

Online course development to support adult learning of landscaping design principles to improve
the curb appeal of a home

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Abstract

With the expansion of online access, there has been an increase in the demand for internet learning through both formal and informal channels. While online landscaping courses are available for future landscape professionals, few courses help the homeowner understand landscaping principles of design. Plants and Property Values, a self-directed online course for adult homeowners, was created to assist in understanding the principles of landscape design in order to improve the curb appeal of a home. This curriculum development and evaluation project serves to determine how effective this online landscaping curriculum is in presenting the basic principles of landscape design with respect to improving curb appeal. The author utilized backward design, the Plan-Do-Study-Act continuous improvement process, and andragogy to create a self-directed course that utilizes videos and a workbook. A pilot group of three participants completed the seven-module course and provided both qualitative and quantitative feedback on the effectiveness of the course on their understanding of landscaping principles of design, the effectiveness of the course on determining their current landscaping needs, and their comfort level of implementing some changes to the curb appeal of their own home after completing the course. Overall, participants indicated that the course assisted them in determining the landscaping needs for the curb view of their home, the course assisted in understanding the six principles of landscaping design, and better prepared them to take steps in implementing or maintaining their home's landscape. Therefore, the curriculum is recommended for adult homeowners seeking to improve the curb view of their home, while also improving or protecting the value of their home.

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Introduction

Background and Setting

The value of well-executed and well-maintained landscaping is significant. Homeowners have opportunities to increase the enjoyment and value of their home through landscaping. Landscaping elements associated with the procurement and installation of flowers, shrubs, and trees provide the opportunity for improving new or existing homes with aesthetic value, noise and irritation buffers, as well as climate control through shade and windbreaks (Henry, 1999).

Functional landscaping can represent substantial value to the homeowner, even if real estate markets do not value landscaping benefits directly. Most often the benefits of landscaping are seen through market values, or the price people are willing to pay for homes with superior landscaping characteristics (Henry, 1999). Institutions such as the Appraisal Institute, the nation's largest professional association of real estate appraisers, reiterate to homeowners that attractive landscaping or curb appeal can make a major contribution to a home's value and can influence time on the market (State News Services, 2019). Curb appeal can be defined as the attractiveness of the exterior of a property when viewed from the street or public space (Johnson et al, 2019). Curb appeal is often the first impression of a home.

Online learning has developed into common culture for teaching and learning due to the proficiency of modern technologies and the widespread concepts of distance and life-long learning (Chen, 2007). The concept of lifelong learning and just-in-time learning is becoming increasingly acute to individuals looking to improve skills and their value to their employer or organization (Wang, 2006). Multi-tool learning environments where learners are able to choose

which tools and resources they utilize to meet the learning objective are gaining momentum (Fini, 2009).

Statement and Significance of the Problem

Curb appeal

The United States Census Bureau reports that 63.8% is the owner-occupied housing rate average from 2013 to 2017. The median value of owner-occupied homes during the same timeframe was reported as \$193,500.00 with monthly expenses, such as mortgage, insurance, and housing expenses, averaging \$1,515.00 (US Census Bureau, 2019). The median household income for 2017 is reported to be \$57,625.00 (US Census Bureau, 2019). Therefore, mortgage and housing expenses compose a substantial portion of household income for the homeowner. For many homeowners, their primary residence is not only a place to live, but also an important part of their wealth portfolio (Van Der Cruijsen et al., 2018). Often homeowners have seen improved net worth through appreciation by simply maintaining and holding real estate assets such as single-family homes. It is vital that homeowners have a solid understanding of their homes value (Van Der Cruijsen et al., 2018). The Appraisal Institute encourages homeowners to maintain their landscape to potentially improve their property's value (States News Services, 2016).

Appreciation refers to the increase in value of property and can happen over time, by actions taken by the owner, or forced appreciation. Forced appreciation refers to when improvements are made to the property to more rapidly increase the value of a home. The concept of forced appreciation is utilized to improve the value of personal property. While the reported percentage increase in value from landscaping or improved curb appeal varies, many studies report an increase in value of between 10 and 12 % (Elam & Stigarll, 2012 and references

therein). Additional research indicates an increase in the curb appeal of a home's value can be improved by up to 17 % (Elam & Stigarll, 2012). Therefore, landscaping and overall curb appeal should be explored as an opportunity to force appreciation and improve the value of a property (Leusin, 2017).

Financially responsible homeowners have the opportunity to further increase their net worth or the equity in their property through investing in curb appeal or landscaping. In addition to the increased value of the home, proper landscaping has the ability to improve homeowner satisfaction. Yards and lawns are valued as areas of beauty and nature and utilized as places to recreate and socialize (Blaine et al., 2012). The maintenance and development of residential lawns and landscapes are a valued activity for millions of United States homeowners (Blaine et al, 2010). Landscaping plants can provide houses with aesthetic ambiances, buffers from sound and nuisances, and climate control by shade and windbreaks (Henry, 1999).

