Narrowcasting Innovation Model for Extension Projects during the New Normal

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Abstract

Due to the COVID-19 pandemic, restrictions on face-to-face training and mass gatherings impacted extension activities aimed at transferring knowledge and technology to beneficiaries. This study developed a narrowcasting innovation model based on radio-based instruction and digital innovation to address these challenges. Implemented as the BukSU Bayanihan IEC Initiative Kontra COVID-19, the model transitioned extension training to radio-based modalities augmented by social media live streaming. The mixed-methods approach involved quantitative feedback via Google forms and qualitative insights from interviews and focus group discussions. This methodology effectively captured participant satisfaction, knowledge gain, and practical application across nine dimensions of the new normal, including Health and Wellness, Governance and Management, and Education. The initiative aired 40 radio episodes, which, when live-streamed on Facebook, reached 66,389 views and 143,056 people. Impact evaluation revealed high levels of satisfaction, knowledge gain, and practical application, with respondents reporting significant improvements in personal hygiene, governance, mental health coping strategies, and media literacy skills. The integration of digital platforms facilitated real-time feedback and engagement, ensuring continuous adaptation and responsiveness to community needs. The model's success underscores its potential for broader application in extension programs, particularly in crisis situations where traditional interactions are limited. This study provides valuable insights for enhancing extension services under restrictive conditions, demonstrating the narrowcasting innovation model's efficacy and scalability.

Keywords: *Narrowcasting, innovation model, new normal, community engagement, radio-based instruction*

Introduction

Extension and community engagement have been essential mandates of state universities and colleges, as embodied in the Higher Education Modernization Act of 1997 (RA 8292,

1997). Along with instruction, research, and production, extension activities play a crucial role in sustainable development and improving the quality of life, especially for marginalized communities. Extension services involve communicating, persuading, and assisting specific sectors or target clientele—distinct from those enrolled in formal degree programs—to effectively enhance production, community welfare, and institutional development (CMO 08, 2008). A significant component of extension programs is conducting training sessions to facilitate knowledge or technology transfer to beneficiaries.

The onset of the COVID-19 pandemic and the resulting health protocols to mitigate the virus's spread disrupted traditional face-to-face training and mass gatherings. This affected the conduct of existing extension programs and projects based on the modality indicated in their respective Memoranda of Agreement/Understanding. As the situation progressed into the New Normal, restrictions on face-to-face activities and mass gatherings remained due to the rising number of COVID-19 cases and pending vaccination efforts in the Philippines. Consequently, there was a pressing need to explore alternative modalities, platforms, or approaches for conducting extension services.

Narrowcasting, a targeted communication strategy, has gained significant attention over the past decade. Barasch and Berger (2014) explored how audience size impacts content sharing, suggesting that people are more likely to share information when they know it will reach a targeted, smaller audience. This principle underpins the effectiveness of narrowcasting in various applications, from marketing to public health campaigns. Goncalves, Kostakos, and Venkatanathan (2013) investigated narrowcasting on social media, finding that users perceive narrowcasted messages as more relevant and engaging compared to broadcasted content. This relevance and engagement are critical for extension services, where the goal is to provide pertinent information to specific community segments.

In the educational sector, Ciriello, Richter, and Schwabe (2018) highlighted the role of digital innovation in enhancing narrowcasting. They demonstrated how digital tools could tailor educational content to meet the needs of diverse learners, thereby improving learning outcomes. This integration of digital innovation with narrowcasting can be particularly beneficial for extension services, enabling the delivery of customized training programs to various beneficiary groups.

Radio-based instruction (RBI) has proven effective at supporting teacher-led learning (McBurnie, 2020). Philippine radio infrastructure data showed that 85% of households had radio coverage in 2013, though this had decreased to 51% in 2017. At least 49% of rural households in the Philippines in 2017 had radios (UNESCO, 2013; Philippine DHS Survey, 2017). This was why RBI was selected as a modality of learning in light of the COVID-19 crisis. With some 826 million students worldwide having no access to a computer at home (UNESCO Institute of Statistics & Teacher Task Force, 2020), the value of educational broadcasts through television and radio extends beyond the needs of students alone.

