also have an increased risk of heart and nerve problems. Once the disease develops, there is no cure, however, this is a preventable disease in most cases.

Tennessee in particular is a concern because of the high rates of diabetes. It is the tenth highest state in the nation for diabetes related death. From 1990 to 2000, diabetes in Tennessee raised by 33% (TDH, 2005). As of 2005, Tennessee had 9.1% of its population diagnosed with diabetes, compared to a national average of 7.3%, making Tennessee the sixth highest state in the nation for diabetics (TDH, 2005). Diabetes has a higher rate with the uneducated and lower income population, and women are more likely to develop the disease than men. People with diabetes are also more likely to have heart problems such as hypertension and coronary heart disease (TDH, 2005). Exercise and eating a healthy diet can greatly improve the outcome of the disease, and hospitals and community health centers are reaching out to educate and challenge individuals to better manage the disease. Matthew Walker Comprehensive Health Center, in particular, received a national grant to begin a program aimed at low income African American and Latino America women who suffer from or are at risk to diabetes. The program is called Dial Down Diabetes and offers free exercise and cooking classes. It also hosts educational workshops that inform the individuals as well as allow for a question/answer session with a pharmacist and physician. Uninsured patients can be seen by several health care providers and the cost is based on a sliding scale. As great as a program as this sounds, the attendance is low. The author of the grant only graded its success at a C level, due mainly to the lack of attendees.

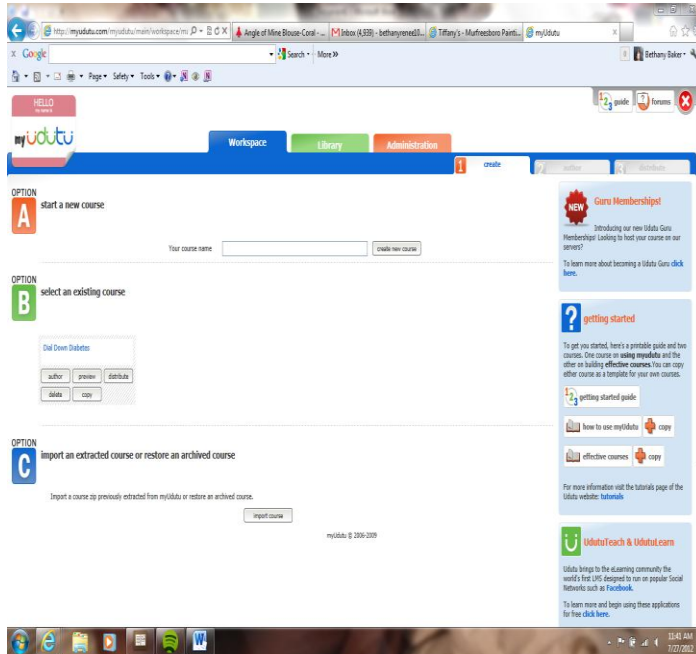
For my project, I proposed a reason to the lack of attendance to the Dial Down Diabetes program is in part because of a lack of marketing to the community. People simply do not know that this program exists. There is nothing mentioned on the Matthew Walker website about it, and there are only minimal flyers in obscure places throughout the facility. No one has gone to

community centers like the library for advertisement either. I created an online educational course to attach to the Matthew Walker website about diabetes and the Dial Down Diabetes program. If the patient lacked internet access, it was recommended they utilize the local public library with free internet, which is located roughly one mile down the street. The hypothesis is that by better educating this population to the dangers of diabetes, and the resources at their disposal, the attendance to the Dial Down Diabetes program will increase.

