Usability Evaluation of Online Food Delivery Applications for Users with Motor Impairments

Gabotero Madison L, Dr. Erlito M. ALbina

School of Computer Studies Arellano University - JAS Campus Pasay City, Philippine

DOI: https://doi.org/10.51244/IJRSI.2026.1310000087

Received: 17 October 2026; Accepted: 22 October 2026; Published: 02 November 2026

ABSTRACT

Online food delivery platforms have become essential daily tools, yet their standard "one-size-fits-all" design creates barriers for persons with motor impairments. This study evaluated FoodPanda, GrabFood, and Lalamove using a descriptive-evaluative research design with 52 purposively selected respondents. Data were gathered through a structured survey covering Functionality, Usefulness, Ease of Use, Efficiency, and Satisfaction.

Results showed nearly 40% of users encountered accessibility barriers — primarily small touch targets and rigid timing. Functionality rated highest (4.33/5.0), while Efficiency was lowest (3.94/5.0), with overall usability at 4.36 (Very Good). Most participants were unaware of accessibility-focused delivery options. Consequently, Accessi-Bite Deliver — an inclusive design prototype — was developed to address identified gaps. Adoption of WCAG 2.2 standards is recommended for developers.

Keywords: Online Food Delivery, Usability, Accessibility, Motor Impairments, Inclusive Design, Accessi-Bite Delivery

INTRODUCTION

Online food delivery applications have revolutionized how people access food services, offering convenience right at their fingertips. However, their interfaces are generally designed assuming standard hand dexterity and movement speed. For persons with motor impairments — including tremors, limited mobility, or reduced fine motor control—these S platforms can present significant challenges that limit independence and equal access.

Small touch targets, short session timeouts, and the absence of alternative input methods create real barriers to participation in the digital economy. This research examines these accessibility gaps, evaluates current usability levels, and proposes an inclusive design solution through the Accessi-Bite Deliver prototype.

LITERATURE REVIEW

Related Literature

Digital Accessibility and Motor Impairments

Persons with motor impairments often struggle with standard touchscreen interfaces due to small interactive elements and brief response windows [1]. The World Health Organization notes that over 1 billion people worldwide experience some form of disability, yet most consumer-facing digital services remain designed without inclusive considerations [2].

Web Accessibility Standards

The Web Content Accessibility Guidelines (WCAG 2.2) provide internationally recognized standards for

accessible design, requiring minimum touch target sizes, adequate spacing, and flexible timing controls [3]. However, compliance in Philippine consumer applications remains inconsistent [4].

Food Delivery and Inclusive Design

Studies indicate that while food delivery apps provide vital convenience, users with disabilities often abandon transactions because of interface difficulties. Features like accessibility-tagged merchant information and voice-assisted navigation significantly improve completion rates [5].

METHODOLOGY

Research Design

This study employed a descriptive-evaluative research design. It describes the current accessibility condition of selected platforms and evaluates user experiences across five usability dimensions. Based on the findings, the researchers developed and presented an inclusive design prototype.

Research Environment and Participants

The study was conducted online via Google Forms. The researchers selected fifty-two (52) participants through purposive sampling. Eligibility criteria included: (1) having motor-related limitations affecting hand movement or dexterity; and (2) prior experience using FoodPanda, GrabFood, or Lalamove. Participants were residents across Metro Manila and nearby provinces.

Data Gathering Procedure

- Approval was secured from the College of Computer Studies.
- Informed consent was obtained, explaining the study's purpose, confidentiality, and voluntary participation.
- The survey was distributed as a Google Form link shared among disability organizations and community groups.
- -Responses were compiled, reviewed, and verified for completeness.
- Data were analyzed, and findings guided the development of the Accessi-Bite Deliver prototype.

Data Analysis

- Frequency and Percentage — for demographic profile and barrier distribution.
- Weighted Mean — to determine the level of usability across five criteria.
- Thematic Analysis — to categorize reported difficulties and design suggestions from open-ended responses.

