Adoption and Trust in QR Code Technology: Insights from Kathmandu

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Abstract

The rapid advancement of technology has revolutionized payment methods globally, and QR (Quick Response) codes have emerged as a pivotal tool in this transformation. Originating in 1994 for inventory management, QR codes have extended their utility to various sectors, including retail, marketing, logistics, and education. In Nepal, the adoption of QR codes gained momentum during the COVID-19 pandemic as a contactless payment method, enhancing convenience and safety for consumers. Despite the growing popularity of QR codes, limited research has been conducted on their usage, especially in the context of developing countries like Nepal. This study aims to examine the factors influencing QR code usage in Kathmandu Valley, focusing on user perceptions, behavior, and adoption patterns. Employing a descriptive research design, primary data was collected through structured questionnaires administered to 124 respondents aged 18 and above, using convenience sampling. The data was analyzed using SPSS, with descriptive statistics such as mean and standard deviation employed to evaluate respondents' attitudes and behaviors toward QR code usage. The findings revealed that the majority of respondents had a positive view of QR codes, with a significant portion using them for payments within the past six months. Younger age groups and students constituted the largest demographic among users, underscoring the influence of digital-savvy generations on the adoption of technology. Key factors influencing usage included convenience, time-saving benefits, and ease of use, though concerns about privacy and security persisted. The study concludes that QR codes have significantly impacted payment systems in Kathmandu, providing insights for businesses, marketers, and policymakers to enhance user experience and address security concerns. Novelty lies in its contribution to understanding QR code adoption in a developing country, offering valuable perspectives and practical implications for stakeholders and setting the foundation for future research in this domain.

Keywords: Descriptive study, QR code adoption, QR technology, privacy & security

Introduction

Quick Response (QR) codes are two-dimensional and machine-readable matrix bar codes created by Hara Masahiro, an engineer for Denso Wave Incorporated, a Toyota subsidiary, in 1994 for accurate and fast inventory checks. QR-code was first used in Japan's Kanban, a type of electronic communication tool used in the automotive industry [1]. QR code was used in manufacturing and expanded to the logistics and retailing industry. In the marketing field, QR-code had been used widely to understand consumer behavior, market research, retailing, and marketing communication [2].

QR codes can be read by any smartphone, tablet, or laptop with a camera, using freely available software [3]. Conventional one-dimensional bar codes can store information only in a horizontal manner, while QR codes can store information both vertically and horizontally. So more perfect and huge information can be stored in QR codes than in one-dimensional conventional bar codes [4]. The stored information can be encoded as a URL, text, or other various types of data, which can be easily read by the cameras of mobile devices. The widespread use of mobile devices extended the use of QR Codes to many business areas, such as trade, retail, marketing, logistics, education, tourism, entertainment, etc. [5].
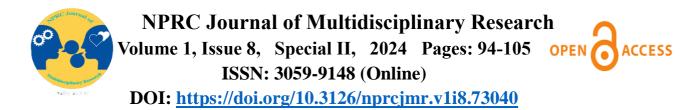
Driven by increasing income levels in Nepal, both online and offline transactions have been experiencing rapid growth, with customers seeking more efficient and technologically advanced payment methods to meet their needs [6]. The Covid-19 pandemic has further accelerated the adoption of digital payment methods, as people have become more concerned with reducing the risk of infection by avoiding close contact with others [7].

QR codes gained popularity in Nepal during the Covid-19 pandemic as an alternative to cash payment. This new technology allowed customers to make payments in a convenient and easy manner simply by scanning the QR code, and thus upgraded the shopping experience.

The popularity of QR codes not only impacted the payment system but also affected the way businesses adopted the technology as a marketing tool. [8] posits that with consumers becoming more and more attached to their smartphones and carrying them everywhere, including when they go shopping, marketers will have to come up with new ideas and methods to reach consumers effectively. The flexibility of QR codes makes it possible to place them in various areas, such as point-of-purchase displays and publications, product packaging, business cards, television ads, ticket stubs, or direct mail, providing marketers with a valuable tool for communicating with consumers.