Massive Open Online Courses

According to Business Wire's report on the "Massive Open Online Course MOOC Market; Growth, Trends, and Forecast, (2019 – 2024)", the massive open online course (MOOC) market is forecasted to have a compound annual growth rate 29% in 2019-2024. Udemy, a popular online course platform that covers many topics, holds a significant market share on massive open online courses (Business Wire, 2019). While Udemy and other platforms offer either home gardening online courses and/or landscape design courses, there are few courses that focus on landscaping and gardening design solutions for the overall improvement of the home. For example, Udemy offers a variety of gardening courses with titles such as Butterfly Gardening: Attract North American Pollinators, The Beginner's Guide to Vegetable Gardening, and Annual Flower Gardening. While there are multiple landscape design courses, online

searches indicate the most are focused on individuals seeking a career in landscaping. Therefore, a niche presents itself for the homeowner seeking specific landscaping, gardening, or curb appeal solutions for their particular home in order to improve curb appeal.

Purpose of the Project and Objectives

The purpose of this project was to develop and evaluate a new online curriculum based on the key landscaping principles of design to assist the homeowner in improving or maintaining property value in regards to curb appeal through landscaping. To accomplish this purpose, the following objectives were met. First, an online course was drafted based on the six principles of landscape design, as well as an introductory module as to the value of curb appeal. The concepts within the draft course were taught via instructional videos and a workbook (Appendix A) with assignments to assist the learner articulate individual needs. Second, a pilot group was then selected to complete the course. The pilot group participants provided detailed feedback on each module via a Qualtrics survey (Appendix B). Upon completion of the course, the pilot group participants shared overall feedback via a final survey (Appendix C) relating to the course's success in helping participants determine their curb appeal needs, understand the six principles in landscape design, and to overall be better prepared to take steps in implementing or maintaining their home's landscape. Finally, participant feedback was reviewed and recommendations for improving the course were provided.

Review of Literature

During the first phase of the review of the literature, the theory and framework used to complete the project are examined. The theories defined and explored include andragogy, Plan-Do-Study-Act (PDSA), and backward design. In the second phase of the literature review, supporting literature is reviewed for the curriculum content. The goal of the curriculum is for participants to understand the basics of landscape design, determine their landscaping needs, and be better prepared to implement changes or maintain their landscape.

Theory/Framework:

Adult Learning Online/Informal learning:

The learning theory applied to the “Plant and Property Values” online course is andragogy or the education of adults. Knowles (1970) called andragogy the science and art of adult learning and highlighted six basic principles.

1. Adult education should be focused on solving a specific problem
2. Adult education should consider and rely on the experiences of participants
3. Experience and knowledge gained because of training should be significant
4. Adult education should be able to check and analyze materials
5. Learning objectives should be formulated jointly by the teacher and the student
6. The teacher should receive feedback concerning the progress

Online courses fit well within the concept of andragogy due to availability and the self-driven aspect of online learning. However, this course was limited on its ability to formulate objectives jointly with teacher and students. Knowles theorized that every individual has the right to education in every stage of their life and that society should provide various educational opportunities (Galustyan et al., 2019).

E-learning, learning via internet through formal or informal channels, allows individuals of various ages and differing levels of initial training to receive high-quality education (Galustyan et al., 2019). E-learning is closely connected with andragogy. A more modern concept of andragogy is built on ensuring that educational resources have open access (Galustyan et al., 2019). E-learning in the form of massive open online course (MOOC) attracts informal lifelong learners (Fini, 2009) and fits well into the andragogy strategy of education access. Informal learners are less concerned with the completion of the course and favor passive time-saving strategies over time-consuming discussion forms, and often prefer to choose their methods or tools for learning (Fini, 2009).

PDSA as a Data-Driven Developmental Approach

The Plan-Do-Study-Act (PDSA) is a continuous improvement process that has been used in manufacturing for many years, and has more recently been applied to enhance higher education courses (Gazza, 2015). The Plan-Do-Study-Act (PDSA) can also be applied to enhance online courses (Gazza, 2015). The *Plan* stage of the PDSA cycle includes determining objectives, creation of the curriculum, and determining assessment measures (Gaza, 2015). The *Do* component of PDSA involves the completion of the application of the plan. While the *Study* aspect reviews outcomes of success and identifies areas of improvement (Gaza, 2015). Finally, the *Act* phase of PDSA includes making decisions concerning changes for improvement (Gazza, 2015).

Student satisfaction is positively correlated with student academic performance (Joosten & Cusatis, 2019). Student satisfaction is reviewed during the *Study* component of PDSA and is a key indicator of *Plan* success (Gazza, 2015). Course design and organization are key factors that influence both student outcomes and student satisfaction (Joosten & Cusatis, 2019). Satisfaction

in regards to learner support, instructor interactions, delivery, and assessment is also positively correlated with student performance and therefore assisted in measuring course success (Joosten & Cusatis, 2019).

