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Enriching Informal Art Education at Muzium Negara using Service Design: Introducing the Personas Identification Instrument

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Abstract
This paper discusses the development of the "Personas Identification Instrument" (PIIN) using Almeshari's approach. The instrument identifies different types of museum visitors and categorises art and design educators at Muzium Negara into five personas: i. Recharger, ii. Professional/Hobbyist, iii. Explorer, iv. Experience Seeker and v. Facilitator, derived from Falk's museum visitor types. Semi-structured interviews were conducted to understand how these personas influence engagement in enriching informal art education. The thematic study reveals PIIN's effectiveness as a service design tool. It highlights its potential to enhance visitor engagement and informal education impact, offering personalised recommendations for museum professionals and future research.

Keywords: Personas Identification Instrument (PIIN); Service Design (SD) Tools; Museum Visitor Types; Informal Education

1.0 Introduction
Museums are recognised as having the potential to actively contribute to informal learning opportunities in art education beyond conventional settings such as institutions or schools (Akpomuje, 2019; Knutson et al., 2011). The museum's explorative nature allows visitors to choose and personalise their learning experiences independently, catering to learners' different requirements. It has been found that visitor learning within the museum environment can be facilitated by interaction with museum settings (Ahmad et al., 2018; Akpomuje, 2019). Thus, analysing the informal learning settings offered by museums can lead to outcomes that enrich museum visitors' experiences, ultimately benefiting art education. This aligns with the growing emphasis on experiential and informal learning, which aims to create dynamic and interactive educational environments.

Moreover, museums have been found to offer a more natural approach to informal art education, as their casual environments highlight collaborative and social learning experiences (Knutson et al., 2011). According to Akpomuje (2019), informal learning is a lifelong process that occurs in everyday activities without accreditation, qualifications, or measurement. This allows for a more flexible, adaptable, and personalised learning experience, which can result in new ideas, insights, and conversations (Ahmad et al., 2018; Kim & Dopico, 2016). Most museum visitors engage in informal, independent rather than obligatory activities. Thus, museums play a significant role in fostering curiosity and creativity among diverse visitors.

Even though museums naturally provide informal learning environments, measures are necessary to assess their effectiveness in delivering informal art education. The Service Design (SD) approach in museums aims to develop efficient and effective services by adopting a visitor-centric strategy that prioritises the visitor experience and service quality (Wang & Chu, 2017). According to Liu & Idris (2018), SD in museums aims to improve service quality, visitor interactions, and overall visitor experiences. Museums may enhance visitor experiences from pre-visit to post-visit by implementing SD principles, resulting in a more comprehensive and engaging experience for visitors (Liu & Idris, 2018). By embedding these principles, museums can create a well-rounded framework that enhances their visitors' educational value and overall satisfaction.

1.1 Purpose of the study
This study aims to gain insight into the effectiveness of using personas as one of the SD tools for enriching informal art education experiences in museums by examining how museums can personalise their informal educational offerings to fulfil the requirements, preferences, and learning styles of various types of museum visitors. This will be accomplished by analysing the many viewpoints and expectations of five visitor personas: explorer, facilitator, experience seeker, professional/hobbyist, and recharger, derived from Falk's museum visitor types (Falk, 2016). Through this analysis, the research aims to identify the most effective strategies and recommendations to enhance visitor engagement, promote cultural relevancy, and improve educational impact in museum environments, thus enriching informal art education in a museum context.

2.0 Literature Review

2.1 Importance of museum in informal art education
Museums can offer informal art education experiences beyond traditional approaches (Knutson et al., 2011). According to Knutson et al. (2011), a museum setting may accommodate a variety of learner needs and requirements by allowing learner-directed art experiences that foster lifelong learning. In addition, Knutson et al. (2020) argue that informal and formal education systems should co-exist as integral parts of the education ecology. Multiple studies have identified factors that contribute to informal learning at museums, such as facilitation approaches (Kollmann et al., 2023; Tišliar, 2017), engaging exhibitions (Ahmad et al., 2015; Jee & Anggoro, 2021), and the integration of technology (Liang, 2023).