The study of QR code usage is a complex and multi-faceted endeavor that requires a comprehensive research framework. To make a payment using a QR code, a user simply needs to scan the code using a smartphone camera, which automatically opens the relevant payment app and completes the transaction. To make a payment using a QR code, a user simply needs to scan the code using a smartphone camera, which automatically opens the relevant payment app and completes the transaction. This process is quick, easy, and does not require any technical knowledge or skills.

To create a clear understanding of the study's focus, it is imperative to define the problem

statement at the outset of the research process, which begins with the problem that needs to be solved. Though QR codes are successfully used in marketing and are widely used, there aren't many studies that focus on this subject [9]. Numerous studies on QR codes in the literature focus on the inventive and creative applications of the technology. Apart from a few studies that concentrate on the adoption of QR codes, there aren't many studies looking at the factors that affect their usage. QR codes are advantageous not only for customers but also for retailers. The study is conclusion-oriented. The study highlights a new concept that has not been explored in detail in developing countries, especially in Nepal and it will also contribute by providing Nepalese perspectives on the concept of the QR code. Likewise, this research will provide guidelines backup and some advantages regarding literature review for future researchers as it opens researcher's avenues regarding QR code usage. The study can be used by consumers, marketers, businesses, and government organizations to learn about the benefits they can derive by adopting QR codes as a payment and marketing tool. After knowing the factors affecting QR code usage, the aforementioned users can make their decisions accordingly.

QR code

QR code was used in manufacturing and expanded to the logistics and retailing industry. In the marketing field, QR-code had been used widely to understand consumer behavior, market research, retailing, and marketing communication [2]. QR codes can be read by any smartphone, tablet, or laptop with a camera, using freely available software [3]. The widespread use of mobile devices extended the use of QR Codes to many business areas, such as trade, retail, marketing, logistics, education, tourism, entertainment, etc. [5].

The payment method increases efficiency and customer satisfaction by allowing speedy completion of transactions [10]. [11] noted that the addition of QR Codes on print advertising offers interactivity and enables consumer tracking, such as browsing time on the site, QR Code scan frequency, and consumers' geographical location. Consequently, both marketers and consumers will tend to be satisfied and more willing to reuse the same technology. Security has become one of the most decisive factors driving customer behavior in online transactions. Whether sensitive information is protected during online transactions strongly shapes customer attitudes and purchase intentions [12]. QR codes heavily rely on online systems; therefore, customers may have more concerns about security and privacy issues when using these services. If the users believe that their privacy is maintained when using the QR code system, they will tend to have a more positive attitude about the system and are more likely to increase their usage rate.

Most of the studies included in this section are of international work as there is a lack of studies available in the Nepalese context. The QR code technology is new and it has received very little research. Early research into QR codes has been on the utilization of the technology in various alternative scenarios including, but not limited to, academic libraries and museums, and these studies generally explored the innovative uses of the technology for enriching and facilitating visitor experience, utilization for visually impaired and blind people, and application in

augmented reality applications and classroom environments. Later research included using QR codes in mobile advertising, especially integrating mobile devices into multi-channel or cross-media campaigns and retailing. The study [13] conducted an entitled investigation of customer behavior using contactless payment in China with the objective to examine the factors affecting user satisfaction when using a QR code payment system.
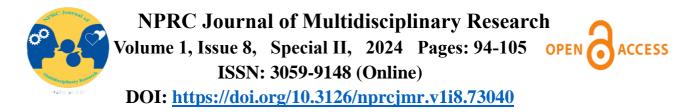
Methods and Materials

According to Kerlinger (1986), the research design is a plan, structure, and investigation strategy conceived to obtain answers to research questions and control variance. This study is based on descriptive research design. For this purpose, we will be relying on primary data. Surveys will be done using structured questionnaires to gather the required information.