Backward Design:

Backward design is an approach to the *Plan* stage of PDSA and for the creation of objectives, curriculum, and assessments. Instructors are design professionals. Like many other design professionals, such as graphic artists or engineers, designers must be mindful of their target audience. Therefore, design professionals are often strongly client-centered and consider student needs (Wiggins & McTighe, 2012). The concept of backward design may be thought of as purposeful task analysis. Backward design occurs in three major stages (Figure 1). The stages respectively are identify desired results, determine acceptable evidence, and plan learning experiences and instruction (Wiggins & McTighe, 2012).

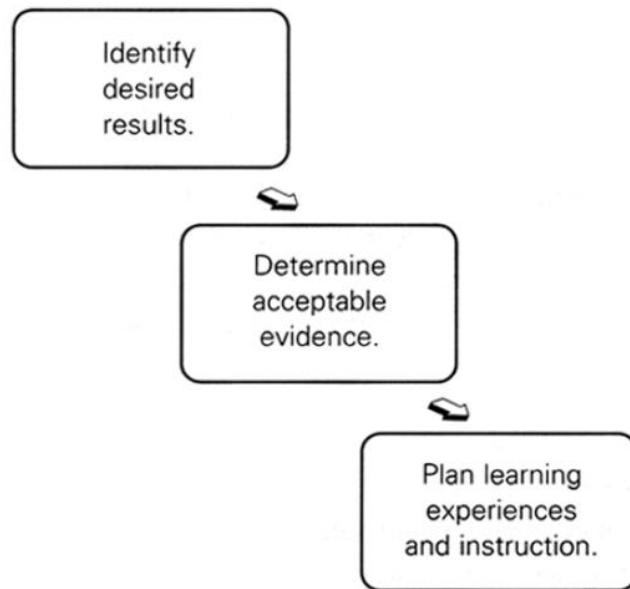


Figure 1: Stages in the Backward Design Process (Bowen, 2017).

Within the first stage of backward design, the goal or evidence of success is determined as we begin planning for the course. In this stage instructors, sometimes with student input, are often required to identify and choose the primary objective or enduring understanding (Wiggins & McTighe, 2012). The second stage of curriculum planning is to then think like an assessor. While assessments may be informal or formal, instructors determine what will indicate acceptable evidence to student success. Evidence should be collected over time instead of a single final assessment. The third stage of backward design is the planning of learning experiences and instruction. In this stage of planning, the instructor decides on various teaching methods, sequence, and resource materials (Wiggins & McTighe, 2012).

Content/Lessons:

Determine your landscaping needs

For most American homeowners, residential lawns are understood to represent both an important economic investment, indicate social commitment, and express personal character (Larson and Harlan, 2006). Previous research in the United States and Canada has shown varying impacts of landscaping, plants, and/or public view or curb appeal of a home. The property values of single-family dwellings are affected by physical attributes and curb appeal attributes (Choudhury, 2017).

A property with a well-designed landscape can influence home prices and values in residential developments (Hussain et al., 2014). While many residential organizations, or HOAs, support the importance of landscape design, they still face barriers and limitations in terms of planning and guidelines for homeowners (Hussain et al., 2014). Landscaping and related installments of turf, plants, shrubs, and trees can provide new or existing homes with aesthetic improvements, buffers from noise and nuisances, and climate control (Henry, 1999).

Determining how homeowners shape and maintain their private landscapes has significant ecological implications (Larsen and Harlan, 2006). Research often focuses on the management of publicly held land, and the residential landscape has received less attention although residential landscape represents a significant proportion of the urban and suburban environment (Larsen and Harlan, 2006).

Determine your landscape design

Design sophistication is a highly ranked factor contributing to the perceived value of a home (Niemiera, 2018). Ranked second to design sophistication is plant size followed by the diversity of plant material type (Niemiera, 2018). The design provides the opportunity to improve the perceived value of the home, as well as the opportunity to improve on potential detractors from the home. There is a significant positive correlation when multiple landscape types are combined (Wang et al., 2016). While several studies show varying preferences on different landscape types tested, the savannah-like landscape can be ranked as a high-preference (Wang et al., 2016). The “lawn” is a cultural icon for Americans and the lawn has been advocated for as a source of both individual and collective good creating a sense of community (Blaine et al., 2012). Tree cover provided cover is not excessive, results in higher house value (Rosiers et al., 2002). A large percentage of lawn cover combined with flower arrangements, rock plants, and the presence of a hedge produce a market premium (Rosiers et al., 2002).

The basic landscaping design principles guide designers in arranging elements for an aesthetically pleasing landscape (Hansen, 2010). All design principles are related, and incorporating one principle helps achieve the other principles (Hansen, 2010). Listed below are the six main principles of design. In some cases, unity is described as a combination of principles rather than a separate design principle.

