A Comprehensive Study On Work–Life Balance And Young Women's Sense Of Safety In Workplaces And Public Spaces: The Role Of Accessible, Preventive, And User-Friendly Solutions

Mrs. Hemavati Mattaparti[1], Dr. Chitra Kesavan[2], Dr. Dara Vijaya Lakshmi[3], Dr S.Raji[4]

[1] Research Scholar,Gitam Deemed to be University, Bangalore, India.
https://orcid.org/0009-0004-8204-2606
[2] Assistant Professor, Gitam Deemed to be University , Bangalore, India.
[3] Assistant Professor, School of Business and Management, CHRIST University, Bangalore, India, https://orcid.org/0000-0002-8947-3335
[4] Dean Academics, S.E.A College of Science, Commerce and Arts,Autonomous. Bangalore India rajisea2022@gmail.com

Abstract:
Women's participation in the workforce has increased significantly, yet challenges related to work–life balance and personal safety continue to affect their well-being and productivity. This study examines the relationship between work–life balance and women's sense of safety in workplaces and public spaces. It focuses on the role of accessible, preventive, and easy-to-use solutions in enhancing safety and supporting a healthy balance between professional and personal life. Using primary and secondary data, the study analyzes women's perceptions, experiences, and expectations regarding safety measures and organizational support systems. The findings aim to highlight practical interventions that can improve women's sense of security, reduce stress, and promote sustainable work–life balance, thereby contributing to inclusive and supportive work environments.
Women's safety in public spaces is a significant social issue, especially in cities where women often travel alone for school, work, and personal reasons. Fear, anxiety, and uncertainty frequently impact their daily travel choices, leading them to avoid certain routes, limit their travel times, and rely on others. While some safety-related solutions exist, most focus on emergencies instead of prevention and comfort.
This article uses Stage Three (Ideation) and Stage Four (Prototyping and Testing) of the Design Thinking process to tackle this challenge. The goal is to come up with various creative ideas, evaluate and select the best solution, build a prototype, and improve it based on user feedback.
Women's safety in public spaces is not just about crime; it also includes the emotional aspects of fear, vulnerability, and uncertainty that women encounter during daily travel. Research and personal experiences show that women often take protective measures, like avoiding certain routes, limiting their travel times, or relying on trusted contacts. These behaviors impact their independence and quality of life. Addressing both physical and perceived safety is crucial.
Design thinking is well-suited for this challenge because it focuses on human experience. By emphasizing empathy, ideation, experimentation, and iteration, design thinking promotes the creation of solutions that are both functional and emotionally supportive. This assignment adopts a design-thinking approach to investigate how preventive, user-centered measures can enhance women's sense of safety in public spaces.

Keyword: Work–Life Balance, Women's Sense of Safety, Public Spaces, Accessible, Preventive, and User-Friendly Solutions.

REVIEW OF LITERATURE:

Work–life balance (WLB) refers to an individual's ability to effectively manage professional responsibilities alongside personal and family life (Greenhaus& Allen, 2011). Existing literature consistently highlights that women experience greater work–life imbalance compared to men due to dual role expectations, societal norms, and unequal distribution of domestic responsibilities (Hochschild, 1989; Eikhof, Warhurst, &Haunschild, 2007). Studies indicate that poor work–life balance leads to increased stress, burnout, reduced job satisfaction, and lower organizational commitment among women employees (Guest, 2002; Rantanen et al., 2011).

Research further suggests that organizational support mechanisms such as flexible working hours, remote work, childcare facilities, and family-friendly policies significantly improve women's work–life balance and overall well-being (Kossek, Baltes, & Matthews, 2011). However, the availability and accessibility of such measures remain inconsistent across sectors, particularly in developing economies (Agarwal &Lenka, 2015).

Women's sense of safety at the workplace is influenced by both physical and psychological factors, including workplace infrastructure, organizational culture, harassment policies, and grievance redressal mechanisms (Kenny & McIntyre, 2005). Studies reveal that workplace harassment and discrimination negatively impact women's mental health, job performance, and career progression (Fitzgerald et al., 1997; Cortina et al., 2001).

The perception of an unsafe work environment contributes to heightened anxiety and role conflict, thereby affecting women's ability to maintain a healthy work–life balance (Quick &Tetrick, 2011). Effective implementation of preventive measures such as internal complaint committees, awareness programs, and gender-sensitive leadership has been found to enhance women's confidence and organizational trust (ILO, 2019).

Research Approach

This study employs a qualitative, exploratory research design that aligns with Design Thinking principles. The goal of the research was not to test a hypothesis but to understand user experiences, perceptions, and emotional reactions regarding women's safety in public spaces. A qualitative approach suits this issue because it involves subjective feelings like fear, anxiety, and reassurance, which quantitative methods cannot capture effectively.