Digital innovation involves innovating products, processes, or business models using digital technology platforms as a means or an end within and across organizations (Ciriello et al., 2018). Many radio programs have migrated to digital platforms (e.g., FB live streaming, teleradios, video conferencing platforms) to widen their audience and add a visual component to the audio

platform. This integration is essential for enhancing audience reach and interactivity (Ciriello et al., 2018).

Despite the extensive research on narrowcasting, radio-based instruction, and digital innovation, there are notable gaps in the literature concerning the integration of these modalities for extension services during crises like the COVID-19 pandemic. While the existing literature provides valuable insights into the benefits of narrowcasting, there is limited research on its application in extension services, particularly during crises like the COVID-19 pandemic. Most studies have focused on narrowcasting in marketing, social media, and education, with insufficient attention to its potential in community engagement and development projects. Previous studies have primarily focused on each modality in isolation, rather than examining their combined potential to enhance extension services under restrictive conditions.

This study aimed to develop and evaluate a narrowcasting innovation model that integrated narrowcasting, radio-based instruction, and digital innovation for extension services. By focusing on a specific target population and leveraging digital platforms, this model sought to address the limitations of face-to-face training and mass gatherings during crisis situations. This research provided empirical evidence on the effectiveness of this integrated approach and offered insights into improving extension service delivery under similar circumstances.

Research Objectives

This study aimed to achieve the following objectives:

1. Create a Narrowcasting Innovation Model that combines narrowcasting, radio-based instruction, and digital innovation for extension services;
2. Examine how the narrowcasting innovation model can disseminate critical information and engage the community; and
3. Consider the potential for scaling and adapting the narrowcasting innovation model for wider use in extension programs.

Framework

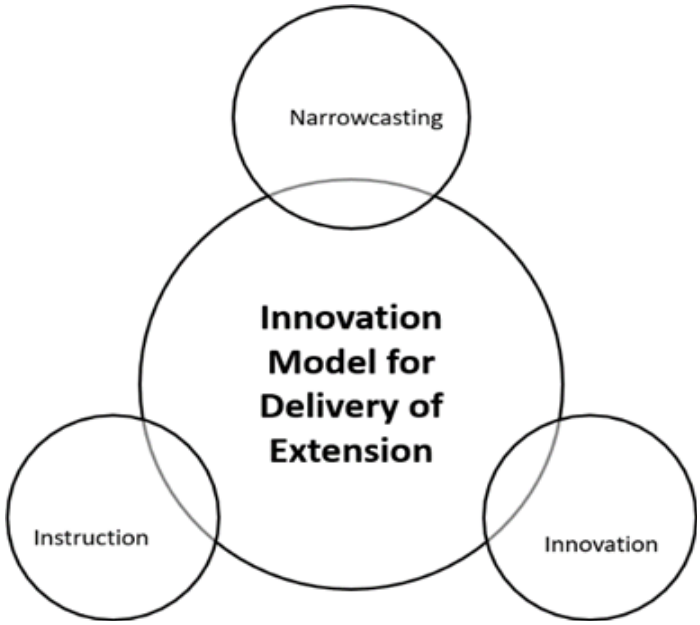
This study is grounded in several key theories and concepts that provide a solid foundation for developing the narrowcasting innovation model. The primary theories anchoring this study are the diffusion of innovations theory, social cognitive theory, and community of practice theory.

Diffusion of innovations theory, developed by Rogers, explains how new ideas and technology spread through cultures. It focuses on the concepts of innovation, communication channels, time, and social systems. This theory is particularly relevant to the narrowcasting innovation model as it aims to introduce and diffuse new methods of information dissemination and community engagement during crisis situations (Rogers, 2003). On the other hand, the social cognitive theory, developed by Bandura, emphasizes the importance of observational learning, imitation, and modeling. It involves concepts like self-efficacy, behavioral capability, and observational learning. This theory is relevant to the model as it utilizes radio-based instruction and digital innovation, which rely on observational learning and the community's capability to engage with new forms of media (Bandura, 1986).

