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The impact of Mastery Orientation on the reactions towards Generative AI^a

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Abstract

Generative AI (GenAI) tools are becoming increasingly present in people's everyday lives. It is therefore not surprising that research is examining the impact of this technology in several domains. However, how personality traits influence users' adoption and reactions towards GenAI is still an understudied topic. Through a survey-based study, we focus on the trait of mastery orientation and test its impact on attitudinal and behavioural reactions towards GenAI. Results show an indirect and positive effect of mastery orientation towards the width of usage of GenAI and an indirect and negative effect on the AI anxiety about job replacement. Both effects are mediated by attitude.

Keywords: Generative AI, Mastery orientation, Personality traits, Human-computer interaction

Introduction and theoretical background

If Artificial Intelligence (AI) has been traditionally a topic that was part of the popular culture mainly in the form of fictional stories (e.g., “2001: A Space Odyssey”), now it is becoming part of the popular culture in its actual form. Indeed, AI, and Generative AI (GenAI) in particular, is becoming part of the everyday life of a lot of people (Ritcher, 2025), and part of new business ideas and models (O’Neill, 2024).

From a behavioural perspective, research has investigated GenAI and its impact in multiple contexts such as ethics (Stahl & Eke, 2024), productivity (Dell’Acqua et al., 2023), or creativity (Lee & Chung, 2024). Some studies have taken a more user-centric perspective, investigating how users’ personality traits can influence their GenAI behaviour (Faruk et al., 2023; Kovbasiuk et al., 2024). However, a personality trait that is still understudied in the GenAI adoption setting is mastery orientation.

The concept of mastery orientation comes from the goal theory (Ames, 1992), which studies the meaning that people attach to achievements. Traditionally, there are two different orientations that explain the meaning of an achievement: mastery orientation and performance orientation. While performance orientation is more connected to the idea of doing something to demonstrate superiority and outperform peers (Martin et al., 2008, Senko & Miles, 2008), mastery orientation is more connected with the idea of affirming competence (Martin et al., 2008) and to develop abilities and knowledge (Senko & Miles, 2008): therefore, the evaluation of a performance is self-referenced and the demonstration of abilities is based on the expression of maximum effort

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(Treasere & Roberts, 1994). Research on mastery orientation in employee settings sheds light on the fact that people with mastery orientation put faith in their effort rather than their existing ability, seek challenging tasks, and have faith in their effort even in the face of adversity or failure (Kumar et al., 2022).

Based on these findings, we argue that people with high levels of mastery orientation can have a positive approach towards GenAI tools. Indeed, AI has been shown to elicit resistance and negative reactions: people can feel threatened by the risks of being replaced by AI in a task they enjoy (Leung et al., 2018), and high-skilled employees can feel that the implementation of GenAI tools can threaten their skill-based status (SimanTov-Nachlieli, 2024). We propose that this may not be the case for people with high levels of mastery orientation. That is because the threat of GenAI is based on the output and its efficiency in producing content, but not necessarily in the process of producing an output. In other words, people who have high levels of mastery orientation are not threatened by GenAI production of content because they are more focused on the acquisition of competence and in its process, rather than the result itself. This lack of threat can result in a positive attitudinal and behavioural reaction towards GenAI. Therefore, based on literature about mastery orientation (e.g., Kumar et al., 2022) and AI usage (e.g., Puntoni et al., 2019), we propose the following hypotheses:

H1. People with high (vs. low) levels of mastery orientation (a) use GenAI in more contexts (i.e., width of use) and (b) perceive the risk of being replaced less (i.e., AI anxiety about job replacement).

H2. The effects of mastery orientation on the width of usage and AI anxiety about job replacement are mediated by attitude. In particular, people with high (vs. low) levels of mastery orientation have a more positive attitude towards GenAI that, in turn, (a) positively impact the width of use, and (b) negatively impact AI anxiety about job replacement.

The frameworks that will be tested are represented in Figure 1 and Figure 2.

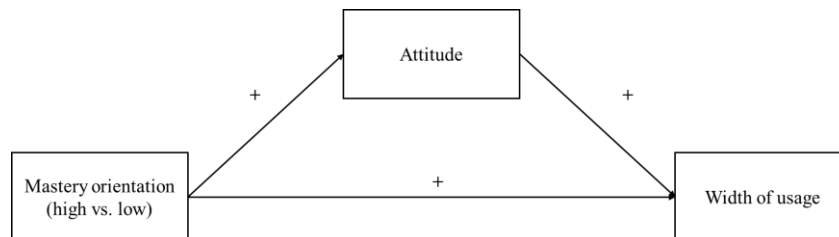


Figure 1 - H1a and H2a

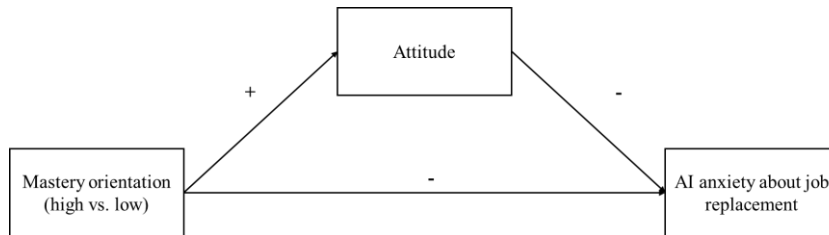


Figure 2 - H1b and H2b

Method

As an initial exploration of the topic, we conducted a survey-based study with a sample of 96 Italian respondents (29.2% men; average age 23.3 years, $SD = 3.70$). We measured respondents' mastery orientation (three items adapted from Kumar et al., 2022), attitude towards GenAI tools (five items adapted from Becker-Olson, 2003; Coyle & Thorson, 2001; Song & Zinkhan, 2008), GenAI width of usage (calculated as the sum of contexts of use, i.e., work, study, hobbies, personal purposes), AI anxiety about job replacement (three items adapted from Wang and Wang, 2022).