The population of this study consists of individuals who are a minimum of 18 years of age and residing within the city limits of Kathmandu valley. The age requirement is significant because QR codes are often linked with bank accounts, and in order to open a bank account, an individual must be at least 18 years old. A sample, in the context of a research study, refers to a selected group of elements from the population that will participate in the study. The process of selecting the sample is convenience sampling. In our research study, a sample of 124 respondents will be selected using convenience sampling.

An online web-based questionnaire will be designed in three main parts to capture the required information for the study. The first section will be aimed at collecting demographic data of respondents such as gender, age, occupation, and marital status. The next part of the questionnaire will consist of some general questions to make sure that respondents of this study had a shopping experience via QR code in the past 12 months. The last part of the survey will include main questions to evaluate respondent perceptions regarding the main variables of this study.

The questionnaires will apply a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The questionnaires will be distributed online to the targeted respondents. To analyze and evaluate an individual`s personal formation, this study used both nominal and ordinal measurement scales. A 5- point Likert scale was applied. The five points on the scale range from 1-5:(1 strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree).

In this study, we use descriptive statistics like frequency distribution, mean, and standard deviation. The mean values provide the average response for all respondents to a particular item on the scale whereas the standard deviation indicates the range of responses around the mean. The Statistical Product and Service Solutions (SPSS) program was used to analyze the data.

Results and Analysis

Gender of Respondents

Table 1: Gender of Respondents

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
	Female	56	45.2	45.2	45.2
	Male	68	54.8	54.8	100.0
	Total	124	100.0	100.0	

Table 1 presents a comprehensive breakdown of the gender distribution among the respondents in the study. The data was collected and analyzed to determine the number of male and female participants. The results showed that out of the 124 total respondents, 56 were female, making up 45.2% of the total participants, while 68 were male, comprising 54.8% of the total. This analysis indicates that the majority of respondents in the study were male, a finding that is further supported by the accompanying chart. The chart provides a clear visual representation of the gender distribution among the respondents, highlighting the disparity between the number of male and female participants. The chart effectively conveys the message that the majority of respondents were male, and serves to reinforce the findings of the study.
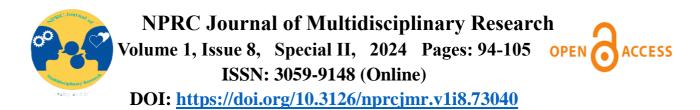
The results of this gender analysis are important in understanding the demographic makeup of the sample population and provide valuable insights into the characteristics of the respondents that can be used to inform future studies. It can be presented more clearly through the chart mentioned below:

Age of Respondents

Table 2: Age of Respondents

Age Group(yrs.)		Frequency	Percent	Valid Percent	Cumulative Percent
	18-23	52	41.9	41.9	41.9
	24-35	43	34.7	34.7	76.6
	36-42	18	14.5	14.5	91.1
	43-50	11	8.9	8.9	100.0
	Total	124	100.0	100.0	

Table 2 presents a comprehensive breakdown of the age distribution among the respondents in the study. The data was collected and analyzed to determine the age groups of the participants. The results showed that the majority of respondents belonged to the age group 18-23 years, with 41.9% of the participants falling into this category. This finding highlights the prevalence of younger respondents in the study, and serves to emphasize the importance of understanding the age demographic of the sample population.

Additionally, the results showed that 34.7% of the respondents belonged to the age group 24-35 years, while only 14.5% of the participants were in the age group 36-42 years and 8.9 % of the respondents belonged to the age group 43-50 years. The accompanying chart provides a clear visual representation of the age distribution among the respondents, highlighting the disparities between the different age groups. The chart effectively conveys the message that the majority of respondents were in the 18-23 age group, and serves to reinforce the findings of the study. The results of this age analysis are important in understanding the demographic makeup of the sample population, and provide valuable insights into the characteristics of the respondents that can be used to inform future studies.

