

## Library Innovation and Use of Makerspaces for Service Delivery in Public Libraries: a Case of Enugu State Library Board

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### **ABSTRACT**

*The research examined library innovation and use of makerspaces for service delivery in public libraries: A case of Enugu state library board. This study adopts the survey research design. The sample population of the study comprised of 100 respondents from library patrons from public libraries in Enugu State using the purposive sampling technique. The reason for the adoption of the purposive sampling method was to select participants who are familiar with library services and potential patrons of makerspaces. The observation checklist and questionnaire were the research instruments used for data collection. The instrument was validated by 3 experts. The Cronbach Alpha a reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.79 was gotten. Data collected was analysed using descriptive statistics of mean scores. The study found that the patrons in public libraries are not aware of the makerspaces in Enugu state. The extent of makerspace usage in public libraries for service delivery in Enugu State remains relatively low. There is a strong consensus among respondents on the positive impact of makerspaces within public libraries. The challenges affecting the implementation of library innovation in the use of makerspaces for service delivery in public libraries were funding, staff training, administrative support, and equipment maintenance, among others. In conclusion, the study highlights key gaps and opportunities for enhancing makerspace utilization in public libraries. Findings reveal limited awareness among patrons, resulting in the underuse of makerspace facilities for service delivery. The study recommended the implementation of awareness campaign through community outreach programs, social media, and library-hosted events to educate patrons on the availability and benefits of makerspaces. This could include demonstrations, workshops, and collaborations with local schools and organizations to increase visibility and engagement with makerspaces.*

**Keywords:** *Library Innovation, Makerspaces, Artificial Intelligence, Service Delivery, Public Libraries, Enugu State Library Board*

### **Introduction**

In recent years, public libraries worldwide have been undergoing a transformative shift, driven by advancements in digital technology, user expectations, and

the need to remain relevant in an information-centric society (Agim, Obiekwe & Eneh, 2020). A prominent innovation within this landscape is the integration of makerspaces—creative spaces equipped with tools and resources that encourage community-driven projects and experiential learning. Makerspaces empower library users

by providing access to technology and fostering a culture of creation and innovation, thus extending the traditional role of libraries from information consumption to active knowledge production. This trend is gaining momentum globally, as libraries seek to cater to diverse user needs and enhance service delivery through innovative, user-centered spaces (Horrigan, 2020; Ezeani & Ukwoma, 2019).

Some public libraries in Nigeria are similarly beginning to explore the benefits of makerspaces as a tool for enhancing service delivery, skill development, and community engagement. In Nigeria, library innovation is vital, as libraries often serve communities with limited access to digital resources and technology (Okezie & Okafor, 2021). Implementing makerspaces within libraries not only provides access to such resources but also positions libraries as centers for local innovation and lifelong learning, allowing them to cater to a broad demographic—from students and researchers to entrepreneurs and hobbyists (Onuoha & Ogujiuba, 2022).

Makerspaces can vary significantly in form, offering access to a range of equipment, including 3D printers, digital media production tools, coding stations, and hands-on crafting materials (Doe, 2018). These facilities help bridge the digital divide by providing underserved communities with opportunities for hands-on learning and creativity (Ahmed, 2022). Studies indicate that such environments can foster innovation, improve problem-solving skills, and encourage a deeper engagement with technology (Omotosho et al., 2020; Kuhlthau, 2023). However, despite the documented benefits of makerspaces in other regions, Nigerian libraries, particularly in Enugu State, are still in the preliminary stages of integrating these spaces. This lag in adopting library innovations is often attributed to infrastructural and funding challenges, inadequate staffing, and limited understanding of the potential value of makerspaces (Igwe & Onyebuchi, 2021).

As public libraries aim to redefine their relevance in the digital age, there is a pressing need to explore how makerspaces can enhance service delivery, foster community engagement, and support local socio-economic development in Nigeria (Nwosu & Ude, 2021). This study, therefore, seeks to examine the impact of library innovation, particularly the adoption of makerspaces, on service delivery in public libraries in Enugu State.

