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Bridging the gap: The role of research-based applications in enhancing academic relevance for students

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A papà, che mi ha sostenuto in ogni avventura
e ha reso tutto questo possibile,
e a Popo, che mi ha ispirato
e mi ha aiutata a credere in me stessa.

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Introduction

The existing literature on bridging the gap between academic research and its application has largely focused on scholars and industry professionals, often overlooking the perspectives of other key stakeholders, such as students (Hunt, 2002). While research-based applications have recently emerged as a potential tool to enhance engagement with academic findings, there is limited research on their effectiveness, particularly in making academic work more relevant and accessible to students. This thesis addresses this gap by exploring how research-based applications can enhance students' engagement with academic research, contributing to the extended literature on bridging the theory-practice gap (e.g., Dwivedi et al., 2024; Alpert et al., 2022; Banks et al., 2016; Bartunek & Rynes, 2014).

At the same time, the broad issue of the divide between academic research and real-world application has been one major challenge in various fields over the past decades (Alpert et al., 2022). Academic research often remains within scholarly circles, limiting its impact on governments, businesses, and societies (Banks et al., 2016; Dwivedi et al., 2024). Such divide between theory and practice is commonly referred to as the "academic-practitioner gap", a term that highlights the main parties involved: on one hand, the creators of knowledge, and on the other hand those who use it.

Recent efforts to address this issue include research-based applications—interactive tools designed to make academic research more accessible, engaging, and practically relevant (Journal of Marketing, 2022). The Journal of Marketing has strongly advocated the implementation of these digital tools by issuing a call for papers that include such an application to make findings easier to understand and more relevant to real-life uses. While this move marks a considerable shift towards closing the theory-practice divide, only a few early adopters among scholars are currently developing one as an addition to their production, and the literature on their utility remains limited.

This thesis aims to fill those gaps in literature by focusing on students and exploring how their engagement with academic research can help bridge the theory-practice divide, particularly by investigating the utility of research-based applications in making academic work feel more relevant to them. By focusing on students' perceptions of research relevance, this study

contributes to the literature on improving students' academic literacy and engagement with scholarly research (e.g., Shehata et al., 2017; Crosier, 2004). Additionally, by examining how these tools can enhance the significance of research, this thesis builds on existing work in the area of managerial relevance (e.g., Schauerte, 2023; Rajagopalan, 2020; Toffel, 2016).

Therefore, the central questions addressed in this thesis are: Can research-based applications make academic research more relevant for students? Are these tools more effective if the topic under study is particularly useful or interesting to them? By answering these questions, this thesis hopes to deepen the understanding of how to bridge the theory-practice gap for future professionals.

Literature review

1.1 The theory-practice divide

The theory-practice divide, also known as the science-practice gap or academic-practitioner gap (Alpert et al., 2022), is a well-known issue in all fields of social science research and education that are closely connected to professional practice and organization, including management as well as marketing (Reed, 2009; Alpert et al., 2022). The concept refers to the struggle to translate theoretical insights into practical applications, leading to a significant disconnect between academic research and its use in real-world settings (Banks et al., 2016; Dwivedi, 2024). The different terminologies describe the same issue but with slight differences in meaning. "Science–practice gap" frames academia as a scientific field, giving it a more positive tone, while the term "theory" tends to carry a negative implication, suggesting that academics struggle with practical application. "Academic–practitioner gap" emphasizes the divide between scholars and professionals, highlighting their distinct roles. Additionally, "gap" suggests a bridgeable distance, giving the term a more neutral connotation that "divide", which instead implies a deeper separation (Alpert, 2022). These subtle differences shape how the issue is understood and addressed in various fields. For this thesis, I will primarily use the term *academic–practitioner gap* because it clearly reflects the challenge of translating theoretical insights into real-world use in managerial settings, which is central to the focus of this research.

Historical context and nature of the gap

The theory-practice divide is not new; it has been a recognized issue within management scholarship for decades. As early as in 1982, Beyer noted that organizational science had very little impact on how organizations function. In the 1990s, academia was defined as "an incestuous, closed loop of scholarship " detached from practical needs (Hambrick, 1994). Despite calls for more relevance in research (McKelvey, 1997), business schools continued losing their way, prioritizing scientific rigor over practical utility (Bennis & O'Toole, 2005). By the 2000s, scholars noted that while discussions on the gap had increased, little progress had

been made, and in some cases, the divide had even widened (Markides, 2010; Bartunek & Rynes, 2014). Despite the growing awareness, ineffective communication continues to hinder the alignment between academic research and its practical application. Academic journals are mostly unknown to marketing managers, or are perceived to be impractical (McKenzie et al., 2002; Baines et al., 2009). Additionally, although both academics and practitioners admit this gap, the debate has mainly taken place in academic journals rather than those read by practitioners, and these journals are often not considered top tier. As a result, the dispute hardly ever incorporates practitioner viewpoints and hasn't significantly enhanced the academic point of view (Bartunek & Rynes, 2014). This pattern is especially evident in marketing research, where the gap has been discussed extensively in editorials, special issues, and commentaries in leading journals (Kumar, 2017; Lehmann, 2014; Meyer, 2013; Reibstein et al., 2009; Varadarajan, 2003; Winer, 2014). Yet, most of these discussions are conceptual, with only a few empirical studies providing concrete insights (Brodie et al., 2017; Cederlund, 2014; Gummesson, 2014 Jaworski, 2011; Möller, 2017; Nenonen et al., 2017; Tapp, 2004). In fact, despite the number of articles addressing the gap between management academia and practice has increased significantly since the beginning of the 21st century, empirical research was never exceeding 20% in any decade (Bartunek & Rynes, 2014).

While the existence of the gap is widely acknowledged, there are varying opinions on its size and impact (Alpert, 2022). Some argue that the gap is growing and threatening the future of the field (Brennan et al., 2014; Brodie et al., 2017; Jaworski, 2011; Reibstein et al., 2009), while others think its existence may be exaggerated or depends on the context (Hunt, 2002; Möller, 2017; Roberts et al., 2014; Uncles, 2010). This disagreement might be due to varying perspectives in different marketing sub-fields, such as business-to-business marketing (Brennan & Ankers, 2004; Salminen et al., 2014; Gummesson, 2014), market orientation (Ottesen & Grønhaug, 2004), and marketing decision models (Lilien, 2011), or even in specific marketing decision areas (Roberts et al., 2014). Nonetheless, the gap's persistence underlines the urgent need for ongoing dialogue and collaboration between academics and practitioners. Addressing this gap is essential to improve knowledge transfer and ensure that academic insights inform effective decision-making, benefitting both scholars and industry professionals (Dwivedi, 2024; Alpert et al., 2022; Williams, 2014). The importance of addressing this gap goes beyond management and marketing, as it also influences industries, governments, and societies at large (Alpert et al., 2022). Numerous studies have demonstrated that academic publications often fail to drive meaningful changes or influence policymaking, highlighting the urgent need for more

effective integration of academic knowledge into practical applications (Rajaeian et al., 2001; Kenny et al., 2017; Reed et al., 2021).