- **Simplicity** helps to avoid overcomplicating a design, which disrupts rhythm, balance, focus, and harmony (Toscano & Holmes, 2013).
- **Variety** and emphasis increase interest and adds complexity to a landscape (Hansen, 2010). Emphasis attracts and holds the attention of the viewer and assists in achieving variety (Hansen, 2010)
- **Balance** is the design concept of equal visual attraction and weight, typically around a central point (Hansen, 2010). Balance can be asymmetrical or symmetrical (Toscano & Holmes, 2013).
- **Proportion** or scale is the relative size of one component within a landscape in comparison to another (Toscano & Holmes, 2013). Proportion can be established in plant material relative to people, relative to surrounding plants, as well as relative to the home itself (Hansen, 2010). A good proportion landscape feels balanced and harmonious (Hansen, 2010).
- **Sequence** or transition is the change from one space to another (Toscano & Holmes, 2013). Good transitions can add depth to a planting or frame an accent or a focal point (Toscano & Holmes, 2013).
- **Unity** or harmony is the concept of all elements fitting together (Hansen, 2010). The design principle of unity is achieved by connecting components and features to create a consistent character of composition (Hansen, 2010). The way in which we bring different landscaping elements together is guided by the landscaping principles of design (Toscano & Holmes, 2013).

Implementing and maintaining your landscape

A well-maintained environment with greater vegetation cover (trees, shrubs, and grasses) proves to increase consensus in aesthetic preference (Wang et al., 2016). Maintenance and development of home landscapes are significant activities for millions of American owners (Blaine et al., 2012). Social norms are an important influencer of yard management (Locke et al., 2018). Different expectations and management pressures, as well as uses, are found between front and back yards (Locke et al., 2018). Additional effort is educating home landscapers and plant consumers is necessary.

Project Design and Methodology

Plan: Curriculum

As part of the *Plan* component of the PDSA cycle objectives were established. The Plants and Property Values informal online course was designed by focusing on the overall objective of improved curb appeal through well-designed landscaping. The first module focuses on the overall need for curb appeal and a well-designed landscape, and the remaining modules work through the six landscaping principles of design. The curriculum framework for the course utilized backward design, particularly in the planning and creation stage of the project.

Utilizing this framework, three objectives were identified using previous work and the stated purpose of the project. The overreaching objective was to better prepare course participants to take steps in implementing, improving, or maintaining their home's landscape. The two supporting objectives directly addressed within the course were for participants to understand the six principles in landscaping design and for participants to determine their curb view landscaping needs. A step towards implementing a new or improved landscape design could simply be being well prepared to speak with a professional landscaper about your needs. In order for participants to be able to seek out the most needed information, the course provided resources as an avenue for further education. For instance within the module "Variety You Will Love" participants are provided a variety of online and Cooperative Extension resources that assist landscapers and homeowners to select the correct plants. Additionally, the module discusses the evidence of the positive correlation between plant size and value. Working backward, literature and industry standards were used to create several assignments to support each objective. For example, in the assignment titled "Establish an Approximate Budget by Determining Project Profitability" students were walked through the potential property value

percentage gains found in literature, as well as some personal finance standards as evidence for recommended landscaping investments. The complete list of modules is provided below. Each concept and assignment within the modules include a guiding and/or educational video. The participant workbook (Appendix A) is available and the course can be accessed at <https://remodel-ed.teachable.com/courses/enrolled/760486>. Additionally, course videos can be accessed on VT Works.

Module #1: Curb Appeal:

- Video: Course overview (2:54)
 - This course overview video is an introductory video on how to navigate the course, course objectives, and what to expect.
- Video: Introduction to Curb Appeal (2:46)
 - This video defines the concept of curb appeal, sharing why curb appeal is important, and discussing the potential of improving curb appeal. Module 1 workbook is shared.
- Video: Defining Curb Appeal with Real Estate Agents (3:05)
 - Two real estate agents share how they define or describe curb appeal and why it is important for selling a home.
- Workbook Assignment #1: Initial Curb Appeal Assessment (Video: 7:40)
 - Participants are asked to make a realistic assessment of the curb view or first impression of their home. Participants document the current curb view of their home and identify basic attributes of their home, as well as examine the good, bad, and potential of their curb view. Additionally, participants use literature to categorize the current state of their curb view.
- Workbook Assignment #2: Creating Your End User Avatar (Video: 3:00)
 - Participants create an end-user avatar. Participants may often be planning to sell their home within a few years or have major life changes. Participants are asked to look to the future and describe the end-user or avatar before planning a landscape.
- Workbook Assignment #3: Establish an Approximate Budget by Determining Project Profitability (Video: 5:47)
 - Participants work to establish an idea of their budget range based on potential project profitability.

