3rd Edition

Data Research meetup by MagIC

Analyzing engagement in virtual teams:

A cross-cultural study on videoconference and virtual reality

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INTRODUCTION

FROM VIDEOCONFERENCING TO VIRTUAL REALITY

In 2019, **only about 5% of employees worked remotely**, despite the concept dating back to the 1970s[1]. After the COVID-19 pandemic emerged, **organizations relied on videoconferencing (VC)** for remote meetings[2]. Consequently, **businesses unprepared** for the transition to VC **were significantly impacted**. Therefore, to address such issues and be **better prepared for the future**, we must contribute to a greater understanding of **the next technological shift**.

From Videoconferencing to Virtual Reality (VR): **VR** is emerging as a potential **alternative to VC**[3]. Big tech companies, such as Meta[4] and Microsoft[5], promote virtual reality as the future of remote meetings, highlighting **benefits for engagement, interactions, and creativity**. However, it remains crucial to **verify whether users perceive** the technological superiority of **VR as leading to improved outcomes**.

UNCERTAINTY AVOIDANCE (UA)

UA is one of the most important Hofstede dimensions influencing perceptions toward information and communication technologies, to which **countries with low UA** (vs. high UA) levels **are more likely to be receptive**[6].

RESEARCH QUESTION

How do **videoconferencing** and **virtual reality** for collaborative meetings compare in terms of perceived **engagement**, and what elements influence this comparison?

METHODS AND MATERIALS

1. This paper considers an **experimental design** approach. Respondents were asked to complete an **online questionnaire** comprising 20 items across 6 constructs: type of platform (TP), work engagement (WE), creative behavior (CB), impression of interaction possibilities (IIP), perceived enjoyment (PE), and resistance to change (RTC).

2. Respondents were randomly assigned to **one of two groups**: **Videoconferencing** (VC) or **Virtual Reality** (VR).

3. Respondents watched a short **1-minute video** about the technology of the group they were assigned to (VC or VR).

4. Considering a **scale from 1 to 9**, respondents were asked to answer the questionnaire concerning their **perceptions about collaborative meetings using the technology they were assigned to** (VC or VR).

End of questionnaire

5. Participants from the **United Kingdom (UK),** the **United States of America (USA),** and **Portugal (PT)** were included in the studies. **Study 1** focuses on **low UA regions** (UK and USA), whilst **Study 2** focuses on a **high UA region** (PT). Data analyses were conducted using SPSS and PROCESS macro.

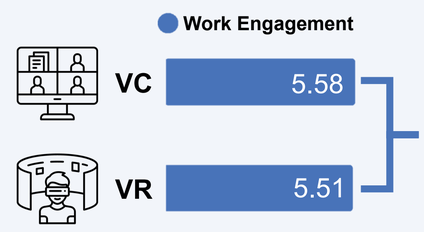
Study 1: Low UA → **Study 2: High UA**

N = 210 (VC, n = 105; VR, n = 105)
N = 197 (VC, n = 98; VR, n = 99)

N = 137 (VC, n = 68; VR, n = 69)

RESULTS & DISCUSSION

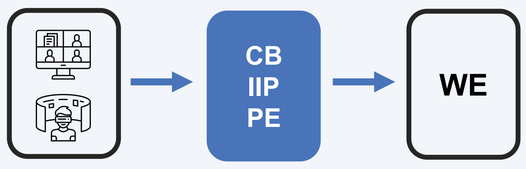
EXPERIMENTAL STUDY 1



H1: VR (vs VC) has a higher positive influence on work engagement (WE).

Non-significant difference → **H1 not supported**
p = 0.743

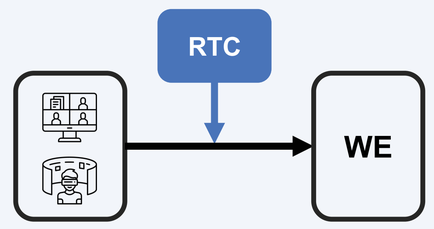
H2: CB, IIP, and PE mediate the relationship between the type of platform and WE.



Mediator	b	Std. Error	LLCI	ULCI
CB	-0.1537	0.0511	-0.2619	-0.0633
IIP	-0.2892	0.0826	-0.4583	-0.1361
PE	0.1888	0.1016	-0.0054	0.3933

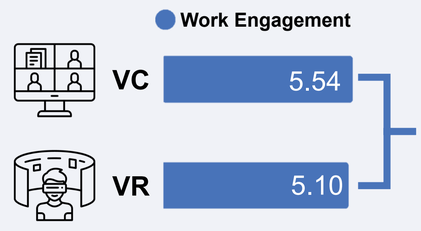
CB and **IIP** were **supported** as indirect-only **mediators**

H3: RTC moderates the relationship between type of platform and WE in low UA regions.



The statistically significant influence of the interaction term, composed of TP and RTC, on WE **(b = -0.2802, se = 0.0827, p < 0.001)** provides **support for H3**.

EXPERIMENTAL STUDY 2

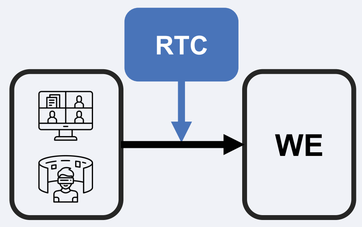


H4: VR (vs VC) does not have a higher positive influence on WE in Portugal.

Non-significant difference → **H4 supported**
p = 0.214

H5: RTC moderates the relationship between type of platform (VR or VC) and WE in Portugal.

The statistically significant influence of the interaction term, composed of TP and RTC, on WE **(b = -0.3893, se = 0.1430, p < 0.01)** evidences the presence of a moderation effect and provides **support for H5.**



CONCLUSION

This research analyzes the transition from **videoconferencing** to **virtual reality** collaborative meetings by comparing perceptions of individuals from **low and high UA regions.**

The findings of Study 2, which focused on **Portugal**, concluded a **non-significant difference between work engagement in VR and VC** and presented a **significant moderation of RTC, supporting H4 and H5.**

No significant difference in WE levels between the VC and VR groups was found in Study 1, **despite considering low UA regions**, which tend to be more receptive to change and new ideas. As a possible explanation for this result, we further examined and confirmed a **significant moderation of resistance to change, supporting H3.**

Despite claims of major VR stakeholders, we found **broad resistance to this technological shift**. Our findings show this aversion **is more widespread than expected**, **present in regions with differing levels of openness to new contexts.**

Future research directions include extending this research's analyses to other **regions** and **cultural factors**, focusing on specific **business industries**, and examining the potential influence of **cognitive bias** (e.g., anchoring bias/effect, asymmetric dominance) in users' evaluations.

Answering the research question **contributed** to a better understanding of the still largely **unexplored aspects of engagement in VC**[2], addressed the need to investigate the **association between interactions in virtual meetings and WE**[7] as well as the **outcomes from introducing VR** in work contexts[8].

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