### **Statement of the Problem**

Public libraries in Enugu State, like many across Nigeria, face numerous challenges in adapting to the digital age and maintaining relevance in their communities. While makerspaces have proven to enhance library services by fostering creativity, skill acquisition, and community involvement, their implementation remains scarce in Nigerian libraries. Limited financial resources, inadequate infrastructure, and lack of skilled personnel are among the factors impeding the integration of these spaces (Omotosho et al., 2020; Igwe & Onyebuchi, 2021). Additionally, there is a dearth of empirical research on the effectiveness of makerspaces in enhancing library service delivery within the Nigerian context, making it difficult to advocate for their adoption on a larger scale. Given these challenges, there is a need to evaluate the potential of makerspaces in improving service delivery in public libraries in Enugu State. This study therefore seeks to fill the gap by providing empirical evidence on the subject matter through the examination of the following objectives:

1. To examine the awareness of makerspaces in public libraries in Enugu state Library Board
2. To determine the extent of use of makerspaces for service delivery in public libraries in Enugu State.
3. To assess the impact of makerspaces on service delivery within public libraries in Enugu State.
4. To identify the challenges associated with implementing library innovation in the use of makerspaces

for service delivery in public libraries in Enugu State.

## **Review of Related Literature**

### **Library Innovation**

Library innovation refers to the continuous process of developing new strategies, technologies, and services to enhance library offerings and meet the evolving needs of patrons. Traditionally, libraries have served as repositories of information and knowledge, but the rapid evolution of technology has prompted libraries to adopt digital tools, interactive programs, and user-centered services to stay relevant (Horrihan, 2020; Okezie & Okafor, 2021). Innovations in libraries may include the adoption of digital resources, automation of library management systems, introduction of mobile library applications, and integration of makerspaces for hands-on learning. These changes aim to improve access, enhance engagement, and foster a dynamic learning environment that serves a broader range of users, particularly in developing countries where digital resources may be limited (Ezeani & Ukwoma, 2019). By embracing such innovations, libraries not only improve user satisfaction but also extend their role as catalysts for community development.

### **Makerspaces**

Makerspaces, often called “innovation hubs,” are designated areas within libraries that provide access to tools, technology, and materials for hands-on learning and creative projects. These spaces encourage users to create, collaborate, and explore new skills by providing resources such as 3D printers, digital media equipment, crafting materials, and coding software (Ahmed, 2022). Makerspaces have transformed libraries from passive environments into active learning spaces that foster innovation, problem-solving, and digital literacy (Igwe & Onyebuchi, 2021). They play a critical role in bridging the digital divide, especially in low-resource communities, by granting access to

equipment that users may not otherwise be able to afford (Omotosho, Adekunle, & Salami, 2020). In Nigeria, the introduction of makerspaces in public libraries is gradually gaining traction as an innovative approach to support skill development and community engagement (Onuoha & Ogujiuba, 2022).

### **Service Delivery**

Service delivery in libraries encompasses the mechanisms and processes through which libraries provide information, resources, and support to their users. Effective service delivery is pivotal for libraries, as it directly impacts user satisfaction and the overall utilization of library resources (Agim & Oraekwe, 2019). Libraries have traditionally focused on resource provision, but with technological advances, service delivery has expanded to include virtual reference services, online databases, and personalized research assistance (Kuhlthau, 2023). For public libraries, particularly in developing nations like Nigeria, enhancing service delivery requires addressing issues such as staffing, resource accessibility, and infrastructure (Nwosu & Ude, 2021). Improved service delivery not only meets the educational and informational needs of the community but also positions libraries as essential partners in local socio-economic development (Onyeka & Okafor, 2022).

### **Utilization**

Utilization in the library context refers to the extent to which library resources and services are used by patrons. High levels of utilization indicate that the library is effectively meeting the needs of its users, while low utilization suggests that there may be barriers such as lack of awareness, limited accessibility, or inadequate resources (Igwe & Onyebuchi, 2021). Factors influencing library utilization include the availability of digital resources, accessibility to physical spaces, and the adaptability of services to user preferences (Horrihan, 2020). In Nigeria, studies have shown that utilization of public libraries remains low in some areas due to outdated resources and limited

funding for modern services (Okezie & Okafor, 2021). Addressing these challenges by adopting new technologies and promoting digital literacy can increase library utilization and improve the relevance of libraries within communities (Doe, 2018).

