The Development Of An Application Supporting The Re-Entering Of The Elderly Labors To Expand The Base Of Economic Value

Numfon Senangkanikorn[1], Naranchala Khumlaitong [2], Nisanad Ingadapa[3]

Abstract

The "Elder Job" application is designed to reintegrate elderly individuals into Thailand's workforce, addressing both the labor shortage and the challenges faced by an aging society. With Thailand now classified as an aged society, there is a pressing need for solutions to support the elderly in securing employment, ensuring sufficient income, and promoting health and care systems. This initiative also addresses the country's labor scarcity. The application, developed using a mixed-method approach that combines qualitative and quantitative research, aims to connect capable seniors with suitable job opportunities, benefiting both them and businesses. Results indicate that "Elder Job" effectively enables seniors to re-enter the labor market, mitigating labor shortages and enhancing economic value. The application has received high satisfaction ratings, particularly from those with higher education, and satisfactory responses from individuals with lower educational levels. This suggests its potential contribution to long-term economic growth and the improvement of the elderly's livelihoods.

Keywords: Elder, Economics Value, Application.

Introduction

Thailand is currently facing a fully-fledged aged society, marked by the historic occurrence of the elderly population surpassing the youth. This situation stems from a decline in birth rates and advancements in public health, leading to a rapid increase in the elderly population. The National Economic and Social Development Plan No. 13 (2022-2026) of Thailand emphasizes the development of the elderly to ensure they have suitable employment opportunities that align with their capabilities and experience, sufficient income, and good health. A study by the Bank of Thailand in July 2021 found that the elderly in Thailand face financial stability issues due to inadequate savings and income, with many also burdened by debt. The research titled "Development of an Application to Support the Re-entry of the Elderly into the Workforce for Economic Value Expansion" aims to develop technological tools to assist the elderly in accessing appropriate job opportunities and generating economic value from the elderly workforce.

This research employs a mixed-method approach, gathering data through document analysis and interviews with the elderly, and surveying job positions and qualifications from various sources. The expected outcome of the research is to increase the income of the elderly and positively impact the country's economy. Additionally, it

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[1] Rajamangala University of Technology, https://orcid.org/ 0009-0009-8770-3705
[2] Rajamangala University of Technology,https://orcid.org/ 0009-0009-3707-1746
[3] Rajamangala University of Technology ,https://orcid.org/ 0009-0002-6031-9964

supports the state's labor policy in enhancing skills and lifelong learning for the elderly. The "Elder Job" application has been developed to help the elderly access suitable job positions, utilizing both quantitative and qualitative data from the research process and modern technology. This research project aims to alleviate the economic recession caused by the declining working-age population and assist the elderly in Thai society to have a better quality of life in the long term.

Research Objective

1. Develop tools to help the elderly in society access job positions that are suitable for their qualifications.
2. Study the economic value generated by the elderly workforce re-entering the labor market to compensate for the decline in economic value resulting from the decreasing working-age population.
3. Conduct a study on the level of satisfaction among the elderly regarding the application supporting their re-entry into the workforce.

Literature Review

In this research, the investigators conducted a comprehensive review of literature and studies related to the development of applications to support the reintegration of the elderly into the workforce. This involved an integration of academic principles from information technology, economics, and industrial management to create a modern technological tool linked with labor demand data from various enterprises. The application is designed to be user-friendly, convenient, and easily accessible for the elderly. The research team collaborated with various sectors, including government and private entities, concerning job positions. The researchers studied concepts, theories, and related research works as follows. The development of the "Elder Job Application" is a response to the growing need for integrating the elderly into the workforce, particularly in societies experiencing demographic shifts toward an aging population. This literature review delves into various research domains, including demographic trends, technological solutions for elderly employment, economic theories, industrial management practices, and empirical studies on similar applications, to provide a comprehensive understanding of the context and potential impact of the "Elder Job Application." The demographic transition toward an aging society, especially in countries like Thailand, has profound implications for the labor market. Research by Phongsavan & Siviroj (2020) highlights the challenges posed by a shrinking workforce and the increasing dependency ratio. Chomik and Piggott (2015) further explore the economic impacts of these demographic changes, emphasizing the need for policy responses to maintain economic productivity. These studies underscore the urgency of finding innovative solutions to engage the elderly population in the workforce, thereby mitigating the potential economic downturns associated with aging populations. The role of technology in facilitating elderly employment is a critical area of exploration. Baltes and Smith (2003) and Wang et al. (2018) discuss how technological advancements, particularly in the realm of digital platforms, can create new opportunities for elderly employment. These studies emphasize the importance of user-friendly interfaces and accessibility features, considering the varying levels of technological literacy among older adults. The integration of technology in creating employment opportunities for the elderly is seen as a key strategy in addressing the challenges posed by an aging workforce. Economic theories provide valuable insights into the dynamics of elderly workforce participation. Becker's (1964) concept of human capital is particularly relevant, suggesting that the skills and experience of elderly individuals are valuable economic assets. Additionally, the theory of labor market mismatch, as discussed by Sparreboom & Tarvid (2016), highlights the challenges elderly workers face in finding suitable employment

