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The Implementation of Artificial Intelligence in Reviving the Voter Turnout Rates Among the Youth in Japan

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ABSTRACT

This paper investigates the application of Artificial Intelligence (AI) in enhancing voter turnout rates among the Japanese youth. It highlights the decline in youth participation in elections and suggests leveraging Large Language Models (LLMs) and other forms of AI to enhance existing technologies such as Voting Advice Applications (VAAs) to engage and educate young voters. By tailoring political content to individual interests and simplifying complex policy discussions, AI can make political participation more accessible and relevant to the youth. The paper also addresses potential risks related to privacy and ethical considerations in deploying AI tools in electoral processes. It concludes that AI, if appropriately governed, offers a promising avenue to revitalize democratic engagement among young Japanese voters, thereby ensuring their voices contribute to shaping the nation's future.

Introduction

The declining voter turnout rates among the youth is a pressing issue in Japan, and thus public institutions must begin to implement artificial intelligence (AI) and technology to revive youth public participation and empower them to fully unleash their potential. This paper will outline how public institutions in Japan can potentially use artificial intelligence and technology to advance the voter turnout rate among the youth, as well as the challenges and risks involved in its use.

With the exception of the 2005 and 2009 House of Representatives elections, Japan's voter turnout rates have been in a near-linear decline since the 1950s. Moreover, only around a third of people in their 20s have been participating in national elections since the late 1990s. This trend contrasts sharply with other developed countries such as Australia, Sweden, the UK, and South Korea, highlighting a critical gap in youth public engagement. This lack of participation has led to the underrepresentation of youth perspectives in policymaking, with current policies disproportionately focused on the elderly.

For instance, Japan's investment in social security heavily favors older generations, while funding for youth-centric areas such as education, family support, and labor market initiatives remains insufficient and below the OECD average (Rengo). Integrating the perspectives of the youth in political decisions is crucial in shaping areas such as education, employment, and social justice. Young individuals must realize that by engaging in the voting process, they have the opportunity to influence policies directly affecting their lives and future. Encouraging the youth to vote can lead to more balanced policies that reflect the diverse needs and aspirations of all generations, address specific challenges faced by the youth, and ensure a more equitable distribution of resources and opportunities.

In light of this, the rapid development of artificial intelligence is revolutionizing how young people engage with politics. Leveraging technologies such as Voting Advice Applications (VAAs) and Large Lan-

guage Models (LLMs), introduce novel ways to draw the youth into the political conversation. These technologies offer personalized engagement strategies, tailoring political content to align with individual interests and values, thus sparking genuine interest and understanding. This approach not only democratizes political participation but also makes it more accessible and relevant to the younger generation, who are crucial for the future of democratic processes.

The Enhancement of Voting Advice Applications Using Artificial Intelligence

Voting Advice Applications (VAAs) are tools that help users cast an informed vote in elections. These applications typically use algorithms and machine learning techniques to process large amounts of data, often including information about candidates, parties, and political issues. In a typical VAA, users are asked questions about policies, and the application matches the user's responses to the parties' or candidates' positions and calculates the degree of compatibility.

In the last two decades, VAAs have gained popularity among voters, particularly in multi-party systems like the Netherlands, where their use in recent elections has notably increased voter turnout rates. Specifically, the implementation of VAAs led to a 4.4% increase in voter turnout in the 2006 Dutch parliamentary election (Gemenis and Rosema 285). Although this number may be seemingly modest, looking at the marginal effect of VAA usage on voter turnout across different age groups shows the effect for 18~25-year-olds is around 0.20~0.25. This means that VAA usage increased voter turnout rates by 20–25% among young voters—a substantial increase (Gemenis and Rosema 286).

This demographic, traditionally less engaged in the political process, found VAAs to be a user-friendly platform that uncloaks political parlance and makes political content more accessible and relevant. By providing information in a manner that resonates with the youth, the VAA played a crucial role in enhancing political engagement and participation among this group, indicating a promising approach to addressing the challenge of low youth voter turnout.

According to a 2022 "Youth Awareness Survey" by the Japan Research Institute, the youth population in Japan is most interested in human rights issues, i.e., harassment, bullying, abuse, truancy, racial discrimination, etc. They have also become more interested in labor matters and issues such as low working hours, underemployment, and unemployment. Yet, an issue arises with the use of typical VAAs; many questions asked can be considered too "complex" for those with limited political interest or knowledge.