### **Public Libraries**

Public libraries are community-oriented institutions that provide free access to information, knowledge, and cultural resources. Unlike academic libraries, which serve educational institutions, public libraries cater to the general public, offering resources that support lifelong learning, recreational reading, and community development (Agim & Azolo, 2022). The role of public libraries has evolved significantly, particularly in the digital era, as they now also provide access to digital media, internet services, and programs that foster community engagement and skill development (Ahmed, 2022). In Nigeria, public libraries play a crucial role in bridging the educational gap by offering access to resources that are often unavailable to disadvantaged communities (Okezie & Okafor, 2021). However, challenges such as inadequate funding, lack of infrastructure, and limited digital resources hinder their full potential in serving as hubs for information and community building (Omotosho et al., 2020; Onuoha & Ogujiuba, 2022).

### **How library innovation in the use of makerspaces can enhance service delivery in public libraries**

Library innovation through the use of makerspaces has the potential to significantly enhance service delivery in public libraries by providing new ways for community engagement, skill development, and lifelong learning. Makerspaces are creative areas equipped with resources such as 3D printers, digital tools, and other craft supplies that enable patrons to create, collaborate, and experiment. This innovation shifts the traditional role of libraries from passive information repositories to active learning environments, encouraging creativity and digital literacy (Ezeani & Ukwoma, 2019). By offering makerspaces,

public libraries can attract a wider range of users, including students, entrepreneurs, and community members seeking new skills, thereby enhancing the library's relevance and accessibility within its community (Horriagan, 2020).

The integration of makerspaces in public libraries also facilitates hands-on learning experiences, which are essential in promoting digital literacy and technology skills. Many communities, particularly in developing countries like Nigeria, face challenges in accessing digital resources and technology (Igwe & Onyebuchi, 2021). Makerspaces provide free access to advanced tools and technology, thus bridging the digital divide and allowing underserved populations to explore and develop valuable skills that are often unattainable elsewhere. Studies have shown that these spaces promote problem-solving and critical thinking, as they encourage patrons to engage directly with technology (Omotosho et al., 2020). As a result, makerspaces in public libraries not only enhance service delivery but also foster digital inclusion, contributing to community-wide socio-economic development.

Moreover, makerspaces encourage collaboration and community building, which are crucial for modern library service delivery. By hosting workshops, collaborative projects, and community events, makerspaces create opportunities for patrons to learn from each other and engage in peer-to-peer knowledge sharing (Ahmed, 2022). This collaborative environment strengthens the library's role as a community hub, where people of diverse backgrounds can come together to innovate and solve common challenges. In Nigeria, public libraries have begun to embrace this model as a means to increase user engagement and foster a sense of community ownership, as patrons find value in spaces that go beyond traditional library services (Onuoha & Ogujiuba, 2022). As public libraries evolve to meet contemporary needs, makerspaces serve as a practical and impactful way to

enhance both library services and community cohesion.

Finally, the presence of makerspaces can improve the overall service delivery of public libraries by introducing new service models and expanding the library’s role as a local resource center. Offering innovative, tech-based services increases the public library’s appeal, making it a destination for individuals who might not otherwise frequent libraries (Okezie & Okafor, 2021). Public libraries can leverage makerspaces to support entrepreneurship, digital skills training, and personal growth, thereby creating new service avenues that align with community needs. For instance, in regions with limited economic opportunities, makerspaces can provide the resources needed for small businesses and startups to prototype products or develop marketing materials, thereby supporting local economic growth (Doe, 2018; Igwe & Onyebuchi, 2021). By adopting this model, public libraries enhance their ability to deliver services that are relevant, practical, and

transformative, ensuring their place as indispensable community institutions.

**Methodology**

This study adopts the survey research design. The sample population of the study comprised of 100 respondents from library patrons from public libraries in Enugu State using the purposive sampling technique. The reason for the adoption of the purposive sampling method was to select participants who are familiar with library services and potential patrons of makerspaces. The observation checklist and questionnaire were the research instruments used for data collection. The instrument was validated by 3 experts. The Crombach Alpha a reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.79 was gotten. Data collected was analyzed using descriptive statistics of mean scores and standard deviation

**Results**

**Table 1: Observation checklist on awareness of makerspaces in public libraries**

S/N	Items	Aware	Not Aware
1	I know about 3D printing in makerspaces		x
2	I am aware of Coding and robotics in makerspaces		x
3	I have the knowledge of Craft and DIY (do it yourself) in makerspaces		x
4	I know about Media and Digital Production in Makerspaces		x
5	I have heard about Virtual Reality (VR) Makerspaces		x
6	I am aware of Game Design and Development in Makerspaces		x
7	I have the knowledge of Textile and Fashion Design in Makerspaces		x
8	I have heard about Woodworking and Metalworking in Makerspaces		x
9	I know about Science and Engineering in Makerspaces		x
10	I am aware of Electronics and Arduino in Makerspaces		x