Engaging exhibits are one of the factors that can enrich visitors' learning experiences (Ahmad et al., 2015; Jee & Anggoro, 2021). Generally, museum exhibits can also create an environment that encourages visitors to reflect, read, and engage with their surroundings (Akpomuje, 2019). Ahmad et al. (2015) argue that enriching the visitor experience can be accomplished by enabling more thorough investigation for the sake of enjoyment, hence promoting visitor development. In addition, museums have implemented museum pedagogy to actively include individuals across age groups, enhancing the visitor experience through informal education (Tišliar, 2017). Kollmann et al. (2023) discussed that utilizing facilitation approaches, such as inviting participation, fostering discovery, and expanding understanding, can effectively promote informal learning. In addition, Liang (2023) argues that integrating technology can enrich the learning experience, increase visitor engagement, and promote sustainable growth, particularly in informal learning environments. Wei et al. (2023) emphasise that museums' role as public services can enhance and cultivate communities through education. They define museum education as values, concepts, knowledge, and practices to ensure visitors' growth and development (Wei et al., 2023).

Apart from all these factors, museums also play a crucial role in providing access to their collections for study, education, or pleasure (Tišliar, 2017). Therefore, adults influence their informal learning in museums by actively participating in exhibitions and interpreting information based on personal interests and prior knowledge (Dudzinska-Przesmitzki & Grenier, 2008). In this situation, individuals shape their learning experiences by selecting which exhibits to prioritize, determining the time allocated to each exhibit, and deciding how extensively to explore them (Dudzinska-Przesmitzki & Grenier, 2008). Hence, it is crucial to enhance museum visitation from pre-visit to post-visit to improve the fundamental aspects of museum services (Anugrah et al., 2020). This includes creating consistent experiences across all touchpoints, such as ticketing, wayfinding, and interactions with exhibits. SD is considered the best practice for enriching the user-centric visitor experience, thereby promoting informal art education (Brajčić & Kuščević, 2022).

2.2 Enhancing visitor experience using service design (SD) tools
Museum visitors come from various demographics, such as age, income, race/ethnicity, and education level, meaning that each visitor has a different style and personality that influences their experience, making each visit highly personalised and unique (Falk & Dierking, 2016). Personalization research can enhance museum visitors' knowledge by designing services with appropriate content adaptation, thereby improving the visitor experience (Mokatren et al., 2019). One technique to personalise the museum experience is to adopt an SD tool, e.g., creating 'personas' based on visitor types (Liu & Idris, 2020).

Personas in SD refer to fictional profiles, often created to portray a particular group based on shared interests and to represent a character with which clients and design teams can interact (Stickdorn & Schneider, 2011). Based on Falk (2016), museum visitors can play the role of one or more of the following five categories which are (1) explorer, driven by curiosity with generic interest in the museum content; (2) facilitator, motivated by social interaction; (3) experience seeker, perceiving museum as an essential destination; (4) professional/ hobbyist, feeling a close connection between the museum content and their professional or hobby; and (5) recharger, primarily seeking to have a contemplative, spiritual and/or restorative experience.

According to Almeshari et al. (2019), museum visitors can be classified into two key groups based on two key triggering features: their motivations for visiting and the perceived success factors contributing to their museum experience. These visitor clusters align with

both Falk's visitor categorization and classification of exploration styles, indicating that these two aspects can serve as reliable indicators for identifying museum visitors' personas, thereby facilitating the design of museum services. This approach is expected to assist in identifying museum visitors' personas solely based on available information, without using any other data or prior knowledge about the visitors (Almeshari et al., 2019).

3.0 Methodology

3.1 Research design
This study used a qualitative method together with Service Design Thinking. A semi-structured interview was used to explore the perspectives of art and design educators on informal art education at Muzium Negara (National Museum of Malaysia). Many experts agree that qualitative research offers an in-depth understanding of participants' experiences (Creswell, 2015; Kara et al., 2015). In this study, the qualitative approach facilitated a comprehensive understanding of the educators' perspectives, thereby allowing personalised insights on how museums can offer informal learning opportunities for the art and design field. It also explores how educators can apply and enhance their teaching practices by integrating informal art education within the context of art and design.