The community of practice theory, introduced by Wenger, describes groups of people who share a concern or passion for something they do and learn how to do it better as they interact regularly. Key elements include mutual engagement, joint enterprise, and shared repertoire. This theory is relevant as the model fosters a community of practice by engaging community members through narrowcasting and digital platforms to share knowledge and practices (Wenger, 1998).

The conceptual framework for the narrowcasting innovation model is built around the integration of narrowcasting, radio-based instruction, and digital innovation. These components work together to create an effective model for information dissemination and community engagement. This is illustrated in Figure 1.

Figure 1
Model for Information Dissemination and Community Engagement



Narrowcasting, defined as the transmission of information to a specific, narrow audience rather than the general public, allows for targeted information delivery to specific community groups, making communication more relevant and effective (Goldstein & Giglio, 2001). Radio-based instruction is a method of delivering educational content through radio broadcasts, providing an accessible means of education, especially in remote areas or during situations where face-to-face interactions are limited (Chapman & Adams, 2002). Digital innovation, defined as the application of digital technology to improve processes and services, enhances the reach and interactivity of the model, allowing for real- time feedback and greater engagement (Yoo et al., 2012).

The narrowcasting innovation model combines these components to form a cohesive approach to extension services during crisis situations. The model starts with narrowcasting to deliver tailored content to specific community groups. Radio-based instruction (RBI) ensures that this content is accessible even in areas with limited digital infrastructure. Digital innovation complements these efforts by enhancing interactivity and engagement, creating a dynamic and responsive system for knowledge dissemination and community involvement.

The integration of narrowcasting, RBI, and digital innovation creates a robust framework for delivering extension services in the new normal. By using narrowcasting principles, the target audience is segmented based on specific criteria such as geographic location, demographics, and community needs, ensuring that the content delivered is highly relevant to the intended beneficiaries. The segmented audience receives tailored educational content through RBI, with radio programs designed to address their specific needs and interests. These radio programs are simultaneously live- streamed on digital platforms such as Facebook, broadening the reach of the programs and allowing for interactive elements like real-time questions and feedback from the audience. Digital tools also provide analytics to understand audience engagement and preferences, creating a feedback loop that ensures continuous improvement and adaptation of the extension services to meet the evolving needs of the community.

By integrating these three elements, the model addresses the limitations of face-to-face training and mass gatherings during crisis situations, providing a scalable and effective solution for delivering extension services. Narrowcasting ensures that the content is relevant and engaging for the specific target audience, enhancing the impact of the extension services. RBI provides a reliable and accessible medium for delivering educational content, especially in areas with limited internet connectivity. Digital innovation enhances the reach and interactivity of the radio programs, allowing for real-time engagement and data-driven improvements. Together, these components create a cohesive and dynamic model that enhances the delivery of extension services in challenging circumstances.

In the design and development phase, the extension project was formulated and developed into a comprehensive proposal using the identified issues and gaps from the needs assessment. The proposal included essential components such as the rationale, required resources (physical, human, and financial), expected outputs and outcomes, anticipated program impact, and a schedule of activities including a Gantt Chart, process table, and operational or action plan. This phase also focused on developing the innovation model, where the roles of key players (extensionists and partners) were defined. Information, Education, and Communication (IEC) materials such as infomercials, infographics, and broadcast flow were created. The strategies involved were interdisciplinary human resources since this was a university-wide project and forging partnerships with key stakeholders for the necessary human and financial resources.

The implementation phase focused on executing the operational or action plan formulated in the design and development phase. This phase included the participation of extensionists, partners, and beneficiaries. It was crucial because it was where the developed model was implemented and pilot-tested. Strategies used included mentoring among extensionists, research-based questions from viewers and listeners, multiple platforms (radio and Facebook live), and interactive sessions between anchors, resource speakers, and viewers.

The model's premise is to migrate extension training or capacity development to a radio-based platform since face-to-face training and mass gatherings pose COVID-19 health hazards. Besides analog radio, the extension training is also live-streamed on Facebook as part of its digital innovation. More people have access to Facebook than analog radios, and metrics can be derived from the FB video to identify the number of viewers and people reached. One challenge of FB live streaming is that many people lack sufficient data to watch an entire video. Narrowcasting is thus employed to identify the essential topics for discussion and target the appropriate audience for the digital radio broadcast.

