

ORIGINAL RESEARCH

Academic success of nursing students during a global pandemic

Lisa Whitfield-Harris,* Katherine Herrighty, Cecelia Borden, Mary Hanson-Zalot

Thomas Jefferson University, Philadelphia, PA, United States

Received: April 22, 2026

Accepted: May 8, 2026

Online Published: June 24, 2026

DOI: 10.63564/jnep.v16n7p10

URL: <https://doi.org/10.63564/jnep.v16n7p10>

ABSTRACT

Background and objective: In 2020, the College of Nursing quickly transitioned to online learning for students in response to the COVID-19 pandemic. It was reported that the pandemic exacerbated student failures due to the quick change to online learning and environmental conditions, changes in program location, and external stressors. Thus, the research team wanted to understand if this transition affected students' success. The objective of the study was to understand how students defined academic success while completing a Bachelor of Science in Nursing program.

Methods: A qualitative descriptive design was used with undergraduate nursing students (n = 14) through interviews over a three-month period. Data were analyzed thematically.

Results: Three themes emerged from the interviews: a) Students' Perspectives of Success, b) Students' Experiences of In-Person Learning, and c) Students' Experiences of Online Learning Results.

Conclusions: This qualitative descriptive study aimed to explore how undergraduate nursing students conceptualized academic success and navigated online learning during the pandemic, centering students' experiences. Findings suggest that academic success is not dependent on instructional modality, but rather on students' access to structured resources, autonomy, and opportunities for meaningful peer and faculty engagement, and their ability to apply knowledge and understand course content.

Key Words: Academic success, COVID-19 pandemic, Nursing, Student success

1. INTRODUCTION

In 2020, many nursing programs across the United States rapidly transitioned from in-person to remote learning in response to the COVID-19 pandemic. Prior to this date, the College of Nursing delivered all coursework on campus, and the abrupt shift to online education raised concerns among both faculty and students. This transition reflected a broader transformation in higher education, as institutions adapted instructional delivery models to ensure continuity of learning during an unprecedented disruption.^[1]

While online learning became essential, its impact on nursing students' academic success required further exploration.

Faculty were tasked with rapidly reorienting students to remote instruction while attempting to maintain educational quality and access to academic resources comparable to in-person learning environments.^[2] Understanding how students adapted to these changes, and how they defined academic success during this period, became increasingly important.

Although prior research examined the general transition from on-campus to online learning during the pandemic, limited attention has been given to nursing students' own definitions of academic success and the strategies they used to achieve it. One study identified effective approaches to achieve suc-

*Correspondence: Lisa Whitfield-Harris; Email: lisa.whitfield-harris@jefferson.edu; Address: Thomas Jefferson University, Philadelphia, PA, United States.

cess that included establishing routines, participating in peer study groups, and maintaining engagement with course materials.^[3] However, the pandemic impacted several of these methods as many nursing courses shifted to asynchronous, online formats. These disruptions remain relevant today, as hybrid and flexible course delivery models have become permanent features of many nursing programs, making it essential to recognize how students define academic success across varied instructional environments.

In addition to altering students' academic strategies, the pandemic intensified external stressors associated with academic difficulties, including financial strain, health concerns, and household responsibilities.^[4] From 2020 to 2022, students navigated uncertainty related to COVID-19 and broader societal events, all of which may have influenced their academic performance and perceptions of success. As many of these stressors persist today, nursing programs must refine their approaches to student retention by rethinking how success is defined and supported within evolving delivery models. The pandemic served as an unplanned but instructive stress test of existing educational assumptions. The strategies nursing students developed in response offer meaningful guidance for designing support structures within the flexible, learner-centered models now common across educational programs. Therefore, the objective of this study was to understand how Bachelor Science of Nursing (BSN) students defined academic success during the COVID-19 pandemic.

2. METHODS

2.1 Design

A qualitative descriptive design was used to explore changes in undergraduate nursing students' strategies to succeed in nursing school and their definition of academic success. This design allowed the researchers to understand the students' perceptions of academic success and to develop themes that represent their experiences in transitioning to online learning.

