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Artificial Intelligence (AI) Facilitated Proto-Persona Creation

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Abstract

A proto-persona, which represents a target audience or user segment, is an initial or rudimentary iteration of a persona. It is a conceptual frame-work that encompasses fundamental attributes, actions, requirements, and aspirations of a cohort of users. Proto-personas are typically created early in the product development process, often based on assumptions, prior knowledge, or limited research. The limitations of the participant who creates the proto persona can compromise the quality and effectiveness of the personas, leading to decisions that are not well-informed or aligned with the needs of the users. Biases, limited perspective, incomplete information, skill level, limited resources, and communication challenges can compromise the quality of proto personas, leading to inaccurate representations of the target audience. The use of Artificial Intelligence (AI) can help improve the quality of proto-persona as well can expedite the creation process by analyzing the vast amounts of data to provide comprehensive demographic details, mitigating biases and enriching proto persona creation with di-verse insights, thus enhancing the accuracy and inclusivity of the personas. The paper provides an insight into the real-world experiment of proto-persona creation using *OpenAI* tuned-model.

Keywords: Design thinking; persona; artificial intelligence

Introduction

Proto-personas are crucial in product development, providing insights into user segments and preferences. They guide design and development efforts towards user-centric solutions, fostering collaboration among stakeholders. Proto personas also serve as hypotheses for iterative improvements, enabling informed decisions and diverse user needs. proto personas serve as hypotheses that can be tested and refined through further research and user feedback, enabling iterative improvements to the product. As proto-personas are helpful when limited research data is available about the target users, or due to the time constraints the team cannot go on a discovery mode or user-research, these also can act as limitation and pose challenges for the quality of the outcome of the proto-persona as these often based on assumptions and prior knowledge come into play during the creation of Proto-personas.

In recent times, as AI software has revolutionized industries like healthcare, fi-nance, and retail by analyzing data and making predictions. AI has accelerated the data driven decision making across various domains. So, the question is whether, AI can also provide help creating Proto-personas through the use of demographic data and if so, what would be the efficiency of the same approach?

Experiment on Proto-Persona Creation Using AI

Background

To explore and validate the hypothesis that AI can help creating proto-personas at with a higher efficiency with quality outcome, a series of experiments were conducted around Design Thinking, using a custom-built AI software build on top of a tuned-model using OpenAI's APIs. During the experiments, that.

Method

Participants and experimental design the experiments involving the creation of proto-persona involved 12 users and formed four groups with each group having 3 members. Out of these two groups used AI software to support them, whereas the other two groups did not use any AI support and carried out activities traditionally. By comparing the approaches of the two sets of groups, this research methodology enabled an evaluation of the effectiveness and efficiency of utilizing AI in the process. The first set of groups relied on manual creation of proto-persona based on their individual assumptions, knowledge and prior-insights into the target segment, while the second set leveraged the tuned-model of AI to speed up and come-up with the initial draft of the proto-persona based on the demographic details, which was then moderated and enhanced by the participants.

For this purpose, to provide AI support to participants, basic software was developed using PHP and JQuery, supporting Rest API calls using JSON. By leveraging user-profile data and Open AI's APIs, we constructed a finetuned model employing the gpt-3.5-turbo base model (Open AI Documentation). This had a maximum context length support of 4,096 tokens per training data chunk and custom datasets containing twenty job positions and professions across four industries in India.

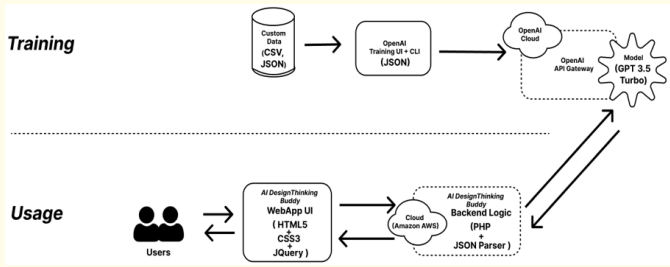

Figure 2.2.1: Using JSON data files, a tuned model was prepared using the base model 'GPT 3.5 Turbo' to be used as the target model in the software.