Occupation of Respondents

Table 3: Occupation of Respondents

Occupation		Frequency	Percent	Valid Percent	Cumulative Percent
	Employee	23	18.5	18.5	18.5
	Student	61	49.2	49.2	67.7
	Business	22	17.7	17.7	85.5
	Household	18	14.5	14.5	100.0
	Total	124	100.0	100.0	

Table 3 presents a comprehensive breakdown of the employment status of the respondents in the study. The data was collected and analyzed to determine the different categories of employment among the participants. The results showed that the majority of respondents, 49.2%, were still studying, indicating that a large portion of the sample population was in their student phase.

This finding is important in understanding the profile of the sample population and highlights the significance of considering the education level of the participants when interpreting the results of the study. Additionally, 18.5% of the respondents were employed, suggesting that a small portion of the participants were already in the workforce. This finding provides valuable insights into the career aspirations and ambitions of the respondents and can inform future studies on the subject. Furthermore, the results showed that 17.7% of the participants were involved in business, indicating that a small number of the respondents had taken the entrepreneurial path and 14.5 % of the participants were involve in household. The accompanying chart provides a clear visual representation of the employment status distribution among the respondents, highlighting the disparities between the different categories. The chart effectively conveys the message that the majority of respondents were still studying, and serves to reinforce the findings of the study. The results of this employment analysis are important in understanding the demographic makeup of the sample population and provide valuable insights into the characteristics of the respondents that can be used to inform future studies.

Purchase of QR Code

Table 4: Purchase of QR code

Did you make any purchase in the last six months?				
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Yes	77	62.1	62.1	62.1
No	47	37.9	37.9	100.0
Total	124	100.0	100.0	

Table 4, The results showed that a significant number of respondents, 124 out of 77, made payments using the QR code, which represents 62.1% of the total participants. This finding highlights the widespread adoption of QR technology in the area and indicates that a majority of the residents of Kathmandu have embraced this payment method. Additionally, it was found that 47 out of 124 respondents.

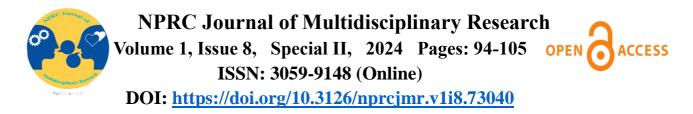**Payment made using QR Code**

Table 5: Payment made using QR Code

Did you make any of the payments using QR code?				
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Yes	87	70.2	70.2	70.2
No	37	29.8	29.8	100.0
Total	124	100.0	100.0	

Table 5, The results showed that 87 respondents made payments using the QR code, which represents 70.2% of the total participants. Additionally, it was found that 37 out of 124 respondents, or 29.8%, made payments through other means such as cash, credit card, or debit card. This finding suggests that while QR technology has gained popularity in the area, there are still some individuals who prefer traditional payment methods. The accompanying chart provides a clear visual representation of the payment methods used by the respondents, highlighting the disparities between the different payment methods. The findings of this study clearly indicate that QR technology has become a popular payment method in the area, and suggest that this trend is likely to continue in the future.

Start using the QR Code Since

Table 6: Start using QR Code Since

Since how long have you been using the QR code payment?				
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Less than months	18	14.5	14.5	14.5
3 -6 months	31	25.0	25.0	39.5

7 - 12 months	19	15.3	15.3	54.8
More than a year	56	45.2	45.2	100.0
Total	124	100.0	100.0	

Table 6 indicates that out of 124 respondents. The results showed that 18 out of 124 respondents started using the QR code less than months ago, indicating that a small portion of the sample population had recently adopted this payment method. This finding is important in understanding the adoption rate of QR technology in the area and provides valuable insights into the technology trends among the local population. Additionally, 31 out of 124 respondents, or 25%, started using the QR code 3-6 months ago, which suggests that a moderate number of individuals had started using this payment method in the recent past. This finding provides a clearer understanding of the usage duration of QR technology in the area and can inform future studies on the subject. Furthermore, 19 out of 124 respondents, or 15.3%, started using the QR code 7-12 months ago, indicating that a small number of individuals had adopted this payment method in the past year. Lastly, 56 out of 124 respondents, or 45.2%, started using the QR code more than a year ago, which represents the majority of the sample population and highlights the widespread adoption of QR technology in the area.