Factors contributing to the gap and proposed solutions

Numerous studies have identified a variety of factors that contribute to the academic-practitioner gap, and have proposed several solutions aimed at bridging the gap and making scholarly research more relevant to industry and practice. Table 1 provides an overview of the main factors and solutions.

Table 1. Synthesis of factors contributing to the theory-practice gap identified in literature and proposed solutions

Exemplary sources	Identified cause	Explanation	Proposed solution
Banks et al., 2016; Dwivedi et al., 2024; Lilien, 2011; Green, 2023; Vermeulen, 2005.	**Misaligned goals and incentives**	Practitioners seek practical solutions that address immediate business needs, but scholarly research is driven more by theoretical advancements than by practical solutions. Academics prioritize the pursuit of knowledge and scholarly recognition, influenced by the academic reward system which emphasizes publication in high-ranking journals and accumulating citations over practical impacts and business application.	Academia should reward real-world impact by funding translational research and integrating "impact on practice" as a promotion criterion. Encouraging industry engagement through consulting and adopting a model such as the one of medical schools can further align academic and practitioner incentives.
Dwivedi et al., 2024; Warren et al., 2021; Crosier, 2004; Banks et al., 2016.	**Communication discrepancies**	Driven by incentives to publish in high-ranking journals and limited by the “curse of knowledge”, academics tend to focus on research depth, using technical language, complex ideas, abstraction and passive writing that make their research difficult to understand for a broader audience.	Scholars should avoid abstract and technical language. Research papers and journals should clearly highlight practical implications and industry insights, use visual elements, and offer plain-language summaries.

Green, 2023; Lilien, 2011; Walsh et al., 2007; Dwivedi et al., 2024; Markides, 2007; Posner, 2009; Piccoli & Wagner, 2021.	**Different timelines**	Academics feel a strong pressure to publish but the timeline needed for advocacy often conflicts with the slow process of writing and publishing research. Long review processes can make research outdated and less relevant to current industry issues. The pressure to publish also limits academics' engagement with practitioners.	Collaboration between academics and practitioners is key. This includes alliances through "open innovation" models, where both sides work together, encouraging "pracademics" to bridge the gap, and having practitioners serving on advisory boards, engaging in symposia, and taking part in industry sabbaticals.
De Man et al., 2020; Rajagopalan, 2020; Gulati, 2007; Tushman & O'Reilly, 2007; Collinson, 2018.	**Different diffusion cycles**	Practitioners and academics adopt ideas at different rates: in academia, this diffusion typically follows an inverted U-shaped curve, while practitioners' cycles follow an S-shaped curve. Misalignment of these cycles widens the gap, while alignment creates better opportunities for collaboration and practical application.	To synchronize diffusion cycles, solutions include symposia for sharing challenges, classroom discussions with industry experts and roles such as Industrial PhDs to bridge academia and practice. Increasing funding for research dissemination and ensuring clear communication during early stages can further align efforts.
Alpert, 2022; Schauerte et al., 2023; Jaworski, 2011; Nicolai & Seidl, 2010; Toffel, 2016; Winer, 2014.	**Low perceived benefits**	Academic research often appears as irrelevant or outdated to practitioners. Many studies focus on theoretical advancements rather than solving real-world problems, which leads to research being seen as disconnected from practice. Additionally, the criteria used to judge relevance often do not align with what practitioners find useful, further deepening the gap. As a result, academic research is often seen as offering limited value to managers, reducing its impact on decision-making and practice.	Academic institutions should prioritize practical relevance by encouraging researchers to emphasize real-world impacts, using relevance scores in the review process and seeking feedback from practitioners. Closer collaboration between academics and practitioners—through interviews, observations, and incentivizing real-world research—can help refine research questions and increase relevance.

1.2 Design Science Research: research-based applications as a solution to the theory-practice divide

Design Science Research (DSR) has emerged as a promising method to bridge the gap between theory and practice thanks to its approach emphasizing the co-creation of practical solutions through iterative processes that adapt to the specific needs of practitioners (Halstrick, 2023).

Design Science Research is a research paradigm emerged from the field of engineering and the sciences of the artificial that aims to solve complex problems by creating and testing innovative solutions (Halstrick, 2023). The core idea behind it is to enhance human knowledge through the development of new artifacts such as models, methods, frameworks, and algorithms that address specific challenges in real-world settings. Unlike traditional descriptive and explanatory research, DSR intentionally focuses on both the creation and continuous improvement of practical solutions, producing actionable insights that are useful for practitioners (Hevner et al., 2004).
The DSR process is iterative and involves multiple cycles of designing, building, evaluating, and refining artifacts to ensure that they are robust and applicable in practice (vom Brocke et al., 2020). Researchers take an active role in this process, employing techniques such as abductive reasoning and creative thinking to develop new solutions (Nakata & Hwang, 2020). This approach is often termed prescriptive research, as it prescribes actionable outcomes to address real-world problems (van Aken, 2004).

Advantages of DSR in bridging the theory-practice gap and its applications in Marketing

One key strength of Design Science Research is its collaborative and iterative nature, which ensures that solutions are both theoretically sound and practically relevant. By actively involving practitioners throughout the research process, DSR fosters a deeper understanding of real-world challenges, enabling the development of solutions tailored to their needs (Hoadley, 2004; van Aken, 2004; Henseler & Guerreiro, 2020). The iterative cycles of design, testing, and refinement allow for continuous feedback, enhancing the validity and usability of the outcomes (Hoadley, 2004). This cyclical approach not only improves the effectiveness of developed solutions but also allows for adjustments that keep pace with evolving market dynamics. While DSR has faced criticism for being less rigorous than traditional research methods (Winter,

2008), its emphasis on practical applicability makes it particularly valuable in fields where actionable solutions are crucial, such as marketing (Halstrick, 2023). Unlike conventional academic research, which often prioritizes theoretical contributions over practical implementation, DSR bridges this divide by producing insights that can be directly applied to industry challenges.

Despite its success in disciplines such as Information Systems, DSR remains underutilized in marketing research (Österle et al., 2011). Marketing research has often been criticized for relying on complex methodologies that are difficult for practitioners to interpret and apply (Lehmann et al., 2011). DSR addresses this issue by shifting the focus from merely describing problems to creating artifacts that can be directly implemented in practice (Roy et al., 2017; Nyilasy & Reid, 2007; Hoadley, 2004; Österle et al., 2011). Halstrick (2023) presents four case studies demonstrating how DSR can enhance marketing research by producing practitioner-oriented solutions that bridge the gap between academia and real-world application. Encouraging greater adoption of DSR in marketing requires improving researcher-practitioner communication, as making research findings more accessible can increase their impact beyond academic circles (Hambrick, 1994). Additionally, fostering interdisciplinary collaboration between marketing scholars and experts in other fields where DSR is already established could help accelerate its integration into marketing research, further enhancing its practical relevance and impact.