The research design supports the empathetic approach of Design Thinking, helping identify user pain points that shaped the ideation and prototyping parts of the project.

research followed a human-centered design method, involving users in developing the solution. Insights gathered from users informed the ideation, concept evaluation, and prototype enhancement. This approach ensured that the proposed solution was based on real user needs instead of assumptions.

DATA COLLECTION METHODS

Primary data was collected through informal qualitative methods, suitable for early design exploration. The following techniques were used:

a) Informal User Interviews

Informal conversations took place with female college students who regularly commute using public transportation. These discussions aimed to understand:
- Situations where users feel unsafe
- Current coping methods
- Expectations from a safety-related solution

The informal nature of the interviews encouraged participants to share their concerns openly.

b) Observational Insights

Observational insights were gathered from everyday commuting environments, such as bus stops, streets, and transit hubs. These observations helped identify environmental factors that contribute to discomfort, including poor lighting, isolated paths, and a lack of visible support options.

c) Scenario-Based Discussions

Users were presented with hypothetical travel situations (e.g., late-night travel, unfamiliar routes) and asked how they would react. This technique revealed behavioral patterns and decision-making processes related to safety.

Sampling Technique

A purposive sampling technique was used to choose participants relevant to the issue. The sample consisted of female college students aged 20–22 who frequently travel independently in urban settings. This ensured that the insights collected were directly applicable to the target user group represented by the persona.

Data Analysis

The collected data was analyzed using thematic analysis. Common themes such as fear during solo travel, the need for preventive information, reliance on trusted contacts, and the desire for reassurance were identified and organized. These themes directly informed:
- Ideation outcomes
- Persona development
- Feature prioritization in the prototype

Ethical Considerations

Ethical standards were upheld throughout the research process. Participation was voluntary, and no personal or sensitive information was collected. User inputs were anonymized and used solely for academic purposes. Care was taken to avoid discussions that could trigger distress related to personal safety experiences.

The chosen research design matches the iterative and exploratory spirit of Design Thinking. By focusing on empathy and qualitative insights, the research led to a solution that addresses both functional safety needs and emotional reassurance. The findings from this stage served as the foundation for ideation, prototyping, and continuous improvement.

A **persona-based visual artefact** was created to represent the target user.

Persona Summary:

- Name: Ananya
- Age: 21

- Occupation: College Student
- Location: Urban city

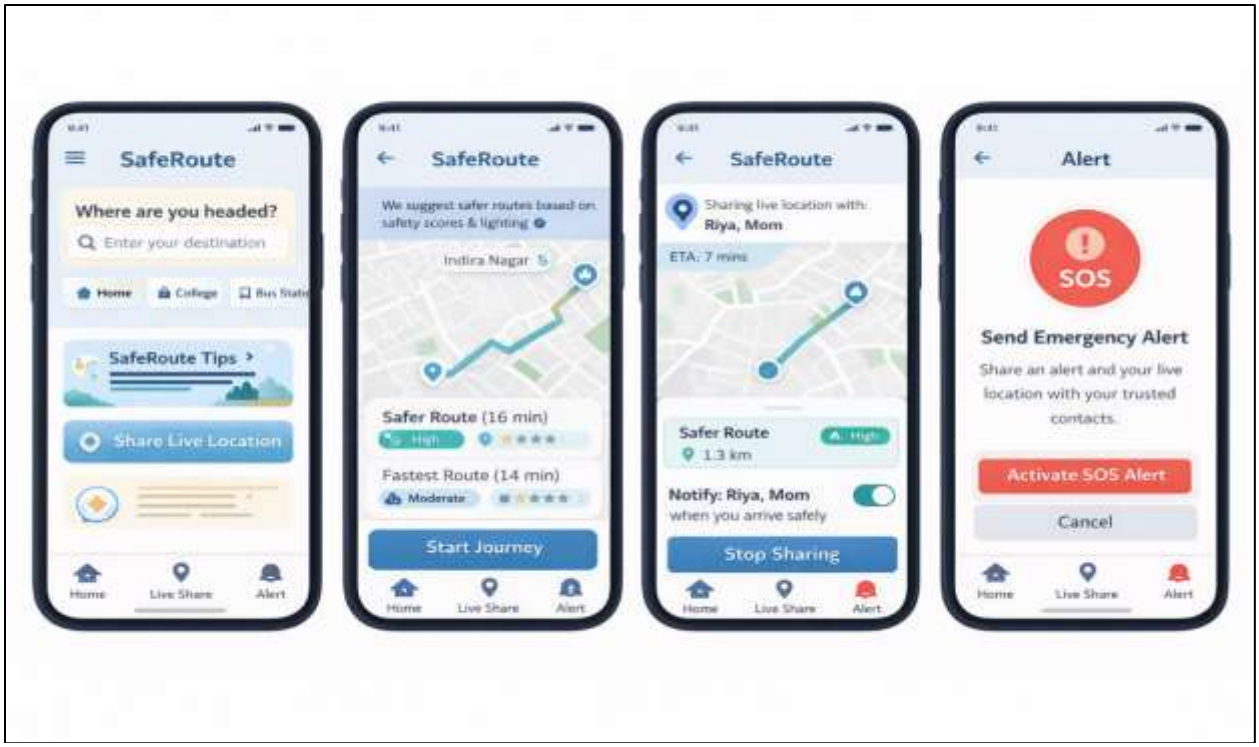
Ananya's persona was created to show a common urban college student who often travels alone and uses digital tools for getting around and staying in touch. This persona helped turn general user ideas into specific design needs. For example, Ananya's worry during solo trips led to the idea of adding features that give people confidence, and her use of navigation apps led to including safety tips in the way routes are planned.