### **Description of project**

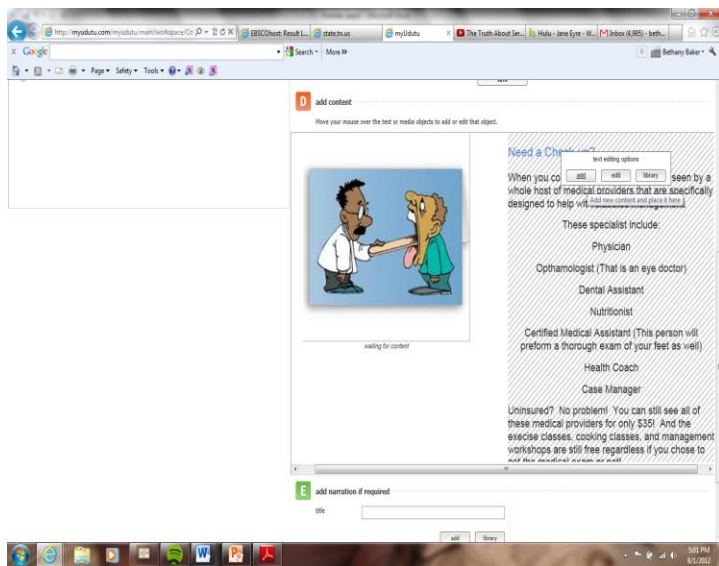
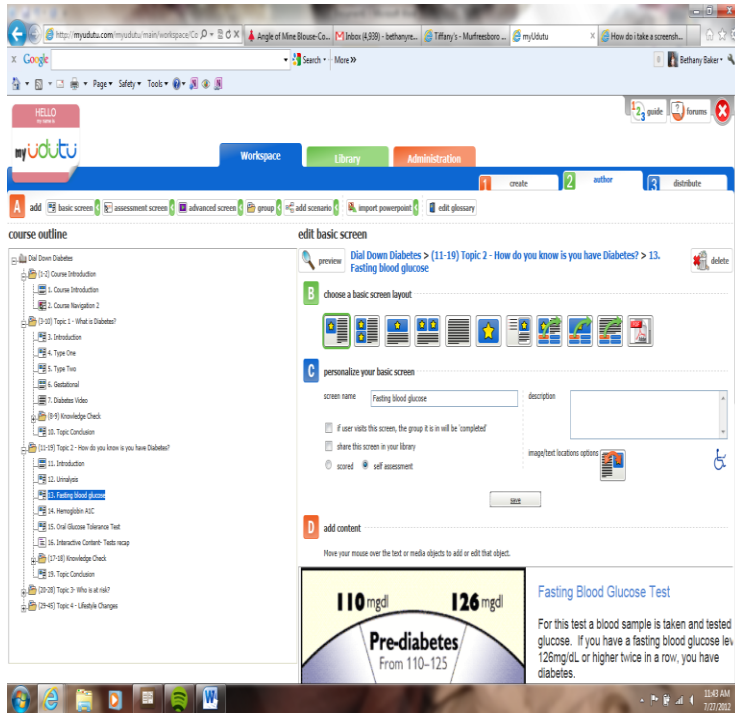
The aim of the course was to be an interactive course, around 10-15 minutes, and at an elementary reading level. The goal of this project was to educate and advertise to the people of the Nashville community of the disease diabetes and the resources available to them. The first step I took for this was to research online databases for information about diabetes. I used the database Cumulative Index to Nursing and Allied Health Literature (CINHL) and the United States National Library of Medicine National Institutes of Health. Next, I spoke with different employees throughout the clinic about the Dial Down Diabetes program so I could really get a thorough view of how the program worked. Then I developed a storyboard to outline my project and create the content for the course. The first topic of the program explains and defines diabetes. The second topic explains and defines different tests done by a healthcare provider to diagnosis diabetes including the urinalysis, fasting blood glucose, oral glucose tolerance test, and the hemoglobin A1C test. The third topic explains who is at risk for diabetes and the complications of the disease. The fourth topic introduces lifestyle changes that decrease risks and help manage the disease, and the fifth and final topic introduces and explains the Dial Down Diabetes program and how it works. Next, I searched and collected graphics to use as visuals in the course. The web authoring program used is a site called Udutu. I had a webinar meeting

with an Udutu trainer to fine tune my knowledge base of how to use the program. I entered the content from my storyboard into the program, page by page. There are different screen types to choose from, but I used mostly basic screen models.