Research-driven applications

Recently, a few pioneering academics have started adding a practical application to their manuscript. A research-driven app is defined by the Journal of Marketing as an online interactive tool that provides a deeper understanding of the usability of the research contribution. Essentially, it serves as a dynamic computational supplement to a research document, thereby adding form and function to the otherwise static nature of the publication.
Rather than simply adding an app to the end of a traditional research paper, where the focus remains on the static analysis and findings, these apps shift the focus towards usability and implementation of the study. By doing so, they encourage a solution-based mindset among scholars that is reflected in their research output.

The Journal of Marketing has defined four kinds of research-driven apps:

1. **Predictors**: These apps use models to forecast how various elements influence a marketing activity or result. For example, they might predict how different market situations impact consumer behavior or show the intensity of certain behaviors under varying conditions.
2. **Optimizers and Recommenders**: These tools suggest better methods for making marketing decisions and recommend the best strategies for marketing practitioners. For instance, an optimizer might suggest the best mix of marketing efforts that will yield the highest results for a company. Recommenders might create personalized plans or schedules to help customers achieve their desired outcomes.
3. **Explorers**: These apps study how sensitive research findings are to different research design assumptions. For example, explorers might present empirical findings across different sample groups and methodologies, or automatically summarize existing literature on several related topics.
4. **Converters**: These applications transform raw input, like text, audio, or videos, into organized data that provides new understanding for marketing. Converters might analyze text or video to detect underlying trends and patterns, or enhance sales pitches based on the characteristics found through analysis.

One notable example is the writing clarity calculator created by Warren et al. (2021), which supplements their research on making scholarly writing clearer and more impactful. The clarity calculator (http://writingclaritycalculator.com/) analyses input text and outputs scores that measure concreteness, the number of examples used, the percentage of sentences in active voice, and other elements that contribute to clearer writing. This app serves as a dynamic computational aid to their research paper, thereby improving its practical usability (Warren et al., 2021).

In an effort to promote the development and use of such applications, the Journal of Marketing has issued a call for articles integrating these research-driven apps. This initiative is intended to reduce the impact barriers of academic articles and favor the dissemination of marketing scholarship among its target audience, which includes managers, executives, researchers, consumers, policymakers, and students, among others. By fostering the development of these apps, the Journal of Marketing aims to enhance the understanding, consumption, adoption, and ongoing usage of research findings, thus making academic research more accessible and actionable.

1.3 Students' engagement with academic research and learning

While the target audience of academic research is generally broad and includes practitioners as well as marketing educators, students, researchers, public policy officials, and society ((Brodie et al., 2017; Hunt, 2002; Varadarajan, 2003), marketing scholars often focus primarily on fulfilling their duties to practitioners, while neglecting other important stakeholders (Hunt, 2002). As a result, academics often face criticism for not ensuring that knowledge is developed and shared with all relevant parties (Hunt, 2002).

To effectively reach all these different stakeholders, the transfer of academic knowledge follows a multi-step process that involves several intermediaries. Initially, research findings are published in academic journals. However, the findings are not always directly accessed by marketing practitioners through these journals. Instead, they diffuse through various channels. Academic text writers play a crucial role by extracting and organizing this new knowledge into textbooks and other educational resources. These textbooks are then used in educational settings, reaching students who are the next generation of marketing practitioners and successful managers (Hunt, 2002; Parasuraman, 2003). Therefore, it's essential to ensure that students, as future managers and key stakeholders, are included in academic dialogues and receive the knowledge necessary to prepare them for their roles in the marketing field (Hunt, 2002). However, they usually miss out on opportunities to connect academic learning with real-world industry challenges (Alpert, 2022; Hunt, 2002), which in turn results in inadequate preparation for future jobs (Baron et al., 2011). Recognizing the importance of students as future professionals, scholars have examined their familiarity with and ability to understand academic research, proposing various solutions to enhance their comprehension. Still, most of these proposed solutions remain too theoretical and not effective enough to solve the issue.

Challenges in engaging with academic learning and proposed solutions

Previous research highlights challenges in how marketing journals transfer knowledge to students and other audiences (Crosier, 2004). To enhance student engagement and understanding, it is essential to improve how academic content is presented and taught. Table 2 outlines key challenges that students face when engaging with academic research and proposed solutions to address them.

Table 2. Synthesis of challenges faced by students in engaging with academic learning and proposed solutions

Exemplary sources	Problem	Proposed solution
Crosier, 2004; Alpert, 2022.	Scholarly writing is too dense and lacks managerial relevance, making it difficult for students to engage with academic research.	Present research findings in more digestible formats such as executive summaries or infographics and foster academics-practitioners' relationships, involving students in practical projects.
Alghail & Mahfood, 2016; Shehata, 2017; Taylor, 2021; Wingate, 2006.	Students face difficulties in understanding and connecting new academic content with their existing knowledge, especially when reading intensive and technical papers in a second language.	Include journal clubs, where students teach an assigned article to their peers, and combine reading and writing tasks so that students see how they connect.
Shehate, 2017; Fujimoto et al., 2011; Taylor, 2021	Students often find it mentally exhausting to read technical papers and frequently struggle to determine their usefulness, which makes them resort to strategies such as reading abstracts, skimming, and scanning to identify relevant information.	Provide practical tools for extracting main ideas from academic readings, such as focused worksheets and explicit guidance on how to approach these texts; use interactive activities like group discussions, passage translation, and advice construction.
Crosier, 2004; Hunt, 2002.	Textbooks lack the depth of journal articles. Modern textbooks simplify content too much, potentially limiting university-level understanding.	Balance accessibility with depth by supplementing textbooks with journal readings and discussions.
Van Dyk, 2013; Weideman, 2013.	Academic courses emphasize language and writing skills but often overlook important thinking and analysis skills needed for real-world application.	Gather and process academic information through listening, reading, and analytical thinking before writing; make academic courses more comprehensive, preparing students for real-world situations rather than just focusing on language skills.

Students learning through digital tools

Students today are increasingly referred to as "digital natives" (Prensky, 2001), a term that reflects their deep connection to technology. Having grown up in a world of computers, the internet, social media, and smartphones, they are naturally skilled at using technology and comfortable with multitasking, often juggling multiple roles—social, academic, and professional—using various digital tools (Barnes et al., 2007). These students are not just passive consumers of technology but are active participants who use it to collaborate, create, and share ideas in ways that were previously unimaginable, and this familiarity with technology has also affected their learning style, bringing significant implications in education settings. Net generation students, born into a world of instant information, often struggle to engage with traditional, passive learning methods, as they have different learning inclinations, preferring experiential, interactive, and immediate approaches (Prensky, 2001). In response, teachers need to rethink their methods to better suit students' tech skills and learning styles.