due to skill-job requirement gaps. These theories underscore the importance of creating platforms that can effectively match the unique skills and preferences of elderly workers with appropriate job opportunities. The literature on industrial management offers perspectives on how organizations can integrate elderly workers effectively. Ilmarinen (2001) and Posthuma & Campion (2009) provide insights into adapting workplace environments and job designs to accommodate the needs of older employees. These studies emphasize the significance of flexible work arrangements, ergonomic workplace design, and age-friendly policies in facilitating the integration of elderly workers into various industries. Empirical research on applications designed for elderly employment offers practical insights into their effectiveness and challenges. For example, Harris et al. (2019) examined a job-matching platform for seniors in Australia, highlighting both the potential benefits and limitations of such applications. These studies often focus on user satisfaction, employment outcomes, and the overall impact on the quality of life for elderly users. They provide valuable feedback for the continuous improvement of applications like "Elder Job," ensuring they meet the needs and preferences of their target user base. The "Elder Job Application" emerges as a promising solution, combining technological innovation with insights from economic theories, labor market dynamics, and industrial management practices. This comprehensive approach is crucial in developing effective tools that not only facilitate the employment of elderly individuals but also contribute to addressing broader economic challenges associated with aging populations. As societies continue to age, the importance of such initiatives becomes increasingly significant, paving the way for more inclusive and productive work environments.

Research Methodology

This research is a creation of new knowledge using a mixed-method approach, consisting of developmental research through the development of the 'elder job' application, designed to facilitate job searching for the elderly and to find labor for businesses. Quantitative research is conducted using survey research methods to explore job positions in 50 districts of Bangkok. The application's satisfaction level is analyzed through questionnaires. The researcher has set the sample size at 400 from the elderly population in Bangkok Thailand, totaling 1,197,450 people, using Multi-Stage Sampling (Jiamwattanapong et al., 2023) and Accidental Sampling techniques. Before collecting the questionnaires, the sample group is asked to try the 'elder job' application at least once. The research instrument used in this study is a questionnaire divided into three parts as follows:

Part 1: Personal information questionnaire, including age, education level, and work experience.
Part 2: Questionnaire on the level of satisfaction regarding the application's utility, ease of use, and appearance.
Part 3: Open-ended questionnaire for suggestions on the application.

Research Instrument

The instrument of the application designed to support the re-entry of elderly labor into the workforce, we'll focus on the key components and functionalities of the application, considering its target user base and intended outcomes. The research adopts a mixed-method approach, combining quantitative and qualitative methods. The methodology section details the phases of research, including application development, pilot testing, data collection, and analysis. This section describes the technical development of the application, including design principles focused on elderly users, such as simple interfaces, large text, and easy navigation. It also covers the collaboration with software developers, gerontologists, and labor experts. Initial testing with a small group of elderly users to gather preliminary feedback on the application's usability and functionality.

Data collection techniques

The study targets elderly individuals aged 60 and above, who are either seeking employment or are currently employed in part-time or flexible roles. Criteria for inclusion and exclusion of participants are clearly defined.

1. Surveys: Structured questionnaires to collect quantitative data on user satisfaction and application effectiveness.

2. Interviews: Semi-structured interviews to gather qualitative insights into the user experience and the application's impact on employability.

3. Usage Metrics: Data collected from the application usage, such as frequency of use, job applications made, and user engagement levels.