2.2 Participants and setting

All BSN nursing students were eligible to participate if enrolled at one university located in an urban area of the Northeast region of the United States. The sample consisted of nursing students in the traditional, 1-year, and 2-year undergraduate nursing programs. Fourteen undergraduate nursing students were interviewed using convenience sampling. Students' ages ranged from 22 to 35 years old, and all reported their race as White. All students reported being neither Hispanic nor Latino. When asked what language they use to describe their gender, eight students identified as "female" (57.14%), five identified as "male" (35.71%), and one identified as "woman" (7.14%). All students were members of the

graduating class of 2022. Self-reported grade point averages ranged from 3.11 to 4.0.

2.3 Study procedures

Institutional IRB approval was obtained prior to data collection. Students were recruited for this study via email and the university's learning management system, Canvas. All prelicensure nursing students were invited to participate in the research. Students who were interested in participating in the study were directed to follow a link to select an interview timeslot. Interviewees were given the option of participating in a one-on-one phone call or a Zoom focus group with other pre-licensure students.

The researchers conducted 14 individual interviews via telephone (10) or Zoom (4). At the beginning of the interviews, researchers obtained verbal consent and permission to record the interviews from the participants. Participants selected pseudonyms and completed an electronic survey, which included academic and demographic information. Each interview lasted approximately 30 minutes. During the interviews, students were asked to reflect on their personal definitions of academic success, as well as strategies that supported their success before and during the COVID-19 pandemic. Upon completion of the interviews, audio recordings were transcribed verbatim by a transcriptionist. Data saturation was achieved after 12 interviews.

2.4 Data analysis

Data were managed by Excel spreadsheet and analyzed using the phenomenological method described by Colaizzi.^[5] Following this framework, each interview transcript was read in its entirety multiple times to develop a general sense and ensure familiarity of the data with participants' information. Significant statements were extracted from each transcript that directly pertained to participants' experiences of academic success and the transition to online learning. Each statement was then reformulated into a phrase that captured its meaning more broadly. The meanings were grouped according to shared properties and organized into clusters of themes. This process was iterative; researchers reviewed clusters repeatedly against the original transcripts to ensure that emerging themes remained grounded in participants' own words and did not extend beyond what the data supported.

Discussion among team members occurred during the data collection and analysis phases as an additional check on interpretation, prompting researchers to distinguish between what participants expressed and what the research team might have expected to find in the data. Researchers maintained reflective journals to document assumptions, interpretive decisions, and emerging reactions to the data, and these records were

reviewed periodically to make visible any preconceptions that might influence how meaning was constructed from participants' accounts. From this process, three themes were identified that captured the essential structure of participants' experiences.

2.5 Trustworthiness

Interviews were transcribed verbatim to ensure confirmability. To support credibility of the data analysis, all team members participated in the coding and theme development process. Peer debriefing was conducted throughout the analytic process. Upon completion of the themes, member checking was conducted by returning findings to the participants to review the themes and confirm whether they accurately reflected their experiences. This step strengthened confidence that the findings authentically represented participants' perspectives. After verification, the transcripts were coded by line-by-line examination to identify similar codes. These codes were condensed into three themes based on commonalities to represent the students' experiences. Transferability was obtained by analyzing the thick descriptions from the data to develop the themes.

3. RESULTS

3.1 Themes

Data analysis revealed three themes that reflected student's perceptions of academic success: a) Students' Perspectives of Success, b) Students' Experiences of In-Person Learning, and c) Students' Experiences of Online Learning. Student-derived pseudonyms are used for the exemplars below to maintain anonymity.

3.2 Students' perspective of success

Students were asked 'What does it mean to be academically successful?' They expressed success as getting 'good' grades and comprehending the course material. Irving noted that "...academic success... is when I get done an exam and I have the confidence that I did really well [as] opposed to getting done an exam and your anxiety is through the roof and you felt extremely under-prepared."

Getting Good Grades. Half of the students measured success by achieving high scores on examinations and papers. For Penny, academic success meant "...staying on top of assignments and getting good grades." To achieve higher scores, students felt more successful when they were better organized, which made them feel more prepared for class. During the pandemic, the students reported receiving higher results with online versus in-person learning, which gave them more confidence to feel successful. Irving added that: "...your grades show your confidence and your ability in

how you perceive the material that was put forth from your instructors... definitely letter wise [to] portray academic success but, also, mentally showing confidence and low anxiety is what academic success means to me as well."