The dynamically generated prompts from the user input used in the backend of the software to query the model included the input demographic parameters, including, age, gender, profession/ job role and industry so that the system can generate outcome from the demographic details available with the tuned model.

The basic template used as part of the prompt was based on the standard persona format, that included the bio section with the profile details, including the profile image; quotes, needs, pain-points, frustrations, and goals of the target persona. The profile image was generated based using the contextual data that included the demo-graphic details that was provided by the user.

Its user interface offered a range of options for users to select from among various tasks within the "Design Thinking" process out of which the participants in this series experiments used the option to create proto persona. Through advanced natural language processing (NLP) techniques, the software could analyze input of demographic data to create persona maps.

Tasks and Materials As part of the referenced experiments several tasks were planned for the users, to come up with the final persona map as outcome. For each group, the tasks are listed as per the following table.

The participants spent time in going through the secondary research by utilizing the demographic details and associated literature. During the activity phase, they carried out 3 tasks as laid out as per the following table 3.2.1.1 ans 3.2.2.2.

Figure 2.2.2: Two pairs out of four groups used AI software to quickly generate, synthesis data to come up with final persona map, whereas the other two pairs did not use AI to build persona, across all 2 sessions.

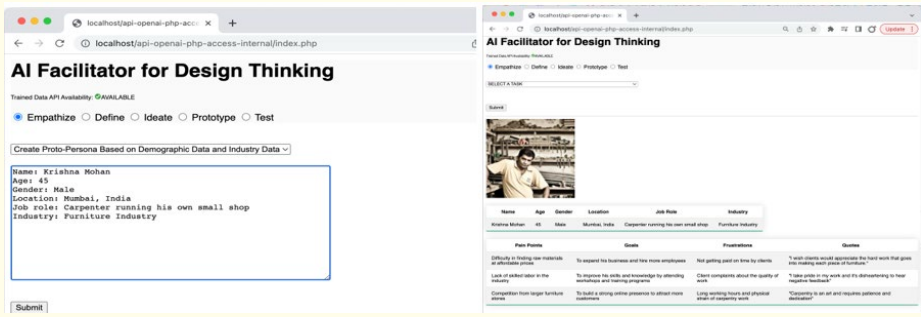

Figure 2.2.3: The user's input into the custom AI software were used in the backend to dynamically generate the prompts to query the model and fetch the results, that was then rendered in the UI of the software.

Different Tasks	
STAGE	**TASKS**
Preparation	**Gather Data** Study/ Analyse Secondary Literature (Max. 4Hr)
Activity	**TASK 1 (Individual Activity): Create Proto-Persona** (Max. 2Hr)
	TASK 2 (Joint Activity): Analyse + Synthesis on Task 1 Outcomes to Create Resultant Proto Persona (Max. 2Hr)
	TASK3 (Joint Activity): Review /Refine + Moderate (Max. 2Hr)

Table 2.2.3: List of stages of experiments.

Exp #	Experiment Name	Step #	Type	Individual or Group Activity?	Expected Duration (Hours)	Task Description
1	Creation of a Proto-Persona	1	Preparation	Individual	4	Secondary Research + Study/ Analyse Data
		2	Core Activity	Individual	2	Each participant will create 1 Proto-Persona
		3	Core Activity	Group	2	Analyse + Synthesis previous step outcome to create pre-final Proto-Persona
		4	Core Activity	Group	2	Review /Refine + Moderate to finalize Persona

Table 2.2.4: List of tasks.

There were 2 sessions conducted for the group with AI supported experiment based on the touch points where AI software is used. The first variation was where only the proto persona creation was generated by AI software, where as in the second session, the AI is also used for the synthesis of different personas created.