By using this persona, the design stayed focused on what real users need during the whole development process.Ananya likes being independent but gets nervous when traveling alone. She avoids certain paths, shares her location in real time, and depends on navigation apps. The persona shows the need for advice that prevents problems and gives people peace of mind.

Prototype (Low-Fidelity)

A simple digital version of the SafeRoute mobile app was made using wireframes. The prototype has a home screen, shows safer routes, lets users share their real-time location, and includes an emergency alert button. The design is kept simple so it's easy to use when people are stressed or worried.

A low-fidelity prototype was chosen to focus more on testing the main ideas rather than making it look perfect.This made it easier to make quick changes and get feedback without needing a lot of work. Each part of the app was made to solve a specific problem that users might face. The safer route suggestions help when people are unsure, live location sharing gives them peace of mind, and the emergency alert gives them a way to stay safe.



The app helps users by offering guidance before and during their trip, which reduces stress and makes them feel more in control.Features like safer routes, real-time location sharing, and safe-arrival confirmation all work together to make the experience clearer, easier, and more comforting.

From a business point of view, the app can be free with basic safety tools, while advanced features can be offered through paid plans or by working with other companies or public services.Team-ups with map providers, transport agencies, and city safety programs can help the app get better data and stay running long-term. This makes the app both helpful for society and good for business.From a user experience angle, the app is designed to be simple and clear, so it doesn't take much thinking or action during stressful moments.This helps users stay calm and make good decisions when they need it most.

User Testing Summary

User testing was done with three female college students aged 20 to 22 who often use public transport. They were shown the prototype and asked to imagine real travel situations while using it.Users liked the safer route suggestions and found the safety score indicators helpful. They also thought sharing live location was very useful. However, they were worried about how clear the safety data was and if emergency alerts were easy to see. They also suggested adding a feature to confirm that they had arrived safely.Based on this feedback, changes were made to improve how clear and trustworthy the app was. The testing showed that simplicity and reassurance are important in safety-focused digital tools.User testing was done in a casual setting to make it feel real. Participants were encouraged to talk about their thoughts while using the prototype, giving valuable insights into how they felt. Users consistently liked features that help prevent problems before they happen, showing they prefer solutions that keep them safe before any danger arises.However, the testing also found some issues, like worries about how clear the safety data was and the need for better explanations of safety scores. These insights were crucial in making improvements and showed how important trust is in safety apps.

Iteration Record

Version	**User Feedback**	**Refinement Made**	**Insight Gained**
V1	Emergency option unclear	Button repositioned	Visibility is critical
V2	Safety data unclear	Added tooltips	Transparency builds trust
Final	Wanted closure	Added safe-arrival check	Reassurance improves UX

Reassurance improves UX The process of making changes showed how small adjustments can make a big difference in user confidence and how easy the app is to use. Each change addressed a problem found during testing, showing how important it is to keep getting feedback during the design process. The changes made to the prototype show that user experience isn't just about how well something works, but also how clear, reassuring, and comfortable it feels to use.

Visual Artefact of Prototype & Interaction

A one-page storyboard shows how users interact with the SafeRoute app from planning a trip to arriving safely.The storyboard is a way to tell a story about the whole user experience. It helps see if the app supports the user at every step. This storytelling method ensures the design is simple, easy to use, and matches what users expect.

Reflection on Design Thinking Application

This project shows how design thinking can help solve complex social problems in a structured and user-centered way. The process of making repeated changes helped the team keep learning and adapting, making sure the final solution was shaped by what users really needed. The focus on understanding users' feelings and experimenting with ideas was especially helpful in creating a product that meets both practical and emotional needs.