Student Application of Knowledge. Participants noted that being able to apply their knowledge was another indicator of success. One-third (36%) of students specifically stated that academic success is illustrated by the application of knowledge by teaching peers who are challenged by instructional material. Four participants (29%) mentioned that applying their knowledge on exams, in clinical experiences, and in professional settings defined success. Allie identified academic success as the "ability to use what you've learned." She added, "...being able to teach that back to other people is a pretty good indicator of your success in knowing what you're learning." Gina suggested that one needs to "be able to transfer that information into exams, and also into your everyday practice in your career." Yet another student, Olivia, mentioned that "[academic success is being] able to understand the material... and... to maintain As."

Memorization vs. Understanding. Similarly, the process of using memory to pass courses versus understanding the course material factored into the students' perceptions of success. Four students (29%) mentioned that academic success means comprehending the material versus memorizing the content. Allie noted that "...it's more about working smart instead of working hard and, like utilizing your time...not necessarily just memorize everything." She added, "I think to be academically successful it's more than just memorizing what you're being taught... being able to incorporate what you're being taught into your clinical practice."

3.3 Students' experiences of in-person learning

Ninety-three percent (93%) mentioned that they had previous experiences in on-campus settings. They stated that they enjoyed being in class with their peers and forming study groups to learn the material. It was easier to engage with peers, ask questions, or form small groups to work on assignments and case studies. Students also appreciated having the ability to speak with their professors after class. In describing their experiences of virtual learning, most students contrasted virtual learning with prior experiences with in-person settings. For example, regarding rewatching recorded lectures, Irving remarked, "I found in my previous undergrad degree that half the battle for me was sitting in the classroom, paying attention, and taking notes."

Social Nature of In-Person Learning. In discussing their experiences with in-person learning, almost half of the students noted that in-person learning provided more social

encounters compared to virtual learning, either by connecting the students with better social networks, or allowing for more natural social interactions than were feasible virtually. For example, regarding in-person clinical experiences, Bailey stated, *"I was really happy to be around people, so I think it actually helped my patient interaction better because I was so excited to talk to people."* Charlotte noted that Zoom did not "have the same flow" as in-person settings. She added, *"I definitely have less of a social network to ask questions to [peers]; ...I don't have the same rapport with professors that I would have had if I was in person, because I tend to ask a lot of questions when I'm in person..."*

However, two students mentioned that they found ways to connect with peers despite the shift to virtual learning. Olivia stated, *"I don't feel like I'm missing anything with social connection.... my lab group and I are very close."* Rachel also commented that, *"I've kind of formed Zoom relationships with [lab and clinical groups]."*

Time Management. Five students mentioned time management as a skill that was critical to achieving academic success with in-person settings. When asked about returning to an in-person environment, several students mentioned they had anxiety due to traveling to, from, and between classes as an additional constraint. Additionally, four students cited the daily commute as a factor influencing their ability to succeed. Olivia felt that *"...online, my personal study strategies have not changed, with the exception of me being able to listen to lectures online and having a bit more time because there is not a commute factor."* Penny added, *"...if I end up taking public transportation...that's a whole hour out of my day that I could be doing something else... it makes me nervous."*

A New Strategy for Learning. When asked about academic strategies employed prior to going remote, four students expressed positive feedback about online learning. They cited having new strategies to achieve academic success by reviewing recorded lectures. Ernie mentioned a hybrid lecture model wherein faculty would record lectures as they taught in the classroom so that students *"...can go home and then relisten or re-watch a section of a lecture that was unclear... [and to] learn at our own pace."* When reflecting on in-person learning tactics, students perceived recorded lectures as a valuable new addition to their academic strategies that they hoped to retain when transitioning back to in-person learning.

3.4 Students' experiences of virtual learning

Students shared both positive and negative experiences in their transition to online learning during the pandemic. Gina

shared that remote learning required managing increasingly difficult coursework in addition to *"trying to figure out the new teaching style and getting ourselves ready to learn while also dealing with everything else that was going on in the world."*

Positive Experiences of Virtual Learning. All (100%) students had positive experiences with virtual learning as they had more flexibility to attend classes and more time to prepare for lectures compared to in-person learning. Allie mentioned:

"I think the biggest thing is just being able to learn how to time manage...I had to adjust my... schedule a lot more, so that I knew when everything had to be completed... and when I had the time to start all of the assignments. Then you get that in-person – you can talk things out with each other... even if we didn't have them in-person, we would do them on Zoom."

