Testing Multiple Educational Delivery Methods with Rural Audiences: Lessons Learned

Exploring alternative educational means to reach rural audiences and adapting to the increased use of technology may benefit educators. University of Maryland Extension Educators compared four educational delivery methods using Dining with Diabetes Session 1 components. The purpose of this article is to report lessons learned and recommendations for recruiting, implementing, and collecting data for the following methods:1) Face-to-Face, 2) Online, 3) Hybrid (combination of face-to-face and online methods), and 4) Written Information Only. Despite challenges arising during each phase of this study, 43% of eligible participants fully participated, indicating educators have multiple effective options for reaching rural audiences.

Erin Jewell, Beverly Jackey, Mona Habibi, Dhruti Patel, Lisa McCoy, and Virginia Brown

People living in sparsely populated, rural areas are more likely to have chronic health issues (e.g., diabetes and obesity) than those living in suburban/urban areas (Lundeen et al., 2018; Centers for Disease Control and Prevention, 2017). The Maryland Rural Health Association (2018) identified health education programs as a priority for improving health behaviors. However, reaching rural audiences via traditional face-to-face programming has been challenging for Extension Educators. Reported barriers included lack of transportation, excessive travel time, distance, and insufficient space to implement programs (Rural Health Information Hub, 2018).Technology offers opportunities to reach existing communities as well as new populations (DePhelps et al., 2019; Raison, 2014). Barton et al. (2017) found that facilitating distance education systems using various online platforms was successful with Extension audiences. Therefore, learning how to translate health information to virtual platforms is valuable for Extension educators, especially for those working with difficult to reach rural audiences.

PURPOSE

To expand programming efforts in rural areas beyond traditional methods, our team conducted a study to test the ease of implementation, accessibility, and community engagement for four program delivery methods (Barber et al., 2020). We used Session 1 of Dining with Diabetes, a national evidence-based program series developed by West Virginia University Extension (Griffie et al., 2018).Session 1 included two components: diabetes self-management information and a cooking demonstration. The purpose of this article is to report lessons learned and recommendations for recruiting, implementing, and collecting data for four educational delivery method groups: 1) Face-to-Face, 2) Online, 3) Hybrid (combination of online and face-to-face methods), and 4) Written Information Only.

BACKGROUND

RECRUITMENT

Five educators aimed to recruit approximately 400 participants in 13 rural counties using flyers, social media, newsletters, word of mouth, and local partners. Individuals had to be at least 18 years old, reside within the 13 rural counties, have internet access at home or through a public site (e.g., library or work), and be willing to travel. Participants were screened for eligibility via an online survey software (i.e., Qualtrics) or directly by phone. Educators offered incentives of $20 in cash or a gift card to those who participated in their randomly assigned group and completed both pre- and post-surveys. Those who met these criteria and completed the follow-up survey were eligible to win one of two iPads. We allotted six to eight weeks to recruit and screen participants.

IMPLEMENTATION

Educators notified participants of their random group assignment and protocols, coordinated scheduling for each delivery method, and delivered all four methods simultaneously. The Face-to-Face group received the diabetes self-management information and cooking demonstration in-person. Online and Hybrid groups created university associate accounts to enroll in their respective Canvas course. The Online group received the diabetes self-management information and viewed a cooking demonstration video through their Canvas course. The Hybrid group received the diabetes self-management information through Canvas and viewed the cooking demonstration in-person. The Written Information Only group received materials and recipes through email or mail. All four methods of delivering the two components of Dining with Diabetes Session 1 are summarized in Table 1.

DATA COLLECTION

This study was approved by the University of Maryland Institutional Review Board [1374123-2]. Participants gave consent to participate in the study by completing the pre-survey and were assigned an ID number to protect their identity. Educators collected data using pre-, post-, and follow-up surveys. Post-surveys contained additional group-specific questions asking about ease of accessing in-person or online components and satisfaction with their group assignment. Face-to-Face participants completed paper surveys during their scheduled in-person instruction. Online participants completed pre- and post-surveys embedded within their Canvas course. Hybrid participants completed pre-surveys through Canvas and post-surveys after their in-person cooking demonstration. Written Information Only participants completed and returned paper surveys via mail or completed pre- and post-surveys online via Qualtrics. Four to six weeks after program completion, all groups' participants received an email with a link to a Qualtrics follow-up survey. The PI and a graduate student analyzed all data collected.