Methodology

This study employed a mixed-methods approach to investigate the effectiveness and impact of the narrowcasting innovation model in Malaybalay City, Bukidnon, Philippines. By integrating qualitative and quantitative research designs, the study aimed to provide a comprehensive analysis that combines the depth of qualitative insights with the generalizability of quantitative data. Malaybalay City was selected as the research locale due to its active participation in the BukSU Bayanihan IEC Initiative Kontra COVID-19 Pandemic, making it an ideal setting to evaluate the narrowcasting model.

Participants in this study included residents who engaged with the COVID-19 Special Coverage on dxBU radio programs and related Facebook Live broadcasts. The participant cohort was diverse, ensuring a representative sample that included various demographic groups. A total of 33 respondents participated in the impact evaluation, with 57.6% being female. Purposive sampling was employed to select participants who had direct interaction with the narrowcasting content, ensuring that the feedback collected accurately reflected the model's actual audience.

Data collection utilized a combination of instruments tailored to capture both quantitative and qualitative insights. Google Forms were used to gather quantitative feedback on participant satisfaction, knowledge gain, and practical application of the information provided. Qualitative data were gathered through interviews, focus group discussions, and observation checklists during program broadcasts, providing deeper insights into participant experiences and the contextual relevance of the narrowcasting model.

The research followed the four major phases of the narrowcasting innovation model: conceptualization, design and development, implementation, and monitoring and evaluation. The conceptualization phase began with a comprehensive needs assessment, involving stakeholder consultations and qualitative and quantitative methods to identify program requirements and participant perspectives. This phase also included resource planning and participant selection criteria that prioritized inclusivity and relevance to program objectives.

During the design and development phase, stakeholder input guided the structuring of the project into five components, fostering partnerships to ensure comprehensive design and effective resource allocation. The implementation phase involved continuous monitoring to align activities with objectives, with real-time feedback collected via Google forms after each episode to guide adjustments and maintain responsiveness across radio and online platforms.

Data analysis employed descriptive statistics for quantitative data and thematic analysis for qualitative insights, providing a comprehensive understanding of the model's effectiveness and impact. Ethical considerations were paramount throughout the study, ensuring informed consent, data confidentiality, and compliance with data protection regulations to uphold participant privacy and ethical integrity in all aspects of data collection and dissemination.

Results

Needs Assessment

The relevance of the innovation model as an alternative platform for extension activities was highlighted during President Rodrigo Duterte's declaration of a State of Calamity across the Philippines and the imposition of an enhanced community quarantine (ECQ) (Proclamation

no. 929). As COVID-19 spread globally, misinformation also proliferated, hindering effective pandemic response efforts. In response, BukSU and the City Government of Malaybalay initiated the BukSU Bayanihan IEC Initiative Kontra COVID-19 Pandemic. This initiative aimed to provide the residents of Malaybalay City with reliable information regarding COVID-19, which was crucial for effective extension activities. The IEC initiative served as a prototype for the narrowcasting innovation model, focusing on the transfer of technology and knowledge through information dissemination.

The first component of the IEC initiative involved the COVID-19 Special Coverage on two dxBU radio programs, Morning Sunshine and Binukid-On-Air. From April 6, 2020, to May 29, 2020, these programs aired 40 episodes covering nine dimensions of the COVID-19 crisis: Health and Wellness, Governance and Management, Culture, Education, Mental Health, Media Literacy, Spirituality, Legal, Economics, and Food Security. Despite the radio station's limited reach of a 10-watt, 25-km radius, Facebook Live expanded the audience, achieving 66,389 views and reaching 143,056 people. The second component involved developing and disseminating COVID-19 infographics and radio plugs. The Instructional Materials Development Center, College of Social Development and Technology, University Guidance Center, and the Bukidnon Studies Center produced five infographics, two radio plugs, and one radio drama in Cebuano and Binukid dialects.