The growing reliance on digital tools led to a natural progression towards Web 2.0 technologies, which have become integral to students' lives, both personally and academically. Web 2.0 tools have revolutionized digital learning by transforming students from passive recipients of information into active participants who create, share, and collaborate in real-time (Hartshorne & Ajjan, 2009). Unlike traditional websites that primarily deliver content, Web 2.0 applications—such as blogs, wikis, and social media—enable users to generate and modify content, fostering a more interactive and participatory learning experience (Ferdig, 2007; Maloney, 2007). The shift towards Web 2.0 tools has thus transformed education into a more dynamic, socially connected, and participatory process. Figure 1 provides a comprehensive overview of the main benefits of these tools.

By integrating these technologies into coursework, educators can create authentic learning experiences that not only align with students' technological preferences but also prepare them for professional environments that demand digital literacy and collaboration (Pence, 2007; Ferdig, 2007).

Figure 1. Benefits of Web 2.0 tools

1.4 Hypotheses development

While there is a significant body of research focusing on the managerial relevance of academic research and a growing interest in integrating Design Science Research (DSR) tools into this context, the introduction of research-based applications represents an additional step forward that has not yet been thoroughly explored. Furthermore, there is a clear gap in research about how to concretely engage students with academic research. This study addresses both these gaps by looking at how DSR tools affect students' perceptions of the relevance of academic research. It specifically examines the newly introduced research-based applications and how the perceived usefulness of research findings influences this relationship. The research question guiding this study is therefore: "*How does the integration of a Design Science tool into academic research influence its perceived relevance for students, and how does the perceived usefulness of research findings moderate this relationship?*".

Based on existing research, I built a conceptual model to explore these connections. The following hypotheses aim to test these relationships and offer insights into how DSR tools and the perceived usefulness of research could impact students' perceptions of research relevance in real-world contexts.

H1: The integration of a Design Science Research tool (application) into research papers improves students' perception of the relevance of academic research.

This hypothesis is grounded in Halstrick's (2023) research, which demonstrates the benefits of integrating Design Science Research (DSR) tools, such as interactive applications, into marketing research. Halstrick's investigation uses case studies to compare behavioral and design science research, showing that DSR creates solutions that directly address real-world problems. Unlike traditional research, which centres on explaining phenomena, DSR focuses on creating and testing practical tools such as frameworks and software to solve specific challenges and provide actionable solutions that help users better understand and apply research findings. A key reason why DSR enhances research relevance is therefore its emphasis on bridging the gap between academic theory and practice. While traditional research often struggles to translate theoretical insights into practical, ready-to-use applications, DSR addresses this issue by using an ongoing process where solutions are developed, tested, improved, and adjusted to fit changing business needs. This ensures that research remains

engaging and useful for its intended audience, helping bridge the gap between academic insights and practical decision-making.

Building on Halstrick's findings, I hypothesize that integrating a DSR tool in research papers will improve students' perception of academic research relevance. While Halstrick's work focuses on marketing managers, I extend his reasoning to students, since interactive DSR tools generally allow to experiment with concepts, apply theories to real-world scenarios, and see the practical impact of academic insights. Features like simulations and visualizations make complex ideas easier to understand, reducing cognitive effort and aligning with students' learning needs.

By increasing engagement, demonstrating clear practical value, and supporting problem-solving skills, DSR tools can help students see academic research as more relevant.

H2: The perceived usefulness of research findings moderates the relationship between the integration of a Design Science tool and perceived relevance, such that the relationship is stronger when findings are perceived as more useful.

This hypothesis draws from Schauerte's (2023) research, which identifies key factors influencing the managerial relevance of academic research in marketing and management, with perceived usefulness being one of them. This study, which employs a variety of methods including a focus group of MBA students, defines usefulness as a study's potential to be applied in a real-world business context, where its insights can be put into practice to deliver tangible benefits, and distinguishes two key components of usefulness: applicability and effectiveness. The former refers to the degree to which research findings offer practical, actionable recommendations that can be directly implemented in managerial practices. The latter relates to the extent to which these suggestions have potential to positively impact outcomes in real-world scenarios.

Building on Schauerte's findings, I hypothesize that the perceived usefulness of research findings will moderate the relationship between the integration of a Design Science Research (DSR) tool and the perceived relevance of academic research for students. When students consider research findings useful, the integration of DSR tools will have a stronger effect on perceiving the study under examination as relevant to their studies and future careers. This reflects the idea that students seek research that is directly applicable to their managerial and professional needs (Schauerte, 2023). However, if research findings are seen as abstract or disconnected from students' interests and fields, the application's benefits may be diminished.

Thus, perceived usefulness acts as an important factor through which students judge the value of academic research. According to Schauerte's findings, research becomes more relevant when students see it as practically useful—something that can be applied in real-world situations and have a positive impact. When students find research both actionable and effective, the use of DSR tools is expected to make the research feel more relevant to their studies and future careers.

Control variable

Apart from testing the two hypotheses, this study collects data on the perceived interestingness of the research as a control variable, in order to understand and explain any influence that interest might have on students' perceptions of research relevance.

Existing research presents a mixed view of the relationship between interestingness and relevance. For instance, Das & Long suggest that interesting research is often seen as relevant because it captures attention, influences readers' thinking, and allows to reach a wide audience (Das & Long, 2010). In contrast, studies on student perceptions in chemistry show that interestingness and relevance do not always go hand in hand, as they may find a topic engaging without necessarily seeing it as meaningful (Broman et al., 2020).
Understanding the relationship between interestingness and relevance in the literature helps justify why it's important to control for interestingness in this study, even though no direct effect is hypothesized, as it could still have an indirect influence on perceived relevance.

With the inclusion of interestingness as a control variable, the conceptual model for this study, as shown in Figure 2, visually represents the key variables and their relationships. The model demonstrates how the integration of DSR tools can potentially influence students' perceptions of research relevance, with perceived usefulness serving as a moderating factor that would strengthen this relationship and with interestingness as a control variable to account for its potential impact on students' perceptions of relevance.