Description of Variables:

Table 7: Descriptive Analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
I have a positive view of QR code payment system.	124	1	5	3.22	1.335
I believe my interest toward QR will increase in future.	124	1	5	3.29	1.293
I plan to use QR in future	124	1	5	3.47	1.272
I intend to make payment using QR.	124	1	5	3.50	1.165
I use QR code every time I need to make a payment.	124	1	5	3.35	1.230
I use QR codes to save time."	124	1	5	3.37	1.246

I feel that QR codes have made my daily life easier.	124	1	5	3.46	1.192
In my social circle, I am usually the first to try out new Information Tech2logy.	124	1	5	3.16	1.199
I know more than my friends about new Information Technology.	124	1	5	3.38	1.173
Compared to my friends, I own few electronics.	124	1	5	3.31	1.054
I know the names and features of Information Technology before others.	124	1	5	3.20	1.133
I can trust QR code technology.	124	1	5	3.35	1.177
QR code usage doesn't pose a threat to the privacy of users.	124	1	5	3.23	1.169
I believe that the confidential information of the users is safeguarded by the QR code.	124	1	5	3.29	1.139
Valid N (listwise)	124				

Table 7 presents a descriptive data from respondents. In this study, the mean is used to measure central tendency, while the standard deviation is used to the measure degree of variation among the variables, in this case, QR Code Usage in Kathmandu Valley. The data shows that contributions are given an average score of 3.22 on a scale from 1.00 to 5.00. The scores show some variation, as indicated by the 1.335 standard deviation, indicating that respondents' perspectives on this element of your company's behavior may vary.

When looking for the increasing on interest toward QR in future it receives an average score

of 3.29. The standard deviation of 1.293 indicates a moderate level of variability in the ratings. If people plan to use QR in future receives an average score of 3.47. The standard deviation of 1.272 indicates a moderate level of variability in the ratings.

People intend to make payment using QR receives an average score of 3.50. The standard deviation of 1.165 suggests some variability in the ratings. People using QR code every time they need to make a payment receives an average score of 3.35. The standard deviation of 1.230 suggests some variability in the ratings. People using QR codes to save time receives an average score of 3.37. The standard deviation of 1.246 indicates a moderate level of variability in the ratings.
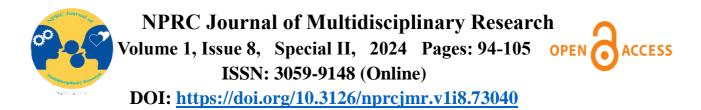
People feeling that QR codes have made their daily life easier receives an average score of 3.46. The standard deviation of 1.192 indicates a moderate level of variability in the ratings.

In social circle, if people are the first to try out new Information Technology receives an average score of 3.16. The standard deviation of 1.199 indicates a moderate level of variability in the ratings. Looking for people to know more than their friends about Information Technology receives an average score of 3.38. The standard deviation of 1.173 indicates a moderate level of variability in the ratings. People own few electronics compared to their friends receives an average score of 3.31. The standard deviation of 1.054 indicates a moderate level of variability in the ratings.

People knowing the names and features of Information Technology before others receives an average score of 3.20. The standard deviation of 1.133 indicates a moderate level of variability in the ratings. People trusting QR code technology receives an average score of 3.35. The standard deviation of 1.177 indicates a moderate level of variability in the ratings. When looking that QR code usage doesn't pose a threat to the privacy of users it receives an average score of 3.23. The standard deviation of 1.169 indicates a moderate level of variability in the ratings. People believing that the confidential information of the users is safeguarded by the QR code receives an average score of 3.29. The standard deviation of 1.139 indicates a moderate level of variability in the ratings.