For instance, Go2senkyo.com is a popular VAA in Japan created by Ichini that asks users' stances across several issues and matches voters to political parties with congruent stances. However, the forenamed VAA may only appeal to those who are already politically engaged and have background knowledge of the issue at hand, and it may be of little relevance to younger users. Looking at the Go2senkyo VAA for the 2021 House of Representatives elections, questions such as whether we should "raise the age at which public pension payments begin to 70" and whether we should "continue large-scale public works projects for national resilience" may be seen as irrelevant or of little importance to the youth. This is because of the poor level of citizenship education in Japan, partly due to the Basic Act on Education—the fundamental Japanese law on school education. This law restricts political activities in schools, resulting in the avoidance of engaging in discussions on politics and limiting learning (Tsutsumi and Uekami 13).

Considering this challenge, integrating additional levels of AI into the development of VAAs could allow the less engaged youth to pose simple and straightforward questions about political parties or candidates

(e.g., "Where does the Liberal Democratic Party stand on same-sex marriage?") and receive information about party/candidate positioning within seconds.

Instead of responding to extensive solicitations from the existing VAAs, AI-implemented and guided conversations could help make interacting with VAAs less intimidating and more accessible to a broader spectrum of voters. Specifically, employing machine learning algorithms such as natural language processing (NLP) can help develop an adaptive questioning system. Here, the algorithms, together with the original VAA, can dynamically tailor questions based on the user's profile and preferences in a manner that resonates with the youth by utilizing language that is relatable and engaging.

Through this approach, AI can disentangle the dimensions that we use in normal VAA questions to provide a personalized and user-centric experience that addresses the unique issues of the youth demographic, whether that be human rights or employment issues, in the electoral decision-making process.

Thus, despite existing legal restrictions on political discussions within educational settings, AI-enhanced VAAs offer an innovative solution to engage the youth in politics beyond the classroom. These applications can serve as an invaluable external resource, providing a platform for the youth to explore their political preferences concerning various political parties and candidates. The implementation of AI in existing VAAs can effectively address the gap in political education by delivering content that is both in-depth and understandable, fostering a sense of curiosity and knowledge about political issues. This, therefore, will ultimately contribute to the revival of the voter turnout rate in Japan.

The Opportunity of Large Language Models

Another form of AI that can potentially revive voter turnout rates among the youth are Large Language Models (LLMs), which are advanced AI systems designed to process and generate text based on the input they receive. These systems employ sophisticated algorithms and machine learning techniques and have the capability of analyzing the user's queries through their training data, which may include diverse information about political figures, parties, and current issues. Subsequently, the system can offer insights, summaries, and even comparisons between parties on various political issues based on these data.

Claude, for example, is an LLM developed by Anthropic with a 200,000-token context window that can easily generate summaries of laws and resolutions uploaded by the user (the user must first obtain the English translation of the resolution from japaneselawtranslation.go.jp). For example, uploading the "Act on the Establishment of the Digital Agency"—an 11-page bill introduced in the 204th Diet Session aimed at establishing the Digital Agency to strengthen digitalization in Japan—to Claude and asking it to produce a summary will result in an extremely accurate response. Specifically, the model correctly highlights the law's aim as "having an agency dedicated to spearheading Japan's digital transformation in an efficient and integrated manner" (Okamoto).

If one continues the chat with the aforementioned LLM by claiming to be an "expert in digital transformation," the system can return specific details on how the establishment of the Agency can aid in the digitalization of Japan. Likewise, if one continues the chat by stating that they do not have any knowledge of the topic, the system can return simpler, more straightforward responses (Okamoto).

As demonstrated, these models can dynamically adjust the complexity of their outputs to match the user's understanding. This personalized approach directly addresses a key barrier to political engagement among the youth: the overwhelming nature of politics and the "complex" details of policy issues. Particularly, the ability of these tools to tailor information based on user knowledge provides an opportunity for citizens to engage with the legislative process in a more transparent and approachable way. This demystifies politics for young people, who might otherwise feel alienated by political discourse. LLM-based applications are an especially special opportunity for Japan, as the number of young users has drastically increased in recent months.

A third of undergraduate college students in Japan have already begun to use ChatGPT (OpenAI's LLM-based public chatbot) on a daily basis, and this number is especially higher among the younger underclassmen (Ohmori et al. 3). Considering this, LLMs can be implemented in the election campaign scene to distill policies and present them in an accessible format. This in turn strengthens voter learning and can aid in resolving the issue of policies being "too difficult" to understand. Consequentially, young people can have more choices when considering who and what to vote for, ultimately breaking the barrier to the ballot box and reviving the voter turnout rate.