Module #2: Simplicity

- Video: Introduction to Simplicity (2:45)
 - This video defines the landscaping design concept of simplicity. Additionally, tips on achieving simplicity in the design are shared.
- Workbook Assignment #4: Searching for Simplicity (Video: 7:17)

- Participants are asked to find and document curb view examples of simplicity. Then participants are asked to find designs in their neighborhood or virtually that lack simplicity or could benefit from simplifying the design. A curb view example is provided that embodies the concept of simplicity.
- Workbook Assignment #5: Simplifying Your Design (Video: 6:04)
 - Participants review their current curb appeal and determine if improvements are needed in certain areas to incorporate the design principle of simplicity.

Module #3: Variety

- Video: Introduction to Variety (4:58)
 - This video defines the landscaping design concept of variety. Tips on selecting plants and elements with the correct amount of variety are shared.
- Workbook Assignment #6: Adding Variety (Video: 6:50)
 - Participants are asked to find specific elements that they would be interested in adding to their curb appeal when/if appropriate. Participants are given resources for selecting common elements of a landscape including foundation plantings, focal points, texture, shade plants, etc.
- Workbook Assignment #7: Variety You Will Love (Video: 4:29)
 - Participants are instructed to identify areas of the current view of their home that additional variety would add value. Participants are reminded to be intentional with their selections and understand why an area may be selected to emphasize or simplify. Additional resources are provided for participants to explore at the end of this assignment.

Module #4: Balance

- Video: Introduction to Balance (1:19)
 - This video defines the landscaping design concept of balance. The concepts of symmetrical and asymmetrical balance are presented. Tips for achieving even/balanced branching, color, and seasonal blooming are discussed.
- Workbook Assignment #8: Finding Balance (Video: 5:14)
 - Participants identify center or focal points to balance landscaping elements around. Participants determine their preference for symmetrical or asymmetrical balance through selecting a preference between examples of the two styles of balance.
- Workbook Assignment #9: Incorporating Balance (Video: 3:46)
 - Participants use preferences determined in assignment #8 and create a plan for ensuring or creating balance in their curb view design.

Module #5: Proportion

- Video: Introduction to Proportion (1:08)
 - In this video, the design concept of proportion is introduced. Tips for ensuring the landscaping elements work well in relation to each other and the human form are shared.
- Workbook Assignment #10: Reviewing Current Proportions (Video: 5:03)

- Participants are asked to review the current proportion of their curb view. If plantings are not yet mature, participants are asked to research the mature size and determine if the proportion is appropriate.
- Workbook Assignment #11: Planning Future Proportions (Video: 3:11)
 - Participants review the plants and landscaping elements that they researched in the variety section or noted throughout the workbook and determine if the placement and proportion is appropriate.

Module #6: Sequence

- Video: Introduction to Sequence (1:59)
 - In this video, the landscaping design principle of sequence is introduced. In order to achieve sequence the concepts of size, shape, texture, and color are discussed.
- Workbook Assignment #12: Reviewing Size, Shape, Texture, & Color Transitions (Video: 4:29)
 - Participants are asked to review their current curb view with a focus on materials used, particularly in regards to size, shape, texture, and color.
- Workbook Assignment #13: Researching Transition Opportunities (Video: 1:48)
 - Participants are asked to review their current curb view transitions and list potential improvements between area/zones of the yard.

Module #7: Unity

- Video: Introduction to Unity (3:31)
 - In this video, the design concept of unity is presented. Since unity is a principle that is achieved through incorporating all other principles, the video serves as a summary and review of the course for participants.
- Workbook Assignment #14: Tying it All Together (Video: 3:22)
 - In this assignment, participants are asked to review their original goals. After reviewing their original goal, participants are asked to set smaller goals to achieve their desired final result after completing the course.

Do: Pilot

The “Plant and Property Value” curriculum was designed for adult learners who own homes with opportunities for landscape improvements. As a massive open-source online learning curriculum, the curriculum is viewed from the standpoint of the participant. For this project, a small pilot group of three was recruited and represented the current and future participants. Participants were recruited through personal connections due to their interest in improving the curb appeal of their home. Participants fully implemented the online curriculum and went through each module and the workbook as learners. The pilot group completed the

online course through a program called “teachable” an online course platform often utilized by bloggers and vloggers.

Pilot group participants were voluntary participants from three different states, Virginia, West Virginia, and Indiana. Two of the participants were 32-year-old females who owned their own home. One of the female participants planned on selling her home within six months of taking the course. One female participant was interested in improving the value of her home with no current plans to sell. One participant was a 25-year-old male and a long-term renter. The male participant had some horticulture knowledge. All of the participants had limited formal landscaping experience.