Results

The Instrument for Supporting Elder Job Application

Figure 1 The Elder Job Application

1.   User Interface (UI) Design:
Simplicity and Accessibility: The UI is designed with simplicity and ease of use in mind, featuring large fonts, high-contrast colors, and straightforward navigation to accommodate the potential visual and motor skill limitations of elderly users.
Intuitive Layout: The layout is intuitive, with clear labels and icons to guide users through the application without confusion.
2. Registration and Profile Setup:
Personalized Profiles: Users can create personalized profiles, inputting details such as work history, skills, qualifications, and job preferences.
Assistive Features: The application includes assistive features for profile setup, guided walkthroughs.
3. Job Matching Algorithm:
Customized Job Recommendations: The application uses an algorithm to match users with job opportunities based on their profiles, preferences, and capabilities. (Senangkanikorn N., Khumlaitong, N., Thongnium, W., & Ingadapa, N. (2020).)

Flexible Work Options: It prioritizes part-time, flexible, and age-appropriate job opportunities suitable for elderly users.

4. Skill Development Resources:

Learning Modules: The application provides access to learning modules and resources for skill development, focusing on areas relevant to elderly users, such as digital literacy and updated industry-specific skills.

Interactive Format: These resources are presented in an interactive, engaging format, making learning more accessible for elderly users.

5. Application Support and Assistance:

In-App Assistance: Features in-app assistance, including a help section, FAQs, and the option to contact support for additional help.

Community Forum: A community forum or chat feature where users can share experiences, seek advice, and offer support to each other.

6. Health and Wellness Integration:

Wellness Tips: Incorporates health and wellness tips tailored to the elderly, such as ergonomic advice for the workplace and stress management techniques.

Reminders and Alerts: Includes reminders for breaks, exercises, and health check-ups, promoting a balanced lifestyle.

7. Feedback and Improvement Mechanism:

User Feedback Collection: Regularly collects user feedback to understand their experience and areas for improvement.

Continuous Updates: The application undergoes continuous updates and improvements based on user feedback and technological advancements.

8. Security and Privacy:

Data Protection: Ensures high levels of data protection and privacy, with secure login methods and encryption of personal information.

9. Employer Engagement:

Employer Portal: Features a portal for employers, where they can post job listings, search for potential candidates, and understand the value of hiring elderly workers.

Engagement Tools: Provides tools for employers to engage with potential candidates, schedule interviews, and manage applications.

10. Analytics and Reporting:

User Analytics: Tracks user engagement, job application success rates, and skill development progress.

Reporting Features: Offers reporting features for users to track their job search and skill development journey.

Discussion and Conclusion

The development of the 'elder job' application, which was created to support job searching for the elderly and to find labor for businesses currently facing labor shortages due to Thailand becoming an aged society. The Android SDK (Software Development Kit) was used as a tool and resource for developing the application on the Android platform, which is an operating system for mobile devices such as smartphones and tablets, supporting 64-bit and higher. The application requires 10 GB of installation space and uses a code editor that supports Kotlin and Java as the primary programming languages for application development. Designer Tools assist in designing the UI and application screens, providing real-time results. It links with data from quantitative research conducted through survey research on job positions from businesses in 50 districts of Bangkok, Thailand. The economic value generated by the re-entry of the elderly into the workforce compensates

for the decline in economic value due to the decreasing working-age population. Based on secondary data from the Department of Older Persons, the research team calculated projections from the forecasted increase in the elderly population in Bangkok for the years 2023-2024. The number of elderly individuals is increasing linearly, as per past data. Using the slope formula of a straight line for prediction, it was found that if 50% of the elderly in Bangkok return to the workforce at the minimum wage rate, they could generate a total annual income of 72,206 million baht in 2022, 78,890 million baht in 2023, and 85,873 million baht in 2024, respectively. This demonstrates that the re-entry of the elderly into the labor market can significantly contribute to the country's economy.

Regarding the satisfaction level of the elderly with applications supporting their re-entry into the workforce, the study found that the applications generally provide good satisfaction to the elderly community. Elderly individuals with a bachelor's degree or higher found the applications very useful and were very satisfied with both the usability and the design. Those with a high school education level expressed good satisfaction, while those with an education level lower than high school showed moderate satisfaction with the applications.

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