I added and edited information and graphics by clicking the add or edit button while scrolling over the screen. It is important to give a thorough description of the text information and graphic information during this time because everything done in this program is saved to “your library.”

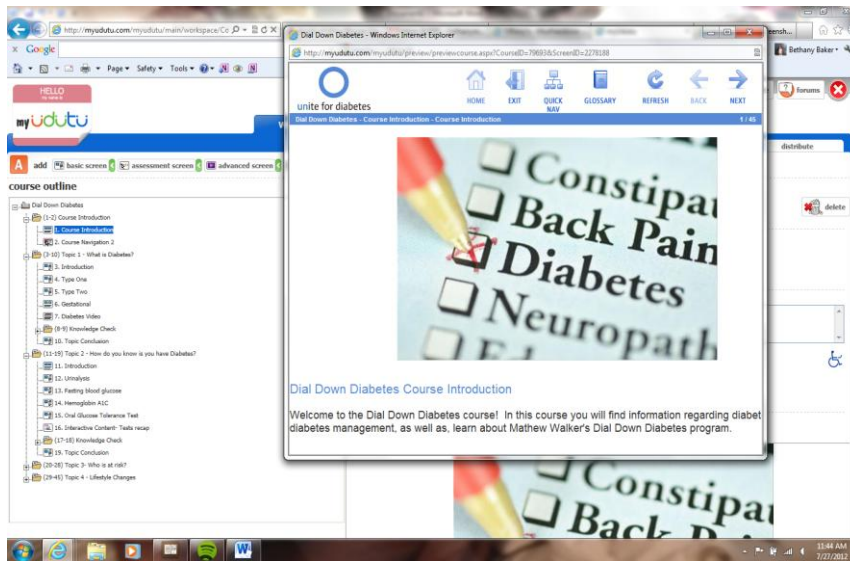
This is helpful for future programs because you can add information and pictures from past programs without having to research the topic again. Under the add/edit tab, there is a choice to add from “my library,” and everything you have ever saved will show up to choose from.



I tried to keep everything short enough to avoid the participant having to scroll down to finish reading a page. It is better to sacrifice font size than to make a person scroll.

Sometimes, though, it is unavoidable and scrolling is necessary even though it is undesirable.

I also previewed every page before saving it to the course. This is a really important step because it shows you the page exactly as the participant will

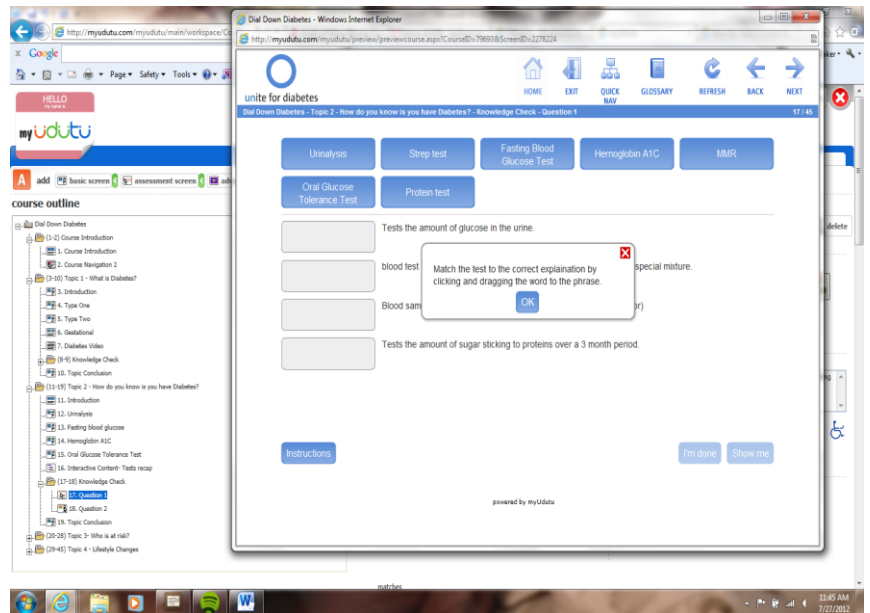


Once the content and graphics are set the way you want them, always remember to title the page and click save at the bottom. If this step is skipped, you can risk losing everything. If you need to delete a page, just click delete, and you will be prompted to type “DELETE” in a text box. If you need to add a page, just click on the screen above the location you want to new page to reside and click on the add basic screen tab.