Results

The 96 respondents were assigned to two mutually exclusive groups based on a median split (median = 4.83) of the composite scores on the mastery orientation scale. These groups represented individuals with high and low mastery orientation. Then, we performed two separate mediation analyses to test H1 and H2 (Process Model 4; Hayes, 2022).

Findings (Table 1) showed that there was no significant direct effect of mastery orientation on GenAI width of use or on perceived risk of job replacement. Therefore, H1a and H1b were not supported. However, results showed that individuals' mastery orientation significantly affected their attitude towards GenAI tools ($b = .43$; $p = .025$; confidence interval [CI] = .05, .81). Specifically, attitude toward GenAI tools was more positive in the high mastery orientation group compared to the low mastery orientation group. The first mediation analysis showed that attitude towards GenAI tools positively influenced GenAI width of usage ($b = .37$; $p < .001$; CI = .19, .55). Furthermore, results show an indirect and positive effect of mastery orientation on GenAI width of usage through Attitude (IE = .16; 95% bootstrap CI = .02, .34), thus supporting H2a. The second mediation analysis showed that attitude towards GenAI tools negatively influenced the AI anxiety about job replacement ($b = -.51$; $p = .001$; CI = -.81, -.21). Furthermore, results show an indirect and negative effect of mastery orientation on AI anxiety about job replacement through Attitude (IE = -.22; 95% bootstrap CI = -.49, -.02), thus supporting H2b. Thus, respondents with higher

mastery orientation exhibited more favorable attitudes toward GenAI tools, which in turn led to greater width of usage and AI anxiety about job replacement.

Studies 1 and 2						
Mediator variable model	M–Attitude towards GenAI tools					
	b	SE	t	p	LLCI	ULCI
X–High vs. low mastery orientation	.43	.19	2.27	.02	.05	.81
Study 1: Y–GenAI width of use						
Outcome variable model	Y–GenAI width of use (R ² = .15)					
	b	SE	t	p	LLCI	ULCI
X–High vs. low mastery orientation	–.20	.17	–1.18	.24	–.55	.14
M–Attitude towards GenAI tools	.37	.09	4.12	.00	.19	.55
Direct effect of X on Y	Y–GenAI width of use					
	b	SE	t	p	LLCI	ULCI
	–.20	.17	–1.18	.24	–.55	.14
Indirect effect of X on Y	Y–GenAI width of use					
	Index	Boot SE	LLCI	ULCI		
M– Attitude towards GenAI tools	.16	.08	.02	.34		
Study 2: Y–GenAI anxiety related to job replacement						
Outcome variable model	Y–GenAI anxiety related to job replacement (R ² = .12)					
	b	SE	t	p	LLCI	ULCI
X–High vs. low mastery orientation	–.16	.29	–.59	.56	–.74	.40
M–Attitude towards GenAI tools	–.51	.15	–3.37	.00	–.81	–.21
Direct effect of X on Y	Y–GenAI anxiety related to job replacement					
	b	SE	t	p	LLCI	ULCI
	–.17	.29	–.59	.56	–.74	.40
Indirect effect of X on Y	Y–GenAI anxiety related to job replacement					
	Index	Boot SE	LLCI	ULCI		
M– Attitude towards GenAI tools	–.22	.12	–.49	–.02		

Table 1. Studies 1 and 2: Results of the mediation process analyses¹

Conclusions

In conclusion, this work contributes to the growing literature on GenAI adoption by highlighting the role of mastery orientation as an antecedent in shaping individuals' responses to GenAI tools. Specifically, the findings show that individuals with a high mastery orientation, who are motivated by learning and personal growth, and actively seek out challenging tasks to develop new skills and improve their competence, tend to have a more positive attitude towards GenAI tools. This, in turn, leads to broader use of GenAI tools and lower negative feelings of anxiety about them. This can be explained by the fact that individuals with high mastery orientation are more likely to see new technologies as learning opportunities and develop positive attitudes toward

¹ M = mediator; Y = dependent variable; X = independent variable (categorized as follows: 0 = low mastery orientation; 1 = high mastery orientation). LLCI = lower limit confidence interval; ULCI = upper limit confidence interval. Confidence interval = 95%. Significant effects are in bold.

them. This inclines them to use these tools more extensively and feel less anxious about negative consequences, such as replacement. Conversely, those with low mastery orientation may avoid challenges and be less open to change, thus feel threatened by new technologies and experience more anxiety about them.

These results underscore the importance of individual differences in motivational orientation when adopting new technologies. From a practical standpoint, the findings suggest that organizations, institutions, and policymakers aiming to implement GenAI solutions may benefit from supporting and developing mastery-oriented mindsets among employees, students, etc.—for instance, through training programs that emphasize learning, growth, and skill development. However, this is a preliminary study with limitations, including a relatively small and non-representative sample and a reliance on self-reported measures. Future research could further examine the robustness of these findings by testing alternative mediators or moderators (e.g., perceived usefulness or technological expertise – Faruk et al., 2023) and by employing longitudinal or experimental designs to better establish causality.

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