Conclusion

The study provides a comprehensive understanding of the adoption and usage patterns of QR codes for payments in Kathmandu Valley, shedding light on the factors influencing user behavior and preferences. It highlights that QR codes have become an integral part of the payment ecosystem, driven by their convenience, time efficiency, and ease of use. The COVID-19 pandemic acted as a catalyst, accelerating the adoption of contactless payment methods, particularly among younger, tech-savvy demographics. Despite these advancements, the research identifies persistent concerns related to security and privacy, which may hinder broader adoption if not adequately addressed. Furthermore, the study emphasizes the role of awareness and trust in fostering greater acceptance of QR code payments among diverse age groups and socio-economic backgrounds. By identifying the key determinants of user satisfaction and the barriers to adoption, the findings offer practical insights for businesses, service providers, and policymakers aiming to enhance the digital payment landscape in Nepal.

The study concludes that while QR codes hold immense potential to revolutionize payment systems in developing regions, their sustainable growth and widespread adoption require targeted efforts to build trust, ensure security, and enhance user education. The novelty of the research lies in its focus on a developing country, providing valuable perspectives for similar economies navigating the transition to digital payment systems and laying the groundwork for future research on technology adoption in emerging markets.

References

[1] Abdul Rabu, S. N., Hussin, H., & Bervell, B. (2019). QR code utilization in a large classroom: Higher education students' initial perceptions. *Education and Information Technologies*, *24*, 359-384.

[2] Alam, S. S., Ahmed, S., Kokash, H. A., Mahmud, M. S., & Sharnali, S. Z. (2024). Utility and hedonic perception-Customers' intention towards using of QR codes in mobile payment of Generation Y and Generation Z. *Electronic Commerce Research and Applications*, *65*, 101389.

[3] Adhikari, D. B., Ghimire, M., Neupane, D., & Regmi, R. B. (2018). An exploratory research on academic performance of school students with reference to religion. *International Journal of Applied Research*, *4*(5), 76-81.

[4] Al-Khalifa, H. S. (2008). Utilizing QR code and mobile phones for blinds and visually impaired people. In *Computers Helping People with Special Needs: 11th International Conference, ICCHP 2008, Linz, Austria, July 9-11, 2008. Proceedings 11* (pp. 1065-1069). Springer Berlin Heidelberg.

[5] Aryal, P., Karki, T. B., Mahat, D., & Neupane, D. (2024). Unravelling the Motivations behind Students' Academic Migrations in Nepal: A Mixed-methods Approach. *NPRC Journal of Multidisciplinary Research*, *1*(1), 1-18.

[6] Atheequlla, G. A., Vasanthi, C., Mahadevaiah, C., Dhananjaya, M. V., & Ramya, H. R. (2024). Leveraging quick response (QR) Codes for horticultural information access: A stakeholder perspective. *Journal of Horticultural Sciences*, *19*(1).

[7] Neupane, D. (2018). Food choice motives of guardians of Trilok Academy Kathmandu with reference to gender. *Nepal Journal of Multidisciplinary Research*, *1*(1), 73-81.

[8] Cheong, S. N., Ling, H. C., Teh, P. L., Ahmed, P. K., & Yap, W. J. (2017). Encrypted quick response scheme for hotel check-in and access control system. *International Journal of Engineering Business Management*, *9*, 1847979017720039.

[9] Ghimire, M. N., & Neupane, D. (2022). An Exploratory Study on Status of Homestays from Lamjung. *Nepal Journal of Multidisciplinary Research*, *5*(5), 119-126.

[10] Gurung, M., Thapa, N., Khadka, M., Karki, T. B., & Neupane, D. (2020). Access the Quality Service of Ganeshman Singh Memorial Hospital and Research Center. *Nepal Journal of Multidisciplinary Research*, *3*(3), 51-63.

[11] Hutson, P., & Hutson, J. (2024). Bridging the Digital Divide: Innovative Uses of QR Codes and NFC in the Artistic Realm. *ISRG Journal of Arts, Humanities and Social Sciences*, *2*(2).

[12] Neupane, D., & Lourdusamy, A. (2024). Exploring Research Dynamics in Aggression and Violence. *Nepal Journal of Multidisciplinary Research*, *7*(3), 100-116.