3.2 Development and application of the Personas Identification Instrument (PIIN)
The Personas Identification Instrument (PIIN) was developed by adapting Almeshari's approach, where it categorised museum visitors based on their visit motivations and perceived success factors. This instrument was designed to ease the selection process of identifying visitor personas. In addition, the development of PIIN also adopts the Service Design Thinking process, which is user-centred, co-creative, sequencing, evidencing, and a complete approach to organising services effectively within the SD journey (Kaiser Cardoso et al., 2024; Stickdorn & Schneider, 2011). The following describes the development process of PIIN based on the Service Design Thinking process as illustrated in Figure 1.
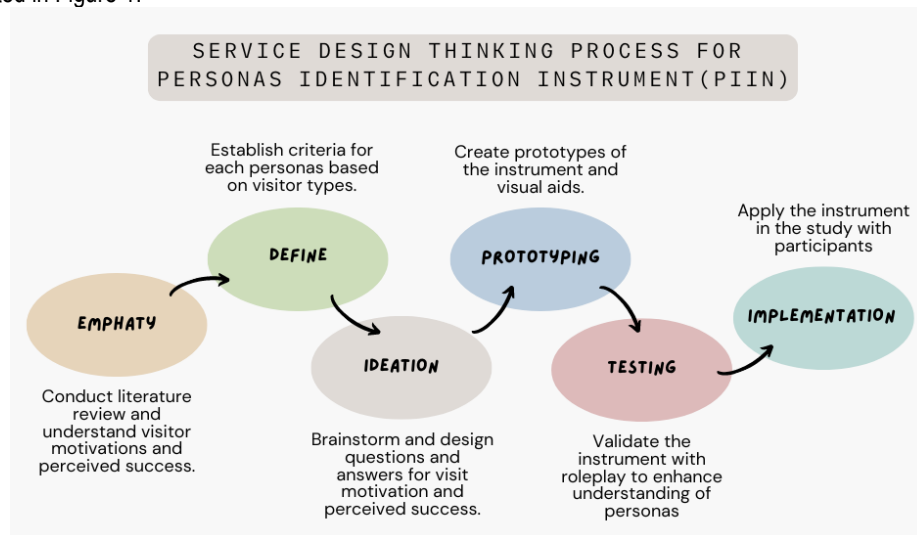

Fig. 1: Service design thinking process for Personas Identification Instrument (PIIN)

Empathy
Firstly, user understanding is derived from a comprehensive literature review conducted at the beginning of the study. Almeshari's approach was chosen for its ability to recognise personas using minimal features from the initial interaction with museum visitors (Almeshari et al., 2019). Moreover, it also exploits Falk's identity-related motivation of museum visitors, which has been widely used and tested in museums and science centers (Falk, 2012; Falk et al., 2008).

Define
In defining the problem, the criteria for each persona were based on Falk's museum visitor types: explorer, facilitator, experience seeker, professional/hobbyist, and recharger. The criteria also explicitly ask participants about their visit motivations and perceived success for each persona, and the answers to these questions are provided (Almeshari et al., 2018).

Ideation
The following process is for generating ideas, which includes designing the instruments by creating two sets of questions and answers, which is (1) visit motivation and (2) perceived success, to prompt participants in the identification of personas. At the beginning, a few types of images, such as AI-generated images and vector illustrations, were improvised from platforms such as Midjourney and Vecteezy (Fig. 2).

Prototyping
The next step in SD thinking is to create a tangible outcome, i.e., prototyping. The previously created images were later analysed for their ability to help visitors better understand the selection of answers. However, given the multicultural diversity of Malaysian nationals, vector illustrations were chosen to provide a more generalised representation of museum visitors. Figure 3 shows a sample of the PIIN for visit motivation, while Figure 4 shows a sample of the PIIN for perceived success. Furthermore, personas cards were developed to help participants visualise and explore their museum-visiting inclinations (Fig.5).

Testing
This study used a roleplay element, one of the tools from SD, to further enhance participants' understanding of their assigned personas by having them explore the museum through their character. This phase validated the instrument's effectiveness in capturing the intended personas.

Implementation
The completed instrument was applied for the first time in this study. The participants, consisting of art and design educators, were provided with the instrument to categorise themselves into one of the personas. On top of that, persona cards were given to participants once their persona type was recognised, to help them better understand and reflect on their museum-visiting style. Additionally, all participants are provided with informed consent before the interviews, ensuring they are aware of the study's purpose, the procedures, and their rights as participants.