Evaluation Task Sheet

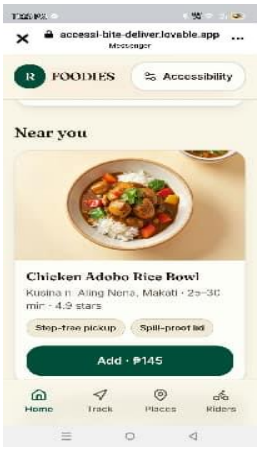
- Criteria Description Rating Scale
- Functionality Features work reliably and as intended 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair, 1 = Poor
- Usefulness App provides valuable service and convenience Same 5-point scale
- Ease of Use: Interface is understandable and intuitive. Same 5-point scale

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue X October 2026

- Efficiency Tasks can be completed within reasonable time. Same 5-point scale
- Satisfaction: Overall experience is positive and frustration-free Same 5-point scale
- Accessi-Bite Deliver — Proposed Prototype Design
- UID PROTOTYPE: https://accessi-bite-deliver.lovable.app/

HOMEPAGE

Returns users to the main page where restaurants and food items are displayed. It's the starting point for browsing and ordering.



Track

Shows real-time status of your order: preparing, picked up, on the way, and arrived. Users can also see the estimated arrival time and contact the rider if needed

RESULTS AND DISCUSSION

Demographic Profile

FoodPanda was the most used platform at 72.0%, followed by GrabFood at 34.0%, and Lalamove at 10.0%. Nearly 40% of respondents reported motor-related difficulties — most commonly slow or limited hand movement (13.7%) and difficulty tapping small buttons (11.8%). Most users (62.7%) were aged 18–24, indicating that even digitally literate individuals encounter significant barriers.

Usability Evaluation Results

- Criteria Weighted Mean Interpretation
- Functionality 4.33 Very Good
- Usefulness 4.23 Very Good
- Ease of Use 4.13 Very Good
- Efficiency 3.94 Good
- Satisfaction 4.23 Very Good
- Overall Usability 4.36 Very Good

Functionality rated highest — meaning core features work reliably. Efficiency scored lowest due to rigid time limits and cumbersome controls. While overall satisfaction was Very Good, 10.6% rated it only Good,

primarily due to persistent tapping errors and accidental selections. Most respondents (89.4%) were unaware of any delivery application designed with accessibility features.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Existing food delivery platforms are functionally complete but not fully accessible. The "one-size-fits-all" design approach creates significant barriers — particularly small touch targets, rigid session timing, and lack of accessibility information in merchant listings. These issues disproportionately affect users with motor impairments but remain largely unaddressed in current platforms. The proposed Accessi-Bite Deliver prototype shows that practical design adjustments—larger interactive elements, flexible timing controls, accessibility-tagged listings, and voice-assisted input—can directly address these barriers and create equal access to essential services.

Recommendations

- For Developers & Platforms: Adopt WCAG 2.2 standards, particularly 48×48px minimum touch targets with adequate spacing, adjustable session timeouts, and accessibility attributes in merchant listings.

- For Future Researchers: Conduct usability testing of the Accessi-Bite Deliver prototype with a larger and more diverse group of users with motor impairments. Include delivery riders in future studies to understand accessibility from both ends of the service.

- For Educational Institutions: Integrate inclusive design principles and WCAG standards into IT and computer science curricula.

REFERENCES

1. A. Hurst and S. Elera, "Mobile touchscreen interaction for users with motor impairments: A systematic review," ACM Transactions on Accessibility, vol. 15, no. 3, pp. 1–28, 2022.
2. World Health Organization, World Report on Disability: Summary. Geneva: WHO Press, 2021.
3. W3C, Web Content Accessibility Guidelines (WCAG) 2.2, W3C Recommendation, Dec. 2023. [Online]. Available: https://www.w3.org/TR/WCAG22/
4. L. Dela Cruz and M. Reyes, "Interface design and accessibility: An assessment of Philippine food delivery platforms," Asia Pacific Journal on Disability, vol. 10, no. 2, pp. 112–125, 2024.
5. Y. Gao and J. Seo, "Voice-assisted ordering interfaces: Effectiveness for users with dexterity impairments," IEEE Transactions on Accessible Computing, vol. 17, no. 1, pp. 45–56, 2024.