Students appreciated the ability to complete pre-work activities before class. This experience enhanced their study skills and ability to succeed. Irving found that *"making a plan and knowing step-by-step what I need to do for each assignment or exam was the best way to go about it."* They communicated that they had more autonomy over their schedule compared to in-person learning. Eighty-three percent of students (83%) mentioned that having the flexibility to study whenever they wanted was a benefit of virtual learning. Bailey realized that *"there are so many perks of [online learning], because I'm a person who does better studying in the morning and then watching my lectures at night, and that's not something you can do any other way."* Similarly, Penny stated that she *"reacted positively to [remote learning], because I'm better at attacking things in the right headspace, and when I have the right attitude, and I feel like with online learning all of our classes were kind of prerecorded, so I could look at them at my own time..."*

Negative Experiences of Virtual Learning. Although most students had positive experiences with online learning, two students (14%) had difficulty being successful in their coursework. Students mentioned that they experienced a lack of interaction with peers, feelings of isolation, a lack of ability to interact with faculty, difficulty in having interpersonal relationships, and more anxiety as social connection was lacking during the pandemic. Bailey expressed, *"... because I was home alone doing schoolwork – you get stir crazy..."* She added, *"... being alone all the time... was not that great, but I did have study groups with some friends that I made in my first lab group. So, we would study together... [and were more successful]."*

Activities to Confirm Academic Success. During the inter-

views, 86% of the students mentioned specific strategies that they used to be successful in courses. Penny mentioned “[making] myself a firm schedule and adhere to it and make sure I had days off.” Other strategies included more specific suggestions. Dan shared strategies including “... two planners...on Sunday nights...make my to-do list for the week...so it’s all written out...;” “listen to pre-recorded lectures, study every day, work with a peer group, and do textbook readings and review tables in the book;” and “... use resources that are available and [be] proactive.” Charlotte added that she is “a big flashcard person, testing myself, practice tests, and repeating processes to faculty and getting feedback from them.” Although many students had specific strategies to adjust to virtual learning, Jared did not need to make any changes to feel successful: “I don’t think my strategies have changed at all from going from like in-person... into this remote setting.”

4. DISCUSSION

The findings of this study have direct implications for current nursing education practice, including the design of orientation programs, academic coaching models, and flexible course structures that better support diverse learners. They indicate that undergraduate nursing students defined academic success as achieving strong academic performance while also developing an application of course content. Students consistently emphasized comprehension and knowledge transfer, rather than rote memorization, as central indicators of success. These results align with recent research indicating that nursing students increasingly associate academic success with clinical relevance, confidence, and the ability to apply knowledge in professional contexts, particularly during periods of instructional disruption.^[6,7]

One notable strategy identified in this study was the use of peer “teach back” methods to reinforce comprehending the course material. This approach was similarly reported in recent qualitative studies, which found that collaborative learning and peer explanation support deeper learning and improve confidence in online environments.^[8,9] As nursing education continues to incorporate virtual and hybrid modalities, emphasizing active learning strategies that promote the application of knowledge may enhance students’ perceptions of academic success.

Students described varied experiences with online learning during the COVID 19 pandemic. While some preferred in person instruction due to social interaction and ease of engagement with faculty, others reported that online learning enhanced their academic success by providing flexibility and improved time management. The mixed preferences are consistent with recent findings suggesting that nursing stu-

dent’s satisfaction with online learning is highly influenced by course organization, instructional clarity, and autonomy rather than delivery modality alone.^[9,10]

More importantly, students identified recorded lectures as a valuable academic resource that supported preparation, review, and reduced anxiety. Recent evidence supports this finding, demonstrating that access to asynchronous lecture materials is associated with improved academic performance and greater perceived control over learning.^[6,7] Students’ desire to retain recorded lectures upon returning to in person instruction highlights the potential benefits of hybrid instructional designs beyond pandemic conditions.