Fig. 2: Examples of AI-generated images and vector illustrations from platform such as Midjourney and Vecteezy

1. What was the main motivation for your visit today? (Almeshari, 2019).

(D) It is one of the city highlights. (EXPERIENCE SEEKER)

Fig. 3: Sample of PIIN for visit motivation's question and answers

2. Which of the following can be perceived as a result of your visit today? (Almeshari, 2019).
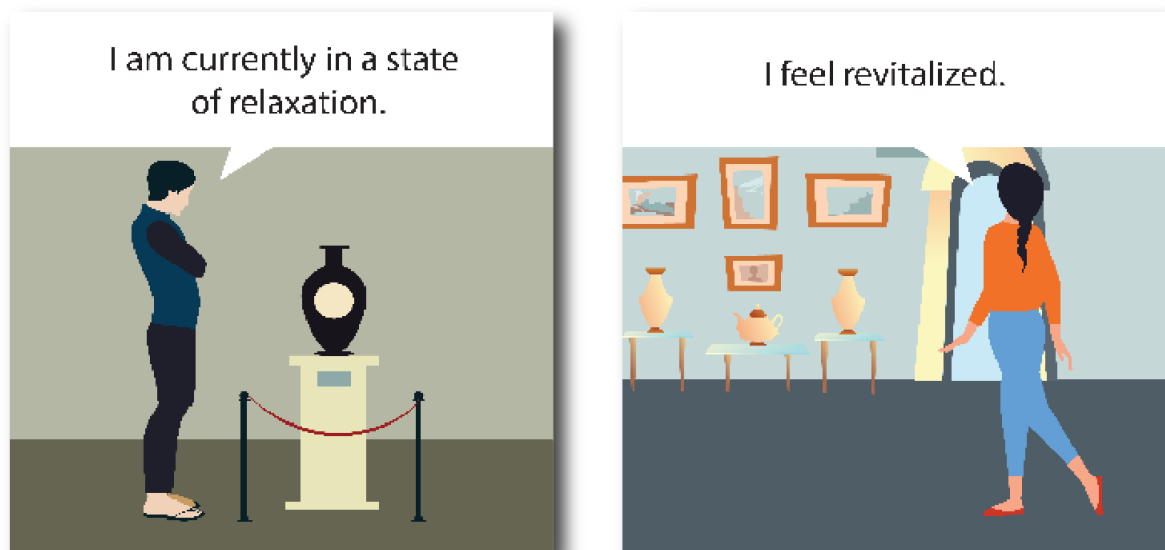
(C) I am relaxed and revived. (RECHARGER)

Fig. 4: Sample of PIIN for perceived success's question and answers

Fig. 5: Two examples of personas card developed to assist participants in the roleplay

3.3 Data collection

Data were collected from five museum personas among art and design educators using semi-structured interviews after they completed their museum visitation activities. The semi-structured format allowed participants to express their thoughts and experiences while ensuring that the field of interest was covered (Creswell, 2015; Kara et al., 2015). Each interview was conducted face-to-face, either physically or virtually. The interview sessions were recorded, transcribed, and summarised to extract the main points and findings while retaining the original ideas. The interview was designed to prompt detailed responses on areas such as insights into the integration of informal art education, assessment of SD approaches, recommendations for enriching learners' experiences, and the impact of informal art education on learners.

3.4 Data analysis

Data gained from the interview sessions were analysed using thematic analysis to identify common themes and differences across the five museum personas. Creswell (2015) highlights that thematic analysis in semi-structured interviews allows research to systematically identify and interpret patterns in qualitative data. The analysis process involved identifying significant codes based on phrases or sentences related to the research questions. These codes are later grouped together to develop overarching themes to represent the insights of all personas. Subsequently, a comparative approach was used to analyse their similarities and differences. This information is displayed in table format to clearly understand their common and unique insights across the museum personas.

4.0 Initial Findings

4.1 Findings from interviews

This section discusses the insights of five museum personas: explorer, facilitator, experience seeker, professional/hobbyist, and recharger. The findings and analysis provide a comprehensive understanding of the personas' various perspectives and insights, which can benefit the educators, learners, and museum institutions in enriching informal art education. This study uses thematic analysis to highlight similarities and differences in insights across the personas, which will be discussed in future papers. Table 1 summarises insights across the five personas in enriching informal art education.