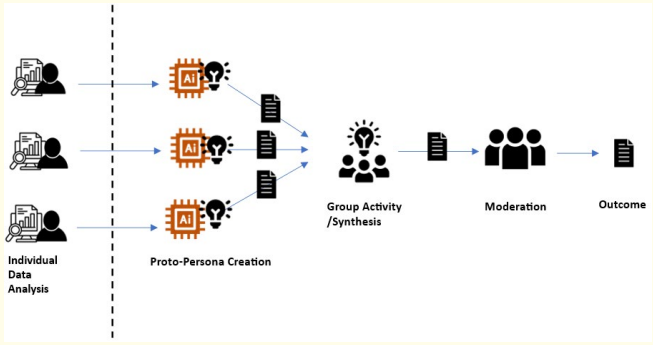

Figure 2.2.5: First session of the experiment used AI only for Proto-Persona Creation.

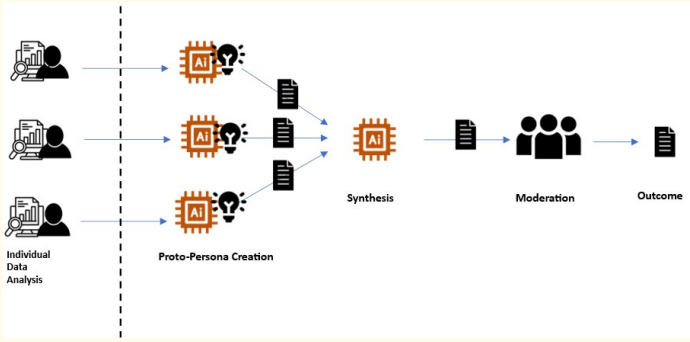

Figure 2.2.6: Second session of the experiment used AI also for synthesis task.

Post the experiments, the users were asked to fill-in a feedback survey shared over Google Form to understand how they felt about the overall experiments. The survey employed multiple-choice questions, one of which was designed to assess the Net Promoter Score (NPS) and gauge customer satisfaction with the AI software.

Results & Analysis

Based on the two sessions, it was evident that the use of AI can help speed up the overall processes significantly in Creation of Proto-Persona. The effectiveness of AI in this context is maximum when it is used in preparation and during the huddle or ideation activities.

During Proto-Persona creation, where traditionally stakeholders use their assumptions to build the persona without any field data to save cost and time, the use of AI can further save almost 48.5% of the time traditionally spent, while at the same time making the proto persona more reliable due to the fact that industry-driven insights are fed into the persona creation process in real time, making the quality of information significantly better. Refer to tables 3.3.1 and 3.3.2 below for details.:

Exp #1: Creation of a ProtoPersona (Session 1/2: AIusage in Proto Persona Creation)															
			Preparation				Activity								
Group	Members	Approach	Gather Data Primary Research		Secondary Research + Study/ Analyse Data (Max. 4Hr)		TASK 1 (Individual): Create Proto-Persona (Max. 2Hr)		TASK 2 (Joint): Analyse + Synthesis on Task 1 Outcomes to Create Resultant Proto Persona (Max. 2Hr)		TASK3 (Joint): Review /Refine + Moderate (Max. 2Hr)		Total Time Spend	Time Saved by AI	
			Execution Type	Duration	Execution Type	Duration	Execution Type	Duration (Actual Used)	Execution Type	Duration (Actual Used)	Execution Type	Duration (Actual Used)		Total	%
Group 1A	3	AI + Human	Human	0:00	Human*	4:00	AI	0:05	Human	1:12	Human	1:08	6:25	1:49	22
Group 1B	3	Human	Human	0:00	Human*	4:00	Human	2:05	Human	0:45	Human	1:24	8:14		
Group 2A	3	AI + Human	Human	0:00	Human*	4:00	AI	0:05	Human	1:02	Human	0:58	6:05	2:50	32
Group 2B	3	Human	Human	0:00	Human*	4:00	Human	3:12	Human	0:56	Human	0:47	8:55		

Table 2.3.1: Experiment – Session 1/2 (Total time saved by AI 27%).