RESULTS

Out of 213 recruited individuals, 173 were eligible to participate. During recruitment, internet robots and fake accounts responded to our social media marketing efforts, which initially led to higher recruitment numbers. During the screening process, 25 participants opted out of the study because of an inability/unwillingness to travel (n = 24) or lack of internet access (n = 1).

The 173 eligible participants were randomly assigned to the Face-to-Face (n = 42), Online (n = 45), Hybrid (n = 43), and Written Information Only (n = 43) groups. Educators implemented all four methods simultaneously. For Face-to-Face and Hybrid groups, educators chose easily accessible locations and offered multiple dates for in-person components. Some educators with smaller Face-to-Face and Hybrid groups offered in-person cooking demonstrations to both groups at the same time. For Online and Hybrid groups' online components, educators used the Canvas online class platform as it was convenient and free for university employees. The Written Information Only group received copies of the presentation and recipe via email or mail, depending on participants' preferences.

Of the 173 eligible participants, 49 % (n = 84) completed the pre-survey and 43% (n = 75) completed the two components and post-survey. The nine participants who did not fully complete their components or post-survey came from the Written Information Only (n = 4), Hybrid (n = 3), and Online (n = 2) groups. Percent satisfaction and ease of accessing in-person and/or online components for Face-to-Face, Online, and Hybrid groups are displayed in Table 2. The majority of Face-to-Face and Hybrid participants reported the site scheduled for in-person components was "easy" or "very easy" to access and were "satisfied" or "very satisfied" with their in-person components. The majority of Online and Hybrid participants also reported it was "easy" or "very easy" to log into their Canvas course and were "satisfied" or "very satisfied" with their online components. Thirty-seven percent of Written Information Only participants expressed interest in taking a future class. Of those interested, 43% preferred online, 14% preferred hybrid, and 43% preferred face-to-face educational delivery methods. The *Improving the Rural Health of Maryland: Testing Online Nutrition Education Programs* report contains more in-depth results for this project (Barber et al., 2020).

DISCUSSION

RECRUITMENT

Educators used multiple methods to recruit for this study. The most successful recruitment strategy was to advertise through community partners and Facebook, which aligns with other research (Krusche et al., 2014).Although social media provided an opportunity to broaden our recruitment efforts, internet robots and fake accounts responded to this marketing strategy. Therefore, we recommend utilizing multi-level authentication steps for program registration (e.g., security questions or authentication codes via email/texts).

During initial project planning, the PI took a leave of absence from the project and did not have a detailed transition plan in place. This required adjustments to the timeline and acclimation to newly delegated responsibilities. Also, eligibility screening, assigning groups, and relaying group protocols took more time than expected. CREd Library and Singletary (2014) recommend allowing two to three months for recruitment if a comprehensive plan is in place to account for critical steps in recruitment planning, implementing, and recovering from shortfalls in numbers. We agree with these recommendations, especially if delivering four methods of education simultaneously.

During the screening process, those who were unwilling to travel (n = 24) elected not to participate in the study. Therefore, those who participated were willing to travel if randomly assigned to a group with an in-person component (i.e., diabetes self-management instruction and cooking demonstration).These results support the need for Extension educators to explore offering hybrid or online programs and creatively engaging communities when delivering written information only.

IMPLEMENTATION

In order to reduce barriers for attending in-person components, our implementation recommendations include choosing easily accessible locations, scheduling multiple sessions, or scheduling shared shared components together. Consider choosing easily accessible locations near a bus route or at popular community sites as this was reported among the majority of Face-to-Face and Hybrid participants. Offering multiple dates allowed participants options to attend in-person components if they had scheduling conflicts. In this study, educators who scheduled Face-

to-Face and Hybrid participants' in-person cooking demonstrations at the same time were able to combine group resources. By scheduling a short break (~ 15 min) after the Face-to-Face group's in-person diabetes self-management instruction, educators had time to transition between components. Other educators found it easier to schedule these groups' in-person cooking demonstrations separately.