Although I did not have the time to be able to accomplish this, if a glossary is required for the course, it is important to either make notes of terms as the development is in progress, or to go ahead and build the glossary with the development.



I also added interactive content to engage the reader and to test the knowledge learned. Most people cannot stay focused on a web course for more than five to six pages, so the interactive content checks are extremely important to include. I used multiple choice and matching questions, as well as



picture-matching questions. The program Uduu offers a wide variety of questioning format, but I kept mine simple due to the time restraints I was under.

I contacted the Uduu graphic design team to inquire about getting a more professional background that matched the Matthew Walker Comprehensive Health Center website, instead of the generic Uduu themed background. They agreed, but the graphic design team actually had to be the ones to change it, as this was out of my abilities and authority.

Finally, I distributed the course to my faculty advisor, Uduu representative, Matthew Walker Human Resources, Matthew Walker development designer, and other fellow interns at the site to test the program and provide feedback. I also presented the program to the Matthew Walker and Vanderbilt providers during a clinic meeting for them to decide if it were at a professional enough standard to publish on the Matthew Walker website.

## Results

The result of this project is a completed web-based interactive educational tool that can be used to reach a dispersed audience to help people better understand diabetes and increase attendance to the Matthew Walker Dial Down Diabetes program. The program can be used as a model for other learning platforms, and can also be used to reach those that may not otherwise have access to healthcare education. The Matthew Walker and Vanderbilt providers agreed that the course was at a high enough standard to be published on the Matthew Walker website, and suggested only minor changes. The changes suggested were to increase font size, add pictures directed more towards the targeted audience, and lower the reading level.

After making these changes, I re-sent the link to the Human Resources department, faculty mentor, and the development director for one final overview of the course. I also emailed the link to the technical director, who manages the Matthew Walker webpage, so he will attach the link to the community health center site upon CEO approval. This process can take longer than expected, and I plan on remaining in contact with the Matthew Walker Comprehensive Health Center human resources department in the coming weeks to check on the status of the course publication. I also have left my contact information to human resources in case any future changes and modifications need to be made to keep the course up to date, or even to create another course with different content.



Presentation of the course to the providers

### **Conclusion**

All in all, the course developed provides a starting point for patients to learn about a common disease and provides ways to help manage that disease. It can be used to reach people that do not have easy access to a hospital or community health center, and it provides a means for education. The format can also be used for future educational and promotional courses.

I learned a lot from building this course. I found having a storyboard completed with a general idea of the content of each page was tremendously helpful. Also, I found it helpful to know the desired length to complete the course, and to keep this in mind throughout its development. It is vital to know the target audience and the reading level of that population as well.

Some final recommendations for this course are to use it as a base to build on. The benefit of using this program is that it has the potential to continually be added to and modified. If I were to do this same project again, I would have given myself a little more time to complete the stretch goals I had set for myself. I would have liked to add audio in Spanish to the program.

Also, leave the formatting as is if there is a time constraint. I spent too much time trying to modify the format, and that ended up using a lot of valuable time that should have been spent on more important parts of development. Changing the format can also get somewhat confusing, and I had to constantly be aware of the format style to ensure every page matched. Finally, I think I should have given myself a longer time period for revisions and feedback. Having a set schedule and due dates along the way keep you on track and give you small goals to meet. I would give a week for feedback and a week for revisions if I were to do this again.

In conclusion, the program turned out well for the time in which it was completed. It is a great tool to educate and advertise, and can be used to reach a number of people that do not normally have access to healthcare information. This course can be added to and modified if so desired. This is also a great model for other educational and communication needs through the community and the community health center. I hope through this tool, Nashville can experience a healthier community through better education and resources.

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