



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



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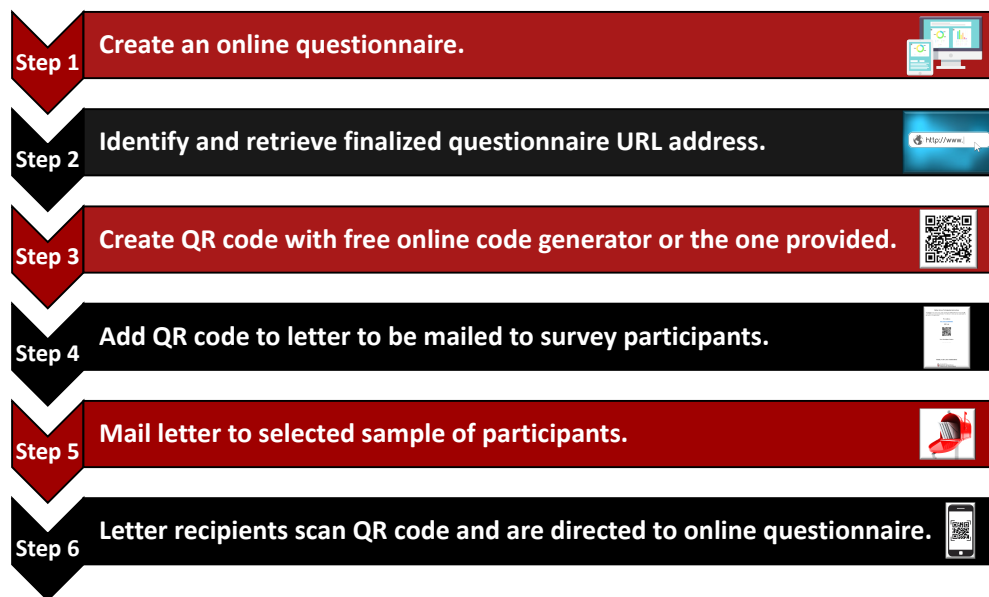
## Introduction/Need for Innovation

- Survey response rates are declining.
- JAE articles published from 1990 to 1999 had an average response rate of 81.6% (Lindner et al., 2001).
- JAE articles published between 2006 and 2015 had an average response rate of 56.3% (Johnson & Shoulders, 2017).
- Low response rates are a threat to validity of studies (Roberts et al., 2011).
- Several have recommended ways of dealing with nonresponse after it happens (Johnson & Shoulders, 2017; Lindner et al., 2001; Miller & Smith, 1983).
- Sparse research in agricultural education has been conducted to help prevent nonresponse.
- We believe using QR codes as a way for survey participants to access a questionnaire is a way to improve 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).
- One way to tailor survey contact and response modes to illicit more responses is to use mixed mode surveying (Dillman et al., 2014).
- 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.



## Methodology/How it Works

- 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™.



## Future Plans/Advice to Others

- In the future we plan to continue using QR codes when contacting survey participants through mail.
- We also plan to examine the relationship of QR code use with participant demographics.
- Our advice to others would be to use a QR code when conducting 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.

## Costs/Resources Needed

- The cost of using the Qualtrics™ online survey platform was free to our department.
- 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.



## Results to Date/Implications

- The questionnaire was sent to 548 secondary agricultural 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.
- 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.
- 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.



## References

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.

Johnson, D. M., & Shoulders, C. W. (2017). Power of statistical tests used to address nonresponse error in the Journal of Agricultural Education. *Journal of Agricultural Education*, 58(1), 300-312. <https://doi.org/10.5032/jae.2017.01300>

Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social science research. *Journal of Agricultural Education*, 42(4), 43-53. <https://doi.org/10.5032/jae.2001.04043>

Miller, L. E., & Smith, K. L. (1983). Handling nonresponse issues. *Journal of Extension*, 21(5), 45-50.

Roberts, T. G., Barrick, R. K., Dooley, K. E., Kelsey, K. D., Raven, M. R., & Wingenbach, G. J. (2011). Enhancing the quality of manuscripts submitted to the Journal of Agricultural Education: Perceptions of experienced reviewers. *Journal of Agricultural Education*, 52(3), 1-5. <https://doi.org/10.5032/jae.2011.03001>

Stein, A. (2020, January 1). How QR Codes Work and Their History. <https://www.qr-code-generator.com/blog/how-qr-codes-work-and-their-history/>