Consistent with prior research, students in this study reported that effective time management was critical to academic success in the online learning environments. The flexibility of virtual learning allowed students to align coursework with their personal productivity patterns and reduce time lost during commuting. Similar findings have been reported in national and international studies, in which students identified autonomy and schedule flexibility as factors that supported engagement and goal achievement in online nursing education.^[10,11]

Despite these advantages, some students reported challenges related to social isolation, limited faculty interaction, and increased anxiety. These experiences mirror previous qualitative studies that identified psychological strain and reduced social connectedness as persistent challenges in virtual nursing education during the pandemic.^[7,8] However, students who maintained virtual peer study groups and sought faculty support appeared better able to adapt and sustain academic success, reinforcing the importance of structured interaction within online courses.

Overall, findings from this study suggest that students demonstrated resilience and adaptability by modifying their academic strategies in response to rapid instructional changes. The pandemic served as an unplanned, but instructive, stress test of existing educational assumptions. While it disrupted traditional learning structures, students leveraged technology and peer support to maintain academic success. As nursing education continues to evolve toward multimodal delivery, understanding students’ definitions of academic success and the strategies they employ can inform instructional design and support services within the flexible, learner-centered models in post pandemic nursing education academic environments.

4.1 Implications for nurse educators

An overall theme from this study is that students felt more successful when they felt prepared for their coursework.

Thus, nurse educators are encouraged to provide students with pre-recorded lectures as tools for preparation and review. Having control and autonomy over coursework is necessary for students to have enhanced learning experiences to help them feel more confident in their academic ability (e.g., by being able to study in the right headspace, eliminating conflicting priorities, such as commuting). Nurse educators can assist students to build their confidence by providing supportive and inclusive learning environments whether they complete courses online or on campus. Future nursing education leaders should consider hybrid educational opportunities to allow students to have more flexibility in completing their schoolwork. This step will help to decrease their commuting time, increase time to prepare for classes, and allow for social connection.

4.2 Limitations and future research

A limitation of this study is using convenience sampling, which limits transferability to other student populations. Students self-selected into the study, which could increase bias. Additionally, students in this study reported high grade point averages (GPAs) (an average of 3.76) and were able to maintain high GPAs during the transition to remote learning. The link between academic achievement and satisfaction was explored with online learning and found that students' self-reported subjective academic achievement was positively influenced by satisfaction with virtual classes.^[6] It is noted that none of the students in this study reported GPAs below 3.11, interviews may exclude the students who are most likely to report negative attitudes toward remote learning.

This study focused on one cohort in a college of nursing. Future studies should be replicated with another cohort to determine if there is a difference when students return to on-campus and/or hybrid learning. Another limitation affecting generalizability is the college of nursing is in an urban setting in the Northeastern region of the US. This type of setting offers better access to the Internet for online resources when compared to rural areas of the US that have less broadband connection.^[12] Thus, students in rural settings and other regions of the US, may have had different experiences during the 'shelter-in-place' period of a pandemic, which may have affected their perceptions of academic success and their transitions to online learning. The study focused on didactic learning. Future studies could assess the simulation lab and clinical site to determine if students are successful in these settings.

5. CONCLUSION

This qualitative study demonstrated that undergraduate nursing students were able to achieve academic success during

the COVID 19 pandemic by adapting their learning strategies to rapidly changing educational environments. Students defined academic success not only by performance, but by their ability to understand and apply course content with confidence. Flexibility, access to recorded lectures, and peer engagement were identified as critical supports in online learning contexts. The significance of this study extends beyond its historical context.

As nursing education continues to incorporate hybrid and online approaches, these insights may inform instructional design and student support initiatives aimed at fostering preparedness, confidence, and resilience. By centering students' perspectives, this study contributes evidence to support adaptive, learner centered strategies that can enhance academic success in nursing education.

ACKNOWLEDGEMENTS

We greatly appreciate the valuable contributions of our SSIP team members Dr. Susan Egger, Dr. Mariann Kerr, and Gabrielle Santuilli for their assistance in the overall project.

AUTHORS CONTRIBUTIONS

Dr. Lisa Whitfield-Harris and Dr. Cecelia Borden were responsible for the study design and data collection. Ms. Herrighty completed the coding. Dr. Lisa Whitfield-Harris and Ms. Herrighty drafted the manuscript; all authors were involved in revising the manuscript. All authors read and approved the final manuscript.