Study: Evaluation

In the evaluation portion of the Plants and Property Values curriculum, the pilot group of three rated the overall effectiveness and provide suggestions for improvement. An extensive review by the pilot group allows for more detailed feedback, and therefore more opportunity for improvement of the program. Pilot group participants completed a survey at the end of each module (Appendix B). The project relied on both quantitative and qualitative methods to collect feedback and data. While several ranking questions were asked in a survey style evaluation, much of the feedback was provided in an open-ended question and answer format to encourage a more extensive review. Additionally, pilot group participants completed an end-of-course survey (Appendix C). The evaluation portion serves to provide data for the “study” portion of the Plan-Do-Study-Act (PDSA) improvement process.

The evaluation is designed to rely heavily on respondents’ opinions on the effectiveness of the curriculum in meeting their needs. As part of the Plan-Do-Study-Act theory, participants

were surveyed during each module to provide detailed feedback throughout. Pilot group participants were asked for levels of student satisfaction that have been positively correlated to student outcomes. For example, the module was clear and easy to follow. (Options: Strongly Agree, Agree, Somewhat Agree, Neither Agree nor Disagree, Somewhat Disagree, Disagree, Strongly Disagree). Each original objective was surveyed individually at the conclusion of the course. For example, participants were asked to rate the following statement “overall I found the course helpful in understanding landscape design principles”.

First, each module’s results were reviewed. In order to numerically represent the data, a number (1-7) was assigned to each possible response that participants could select for qualitative data, which included questions one, two, four, six, and eight of the module survey (Appendix B). The higher the number the more positive the response. For example, the strongly agree response was given a value of seven, and the strongly disagree option was given a value of one. This allowed for an average of participants’ responses to be calculated for a snapshot of overall effectiveness of each module. An overview of quantitative responses proved useful in analyzing data and identifying modules for improvement due to the similarity in responses between participants. Additionally, both supportive and corrective comments were viewed. Simple grammatical edits or technology corrections were made immediately. The content and overall recommendations were reviewed for recommendations of larger changes.

Act: Developing Recommendations for Improvement

The data collection phase of the project proved important to the process of determining successes and areas of improvement for the project. Recommendations were identified by reviewing the comments, as well as compiling a summary of module effectiveness through a snapshot of the quantitative questions for each module. Positive comments were noted and

suggested ideas and corrections were reviewed by the module. Small edits and technical issues were addressed immediately to improve the user experience. Recommendations for larger module or conceptual improvements were included in the implications and recommendations report.

Timeline

The project online curriculum was developed over several months between January 2020 and May 2020. The pilot group worked through the module and completed the surveys during May and June of 2020. Results were summarized and suggestions for improvements shared in a final report completed in July 2020.

Outcomes, Discussions, and Recommendations

Module Outcomes

Overall, the average of the responses to the module-specific quantitative questions (Q1, Q2, Q4, Q6, and Q8), which can be reviewed (Appendix B), were above six. Two modules, Module 3: Variety and Module 4: Balance received an average score of seven, the highest score possible, (Figure 2).

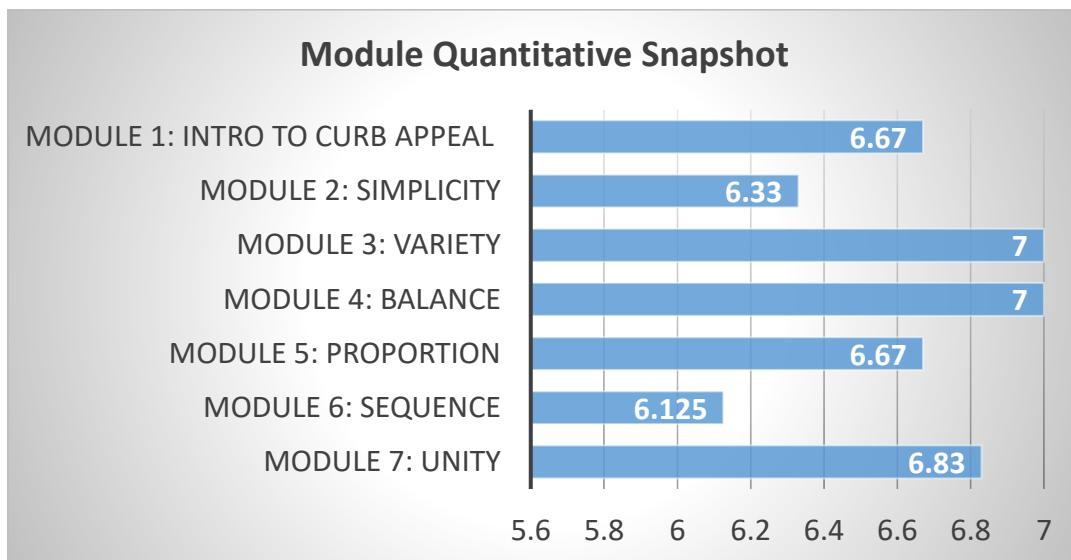


Figure 2: Participants responded to Q1, Q2, Q4, Q6, and Q8 within the module survey, Appendix B. Responses from participants were combined to provide an overview of how each module was received by the pilot group as a whole.