An impact evaluation was conducted using Google forms, with 33 respondents, 57.6% of whom were female. Table 1 summarizes the initiative's impact, confirming Barasch and Berger's (2014) assertion that narrowcasting motivates the sharing of valuable content. Respondents indicated a high intention to recommend DXBU and apply lessons learned from the episodes in their daily lives. The respondents also identified specific skills they would apply in daily life after listening to or watching the episodes. Table 2 shows these skills. Specific skills to be applied included observing rules and behaviors in the dimension of Governance and Management, improved personal hygiene in Health and Wellness, increased responsibility and coping abilities in Mental Health and Spirituality, observing rules and a willingness to learn new things in Education, cultural integration from episodes on Culture, teamwork, problem-solving, numeracy, ICT, and digital media skills in Media Literacy, awareness of rights and responsibilities and observing rules in Legal Systems, and increased responsibility and willingness to learn new things in Economics and Environmental Governance. These results indicate that the narrowcasting model effectively addressed various aspects of daily life and crisis management, highlighting its potential for broader application in extension programs.

Table 1
Impact of the COVID-19 IEC Initiative

Dimension	Level of Satisfaction with the episodes/ topics under this dimension*		New Knowledge Gained**		Better Coping during the COVID-19 crisis as a result of the informa- tion provided by the episodes**		Plan to apply what was learned in the episode**		Level of Motivation to recommend DXBU to others after watching the episodes***	
	Mean	QD	Mean	QD	Mean	QD	Mean	QD	Mean	QD
GM	4.727	VMS	4.606	SA	4.575	SA	4.697	SA	4.788	VH
HW	4.697	VMS	4.606	SA	4.576	SA	4.606	SA	4.727	VH
MH	4.637	VMS	4.606	SA	4.576	SA	4.667	SA	4.758	VH
ED	4.719	VMS	4.625	SA	4.563	SA	4.75	SA	4.813	VH
Culture	4.657	VMS	4.5	SA	4.594	SA	4.563	SA	4.719	VH
LS	4.594	VMS	4.563	SA	4.563	SA	4.563	SA	4.719	VH
ML	4.594	VMS	4.563	SA	4.688	SA	4.594	SA	4.781	VH
S	4.688	VMS	4.563	SA	4.594	SA	4.656	SA	4.781	VH
EFS	4.563	VMS	4.688	SA	4.531	SA	4.563	SA	4.719	VH
WG	4.594	VMS	4.5	SA	4.531	SA	4.594	SA	4.594	VH

Table 2
Specific Life Skills from the IEC

Dimension	Skills to be applied in daily undertakings after listening/ watching the episodes	Frequency	Percentage
GM	Observing rules and behaviors,	28	84.8%
HW	Improved personal hygiene	25	75.8%
MH	Increased Feelings of Responsibility	20	60.6%
	Strengthened ability to cope in times of difficulties	20	60.6%
EED	Observing rules and behaviors	22	68.8%
	Willingness to learn new things	22	68.8%
Culture	Cultural integration	22	68.8%
LS	Improved awareness of rights and responsibilities	22	68.8%
	Observing rules and behaviors	22	68.8%
ML	Acquisition of key skills (i.e. team working, problem solving, numeracy skills, ICT and digital media skills)	21	65.6%
S	Observing rules and behaviors	17	53.1%
	Strengthened ability to cope in times of difficulties	17	53.1%
EFS	Increased feelings of responsibility	17	53.1%
	Strengthened ability to cope in times of difficulties	17	53.1%
	Willingness to learn new things	17	53.1%
	Improved awareness of rights and responsibilities	17	53.1%
EG	Increased feelings of responsibility	20	62.5%
	Willingness to learn new things	20	62.5%
	Community Participation	20	62.5%

Legend:

GMT – Governance and Management
MH – Mental health
LS – Legal Systems
EFS – Economics and Food Security
HW – Health and Wellness
ED – Education
ML- Media Literacy
EG – Environmental Governance
S- Spirituality

For media literacy, the respondents said they had acquired vital skills such as teamwork, problem- solving, numeracy skills, ICT, and digital media skills. For the dimension of legal systems, the respondents attest to improved awareness of rights and responsibilities and observing rules and behaviors. For economics and environmental governance, the participants gained increased feelings of responsibility and willingness to learn new things.