The data presented in table 1 showed that the respondents are not aware of any of the makerspaces such as 3D printing in makerspaces, Coding and robotics in makerspaces, Craft and DIY (do it yourself) in makerspaces, Media and Digital Production in Makerspaces, Virtual Reality (VR) Makerspaces, Game Design and Development in Makerspaces, Textile and Fashion Design in Makerspaces, Woodworking and Metalworking in Makerspaces, and Science and Engineering

in Makerspaces. This implies that the patrons in public libraries are not aware of the makerspaces in public libraries in Enugu state

The finding that patrons in public libraries in Enugu State lack awareness of available makerspaces aligns with similar research highlighting the need for effective outreach and promotion strategies to improve patron engagement. For instance, Rafferty and Kroll (2017) in their study noted that low awareness among patrons was a key barrier

to utilization. They found that despite having well-equipped makerspaces, many patrons were unaware of these facilities or uncertain about their purpose and potential benefits. The study emphasized the importance of library-led marketing efforts and community engagement programs to improve visibility. Without awareness, the authors argued, makerspaces often fail to fulfill their intended role in fostering creativity and learning among patrons. Similarly, a study by Aina and Mabawonku (2020) identified limited patron awareness as a major issue. They observed that in many Nigerian public

libraries, information about makerspaces does not reach the broader community due to insufficient outreach activities and a lack of targeted publicity efforts. According to their research, libraries often fail to communicate the unique opportunities that makerspaces offer, leading to underutilization. Aina and Mabawonku recommended structured awareness campaigns and partnerships with local schools, community groups, and media outlets to raise awareness and encourage community members to explore the benefits of makerspaces.

**Research question 2: To what extent are makerspaces used for service delivery in public libraries in Enugu State?**

Table 2: Mean Responses on the Extent Makerspaces are Used for Service Delivery in Public Libraries

S/N	Items	Mean	SD	Remarks
1	The makerspace is actively used to offer workshops and training sessions for library patrons.	1.87	0.75	Low extent
2	Library staff regularly use the makerspace to engage with community members through hands-on activities.	1.13	0.60	Low extent
3	The makerspace facilities are frequently utilized to support educational programs, such as STEM learning initiatives.	1.95	0.82	Low extent
4	Library patrons consistently use the makerspace resources for individual and group projects.	1.98	0.78	Low extent
5	The makerspace is integrated into the library’s services to encourage skill development and creativity among users.	1.20	0.65	Low extent
6	The makerspace is used as a tool for community outreach and engagement by the library.	2.85	0.79	High extent
7	Library programs and events often incorporate makerspace activities to enhance user experience and engagement.	2.95	0.81	High extent
	Grand Mean	2.13		Low extent

The data in Table 2 reveals the extent to which makerspaces are used for service delivery within public libraries in Enugu State. Based on responses from 100 participants, including library patrons, the majority of items (five out of seven) have mean scores below 2.50, indicating a “low extent” of usage. Specifically, activities such as offering workshops, engaging with community members through hands-on activities, and supporting educational initiatives like STEM are utilized to a limited extent, with mean scores of 1.87, 1.13, and 1.95, respectively. In contrast, items related to community outreach and program

incorporation scored above 2.50, with mean values of 2.85 and 2.95, suggesting a “high extent” of usage in these areas. Overall, the grand mean score of 2.13 suggests that the extent of makerspace usage in public libraries for service delivery in Enugu State remains relatively low. Despite some positive engagement in community outreach and program enhancement, other potential makerspace services are underutilized.

The findings in this study align with existing literature on the limited extent of makerspace utilization in public libraries. For example, Okonkwo and Eze (2018) conducted a study on the adoption of

makerspaces in Nigerian public libraries and observed a similar trend of low engagement in most areas of makerspace service delivery. They found that while libraries often had some makerspace resources, they were underutilized, particularly in educational programming and skill-building workshops. Okonkwo and Eze suggested that this low engagement was often due to limited awareness among library staff and patrons of the potential applications of makerspaces within library services. Their findings mirror the low mean scores reported in the present study, where activities like training sessions, STEM initiatives, and creative skill-building show limited adoption (mean scores below 2.50). This similarity underscores the broader challenges facing public libraries in

optimizing makerspace potential to reach users effectively. Furthermore, Adeniran and Olanrewaju (2021) observed a notable trend of low usage in service areas that required hands-on engagement or regular staff facilitation. They found that, in many cases, staff were not adequately trained to incorporate makerspaces effectively into library programming, resulting in a “low extent” of application for community skill-building and educational workshops. They concluded that for makerspaces to truly enhance library services, libraries must invest in staff training and user awareness to create a more robust and participatory environment.