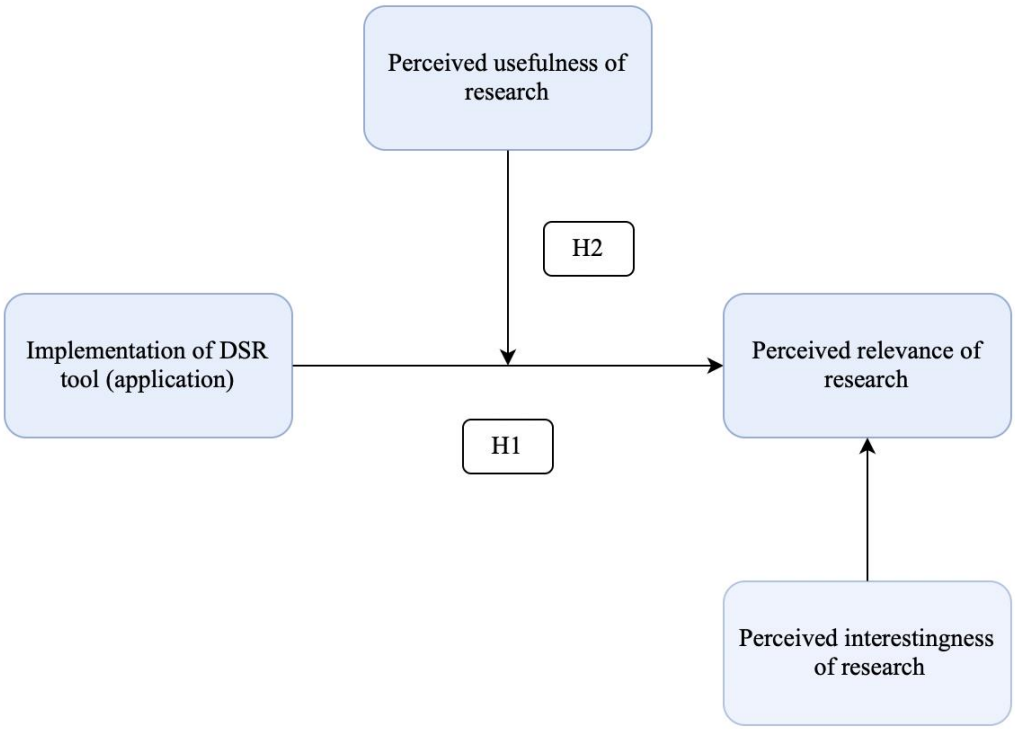

Figure 2. Conceptual model

Experimental analysis

Overview

This section outlines the methodological approach adopted in the thesis, the empirical research consisting in a survey designed to test the hypothesized direct and indirect effects. The results provide empirical data to assess the validity of the conceptual framework developed in the first part of the study.

I chose a survey method for this research to gather insights from a large number of students from various academic backgrounds. A survey allows for efficient data collection and provides quantitative data that can be easily analysed to test my hypotheses. Unlike qualitative methods like interviews or focus groups, surveys can cover a broader population, ensuring the findings are more generalizable. By using a survey, I aim to gain a good understanding of students' attitudes toward academic research and the factors that can enhance their engagement with it.

Method

The survey was built using Qualtrics XM, an online survey development and data collection tool known for its robustness and ease of use.

Survey design

The questionnaire began with an introduction to provide context for the respondents. In this introductory section, I outlined the purpose of the survey as a part of my thesis research and provided a brief overview to help respondents navigate through the survey easily. I also introduced myself as a marketing student, which helps to build credibility and rapport with the participants. The survey, as it was published, went through several stages. Initially, I imagined the survey to be built in a completely different way.

First version

My first version was based on two papers: one with an app developed (Warren et al., 2021) and another paper with similar goals and findings but no app developed (Sawyer et al. 2008). Both these papers focus on highlighting what makes a research study readable and hence more likely to be understood and cited, identifying the items that contribute to the readability of articles. In addition, Warren et al. developed a tool called the Writing Clarity Calculator, which reads and examines a piece of text and assigns a score based on the clarity of the writing.

I rephrased and summarized the abstracts of these two papers to highlight their similarities, ensuring that the main difference was the presence of an app. This approach aimed to test whether the mere presence of an app could result in significant differences in perceived relevance. Subsequently, I decided to apply this method to other papers that were not strictly related to academic research per se but were potentially more relevant from a managerial perspective. Thus, I repeated this process for Atalay et al. (2023) and a similar paper by Lindgreen & Vanhamme (2003). These papers explore how the unexpectedness of syntax in marketing messages (syntactic surprise) can be strategically used to enhance marketing effectiveness and customer retention respectively, with the first paper introducing a tool called the Syntactic Surprise Calculator that measures the syntactic surprise of your text and indicates if it falls within the effective range or if adjustments are needed. Additionally, I applied this method to two different papers by Luangrath et al. (2017, 2023), where one had an application developed—PARA—that detects the non-textual cues which may reveal thoughts, feelings, personality, motivations, and behaviors, while the other did not, despite both focusing on detecting non-paralanguage text and highlighting the implications of these written cues for effective marketing communication.

My initial survey design had each respondent viewing all six cases (Warren et al., 2021 Sawyer, 2008, Atalay et al., 2021, Lindgreen & Vanhamme, 2003, Luangrath, 2022, and Luangrath, 2017) and answering three questions about the perceived relevance, usefulness and interestingness of every research. However, I soon realized that the survey was too lengthy. After conducting a self-trial and asking two other individuals to complete the survey, I found that it took at least 10 minutes to complete. Concerned that not all participants would finish the survey, I decided to revise the survey design and transform it into an experiment.

Final version

To make my study into an experiment, I selected two academic papers from the list of previously identified studies with developed applications: Atalay et al. (2023) with the Syntactic Surprise Calculator, which I had chosen also for the previous version of my survey, and Schoenmueller et al. (2022), which explores the polarization of political ideology and its impact on consumer preferences, intentions, and purchases. The authors of this paper developed the Social Listening app, a tool designed to apply the findings practically, by visually tracking the polarization of political ideology in consumer behavior, providing public access to Twitter-based brand political affiliation scores. I chose these two papers because they offer valuable insights from a managerial perspective, and I believe that students aspiring to managerial roles could find these topics particularly engaging. While the first paper primarily focuses on marketing communication, the second paper integrates a political dimension, which might enhance the appeal for respondents who are interested in both political and branding topics.

To make the content more digestible for the respondents, I rephrased the abstracts of these papers into more concise versions. For each paper, I created two versions of the abstract: one that includes a mention of the developed application and one that does not. Apart from the mention of the application, the abstracts were identical. In the version that did not mention the application, I included a relevant graph extracted from the research to illustrate some of the study's findings. Conversely, in the version that mentioned the application, a screenshot of the application was attached to provide visual context.

Before publishing the study, I conducted a pilot test by asking three friends from different academic backgrounds—marketing and health sciences—to review the survey and provide feedback. They suggested that the abstracts were a bit difficult to read and understand. Based on their feedback, I adjusted the abstracts to make them clearer and more accessible for a broader audience. Therefore, the final stimuli used in the study consisted in total of four short texts (the rephrased abstracts) and four corresponding images (either a graph extracted from the study or a screenshot of the application).
The final versions are presented below.

Paper 1: Atalay et al. (2023) – Syntactic Surprise Calculator

Version 1: Without app

“Study 1 investigates how the "syntactic surprise" (how unexpected the sentence structure is) of a message impacts marketing effectiveness. The authors create a measure for syntactic surprise and test its effectiveness using real-world data and experiments. Their findings reveal that messages with a medium level of syntactic surprise are the most effective, following an inverted U-shape pattern.”