To reduce user and instructional barriers for online components, we strongly recommend allotting additional time to research, develop, and test online enrollment/platform features. During online Canvas course registration, we discovered non-university participants were required to set up a temporary university account to access the course platform. This added extra steps for both participants and educators, delayed the course start date, and created frustration for both parties. Consider using reputable Massive Open Online Course platforms such as EDx or Coursera to minimize user frustration. Canvas also lacked features allowing educators to monitor participant progress (e.g., tracking video views) and assign separate Hybrid and Online group components (e.g., the cooking video would be visible to Hybrid participants), which led us to create two courses. The course platform that suits your program's needs may not be the most convenient or affordable option.

For those delivering written materials to their communities via mail, program facilitators must account for postage costs and time for participants to receive

and mail back paper surveys. Whether sending written information via mail or email, provide incentives to encourage participation in this non-interactive method. Written Information Only participants were equally interested in attending face-to-face (43%) and online (43%) future classes, which indicates educators have options reaching these audiences.

DATA COLLECTION
To efficiently collect data for four delivery methods across multiple counties, we recommend creating a thorough protocol. It took time for educators to set up and deliver pre-, post-, and follow-up surveys because of different delivery methods. Educators stored and mailed paper surveys from Written Information Only, Face-to-Face, and Hybrid participants. Electronic versions of the surveys were either created through Qualtrics or embedded within the Online and Hybrid groups' Canvas courses. Post-surveys also contained group specific questions, which made it critical for educators to ensure the correct group had access to their designated post-survey. While implementing the project, the team realized a more detailed written protocol would have made things more efficient, consistent, and alleviated the need to contact the PI with questions while they were on a leave of absence.
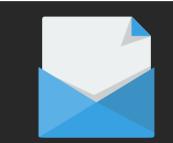
CONCLUSION
If considering any of the four methods for delivering education described above, we hope our experience provides you some strategies for offering an efficient and successful program in your communities .We conducted this study prior to the COVID-19 pandemic, which has changed the way educators are teaching. Whether offering in-person or online programming, many of these recommendations apply and should be considered to reach new audiences.

You may click here to access the references, tables, and graphs for this article.

Author's note: *Virginia Brown is now at the Office of Learning and Organizational Development, University of Georgia. We have no known conflict of interest to disclose. Data was collected in 13 counties across the state of Maryland.*

CONTACT INFORMATION

Erin Jewell, MS, RDN, LDN
Family and Consumer Sciences Agent
University of Maryland Extension
26737 Radio Station Way, Suite E-2
Leonardtown, MD 20650
erinj@umd.edu

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Table 1

Delivering Two Dining with Diabetes Session 1 Components Via Four Educational Delivery Methods

Dining with Diabetes Session 1 Component	Face-to-Face	Online	Hybrid	Written Information Only
Diabetes Self-Management Information	In-person instruction	Canvas module	Canvas module	Either paper or electronic copy of presentation
Cooking Demonstration	In-person demonstration	Canvas video	In-person demonstration	Either paper or electronic copy of recipe and educator talking points

Table 2

Face-to-Face, Online, and Hybrid Groups' Satisfaction with and Ease of Accessing In-Person and/or Online Components

Group	Satisfaction with Group Assignment					Ease of Accessing In-Person and/or Online Components				
	Very Dissatisfied	Dissatisfied	Unsure	Satisfied	Very Satisfied	Very Difficult	Difficult	Neutral	Easy	Very Easy
Face-to-Face	0%	0%	5%	21%	63%	0%	5%	5%	21%	58%
Online	0%	0%	19%	44%	38%	0%	6%	13%	25%	56%
Hybrid										
In-Person Demonstration	0%	0%	0%	38%	57%	5%	10%	5%	29%	52%
Canvas Module	0%	10%	0%	38%	29%	0%	5%	24%	29%	19%

Note. Data missing for those in the Face-to-Face Group included 11% for class satisfaction and 11% for ease of accessing the in-person component. Data missing for those in the Hybrid group included 5% for satisfaction participating in the in-person demonstration, 24% for satisfaction participating in the Canvas module, and 24% for ease of accessing the Canvas module. The Written Information Only Group is not included in this table because these questions only applied to those who received in-person or online instruction.