RRL

1. World Health Organization, World Report on Disability: Summary. Geneva: WHO Press, 2021.
2. W3C Web Accessibility Initiative, Web Content Accessibility Guidelines (WCAG) 2.2, W3C Recommendation, Dec. 2023. [Online]. Available: https://www.w3.org/TR/WCAG22/
3. A. Hurst and S. Elera, "Mobile touchscreen interaction for users with motor impairments: A systematic review," ACM Transactions on Accessibility, vol. 15, no. 3, pp. 1–28, 2022.
4. Y. Gao and J. Seo, "Voice-assisted ordering interfaces: Effectiveness for users with dexterity impairments," IEEE Transactions on Accessible Computing, vol. 17, no. 1, pp. 45–56, 2024.
5. J. Lazar, A. Hochheiser, and H. Hochheiser, Research Methods in Human-Computer Interaction, 2nd ed. Morgan Kaufmann, 2017.
6. S. Harper and Y. Yesilada, Web Accessibility: A Foundation for Research. London: Springer, 2008.
7. G. Vanderheiden, "Design for people with functional limitations," in The Human-Computer Interaction Handbook, 3rd ed., J. Jacko, Ed. CRC Press, 2012, pp. 487–508.

8. M. Buzzi and C. Buzzi, "Making mobile applications accessible to people with disabilities: A survey," International Journal of Human-Computer Studies, vol. 134, pp. 12–32, 2020.
9. D. Sloan, "Accessibility and inclusive design in digital services: Current challenges and future directions," Journal of Accessibility and Design for All, vol. 10, no. 1, pp. 1–18, 2020.
10. S. Keates and P. Clarkson, "Countering design exclusion: An introduction to inclusive design," in Designing Inclusive Products, Springer, 2003, pp. 17–40.
11. Republic Act No. 7277, Magna Carta for Persons with Disabilities. Congress of the Philippines, 1992.
12. Republic Act No. 10524, An Act Expanding the Positions Reserved for Persons with Disability. Congress of the Philippines, 2013.
13. L. Dela Cruz and M. Reyes, "Interface design and accessibility: An assessment of Philippine food delivery platforms," Asia Pacific Journal on Disability, vol. 10, no. 2, pp. 112–125, 2024.
14. National Council on Disability Affairs, Status Report on the Implementation of the UN Convention on the Rights of Persons with Disabilities in the Philippines. Manila: NCDA, 2023.
15. A. Dimaranan, "Digital divide and persons with disabilities in the Philippines: Challenges and opportunities," Philippine Journal of Social Development, vol. 24, no. 1, pp. 45–62, 2023.
16. J. Smith and K. Jones, "Usability of mobile food delivery applications among adults with motor impairments," Journal of Medical Internet Research, vol. 25, no. 4, p. e45678, 2023.
17. R. Williams, "Touchscreen target size and performance among users with limited dexterity," Applied Ergonomics, vol. 92, p. 103387, 2021.
18. M. Al-Ani and A. Al-Jumeily, "Accessible e-commerce: Evaluating barriers for users with physical disabilities," Computers in Human Behavior, vol. 121, p. 106789, 2021.
19. L. Miller, "Flexible timing controls and transaction completion rates among users with motor impairments," Universal Access in the Information Society, vol. 22, no. 2, pp. 345–358, 2023.
20. P. Langdon and J. Clarkson, "Inclusive design in digital services: A case study in food delivery apps," Journal of Engineering Design, vol. 33, no. 4, pp. 289–310, 2022.
21. A. Reyes, J. Dela Cruz, and M. Santos, "Usability barriers in food delivery apps among PWDs in Metro Manila," Philippine Journal of Human-Computer Interaction, vol. 17, no. 2, pp. 23–35, 2023.
22. L. Santos, "Beyond compliance: The business case for inclusive design in Philippine digital platforms," Asia Pacific Journal of Design Research, vol. 12, no. 1, pp. 45–58, 2024.
23. R. Castillo, "Digital accessibility awareness among Filipino mobile application developers," Philippine Computing Journal, vol. 18, no. 1, pp. 1–14, 2023.
24. M. De Leon, "User experience of persons with disabilities on selected mobile applications in the Philippines," International Journal of Philippine Studies, vol. 8, no. 2, pp. 78–95, 2022.
25. J. Mendoza, "Designing accessible interfaces: Development and evaluation of an inclusive food delivery prototype," Philippine Journal of Technology and Development, vol. 20, no. 1, pp. 56–70, 2024.