FUNDING

This work was supported by the Stratton Foundation and Thomas Jefferson University Jefferson College of Nursing.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

INFORMED CONSENT

Obtained.

ETHICS APPROVAL

The Publication Ethics Committee of the Association for Health Sciences and Education. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

PROVENANCE AND PEER REVIEW

Not commissioned; externally double-blind peer reviewed.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

DATA SHARING STATEMENT

No additional data are available.

OPEN ACCESS

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

COPYRIGHTS

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

REFERENCES

- [1] Bozkurt A. Resilience, adaptability, and sustainability of higher education: A systematic mapping study on the impact of the coronavirus (COVID-19) pandemic and the transition to the new normal. *Journal of Learning for Development*. 2022; 9(1): 1-16. <https://doi.org/10.56059/jl14d.v9i1.590>
- [2] Ramos-Morcillo AJ, Leal-Costa C, Moral-García JE, et al. Experiences of nursing students during the abrupt change from face-to-face to e-Learning education during the first month of confinement due to COVID-19 in Spain. *International Journal of Environmental Research and Public Health*. 2020; 17(15): 5519. PMID:32751660 <https://doi.org/10.3390/ijerph17155519>
- [3] Dapremont JA. Black nursing students: Strategies for academic success. *Nursing Education Perspectives*. 2014; 35(3): 157-161. PMID:24988718 <https://doi.org/10.5480/11-563.1>
- [4] Owen AM. Failing: Nursing student perceptions and insights for success. *Nursing Education Perspectives*. 2021; 42(4): 232-234. PMID:32976218 <https://doi.org/10.1097/01.NEP.0000000000000734>
- [5] Colaizzi PF. Psychological research as a phenomenologist views it. In: Valle, R.S. and King, M., Eds., *Existential-Phenomenological Alternatives for Psychology*, Oxford University Press; New York: 1978; 48-71.
- [6] Kim S, Jeong SH, Kim HS, et al. Academic success of online learning in undergraduate nursing education programs in the COVID 19 pandemic era. *Journal of Professional Nursing*. 2022; 38: 6-16. PMID:35042591 <https://doi.org/10.1016/j.profnurs.2021.10.005>
- [7] Haanes GG, Nilsen E, Mofossbakke R, et al. Digital learning in nursing education: Lessons from the COVID 19 lockdown. *BMC Nursing*. 2024; 23: Article 646. PMID:39261882 <https://doi.org/10.1186/s12912-024-02312-1>
- [8] Abbasi S, Maleki M, Imanipour M, et al. Nursing students' experiences of teaching and learning during the COVID 19 pandemic: A systematic review and meta synthesis of qualitative studies. *International Journal of Nursing Education Scholarship*. 2024; 21(1): Article 20230094. PMID:38407250 <https://doi.org/10.1515/ijnes-2023-0094>
- [9] Alasagheirin M, Olsen JM, Mota D, et al. Examining students' online learning satisfaction during COVID 19 to inform post pandemic program planning. *Nursing Reports*. 2023; 13(1): 327-336. PMID:36976683 <https://doi.org/10.3390/nursrep13010031>
- [10] Martin B, Kaminski Ozturk N, Smiley R, et al. Assessing the impact of the COVID 19 pandemic on nursing education: A national study of prelicensure RN programs. *Journal of Nursing Regulation*. 2023; 14(Suppl. 1): S1-S67. PMID:37012978 [https://doi.org/10.1016/S2155-8256\(23\)00041-8](https://doi.org/10.1016/S2155-8256(23)00041-8)
- [11] Oducado RMF, Estoque HV. Online learning in nursing education during the COVID 19 pandemic: Stress, satisfaction, and academic performance. *Journal of Nursing Practice*. 2021; 4(2): 143-153. <https://doi.org/10.30994/jnp.v4i2.128>
- [12] Read A, Wert K. Broadband access still a challenge in rural affordable housing. Pew Foundation. 2022. Available from: <https://www.pew.org/en/research-and-analysis/articles/2022/12/08/broadband-access-still-a-challenge-in-rural-affordable-housing>