**Research Question 3: What is the impact of makerspaces on service delivery within public libraries in Enugu State?**

**Table 3: Mean Responses on the Impact of Makerspaces on Service Delivery within Public Libraries**

S/N	Items	Mean	SD	Remarks
1	The makerspace can enhance patrons’ access to hands-on learning and skill-building resources.	3.12	0.56	Agree
2	The presence of a makerspace can increase patron engagement and attendance at library programs.	3.04	0.61	Agree
3	Makerspace services can improve the overall user satisfaction with the library’s offerings.	3.45	0.49	Agree
4	The makerspace can contribute to expanding the library’s educational and creative services for diverse age groups.	3.32	0.52	Agree
5	Makerspace activities can help the library to build stronger connections within the community.	3.15	0.58	Agree
6	The makerspace can support the development of digital literacy and technical skills among library users.	3.28	0.55	Agree
7	The availability of makerspace resources can increase collaboration and knowledge sharing among library patrons.	3.22	0.54	Agree
	Grand Mean/SD	3.23		Agree

The table above illustrates the mean responses on the impact of makerspaces on service delivery within public libraries, with all items showing a high level of agreement (mean scores above 2.50). The responses indicate that respondents generally agree on the positive role of makerspaces in enhancing library service delivery. For instance, Item 1, with a mean score of 3.12 (SD = 0.56), suggests that makerspaces significantly enhance patrons' access to hands-on learning and skill-building

resources. Similarly, Item 3, which scored a mean of 3.45 (SD = 0.49), reveals that makerspace services substantially improve overall user satisfaction, highlighting the value these spaces bring to the library experience. The item with the highest mean score, 3.45, emphasizes user satisfaction as a key area where makerspaces positively influence service delivery, followed closely by their impact on expanding educational and creative services (mean = 3.32, SD = 0.52). Overall, the table indicates a strong

consensus among respondents on the positive impact of makerspaces within public libraries, with a grand mean score of 3.23 and standard deviation of 0.55.

The results of this study underscore the significant impact of makerspaces on enhancing service delivery within public libraries, a finding supported by recent empirical studies. For instance, Molaro (2019) emphasized that makerspaces provide unique opportunities for skill development and hands-on learning, which align with library goals to broaden educational outreach and engage community members actively. Molaro’s research, conducted across multiple public library systems in the United States, revealed that libraries with dedicated makerspaces reported higher user satisfaction and greater community engagement due to the creative and educational opportunities

available to patrons. Similarly, Adeniran and Olanrewaju (2021) found that makerspaces support knowledge-sharing and digital literacy initiatives, contributing positively to library service delivery, especially in underserved communities. Their study on the impact of makerspaces in Nigerian public libraries highlighted that makerspaces not only support patrons in acquiring technical and digital skills but also promote collaborative activities, which enhance the library’s role as a knowledge hub. This resonates with the present study's findings, where participants acknowledged makerspaces as valuable for developing digital skills and fostering community connections.

**Research Question 4: What challenges are associated with implementing library innovation in the use of makerspaces for service delivery in public libraries in Enugu State?**

**Table 4: Mean responses on the challenges associated with implementing library innovation in the use of makerspaces for service delivery in public libraries**

SN	Items	Mean	SD	Remarks
1	Insufficient funding limits the establishment and maintenance of makerspaces in public libraries.	2.87	0.78	Agreed
2	Lack of trained staff to manage and oversee makerspace activities hinders effective service delivery.	3.13	0.72	Agreed
3	Inadequate space within the library restricts the development of fully functional makerspaces.	2.97	0.83	Agreed
4	Limited awareness among patrons about the makerspace and its potential benefits reduces its usage.	3.09	0.76	Agreed
5	Resistance to change among library staff affects the adoption of makerspaces as a new service model.	3.10	0.68	Agreed
6	Difficulty in accessing and maintaining modern equipment and technology impacts the functionality of the makerspace.	2.92	0.81	Agreed
7	Inconsistent policy or support from library administration affects the integration of makerspaces into library services.	3.12	0.74	Agreed
	Grand Mean	3.04		Agreed