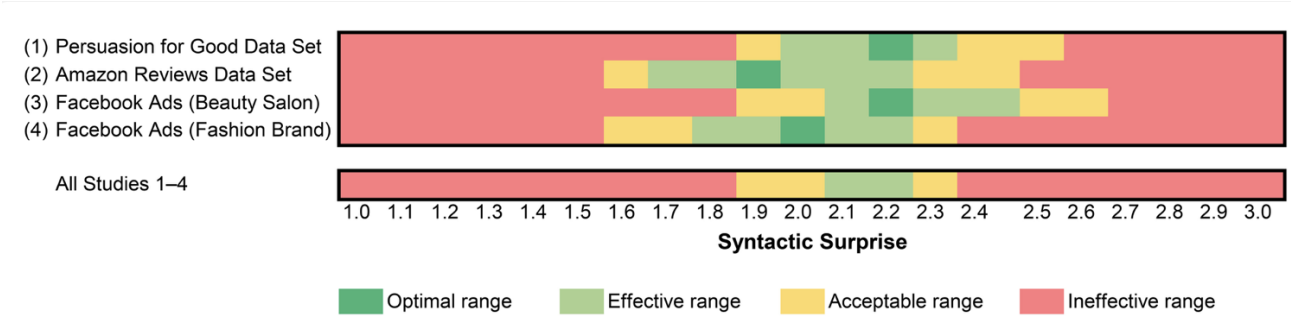

Figure 3. Graph from Atalay et al. (2023)

Version 2: With app

“Study 1 investigates how the "syntactic surprise" (how unexpected the sentence structure is) of a message impacts marketing effectiveness. The authors create a measure for syntactic surprise and test its effectiveness using real-world data and experiments. Their findings reveal that messages with a medium level of syntactic surprise are the most effective, following an inverted U-shape pattern. To make these insights actionable, the authors developed the Syntactic Surprise Calculator—an online tool that evaluates text, calculates its syntactic surprise, and advises whether it’s in the ideal range or needs adjustments to improve effectiveness.”

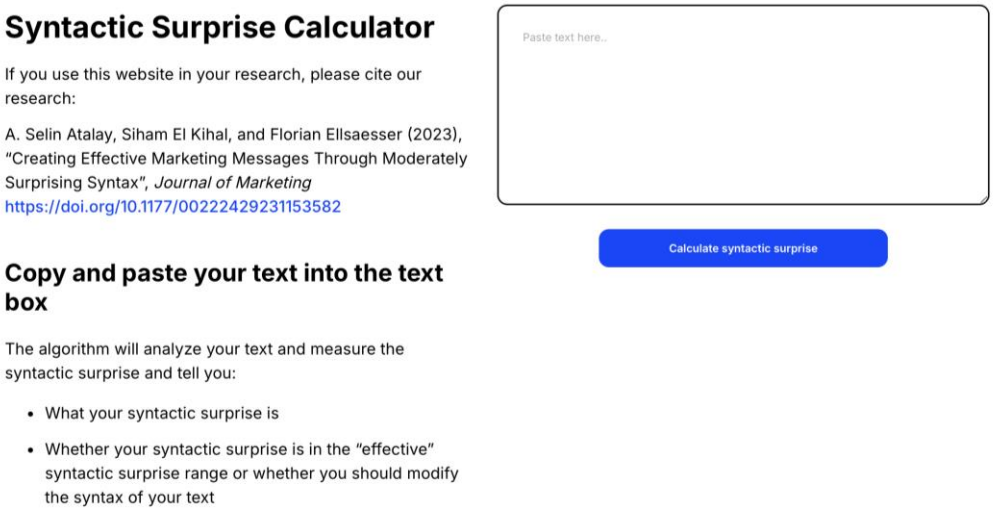

Figure 4. Screenshot of the Syntactic Surprise Calculator from Atalay et al. (2023)

Paper 2: Schoenmueller et al. (2022) – Social Listening App

Version 1: Without app

"Study 2 looks at whether political polarization affects consumer choices and purchases. The authors analyzed over three million Twitter brand followerships, survey data, and purchase records, finding that political divides became stronger after Donald Trump's 2016 election. Liberals, in particular, showed increased polarization in their brand preferences. The demand for "Democratic brands" drove this shift. Brands that took political stances saw changes in their customers' political leanings."

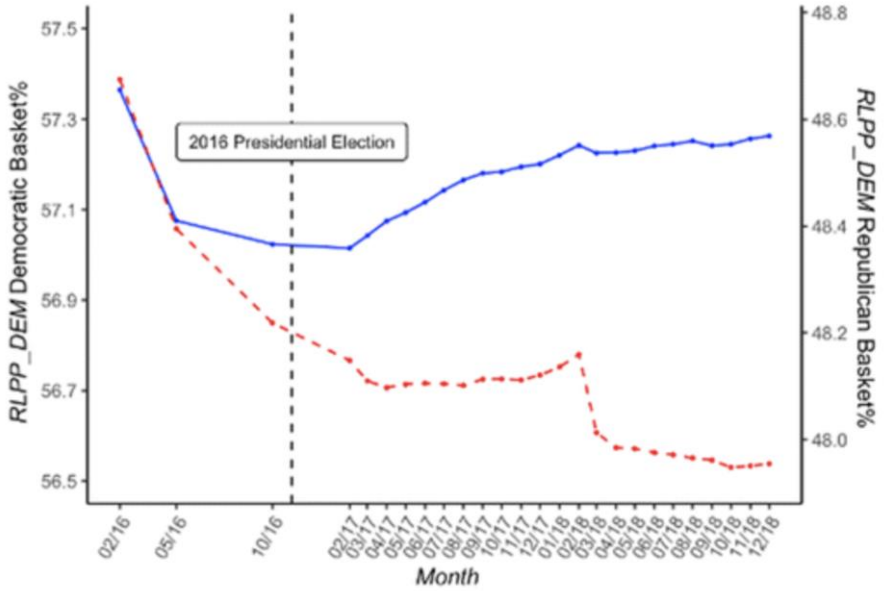

Figure 5. Graph from Schoenmueller et al. (2022)

Version 2: With app

"Study 2 looks at whether political polarization affects consumer choices and purchases. The authors analyzed over three million Twitter brand followerships, survey data, and purchase records, finding that political divides became stronger after Donald Trump's 2016 election. Liberals, in particular, showed increased polarization in their brand preferences. The demand for "Democratic brands" drove this shift. Brands that took political stances saw changes in their customers' political leanings. To help track this, the authors created a Social Listening Tool that analyzes Twitter data to determine how brands are politically aligned and provides scores for each brand's political affiliation."

