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2ND INTERNATIONAL WORKSHOP

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WELCOME

In recent years, the manufacturing processes have undergone a profound transformation, driven by the rapid evolution of additive manufacturing (AM) technologies. What began as a tool primarily for prototyping through stereolithography has now expanded into a versatile and innovative field capable of producing functional, end-use components across a wide range of industries. From fused deposition modeling (FDM) to selective laser melting (SLM) and beyond, AM has unlocked new possibilities in design, material utilization, and production efficiency. Today, additive manufacturing encompasses an extensive array of materials, including metals, polymers, paper, and even biological tissues, enabling applications that span from the mechanical industry to the biomedical sector.

One of the most compelling aspects of additive manufacturing is its potential to drive sustainability in modern production processes. Unlike traditional subtractive methods, which often generate significant material waste, AM builds components layer by layer, minimizing excess material and promoting resource efficiency. Furthermore, the ability to use eco-friendly and recyclable materials aligns with global efforts to reduce environmental impact. AM also supports the production of complex, customized parts on demand, reducing the need for large inventories and long-distance transportation, thereby lowering carbon emissions. By optimizing resource use and enabling more efficient production cycles, additive manufacturing is emerging as a cornerstone of sustainable manufacturing practices.

This proceeding book arrests the latest advancements, challenges, and opportunities in the field of additive manufacturing, with a particular focus on its transformative potential and contributions to sustainability. The works presented here reflect the interdisciplinary nature of AM, showcasing innovative techniques, materials, and applications that are shaping the future of manufacturing. From cutting-edge research to real-world case studies, this collection aims to inspire further exploration and collaboration, driving the adoption of additive manufacturing as a key enabler of sustainable industrial progress. We invite readers to probe into these pages and discover how AM is not only redefining manufacturing but also paving the way for a more sustainable and efficient future.

The IWAM 2024 Organizing Committee,

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Acceptance and familiarization with Wearable Devices in Portugal and Brazil

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ABSTRACT

This research sought to understand the acceptance of wearable devices in Portugal and Brazil, analyzing aspects such as demographic profiles, experiences with technology and personal perceptions. An adaptation of the UTAUT2 model was made, obtaining responses from university students and frequent internet users through a questionnaire that used the Likert scale. The evaluation of the data indicated a predominance of participants from Portugal, a tendency for acceptance to be more pronounced among younger people, those with a higher level of education and a greater technological proficiency among men and more qualified individuals. The relationship between users and non-users of wearable devices proved to be balanced, with a more marked acceptance by people aged 35 to 59, women and those who have a positive view of technology. The Smartwatch stood out among the devices, followed by the Fitness Bracelet and the Smart Ring. A variation in social influence was observed according to the type of device, being more striking in the case of Smartwatches. Surprisingly, social influence did not prove to be as crucial in the acceptance of wearable devices as initially thought. The findings show a trend towards the adoption of these devices, while also warning of challenges linked to the perceived value and price of products, signaling an area with great potential for future research and innovation.

INTRODUCTION

The rapid spread of wearable technologies over the past decade, ranging from connected watches to smart clothing and fitness monitoring devices, requires a detailed examination of the consequences it brings to society and the individual (Ferreira et al., 2022). This progress in the field of technology has not been limited to transforming aspects of everyday life, but has also found its way into business procedures and routines. Thus, given their trajectory of growth and social relevance, it is imperative to evaluate both the positive aspects and the possible obstacles associated with these gadgets. Wearables emerge as catalysts for a new era in health monitoring and communication, enabling not only the tracking of health metrics, but also rapid interaction via messages and precise location via GPS. Autonomy of use, eliminating the need for constant handling, combined with portability, stands out as one of their greatest attractions, redefining the standards of practicality and access to information (da Silva & Vita, 2022). However, before the popularization of wearables, many of the features now offered by these devices were already accessible, albeit in a more limited way and dependent on less portable and practical equipment. Wearables revolutionize this scenario by promoting fluid interconnection with other smart devices, ensuring consolidation and easy access to information, whether for immediate consultation or future analysis.

RESULTS

Mastery and familiarity with electronic devices are increasingly central to contemporary life, and are a crucial skill for integration into the digital society. Based on the data collected, it is possible to draw an overview of the level of experience of respondents regarding their relationship with electronic devices.

The responses show that a majority of the sample, 55% of respondents, identify as intermediate, that is, they have had contact with electronic devices but do not consider themselves experts. The category of experts, which represents those who have extensive experience with different types of devices, makes up 44% of the sample. On the other hand, only 1% of respondents indicated that they had never used electronic devices, categorizing themselves as beginners.

This mostly intermediate or expert profile demonstrates a high degree of familiarity with technologies, which is expected in an increasingly connected society.

Geographic location: The average familiarity with electronic devices in Portugal is slightly higher than in Brazil, with an average of 2.49 and 2.26, respectively. Both locations, however, have the mode and median positioned at 2, indicating that the "intermediate" category is the most frequent.

Age range: It is noted that the 17 to 24 age group shows a tendency to identify themselves as experts, with a mode and median at 3. This may suggest that the younger generations, who grew up in a more digitalized environment, are more familiar with electronic devices. On the other hand, as age advances, a decreasing trend is observed in the average, indicating a more Intermediate profile among the 25 to 59 age groups.

Gender: Men, with a mode and median at 3, are more inclined to categorize themselves as experts compared to women, whose respective measures are 2 (intermediate).

Education: Those in higher education tend to categorize themselves as experts, with a mode and median of 3 and a mean of 2.51. This pattern is similar for those with postgraduate degrees, with a mean of 2.40. On the other hand, individuals with a higher education degree tend to identify themselves as intermediate, with a mean of 2.18.

In summary, the data suggest that most respondents have an intermediate or advanced level of familiarity with electronic devices. The relationship between familiarity with devices and variables such as geographic location, age range, gender, and level of education offers valuable insights into the nuances of technology integration across different segments of the population.

CONCLUSIONS

The present investigation into the acceptance of wearable devices in Portugal and Brazil, as outlined in the results, provided a comprehensive understanding of the dynamics that influence the adoption of these technologies. The data collected highlighted a predominant profile of young users, located mainly in Portugal, and with a high level of education, suggesting a correlation between youth, education and the acceptance of wearables. This trend reinforces the idea that familiarity and comfort with technology, often associated with younger age groups and well-educated individuals, play a crucial role in the willingness to adopt new devices.
The general acceptance of wearables among participants suggests a positive trend towards the adoption of these technologies. However, the results also highlight significant challenges,

particularly in relation to the perceived value and price of the devices. This is a crucial aspect, since value for money plays a fundamental role in consumers' purchasing decisions. The prominent preference for Smartwatches, followed by Fitness Bracelets and Smart Rings, points to a hierarchy in user preferences, which seems to be influenced by the perceived usefulness and functionality of the devices.

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