Exp #1: Creation of a ProtoPersona (Session 2/2: AI usage in Proto Persona Creation + Synthesis)															
			Preparation				Activity								
Group	Members	Approach	Gather Data Primary Research		Secondary Research + Study/ Analyse Data (Max. 4Hr)		TASK 1 (Individual): Create Proto-Persona (Max. 2Hr)		TASK 2 (Joint): Analyse + Synthesis on Task 1 Outcomes to Create Resultant Proto Persona (Max. 2Hr)		TASK3 (Joint): Review /Refine + Moderate (Max. 2Hr)		Total Time Spend	Time Saved by AI	
			Execution Type	Duration	Execution Type	Duration	Execution Type	Duration (Actual Used)	Execution Type	Duration (Actual Used)	Execution Type	Duration (Actual Used)		Total	%
Group 1A	3	AI + Human	Human	0:00	Human*	4:00	AI	0:05	AI	0:30	Human	0:43	5:18	5:05	49
Group 1B	3	Human	Human	0:00	Human*	4:00	Human	4:00	Human	1:00	Human	1:23	10:23		
Group 2A	3	AI + Human	Human	0:00	Human*	4:00	AI	0:05	AI	0:30	Human	0:37	5:12	4:43	48
Group 2B	3	Human	Human	0:00	Human*	4:00	Human	4:00	Human	1:00	Human	0:55	9:55		

Table 2.3.2: Experiment – Session 2/2 (Total time saved by AI 48.5%).

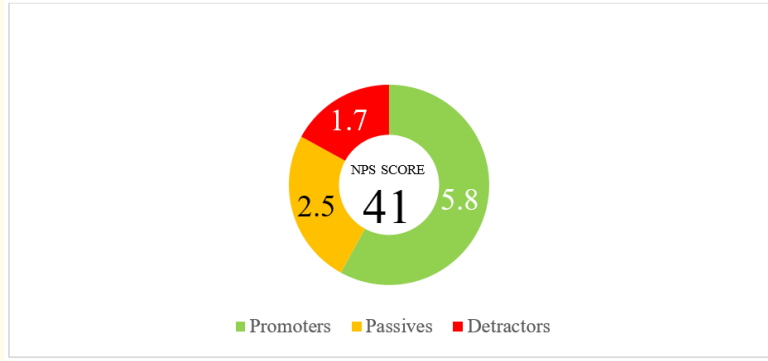

Figure 2.3.3: Net Promoter Score of 41% shows the user's higher satisfaction level in using AI to facilitate Design Thinking Sessions.

From the survey, indicated a positive Net Promoter Score of 41%. The Net Pro-moter Score (NPS) is a measure that evaluates customer loyalty and satisfaction by measuring their inclination to suggest a product or service ("Net Promoter Score", 2023).

The calculation involves subtracting the percentage of Detractors from the per-centage of Promoters. Within this setting, 58% of participants are classified as Pro-moters, demonstrating a strong inclination to suggest the product.

Conversely, 17% are categorized as Detractors, indicating persons with a negative opinion or experience. The Passives, who fall in the middle, make up 25%. The Net Promoter Score (NPS) is calculated by subtracting the percentage of Detractors (17%) from the percentage of Promoters (58%), resulting in a positive score of 41%. This reflects a good feeling among respondents, as a higher NPS usually suggests a better probability of customers endorsing the product or service. It is crucial to analyse the NPS in conjunction with

industry benchmarks and other contextual elements to gain a thorough picture.

Conclusion

From the experiments conducted, it is concluded that by using AI for tasks like Proto-Persona creation and qualitative persona mapping, substantial time savings of up to 48.5% were achieved. Additionally, the use of AI improved the reliability and quality of the personas by incorporating real-time industry data-driven insights. Also the Net Promoter Score of 41% suggests that the majority of respondents are likely to recommend the product or service, which is an indication of the user satisfaction of the solution.

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