Table 1. Summary of insights across the five personas in enriching informal art education

Icon	Persona	Insights
	Explorer	Highlighted the significant influence of Muzium Negara resources, including ancient artefacts and drawings, on teaching perspectives and collaborations.
	Facilitator	Opted for sharing observations and reflections with art learners during museum visits, incorporating immersive features, and recognizing the significance of collaborations with museums for informal art education.
	Experience Seeker	Believes that sharing observations and reflections from museum visits with art learners, integrating them into art teaching methods like organizing photography field trips.
	Professional/Hobbyist	Muzium Negara's resources and historical contexts are incorporated into informal art education to enhance visual thinking and observational skills.
	Recharger	Museum learning fosters creativity, adaptability, and multisensory activities, enhancing critical thinking and observational skills, and contributing to professional growth through workshops.

(Source: Images from Freepik)

5.0 Discussion

The analysis and responses from the five personas based on PIIN have revealed several important insights into perceptions and the integration of informal art education experiences, particularly within the context of Muzium Negara. The study has found similarities and differences in highlighting points each persona has raised. For example, recharger personas highlighted that learning in museums supports creativity, adaptability, and multisensory activities. They also believed that incorporating various art experiences through workshops can enhance learners' critical thinking and observational skills, benefiting their professional growth. Similarly, professional/hobbyist personas emphasised the potential of integrating Muzium Negara's resources and historical contexts into informal art education. They also believe informal art education may promote visual thinking and observational skills.

Furthermore, explorer personas emphasised the significant impact of Muzium Negara resources, such as ancient artifacts and drawings, on teaching perspectives and collaborations. Experience seeker personas expressed their intention to share their observations and reflections from museum visits with art learners, integrating museum visits into art-teaching methods, such as organizing photography field trips. Lastly, facilitator personas suggested sharing observations and reflections with art learners during museum visits, integrating immersive and interactive features, and recognizing the importance of collaborating with museums to deliver informal art education. These initial findings highlighted that a personalised visitor experience, tailored to museum personas among art and design educators, could significantly enrich informal art education in the museum. Future studies will explore these relationships to validate and expand on these insights.

6.0 Recommendations and future research

Future research may explore the long-term impact of informal art education and the overall experience of museum visitors. The study may use the SD approach to categorise enhancement themes according to visitors' needs. Future research may also explore the affordances of the museum and its integration with technology, such as extended reality (XR), based on personas to ensure the museum's services are personalised and visitor-centric. The potential of SD tools such as PIIN should also be explored in other museum settings, including historical, science, and cultural museums, to examine how its application can address diverse visitor needs and enhance their engagement.

All research is expected to enhance the visitor experience and promote an enriched informal art education initiative for institutions. Among recommendations and suggestions attained from this study are for the museum to improve the visitor experience by leveraging their resources through interactive workshop integration for art education, preparing improved or enhanced interactive digital platforms, promoting art activities based on individual learning needs, emphasizing impressive aspects of the museum display, and recognizing the role of informal art education in fostering creativity and career preparation through engagement with museum visits, workshops, and talks.

7.0 Conclusion

This study explores the enrichment of informal art education through SD at Muzium Negara, focusing on the insights and perspectives of museum personas among art and design educators. Qualitative approaches, specifically semi-structured interviews, were used to analyse their views on integrating informal art education into their practices. The effectiveness of SD strategies at Muzium Negara in facilitating art learners was also considered. The findings offer suggestions for art educators and museum practitioners on enriching

informal art education and enhancing visitor engagement. Recommendations include leveraging interactive workshops, enhancing digital platforms, tailoring art activities to individual learning needs, effectively showcasing museum displays, and highlighting informal art education and its role in fostering creativity and career readiness through museum visits, workshops, and talks. Nevertheless, this study also suggests implementing appropriate SD techniques in museums to enhance learner experience, promote visitor engagement, and ensure their preparedness as an informal education platform.

7.1 Limitations
This study was represented by only five art and design educators, which may not reflect the broader museum visitor population, since the purpose is to explore insights based on these five distinct personas. The study is also limited to the context of Muzium Negara for the initial implementation of PIIN. Future studies may involve personas from a wide range of visitors to further strengthen and validate the instrument.

Acknowledgement

Paper Contribution to Related Field of Study

This study contributes to Service Design (SD) and informal art education in museums. The Personas Identification Instrument (PIIN) enables museums to recognise and categorise museum visitors, thus tailoring their services based on diverse visitor needs. This study also bridges the gap between theory and practice, offering museum management recommendations while contributing to the academic context of the visitor experience and SD tools.

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