Quick Response Codes: A Tool for Sharing Extension's Educational Resources and Improving the Response Rates of Program Evaluations

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Introduction/Need for Innovation

Quick response codes, often referred to as QR codes, are digital and machine-readable codes that contain information made quickly accessible to users by scanning codes with compatible devices such as smartphones. These codes can read and interpret different types of data, e.g., website links, photographic images, and videos, among other digital objects. The main benefit or relative advantage (Rogers, 2003) of QR codes is their ability to make the task of searching for information easier by taking users directly to the desired content (Ozkaya et al., 2015). QR codes were widely adopted globally, with a rapid increase of adoption sped by the onset of the global COVID-19 pandemic. Many QR code adopters during the initial phase of the pandemic used the codes for the first time as businesses were forced to go contactless with their customers (Rahimizhian, and Irani, 2021). While the pandemic provided great impetus for QR code adoption, it is still underutilized as a tool in education with great opportunities to support student-centered learning approaches and enhance students' intrinsic motivation (Karia, Hughes and Carr, 2019). Great opportunities exist for QR code use by Extension professionals to transfer educational resources and information to clientele and as a tool to increase participation in the evaluation of virtual and hybrid educational programs.

How It Works

During the COVID-19 pandemic, many organizations were forced to go contactless using exclusively virtual means to connect with customers, Oklahoma State University (OSU) Extension professionals also had to quickly transition their educational programs to virtual formats. This led to challenges in getting information to Extension clientele and in securing program evaluation responses from virtual workshop participants. Extension professionals were required to swiftly adopt and utilize new technologies for program delivery. Some Extension personnel had experience using QR codes in their pre-pandemic program promotional efforts, however, the codes had not been used to deliver educational content such as seminar recordings, short informational videos, and fact sheets, nor had such been used to collect program evaluation data. In response to the COVID-19 pandemic, Oklahoma County OSU Extension professionals piloted the use of QR codes in three ways.

First, QR Codes were used in Extension virtual program evaluation to improve response rates with workshop participants. We had initially sent email messages after virtual events requesting participants to complete the respective post-workshop evaluations. This approach failed to achieve the desired participation rate as email surveys typically have low response rates (Faggiano and Carugo, 2020). So, we embedded QR codes at the end of virtual workshops' PowerPoint slides and asked participants to complete the evaluation by using their mobile telephones to scan the QR codes as the seminars ended. Lutig (2021) hypothesized that using QR codes for surveys may increase participation by signaling to potential respondents that the questionnaire is smartphone friendly and suggesting the time commitment will be brief. We found this to be true, as the usage of QR codes at the end of virtual presentations rather than a link sent later significantly increased our response rates. Allotting time for evaluation in the virtual program may have also contributed to the increased response rates.

Second, QR code signage was installed in the Oklahoma County OSU Extension teaching gardens linking users to short, curated YouTube video segments providing interactive experiences for learning opportunities in the teaching gardens. Oklahoma County OSU

Extension professionals collaborated with Oklahoma Gardening, a long-running PBS television program, and the YouTube channel Extension program in the Department of Horticulture and Landscape Architecture at OSU to create videos highlighting specific plants in the garden and raised bed garden designs. Several of the videos were highly curated and produced by Oklahoma Gardening and others were produced by Oklahoma County OSU Extension professionals.

Third, we piloted the installation of QR code *shelf-talkers* at two Oklahoma City metro garden centers to provide low-contact learning and information exchange opportunities for the garden centers' customers while they shopped. The QR code shelf-talkers' signage was strategically placed on store shelves allowing garden center customers to quickly access Extension fact sheets addressing topics associated with products in that part of the store. This provided a service to the garden centers by assisting them in efforts to engage customers in unique and safe ways while also driving traffic to OSU Extension's research-based fact sheets.

Results/Implications

Use of QR codes after virtual programs led to an estimated 30% increase in response rates by Extension program participants. Participants said that "using QR codes makes it so much easier to complete the workshop evaluations" and "I'm more likely to complete the evaluation because I can do it immediately from my cell phone rather than having to take time to open up an email later." QR Code usage in the teaching gardens was also well-received by clientele. Early in the pandemic, OSU Extension offices were closed to the public, but clientele were encouraged to visit the outdoor garden spaces and interact via QR codes. One client stated: "It was so cool to be able to learn from my Extension agents while browsing the gardens." As of April 2022, these videos had been viewed more than 500 times since installing the QR code signage in the teaching gardens. The garden center managers also expressed their appreciation for the shelf-talker pilot program. One shared: "Having the QR codes really provides a service to our customers and by referring them to the fact sheets it shows them that we are following the science-based practices recommended by Oklahoma State University."

Future Plans/Advice to Others

QR codes are a simple tool and generally accepted by much of the public; however, using QR codes in education is still in its infancy (Law & So, 2010). A challenge for Extension lies in motivating its personnel to use the codes as a tool for education (Hill et al., 2013), which according to Rogers (2003) likely points to the need for them to have more opportunities for observability and trialability of the innovation. We are doing this in the Oklahoma County OSU Extension office. Although Extension is sometimes accused of failing to embrace innovation, Smith and Hill (2016) argued that the *Golden Age of Extension* is before us now because at no other time have Extension professionals had so many information technologies and communication tools at their disposal. However, more Extension professionals should adopt an innovation-oriented mindset and embrace QR codes in their programming (Hill et al., 2013). The pandemic undoubtedly increased the use of QR codes among many Extension professionals, but greater opportunities exist regarding the adoption and implementation (Rogers, 2003) of QR codes as a pervasive and effective tool for program evaluation and information-sharing in Extension. Sharing the relative advantages of QR codes and likely compatibility (Rogers, 2003) with Extension professionals' practices may lead to them adopting the innovation more widely.

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