Prototyping the Narrowcasting Innovation Model

With the established impact of the COVID-19 IEC Initiative, the narrowcasting innovation model was prototyped as a university extension program. The general objective of the extension program was to provide a platform for open discussion on the guidelines, challenges and opportunities in the New Normal based on accurate and reliable information. The extension program was a tripartite agreement between the university, the City Government of Malaybalay, and the Office of the Representative of the Second District of Bukidnon Atty. Jonathan Keith Flores.

Narrowcasting was still employed vis-à-vis the selection of the nine dimensions of the initiative and its context in the new normal. Target beneficiaries were identified based on the data from the needs assessment. This included the youth, IP communities, government agencies and workers, and members of academic institutions. The model shows the nine dimensions that guided extensionists to select specific topics and appropriate resource persons for the target sector or audience. Each episode was aired via DXBU radio station and streamed in Facebook.

An online conferencing platform was also utilized so that guests' coming outside of Bukidnon would not need to be physically within the station. The program was conducted every Wednesday from 9 to 11 AM. Its pilot was episode aired on August 5, 2020. From the pilot airing to the present, 19 episodes had been aired. Based on FB metrics, these episodes have accumulated 43,699 views and reached 115,497 people. Table 3 details the FB metrics of Episodes 1-19.

Aside from the digital radio program, the extensionists produced print materials and radio plugs on the guidelines of the new normal. These IEC materials are in the local and indigenous (Binukid) dialect. Content validation of these materials was conducted prior to dissemination.

Table 3
Facebook Metrics of Episodes 1-19

Episode No.	Number of Views [A]	Number of People Reached
1	4,508	14,338
2	1,900	5,969
3	7,800	19,866
4	4,600	9,874
5	1,993	3,765
6	1,200	3,666
7	4,200	8,090
8	3,600	7,514
9	1,295	3,360
10	908	2,942
11	1,953	3,739
12	1,365	3314
13	1,450	3770
14	2165	5453
15	963	7712
16	1009	4616
17	886	2121
18	797	2884
19	1107	2504
TOTAL	43,699	115,497

[A]3-second views

Analysis of the episodes revealed that the one with the highest engagement was Episode 4, which focused on culture and development and discussed the status of IP Schools amidst the pandemic. This episode's popularity reflects the community's interest in cultural and educational topics. Evaluation after each episode, with 1,196 responses collected, indicated a grand mean score of 4.51 across six indicators, demonstrating the model's effectiveness in meeting organizational needs, delivering timely services, and providing opportunities for skill application. This aligns with Goncalves et al. (2013), who identified narrowcasting as an engaging and privacy-sensitive strategy on online platforms.

After each episode, evaluation was done via Google forms. For the 19 episodes, 1,196 answered the online evaluation form. The mean scores of the six indicators indicate the best performance. The grand mean is 4.51. This is illustrated in Table 4. This means that the model is effective in addressing the needs of organizations/institutions, timely in the delivery of services, and provides opportunities for the application of skills. The positive feedback and high engagement levels confirm the narrowcasting innovation model's potential as a robust extension tool, effectively addressing community needs and fostering meaningful information exchange. This confirms the

findings of Goncalves et al. (2013) that narrowcasting is an effective strategy for online social platforms, especially in relation to addressing privacy issues. Users also found narrowcasting as an interesting and engaging way of thinking about sharing (Goncalves et al, 2013).

Table 4
Evaluation of 19 Episodes of COVID-19 IEC Initiative

Indicator	Mean	Description
The objective of the program addresses the needs of my institution/ organization or community.	4.50	Best
The program is timely in its delivery of information/services.	4.49	Best
The program is relevant in addressing the needs of my institution/organization or community.	4.53	Best
The program offers opportunity for me to apply the information/ser- vices to my institution/organization or community	4.50	Best
The program offers information/services that address the need of my institution/organization or community.	4.52	Best
The episode conforms to the objective of ensuring that the general public understands the challenges and opportunities in the New Normal	4.52	Best
AVERAGE	4.51	Best