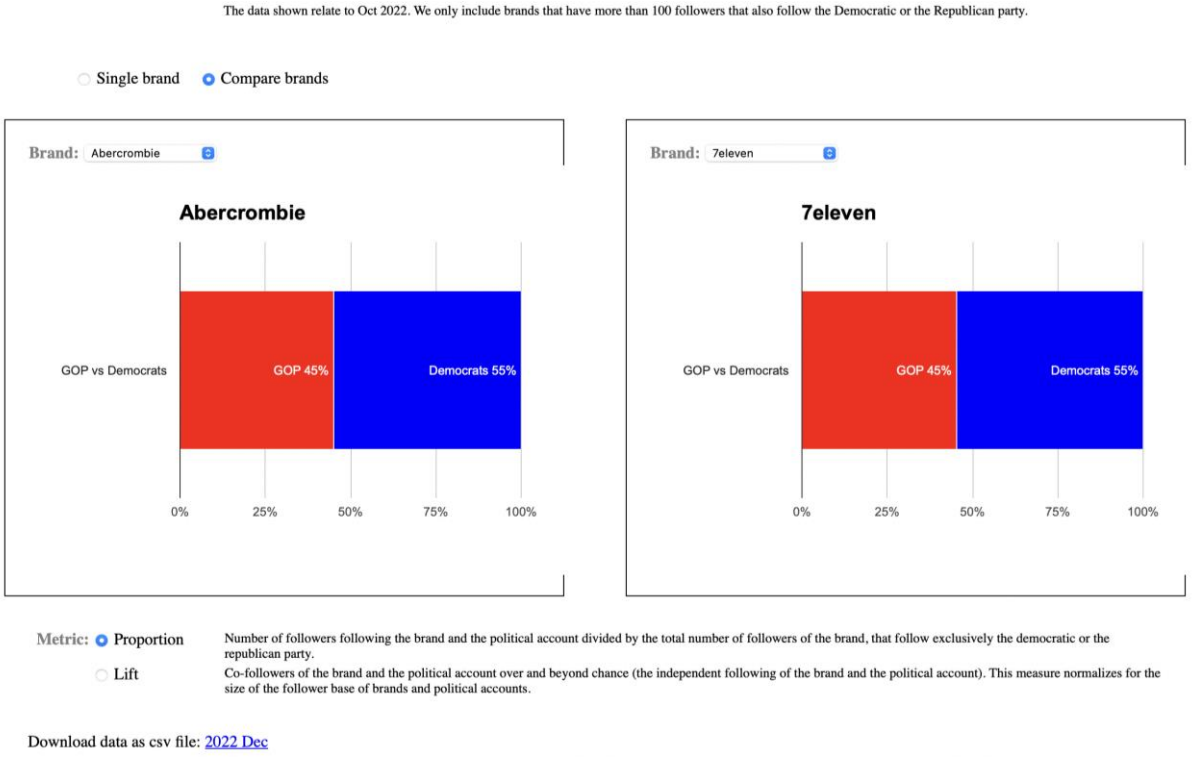

Figure 6. Screenshot of the Social Listening app from Schoenmueller et al. (2022)

Measuring Perceptions

The survey blocks were developed to capture respondents' opinions on the relevance, usefulness, and interestingness of the research. Following each presentation of the abstract and accompanying visual aid (either a graph or screenshot), three questions were asked to measure the respondents' perceptions using 7-point Likert scales.

The first question assessed the perceived relevance of the research, using a scale adapted and rephrased from Hoeber & Yang (2007), consisting of one item. Respondents were asked to rate

how relevant they found the research on a scale from 1 (Strongly Disagree) to 7 (Strongly Agree).

The second question investigated the perceived usefulness of the research, utilizing a 6-item scale adapted from Davis (1989), which included statements such as “This research would improve my performance in academic or practical tasks”, “This research would enhance my effectiveness in understanding and applying its findings”, “I would find this research useful for my learning or work”. Participants rated their agreement with each statement on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The third question explored the perceived interestingness of the research, utilizing an 8-item three-dimensional Situational Interest Short Scale measuring the emotional, cognitive, and value-related aspects of interest, developed by Kleespies (2024) and adapted to fit the context of this study. Participants rated their agreement with each item on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Example items included statements such as “The research is exciting,” “This research made me curious,” and “I would like to know more about this topic.”

I chose these scales because they are well-established and have been previously validated in academic literature, ensuring the reliability and validity of the measurements.

Survey Blocks and Randomization

To ensure a comprehensive evaluation, the survey design included four blocks in total: two blocks for each paper. One block for each paper presented the abstract without mentioning the application (but with a graph) and the other block presented the abstract with a mention of the application (and a screenshot of the application). To maintain objectivity in responses, a randomization process was employed using Qualtrics' built-in randomizer feature. This feature ensured that each participant was randomly assigned to one of the two blocks for each paper. Thus, participants viewed only one block related to each paper, ensuring exposure to just one version of each study. The selection of the block for Paper 2 was independent of the selection for Paper 1.

Demographic Questions

Finally, the survey included several demographic questions to gather basic information about the respondents, specifically age, gender, and field of study. The age question was set up as a multiple-choice question with predefined age categories: <18 years old, 18-23, 24-29, 29-34,

and >34. Since was expecting most responses to fall within the 18-23 and 24-29 categories, with some responses possibly in the 29-34 category, I decided to use relatively small, 5-year age categories to capture more precise data within the main age ranges of university students. While I considered using even smaller year categories, I opted against it to avoid complicating the survey and to ensure simplicity for the respondents.

For gender, another multiple-choice question was presented with four options: male, female, nonbinary/third gender, prefer not to say/other.

The field of study question, also a multiple choice one, covered various fields including management, marketing, economics, finance, social sciences, health sciences, engineering, and "other", with a text entry option for respondents to specify their field if it was not listed.

Additionally, there was an open-ended question at the end of the survey for respondents to provide feedback about the survey itself. I hope to understand from these comments what aspects of the survey went well and what could be improved for future studies.

To maintain the anonymity of the survey, I did not ask for names or other personal information. All the questions used in the survey are listed in the Appendix.

Survey distribution

The survey was distributed online using different platforms. Initially, I shared the survey link on Whatsapp groups and private chats with my personal connections from the University courses I was enrolled in. To reach a more diverse group of students from different academic backgrounds, I extended the distribution to my outer network. This was achieved by sharing the survey link on social media platforms, specifically Instagram and LinkedIn, with a call to action directed at students. Additionally, I used two online platforms called Survey Circle and Survey Swap to further increase participation. Survey Circle and Survey Swaps are both community-based platforms designed specifically for supporting academic and market research by enabling users to share their survey and participate in others. These platforms help researchers achieve higher response rates and gather diverse data by connecting with a broader audience beyond their immediate network. On both the platforms, I added a specific requirement that respondents must be university students, preferably from managerial or marketing backgrounds, to ensure the relevance and quality of my survey data.

I kept my survey open for 10 days to allow sufficient time for responses while maintaining a sense of urgency to boost participation.

Limitations and data cleaning

Despite careful survey design, several limitations should be noted. First, there was a minor issue with the age categories. The groups used (<18, 18-23, 24-29, 29-34, >34) were inconsistent, with some overlap. I only noticed this issue after I started distributing the survey. However, I do not believe this had a major impact on the study, as the small inconsistencies in age ranges do not affect the overall findings related to my hypotheses testing. Another oversight was the omission of a question about respondents' country of residence or study. As a result, geographic or cultural differences could not be analysed effectively.