Module one “Intro to Curb Appeal” scored a 6.67 overall on quantitative responses. A summary of comments from this module indicated a need for an earlier and improved explanation of planting zones, as well as a clearer explanation of the return on investment portion within assignment three. Additionally, one participant experienced poor video quality and reported a humming. Comments also indicated that a more candid video may be preferred; however, participants enjoyed the value of curb appeal being presented at the start of the course.

Module two “Simplicity” had a score of 6.33. Participants provided less qualitative feedback or comments. Comments did suggest introducing the idea of balance to better define simplicity. Participants did enjoy the assignment that required them to look for examples of a design that met or lacked the simplicity landscape design principle.

Module three “Variety” received a top average score of seven. Comments on Module three indicated that the personal preferences included by the instructor were helpful and interesting. Variety received mostly positive comments, except for a continued sound quality issue for one student.

Module four “Balance” also received a top module score of 7. Module four comments indicated that keeping the workbook fillable online may be a benefit for the course. For instance, suggest a program that would allow participants to draw on an image as requested in module four.

Module five “Proportion” received a score of 6.67. Comments for module five indicated that assignment eleven, “Planning Future Proportions”, would be improved with additional instruction and rules of thumb for proportion and placement of landscaping plants.

Module six “Sequence” received the lowest score of 6.125. Module six experienced some technical difficulties with one video not being enabled for the first participant’s experience. Participants indicated that additional focus on the transition of planting beds would be beneficial to achieving a unified and interesting design.

Module seven “Unity”, the last module of the course, received a score of 6.83. Comments indicated that participants appreciated the module, as well as the review of design

principles that were incorporated into the discussion of unity within the landscape design.

Overall, all modules were closely ranked.

Overall Course Outcomes

All participants strongly agreed that the course was helpful in understanding landscape principles of design, as well that the course was helpful in understanding curb appeal. Therefore; both objectives of understanding principles of design and understanding curb appeal received a score of 7. Participants both agreed and strongly agreed that the course was helpful in determining the next steps to improve the curb appeal of their home, resulting in a score of 6.67. All participants reported feeling more comfortable talking to a landscape professional about improving the front view of their home, averaging a score of 7. Two participants reported feeling extremely comfortable incorporating some landscaping principles into the front view of their home, with one participant reporting feeling moderately comfortable. Two participants found the workbook extremely useful as a tool for learning and planning, while one participant found the workbook moderately useful.

Comments on the overall course were positive. The concepts of balance and unity were appreciated. Additionally, the potential value-add or return on investment lessons were reported as the more useful concepts. Participants enjoyed searching for neighborhoods or online for examples of the concepts discussed within the modules. Overall, participants reported the course to be enjoyable with ideas/concepts that were applicable and could be revisited.

Summary and Discussion of Results

Based on the survey results, there is an improved understanding of landscaping principles and potential application to the curb view of the home through the course for the homeowner

without previous landscaping design experience. Few questions were asked concerning the Teachable program; therefore, the platform appeared user friendly. There were no participant comments on the platform, and the lack of survey questions related to the platform represents a limitation of the project. All pilot group participants strongly agreed that the course was helpful in understanding the landscaping principles of design and understanding curb appeal. All pilot group participants reported feeling more comfortable talking to a landscape professional about improving the front view of their home after the course. Therefore; the overreaching objective of preparing participants to take steps in implementing, improving, or maintaining their home's landscape was met.

Additionally, based on survey results, areas for improvement have been identified. Overall, more candid and personal videos were preferred. Participants enjoyed the assignments that required exploration of landscaping examples online or within their community. Additionally, Module 2: Simplicity and Module 6: Sequence ranked lower than the remaining modules with at least one participant comment regarding clarification of content. While participants overall enjoyed Module 1: Curb Appeal, several comments indicated that although the return on investment section was interesting and the concepts were useful, it could be strengthened with better mathematical explanations.

Implications and Recommendations

The feedback from the pilot group will make a significant impact in finalizing this online curriculum into a product that can be utilized by homeowners interested in learning the basic principles of landscaping. As part of the Plan-Do-Study-Act continuous improvement system, the results are studied as the third step of the PDSA process (Gazza, 2015). In the study step of

this project, outcomes indicative of success were monitored and areas needing improvement were identified.

The responses of participants signified the impact the Plants and Property Values online course can have on participants. The participants' evaluations showed increased understanding from the curriculum. At least one participant has already incorporated concepts from the course to the front view of their home (Appendix D). Although the course covers the basics of landscape design, curricula like this and others that follow may give homeowners a better understanding of the potential of good landscape design and curb view planning.