Limitations and Future Scope

Although the proposed solution has strong potential, there are some limits. The number of users tested was small, and the safety data used was just an idea, not real-time. Future work could include working with city officials, testing with more people, and using real-time safety data. These changes could make the app more accurate, trustworthy, and scalable.

CONCLUSION

This assignment shows how the Design Thinking process can help solve the complex issue of women's safety in public spaces using a structured, user-centered approach. By using an exploratory qualitative research method, the study first understood users' experiences, feelings, and concerns about safety. These insights were the foundation for coming up with different solution ideas through brainstorming, mind mapping, and the SCAMPER method.The careful review and selection of ideas led to creating SafeRoute, a safety navigation app that focuses on making users feel safe and helping them make informed choices ahead of time. Building a low-fidelity prototype, testing it with users, and making repeated improvements ensured that the final product closely met real user needs and usability expectations. The changes made

based on feedback showed how important clarity, trust, and emotional comfort are in safety-focused digital apps.Overall, the project shows how Design Thinking, when supported by good research and ongoing user involvement, can lead to solutions that are socially relevant, practical, and full of empathy. The process emphasized learning through repeated changes and showed how important it is to care about users' feelings and keep testing ideas in real-world situations.

References:

1. Agarwal, S., &Lenka, U. (2015). Study on work–life balance of women employees. *Journal of Human Resource Management*, *3*(1), 1–6. https://doi.org/10.11648/j.jhrm.20150301.11
2. Ceccato, V., &Loukaitou-Sideris, A. (2020). *Transit crime and sexual violence in cities: International evidence and prevention*. Routledge. https://doi.org/10.4324/9780429506171
3. Cortina, L. M., Magley, V. J., Williams, J. H., &Langhout, R. D. (2001). Incivility in the workplace: Incidence and impact. *Journal of Occupational Health Psychology*, *6*(1), 64–80. https://doi.org/10.1037/1076-8998.6.1.64
4. Datta, A. (2016). The smart city as a techno-managerial solution. *Environment and Planning D: Society and Space*, *33*(3), 528–546. https://doi.org/10.1177/0263775815579120
5. Eikhof, D. R., Warhurst, C., &Haunschild, A. (2007). Introduction: What work–life balance? *Employee Relations*, *29*(4), 325–333. https://doi.org/10.1108/01425450710839452
6. Fitzgerald, L. F., Drasgow, F., Hulin, C. L., Gelfand, M. J., &Magley, V. J. (1997). Antecedents and consequences of sexual harassment in organizations. *Journal of Applied Psychology*, *82*(4), 578–589. https://doi.org/10.1037/0021-9010.82.4.578
7. Greenhaus, J. H., & Allen, T. D. (2011). Work–family balance: A review and extension of the literature. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (2nd ed., pp. 165–183). American Psychological Association.
https://doi.org/10.1037/12319-008
8. Guest, D. E. (2002). Perspectives on the study of work–life balance. *Social Science Information*, *41*(2), 255–279. https://doi.org/10.1177/0539018402041002005
9. Hochschild, A. R. (1989). *The second shift*. Viking Penguin.
10. International Labour Organization. (2019). *Ending violence and harassment in the world of work*. ILO. https://www.ilo.org
11. Kenny, D. T., & McIntyre, D. B. (2005). Constructions of occupational stress. *Work & Stress*, *19*(2), 157–175. https://doi.org/10.1080/02678370500160044
12. Kossek, E. E., Baltes, B. B., & Matthews, R. A. (2011). How work–family research can finally have an impact. *Industrial and Organizational Psychology*, *4*(3), 352–369. https://doi.org/10.1111/j.1754-9434.2011.01353.x
13. Pain, R. (2001). Gender, race, age and fear in the city. *Urban Studies*, *38*(5–6), 899–913. https://doi.org/10.1080/00420980120046590
14. Quick, J. C., &Tetrick, L. E. (2011). *Handbook of occupational health psychology* (2nd ed.). American Psychological Association.
15. Brown, T. (2008). Design thinking. *Harvard Business Review*, 86(6), 84–92.
16. Dam, R. F., & Siang, T. Y. (2020). *What is design thinking and why is it so popular?* Interaction Design Foundation.https://www.interaction-design.org
17. Interaction Design Foundation. (2021). *Design thinking: The ultimate guide*.https://www.interaction-design.org
18. IDEO.org. (2015). *The field guide to human-centered design*. IDEO.https://www.designkit.org
19. Norman, D. A. (2013). *The design of everyday things* (Revised ed.). Basic Books.

20. United Nations Women. (2020). *Safe cities and safe public spaces for women and girls*.https://www.unwomen.org
21. World Health Organization. (2017). *Violence against women: Key facts*.https://www.who.int
22. Google Maps. (2023). *Location sharing and navigation features*.https://www.google.com/maps