Risks and Challenges Involved in the Implementation of AI

However, there is indeed a risk regarding privacy and ethics when implementing AI in the electoral process. The fact is that the extraordinary scale and capacity of these AI systems generate an intense need for discussion on how these powerful systems can and should be governed. Strict safeguards must be put in place around issues like data governance, algorithmic fairness, bias detection, and transparency about system objectives and limitations.

For example, if personalized profiles were created from youth's interactions with a VAA or LLM system to customize recommendations, detailed guidelines for appropriate data usage with "privacy by design" principles would be imperative. The core premise of "privacy by design" is that protecting personal data rights should be proactively built into a system's initial design stages rather than addressed retroactively.

This can include data minimization, where the system collects the minimum amount of personal data necessary to deliver the voting advice functionality. Furthermore, the system can ask for consent and provide clear notice to users on what data will be collected, along with options to consent only to a collection directly relevant to the voter recommendation service. Furthermore, formal algorithm auditing by third parties could help uncover potential biases, such as skewing particular candidates or issues, while providing accountability.

Although failing to address risks such as privacy and biased influences would violate ethical norms and undermine the ultimate goals of engaging youth voters through technology, public institutions can without a doubt mitigate these risks by ensuring proper governance when deploying AI in the electoral process.

Conclusion

The urgent need to revive youth voter turnout rates in Japan demands an innovative solution, and AI stands out as the indispensable way forward. As voter participation among the youth continues to decline, AI paired with existing technology offers a compelling pathway to reengage and transform the electoral landscape for young people by making the voting process more accessible and relevant. Revitalizing voter turnout rates among the youth is not just a desirable goal but an imperative for the health of Japan's democracy. Thus, embracing AI innovation in the election scene complements the evolving needs of a younger electorate and signifies a commitment to making the democratic process more inclusive and engaging. In this sense, AI is not merely a tool; it is the catalyst required to ensure that the voices of the youth are not only heard but actively shape the future of Japan.

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References

Bueno de Mesquita, E., et al. (2023). *Preparing for Generative AI in the 2024 Election: Recommendations and Best Practices Based on Academic Research*. University of Chicago Harris School of Public Policy and Stanford Graduate School of Business.

Duberry, J., & Hamidi, S. (2020, December 10-11). *Promises and Pitfalls of Artificial Intelligence for Democratic Participation: Workshop Proceedings*. Dusan Sidjanski Centre of Excellence for European Studies, Global Studies Institute, University of Geneva. https://ssrn.com/abstract=3817666

Gemenis, K., & Rosema, M. (2014). *Voting Advice Applications and Electoral Turnout. Electoral Studies*, 36, 281–289. University of Twente.

Hashizume, M., et al. (2023, August). 2022 若者意識調査 [2022 Youth Awareness Survey]. The Japan Research Institute, Limited. https://www.jri.co.jp/MediaLibrary/file/pdf/company/release/2023/0810.pdf

Hayashi, H., & Mori, K. (2023, May 26). 日本のChatGPT利用動向 [ChatGPT usage trends in Japan]. Nomura Research Institute (NRI). www.nri.com/jp/knowledge/report/lst/2023/cc/0526_1

Japanese Trade Union Confederation, Political Center Secretariat. (2022, February). 若者が政治を変える！！ [Young people will change politics!!]. 日本労働組合総連合会（連合）政治センター事務局. www.jtuc-rengo.or.jp/campaign/data/18sai_senkyoken_ver2.pdf?30

Ohmori, F., et al. (2023). 全国の大学生の ChatGPT 利用実態が初めて明らかに [The status of ChatGPT usage by university students across the country is revealed for the first time]. Discipline-Based Education Research (DBER) Center. https://dber.jp/wp-content/uploads/2023/06/chatgpt_report.pdf

Okamoto, Y. (2023, January 3). Establishing Japan's Digital Transformation Agency. Conversation with Claude AI. https://aiarchives.org/id/LbeIPIOu6MUFz7tAg3ST

Tsutsumi, H., & Uekami, T. (2014, September 30). *Voting Advice Applications in Japan: An Overview.*

Yamanaka, C. (2022, June 30). なぜ若者たちは投票に行かないの？投票率を上げるには？～座談会で旭川大学の学生に聞いてみました～ [Why don't young people vote? How do we increase the voter turnout?]. NHK北海道. www.nhk.or.jp/hokkaido/articles/slug-n12893146ddae