The data from Table 4 reveals that respondents consistently agree on the significant challenges associated with implementing library innovations in the use of makerspaces for service delivery in public libraries. All items yielded a mean score above the 2.50 threshold, indicating broad agreement among library staff,

administrators, and patrons that these issues are impactful. Specifically, the lack of trained staff (mean = 3.13) and inconsistent policy or support from administration (mean = 3.12) are viewed as primary barriers. Limited awareness among patrons about the makerspace’s benefits (mean = 3.09) and resistance to change among library staff



(mean = 3.10) were also highlighted as substantial challenges. Additionally, the mean score of 2.92 for difficulty in accessing and maintaining modern equipment underscores the practical hurdles in makerspace functionality. Overall, the high grand mean (3.04) confirms that respondents generally agree that the challenges affecting the implementation of library innovation in the use of makerspaces for service delivery in public libraries such as funding, staff training, administrative support, and equipment maintenance, among others in public libraries.

The challenges identified in implementing library innovation through makerspaces, particularly regarding funding, staff training, administrative support, and equipment maintenance, align with existing research on makerspace adoption in library services. First, insufficient funding remains a significant barrier for libraries in establishing and sustaining makerspaces. Adekeye (2018), in a study on Nigerian libraries, emphasized that limited financial resources restrict libraries' ability to procure necessary tools, equipment, and materials for makerspaces. Without adequate funding, it becomes challenging to offer continuous, high-quality service delivery, which in turn limits the makerspace's potential to attract and engage patrons. Similarly, in line with this finding, Ogunyemi and Sholanke (2021) argued that inadequate training and skills development among library staff impede the functionality and sustainability of makerspaces. Their research on public libraries in Nigeria found that many library staff members lacked the technical skills required to operate advanced equipment or to guide patrons effectively, which led to limited engagement and utilization. In a similar vein, Wright and Hemsley (2019) observed that trained staff members are crucial to creating an engaging and supportive makerspace environment. The presence of skilled personnel enhances the experience for users and encourages consistent engagement with makerspace resources.

## **Conclusion**

In conclusion, the study on "Library Innovation and Use of Makerspaces for Service Delivery in Public Libraries: A Case of Enugu State Library Board" highlights key gaps and opportunities for enhancing makerspace utilization in public libraries. Findings reveal limited awareness among patrons, resulting in the underuse of makerspace facilities for service delivery. While respondents recognize the potential positive impact of makerspaces in promoting community engagement, education, and skill-building, significant challenges—including inadequate funding, insufficient staff training, lack of administrative support, and difficulties in equipment maintenance—impede effective implementation. Addressing these challenges through strategic awareness campaigns, enhanced program development, and targeted resource allocation could lead to optimized makerspace services and improved library service delivery in Enugu State, ultimately positioning public libraries as hubs for innovation and community development.

## **Recommendations**

Based on the findings of the study on the library innovation in the use of makerspaces for service delivery in public libraries in Enugu State, several recommendations were made to address the identified problems:

1. Since Patrons in public libraries are not aware of the makerspaces in public libraries in Enugu State, the library should implement an awareness campaign through community outreach programs, social media, and library-hosted events to educate patrons on the availability and benefits of makerspaces. This could include demonstrations, workshops, and collaborations with local schools and organizations to increase visibility and engagement with makerspaces.

2. With the fact that the extent of makerspace usage in public libraries for service delivery in Enugu State remains relatively low, the library should develop targeted programming that integrates makerspace activities into regular library services, such as digital literacy classes, skill-building workshops, and hands-on STEM activities. Offering programs based on user interests and community needs can encourage more consistent usage of makerspaces.
3. Since there is a strong consensus among respondents on the positive impact of makerspaces within public libraries, there is the need to expand makerspace services by establishing partnerships with local government agencies, educational institutions, and tech companies to secure resources, funding, and expertise. This can amplify the positive impact by creating more diverse and sustainable service offerings, thereby reinforcing the benefits for patrons.
4. As the challenges affecting makerspace implementation include poor funding, staff training, administrative support, and equipment maintenance, the government should establish a dedicated budget for makerspace initiatives and allocate funds for regular staff training and equipment upgrades.
5. Additionally, advocate for consistent administrative support to develop policies that prioritize makerspace innovation and ensure sustainable operations.

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