[13] Karki, T. B., D'Mello, L., Poudel, G., Ghimire, M., Neupane, D., Shrestha, S. K., & Mahat, D. (2024). Exploring the Influence of Family Dynamics on Death Attitude among Elderly People: A Comparative Study of Chitwan and Jhapa District, Nepal. *International Journal*

of Applied and Scientific Research, *2*(8), 703-716.

[14] Khanafer, N., Oudot, S., Maligeay, M., Planckaert, C., Mena, C., Mandel, N. T., ... & Vanhems, P. (2024). A quick access to information on influenza burden and prevention in Lyon university hospital: A prospective QR code-based information campaign in 2022–2023. *Vaccine*, *42*(21), 126160.

[15] Shrestha, S. K., Karki, T. B., Mahat, D., & Neupane, D. (2024). The role of social influence in mediating the relationship between relative advantage and purchase intentions for smartphones: A study in Kathmandu, Nepal. *International Journal of Management and Sustainability*, *13*(4), 935-948.

[16] Lamichhane, B., & Neupane, D. (2023). Perceived Organizational Support in Nepalese Banks. *International Journal of Atharva*, *1*(1), 1-13.

[17] Law, M., Kwok, R. C. W., & Ng, M. (2016). An extended online purchase intention model for middle-aged online users. *Electronic Commerce Research and Applications*, *20*, 132-146.

18] Mahat, D., Neupane, D., & Shrestha, S. (2024). Quantitative Research Design and Sample Trends: A Systematic Examination of Emerging Paradigms and Best Practices. *Cognizance Journal of Multidisciplinary Studie*, *4*(2), 20-27.

[19] [20] Neupane, D., Pant, S., & Bhattarai, P. (2023). Preferred Learning Techniques among Bachelor's Level Students. *Nepal Journal of Multidisciplinary Research*, *6*(2), 145-154.

[21] Mahat, D., Neupane, D., & Karki, T. B. (2023). Exploring the Academic Landscape: A Critical Analysis and Review of the Nepal Journal of Multidisciplinary Research. *Dasarath and Karki, Tej Bahadur, Exploring the Academic Landscape: A Critical Analysis and Review of the Nepal Journal of Multidisciplinary Research (December 23, 2023)*.

[22] Neupane, D., & Lourdusamy, A. (2024). Exploring Research Dynamics in Aggression and Violence. *Nepal Journal of Multidisciplinary Research*, *7*(3), 100-116

[23] Shrestha, S. K., Mahat, D., Neupane, D., & Karki, T. B. (2024). E-wallet usage and customer purchase intention: Understanding the mediating role of shopping satisfaction and E-wallet structure. *Multidisciplinary Reviews*, *8*(3), 2025091. https://doi.org/10.31893/multirev.2025091.

[24] Shrestha, S. K., Karki, T. B., Mahat, D., & Neupane, D. (2024). Analyzing the impact of Social Interaction on Stock Market Participation: A Qualitative Study Using NVivo. *Nepal Journal of Multidisciplinary Research*, *7*(2), 57-69.

[25] Neupane, D., & Lourdusamy, A. (2024). Bibliometric Analysis of Human Aggression Research: Trends, Collaborative Networks and Emerging Themes in the Last Decade. *International Journal of Atharva*, *2*(2), 10-23.

[26] Wagle, N., Neupane, D., Nyaupane, N. P., & Timalsena, C. (2024). Compassionate Care: Exploration of the Nurse-Patient Relationship and Behavioral Dynamics in Healthcare Settings. *International Journal of Atharva*, *2*(1), 65-77.

[27] Neupane, D., & Lourdusamy, A. (2024). Beyond Borders: The Accelerating Momentum of Domestic Violence Research Worldwide. *NPRC Journal of Multidisciplinary Research*, *1*(2 July), 34-52.

[28] Wang, R., Huang, L., Madden, K., & Wang, C. (2024, May). Enhancing QR Code System Security by Verifying the Scanner's Gripping Hand Biometric. In *Proceedings of the 17th ACM Conference on Security and Privacy in Wireless and Mobile Networks* (pp. 42-53).