N=1,196
Legend: 1.00 – 1.80 Poor
1.81 – 2.60 Needs Improvement
2.61 – 3.40 Good
3.41 – 4.20 Better
4.21 – 5.00 Best

The results of this study clearly indicate that the narrowcasting innovation model, utilizing a combination of radio-based instruction and digital innovation, successfully addressed the challenges posed by the COVID-19 pandemic. The model's ability to disseminate critical information across multiple dimensions of the new normal was demonstrated through the significant reach and engagement achieved via radio broadcasts and social media live streams. High levels of satisfaction, knowledge gain, and practical application among the respondents underscore the model's effectiveness. Improvements reported in personal hygiene, governance, mental health coping strategies, and media literacy skills further validate the model's impact. The integration of digital platforms not only enhanced audience interaction and feedback but also ensured the continuous evolution and adaptability of the extension services. Overall, the narrowcasting innovation model proved to be a robust and scalable framework for knowledge dissemination and community engagement, offering a viable alternative to traditional extension methods in times of crisis and beyond.

Discussions

The narrowcasting innovation model has emerged as a crucial platform for extension projects and activities during the COVID-19 pandemic, effectively addressing restrictions on face-

to- face training and mass gatherings. Feedback from program listeners and viewers confirms its relevance and responsiveness to the current constraints, highlighting its potential for knowledge and technology transfer during training sessions. This model is particularly significant in crises such as pandemics, wars, and natural disasters, where traditional face-to-face methods are impractical (Deroncele-Acosta et al., 2023; Li et al., 2021).

However, the implementation of the narrowcasting innovation model is not without challenges. Firstly, it relies heavily on radio and internet access, which may be limited in remote extension sites. Secondly, monitoring beneficiaries primarily through Facebook metrics presents a limitation, as a comprehensive system for tracking radio listeners is yet to be developed. Thirdly, the response rate for online evaluations tends to be low, which can affect the assessment of program effectiveness. Finally, extensionists need additional training in radio program development and hosting to enhance the program's impact (Deroncele-Acosta et al., 2023; Li et al., 2021; Bertello et al. 2022).

Comparing the narrowcasting model with other educational innovations during the pandemic, such as Thinking-Based Instruction (TBI), underscores its unique contributions and limitations. TBI has shown significant improvements in course quality, student motivation, and online learning behaviors by integrating interactive and competency-based learning strategies. While TBI addresses some of the engagement and motivation issues prevalent in online education, the narrowcasting model focuses on disseminating knowledge through more traditional media, augmented by digital tools (Li et al., 2021).

In summary, while the narrowcasting innovation model offers an effective alternative for extension programs under restrictive conditions, addressing its limitations through further research and capacity-building efforts is essential. This includes developing better monitoring systems, improving response rates for online evaluations, and enhancing the skills of extensionists in digital and radio communication (Deroncele-Acosta et al., 2023; Bertello et al. 2022).

Conclusion

The narrowcasting innovation model represents a promising alternative for delivering extension services during crisis situations such as pandemics. This approach ensures focused information dissemination to specific target populations, with the integration of digital innovation into radio-based instruction enhancing the reach and effectiveness of extension programs.

The potential of the narrowcasting innovation model for extension services extends beyond the pandemic. Its flexibility and adaptability make it a powerful tool for ensuring the continuity of educational and developmental programs during various crises, including natural disasters and conflicts. By leveraging technology and focusing on targeted information dissemination, the narrowcasting model can significantly contribute to the resilience and effectiveness of extension services globally. This model not only addresses the immediate challenges posed by crises but also lays the groundwork for a more resilient and adaptive approach to extension services in the future.

Recommendations

To improve and adapt the narrowcasting model for various contexts, future research should focus on several key areas. Developing a robust system for monitoring and evaluating the impact of radio-based instruction, beyond relying solely on digital metrics, is essential. Implementing mixed- method approaches, combining quantitative and qualitative data, can provide a more comprehensive assessment of program effectiveness. Increasing the accessibility of radio and internet in remote areas through infrastructure development and policy support can ensure broader reach and inclusivity. Capacitating extensionists in digital and radio communication techniques through targeted training programs can enhance the overall impact and sustainability of the model.

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