Based on the responses from participants, there are specific changes that need to be made. First, a review of Module One: Curb Appeal Assignment Three, "Establish an Approximate Budget", should take place. While assignment three received minor edits to better teach the return on investment concept, the video could benefit from more experience. It would be beneficial to have a financial or mathematical expert guest film the tutorial for this assignment, similar to the real estate agent guest video.

Secondly, a better explanation within Module Two: Simplicity would likely improve the participant experience. In this module, simplicity was defined as limiting change. However, the lesson also warned against monotony, which was confusing for at least one participant as a monotonous landscape does not lack simplicity. It would be beneficial to foreshadow Module Four: Balance and use language like oversimplification rather than monotony. It is recommended that Module Two be filmed again with a clearer explanation, as well as utilizing the casual style with personal examples appreciated by participants.

Third, Module Six: Sequence had a technical glitch that was repaired after the first participant to reach the module reached out. It is recommended that Module Six be considered for a rewrite to create a more entertaining experience for the participant. Participants reported enjoying the more conversational style videos. To enhance the course, I recommend recording a conversation with a landscaper in this module to create variety and interest throughout the course.

In addition to content recommendations, several technical improvements are suggested. At least one participant experienced poor sound quality. However, no other participants reported the same humming sound or noted the sound quality. It is advised to have a FAQ or technical hand out recommending sound settings as the course advances. Additionally, at least one participant filled the workbook out online and experienced difficulty with some of the tasks. Either a recommended program for editing the PDF or adding alternative more computer-friendly options for completing the workbook should be incorporated.

To better describe the course, a title change is recommended. It is recommended that the course be rebranded “Plants and Curb Appeal: Applying Landscaping Principles of Design” rather than “Plants and Property Values: A Curb Appeal Workbook.” The title change will help to better illustrate the scope and focus of the project.

In order to best serve participants, it is recommended to continue the Plan-Do-Study-Act for the next group of participants of Plants and Property Values. The pilot group consisted of three participants. While as detailed feedback may not be possible with a larger group, maintaining a mid-point and final survey is suggested to continue to receive feedback and ultimately improve user experience. The pilot group had contact with the creator; however, did not have contact with one another to prevent swaying of opinions. Participants have shared

interesting resources and before and after pictures (Appendix D) with the creator that would likely be interesting to others completing the course. A social media group or discussion board may improve participant experience in the future.

Limitations of the project include a lack of data on the motivations of pilot group participants' enrollment in the course. Therefore, it is difficult to determine if pilot group participants accurately reflect the target market of the course. The conclusions of the project are based on a small pilot group study. Additionally, platform usability and preferences were not addressed with the pilot group.

Recommendations for Future Projects

Plants and Property Values is a basic course on the landscaping principles as related to the curb view of a home. There are many concepts that would complement this course. Additional courses could be created on plant selection, private space landscaping, and other value-add home improvement projects. Additionally, best practices for student engagement can be implemented. For future projects, andragogy is recommended for a framework and the Plan-Do-Study-Act (PDSA) in the creation and evaluation of the course. To fully incorporate the concepts of andragogy, it is recommended that a pilot group be selected during the planning phase of the project so that participants can assist in identifying the objectives of the course. Once both teacher and participants identify common objectives, backward design can be utilized to create the course. To better implement concepts of andragogy, the course should rely more on the experience of participants. Participant experience can be incorporated by including a pilot group in the planning phase and/or by creating an avenue for participant sharing and discussion.

If desired, a pilot group can be selected for the PDSA process, or the number of participant questions can be monitored with a more comprehensive analysis of student questions. During the study phase, the course platform and any avenues of participant communication should be monitored for effectiveness and usability in addition to course content. If utilizing a pilot group, future projects should recruit more participants with the expectation that some pilot group participants will be unable to start or complete the project. Additional strategies can be used to recruit participants, particularly participants that are part of the target audience for the course. Strategies may include, teaming up with a real estate agent, offering incentives for participation, and/or additional advertising of the free course in exchange for a review. Strategies should be focused on the target audience of the course, and if possible individuals not in the target audience should not pilot the course. If creating a longer course, it is advisable to have the pilot group start reviewing the course prior to the course creator completing all the content. Content creation is time-consuming. Therefore, if the course creator is able to start the *Act* phase of PDSA during the remaining content creation; the course is likely to be improved as it is developed and adjustments made in a timelier manner.

Conclusion

Overall, participant responses indicate that the Plants and Property Values online curriculum was useful for participants. Participants felt more comfortable taking the next steps to establish, improve, or maintain their personal home curb view. Participants also reported having a better understanding of curb appeal and the landscaping principles of design. Andragogy, backward design, and the PDSA improvement process proved successful for course design. Although the course met the objectives for pilot participants, as part of the *Act*

component of the PDSA continuous improvement process, several edits and additions should be made to the course and the PDSA process continued for future participants.

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