Innovative Poster

Using QR Codes to Gain Responses When Surveying Participants with Mixed Modes

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Introduction/Need for Innovation

Response rates reported in articles conducting survey research in the *Journal of Agricultural Education (JAE)* are declining. Lindner et al. (2001) reported an average response rate of 81.6% for articles published from 1990 through 1999. Later, Johnson and Shoulders (2017) reported an average response rate of 56.3% for articles published between 2006 and 2015. Low response rates are a threat to the validity of studies published in the *JAE* (Roberts et al., 2011). Several scholars in agricultural education research have recommended ways for dealing with nonresponse to decrease the chances of having nonresponse error in a study (Johnson & Shoulders, 2017; Lindner et al., 2001; Miller & Smith, 1983). However, sparse research has been conducted in agricultural education research on how to improve survey response rates in the first place. We believe using QR codes as a way for survey participants to access a questionnaire is a way to improve survey response rates. A QR code is a quick response (QR) code in the form of an array of black and white squares that is used for storing URLs to be read by cameras on smartphones (Stein, 2020).

Dillman et al. (2014) recommended tailoring survey contact and response modes to the population being studied to improve response rates. While improving survey response rates does not guarantee nonresponse error will not occur, it certainly helps reduce its likelihood. One way to tailor survey contact and response modes to illicit more responses is to use mixed mode surveying (Dillman et al., 2014). Mixing contact modes and response modes can be done. For example, contacting a participant through the mail and later with email would be mixing contact mode. An example of mixing response mode would be providing the participant with the option of completing a questionnaire online and on paper. To provide a participant with a QR code, a mail contact would need to be made so that participant had a physical code to scan with their device. Dillman et al. (2014) recommended providing participants with a QR code in addition to a URL when contacting participants through mail to complete an online questionnaire. We believe this is something agricultural education researchers across the nation could use to improve response rates for studies using survey methods and thereby improve validity in studies.

Methodology/How it Works/Program Phases

In a study conducted at Texas Tech University a mixed mode survey was conducted where secondary agricultural education teachers were contacted through mail to complete an online questionnaire. In the paper letter to participants and in reminders a shortened URL was provided as well as a QR code to scan to access an online questionnaire administered through Qualtrics™. This provided survey participants with the option to type the URL in their internet browser or simply scan the QR code on a smart phone or other device where the participant would be directed to the same web address as the URL with less effort. For others to implement this procedure, the first step is to create an online questionnaire. With our study, we used Qualtrics™ to manage our questionnaire however, other online survey platforms would work as well. After the questionnaire has been finalized and the questionnaire is live online, there will be a URL web address that can be used by participants to access the questionnaire. The Qualtrics™ survey platform automatically generates a QR code that can then be distributed in a mailed paper letter.

The researcher simply saves the QR code as an image and inserts the image into the typed letter. If the online survey platform does not provide a QR code, free QR code generators can be found online to create your own QR code based on the URL for the questionnaire. When survey participants receive the letter in the mail, they simply scan the code with a device with a camera and internet access and are then directed to the online questionnaire.

Results to Date/Implications

Since our study was conducted through Qualtrics™, the survey platform automatically tracks if a QR code was used to access the questionnaire or if the participant typed in URL printed on the letter. The questionnaire was sent to 548 secondary agriculture teachers. A response rate of 38.69% (n = 212) was achieved after five contacts in the 2020 fall semester during the COVID-19 pandemic. Of those responding, 79 (37.26%) were completed using a QR code. The other 133 (62.74%) responses were completed by the participant typing in a shortened URL web address.

An implication of having over one third of respondents use a QR code to access the questionnaire is that it provided another way for participants to access the questionnaire compared to the traditional web address normally provided in mail contact letters. This gives participants a choice based on their personal preference and helps to reduce burden on the participants. According to Dillman et al. (2014), reducing burden on participants is a way to increase overall response, addressing the need for this innovation. The use of QR codes has the potential to reach a different demographic of participants, reducing overall nonresponse error.

Future Plans/Advice to Others

In the future we plan to continue using QR codes when contacting survey participants through mail. With response rates continuing to decline in survey research, the use of QR codes may encourage participants to participate over older techniques. We also plan to examine the relationship of QR code use with participant demographics. We believe QR codes may be used more often by younger participants and could be a consideration when tailoring survey methods for specific populations. Our advice to others would be to use a QR code when conducing survey research with mail contacts. There is little to no extra cost to implement and makes questionnaire access easier for some participants. When generating a QR code, be sure no other changes are made to the online questionnaire or URL. Changes to a URL after the QR code is printed will not allow participants to access the revised questionnaire. Also use a high-quality printer so ink does not smear and compromise the readability of the QR code.

Costs/Resources Needed

The cost of using the Qualtrics™ online survey platform was free to our department. Fees for using the platform is paid for by the College of Agriculture. Other free survey platforms such as SurveyMonkey® could be used for the same purpose. QR code generators can be found for free. A computer with internet access and a word processing system and a printer is necessary to create the contact letters with the QR code. Time required to add a QR code to a paper contact would be approximately five minutes. The cost of a sheet of paper, envelope, and postage would be necessary to complete the task for a total of approximately $0.60.

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