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I am so loyal and happy with my Intelligent Virtual Assistant!

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Extended abstract

Artificial intelligence (AI) refers, in a simpler approach, to machines with software and algorithm that can think and perform tasks like humans. AI can dynamically change various aspects of people's lives, both in business and in a personal context. (Prentice and Nguyen, 2020). This technology functions through automation and continuous learning, and the main characteristic that makes it so life-changing and extremely popular is its level of personalization (Kumar *et al.*, 2019). "AI seeks to simplify communication between humans and machines by means of natural language" (Pantano and Pizzi, 2020, p. 3).

AI-powered voice assistants, or Intelligent Virtual Assistants (IVA), such as Amazon Alexa, Apple Siri, Google Assistant and others, represent a very relevant subject to research, due to its growth in the most recent years. These smart devices are changing people's daily routine, by completing tasks for them, searching for information, making purchases online, through a simple voice command. In addition, their characteristics and features which make them so human-like, such as their voice, the natural language and the fact that they personalize the

content taking into account the user's interests and behaviours (McLean and Osei-Frimpong, 2019), can encourage users to bond with them (Schweitzer *et al.*, 2019).

Intelligent Virtual Assistants, through machine learning, can better adapt and personalize throughout time, by learning the user's interests and preferences (Bishop, 2006). Therefore, these smart devices, due to their friend-like characteristics, encourage users to develop feelings like brand warmth and attachment. (Wu *et al.*, 2017). Consumers interact with them by having conversations and through commands and requests, leading to higher levels of engagement.

An Intelligent Virtual Assistant, being an anthropomorphised product – with human-like characteristics - is not perceived as a static object, instead, users tend to like and value them more, and can even see them as a friend or a companion, being, consequently, more loyal. (Schweitzer *et al.*, 2019).

The purpose of the present study is to understand the relationship and interaction between humans and intelligent virtual assistants, to better comprehend how humans connect and bond with these smart devices in a daily basis context. More specifically, if the attachment strength and intimacy between the user and the smart device, influence the levels of customer engagement, and subsequently the levels of customer loyalty and the feeling of happiness and delight provided by the experience.

The attachment strength depends on how strong the relationship is, it occurs when a person perceives the relationship as irreplaceable and is emotionally immersed (Thomson, 2006). “Intimacy refers to feelings of closeness, connectedness, and bondedness in loving relationships.” (Sternberg, 1997, p. 315).

Customer Engagement, according to Kumar and Pansari (2016, p. 498), refers to “*cocreation, interaction, solution development, and so on, all of which depend on the attitude that drives the behaviour of customers and employees toward a firm*”. The higher the level of connectedness and the more positive the attitude and behaviour towards the brand, the higher the level of engagement (Kumar *et al.*, 2019). Hollebeek (2011) highlights that the cognitive and emotional investment of the customer towards a brand is an important factor when increasing the levels of engagement.

Customer loyalty refers to a long-term relationship between brand and customer. A preference for a specific brand and being loyal to it means not only choosing to (re)purchase a brand among similar brands, over a long period ((McMullan and Gilmore, 2003) but also favourable attitudes such as positive word-of-mouth communication and recommendations (Kandampully and Suhartanto, 2003).

Defining Happiness is an extremely complex task, as it is a very subjective concept. According to Christopher and Hickinbottom (2008), happiness, from a psychological perspective, can be conceptualized in two ways: emotional satisfaction and authentic happiness. Emotional satisfaction refers to “pleasurable experiences and the achievement of a subjective sense of

contentment” (Loureiro *et al.*, 2019, p. 4). The authentic happiness approach suggests that this feeling is an outcome of “positive emotions, a sense of purpose in life and a sense of positive connection to daily life.” (Loureiro *et al.*, 2019, p. 4). Authentic happiness also includes meaningful relationships and achievements in life (Loureiro *et al.*, 2019).

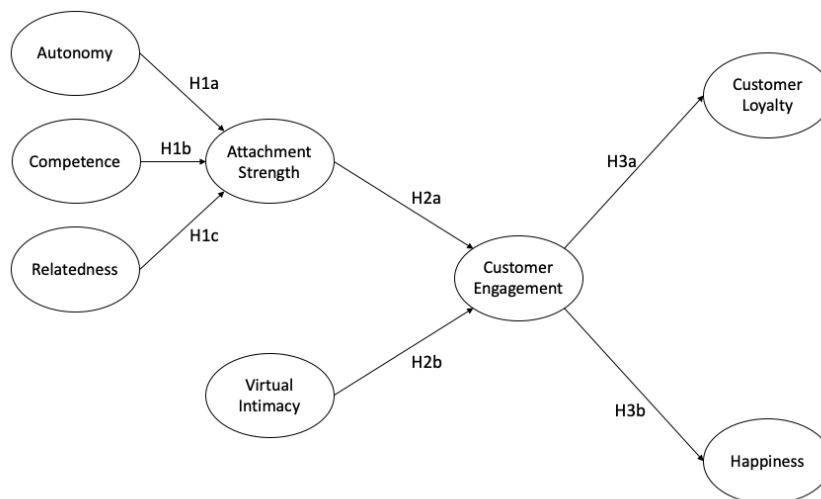
A conceptual framework and hypotheses were developed to study the relationship and interaction between humans and Intelligent Virtual Assistants. (see Figure 1). We suggest that:

H1: Autonomy (H1a), Competence (H1b), Relatedness (H1c) positively influence Attachment Strength

H2: Attachment Strength (H2a) and Virtual Intimacy (H2b) positively influence Customer Engagement

H3: Customer Engagement positively influences Customer Loyalty (H3a) and Happiness (H3b)

Figure 1. Proposed model



For data collection, we recruited participants from the United States (US) via Amazon’s Mechanical Turk. Thus, a sample of 200 completed questionnaires was treated. The sample is well-balanced consider age and gender. All hypotheses were supported by the model, and, therefore, confirmed. The results show that consumers create a relationship of connectedness with the smart device which works as a personal assistant for them. The more the user is attached to the Intelligent virtual assistant, and the greater the level of intimacy, the higher the levels of engagement. Additionally, customer engagement is positively correlated with customer loyalty and happiness, meaning that, when a customer is more engaged, he/she becomes more loyal to it and the happiness provided by the experience with the device is greater, the feeling of delight and fulfilment increases.

The human-like characteristics make users look at intelligent virtual assistants as social beings, hence, strong feelings occur, and a relationship is developed. These feelings of proximity and

attachment make users more engaging, happier, more satisfied with the experience and also more loyal, consequences from which brands only benefit.

Table 1. Summary of studies conditions, hypotheses, and results.

	Beta	Std Deviation	t Statistics	P Values	Hypothesis
Autonomy → Attachment	0.250	0.061	4.126	0.000	H1a: Supported
Competence → Attachment	0.102	0.050	2.045	0.041	H1b: Supported
Relatedness → Attachment	0.587	0.063	9.311	0.000	H1c: Supported
Attachment → C. Engagement	0.313	0.043	7.238	0.000	H2a: Supported
Virtual Intimacy → C. Engagement	0.680	0.040	16.791	0.000	H2b: Supported
C. Engagement → C. Loyalty	0.549	0.046	11.926	0.000	H3a: Supported
C. Engagement → Happiness	0.865	0.017	51.534	0.000	H3b: Supported

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