Additionally, while the survey was initially distributed to people studying Economics, Management, or Marketing, it was later shared on broader platforms such as LinkedIn, Instagram, and the two survey exchange sites Survey Circle and Survey Swap. This likely brought in respondents from different academic backgrounds. Their plausible lack of familiarity with marketing communication and branding concepts might have influenced perceptions of relevance, usefulness and interestingness of the two articles presented in the survey.

Moreover, after receiving feedback from friends about the complexity of the text and applying small corrections, no further feedback was gathered to confirm that the changes truly improved clarity. A second round of testing could have ensured that the text was easier to understand, potentially improving respondent engagement.

Finally, I did not enable the Google reCAPTCHA integration to detect bots, a feature offered and recommended by Qualtrics. Consequently, as I was monitoring responses, particularly after sharing the survey on the platforms Survey Circle and Survey Swap, I began noticing some entries marked as "complete" but with no actual data filled in. These responses had a "completion time" of just 5 to 30 seconds, which indicated that they were likely automated submissions. In response, I started monitoring the survey results more regularly and, upon identifying empty responses with quick completion times, I manually deleted all these invalid entries—between 30 and 40 in total. Additionally, I removed any test responses that were submitted by myself or by friends I had asked for feedback on the survey before or immediately after its launch, ensuring that only genuine and valid human responses were included in the final dataset.

Results

Once the survey was closed after 10 days of collecting responses, I downloaded the dataset for analysis using the IBM SPSS software.

The survey reached in total around 150 people, but slightly more than 50 respondents did not complete it, leaving the page before finishing. As a result, I ended up with a significant number of incomplete responses that I could not use and therefore deleted, ultimately collecting 89 complete responses, a sufficient basis for analysis and testing of my hypotheses. However, among the 89 valid responses, two participants did not fill out the demographic section, but answered all the questions related to the two studies. While these two cases slightly diminish the overall completeness of the dataset, I believe that they represent only a minor setback and don't significantly impact the solidity of the findings. That's why I decided to keep them in my analysis, assuming these respondents fit within the most common demographic groups. Apart from this, I deleted the other incomplete responses, as most had very low completion rates, typically stopping after reading only the introduction to the survey itself. Only a very small percentage of these incomplete responses made it to later stages of the survey, occasionally reaching the second block of questions (the second paper). Once I ensured that all the entries in the dataset were valid, I began analysing the results.

In this section, I will first provide a demographic overview of the survey participants, to give context to the sample. Then, I will present the statistical analysis related to the hypotheses being tested, focusing on the main findings and interpretations drawn from them.

Demographic overview

The demographics of respondents were mostly in line with my expectations.

Age

Since age was treated as a categorical variable, with respondents grouped into predefined age ranges (<18, 18-23, 24-29, 29-34, >34), it is difficult to calculate measures such as the exact average age of respondents. However, it is easy to identify the most frequent age categories, as can be seen in Figure 7.

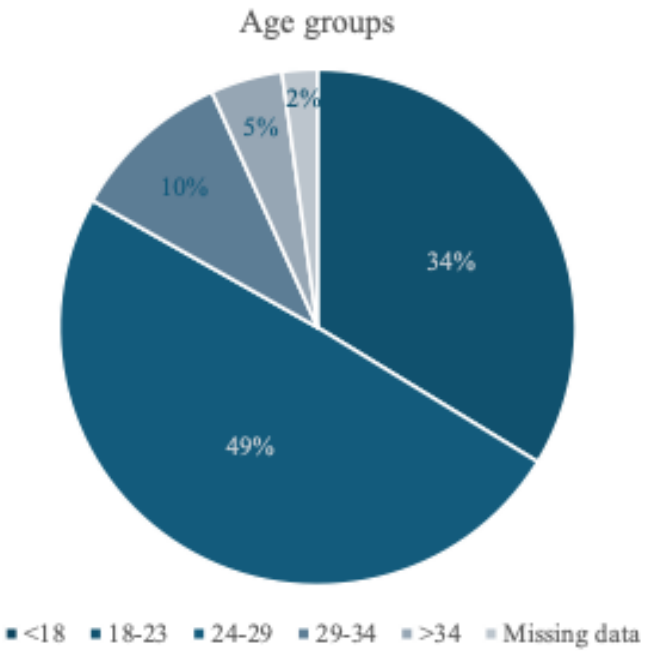

Figure 7. Distribution of respondents' age

As I was expecting, the 24-29 and 18-23 age groups were the most represented, with 44 and 30 respondents respectively. Nine respondents belong to the 29-34 age group, and four were over 34 years old, possibly representing adults who returned to University after gaining valuable work experience. No answers were collected from students under the age of 18, which is also in line with the scope of my study, since at that age students are not typically enrolled in University and therefore don't have the theoretical experience and education to fully grasp such managerial concepts.

Gender

As shown in Figure 8, the gender distribution of respondents was essentially balanced, with a slight majority identifying as female. This distribution shows a variety of gender identities, offering a broad perspective on the survey results.

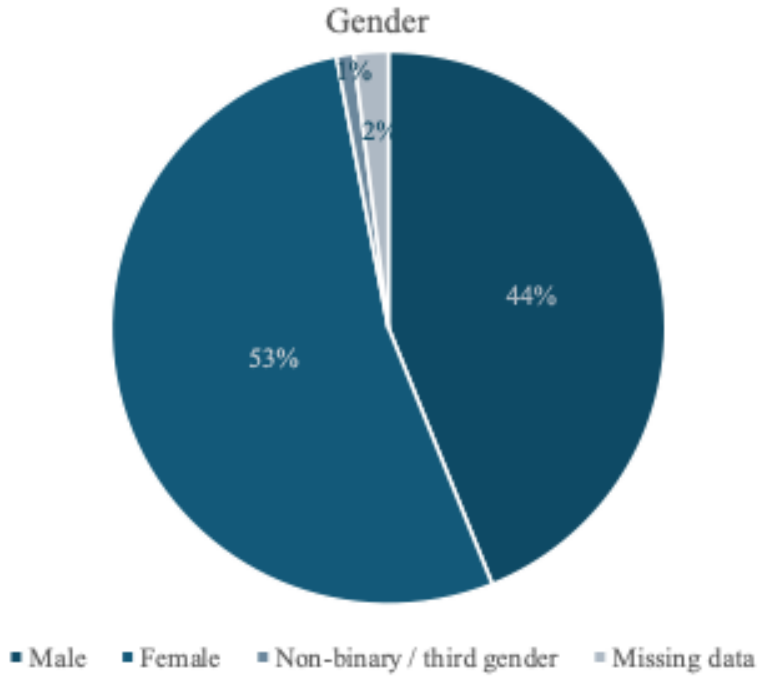

Figure 8. Distribution of respondents' gender

Field of study

As for the field of study, most responses came from Marketing (n=24) and Management (n=22) students, which aligns with the audience I specifically targeted for my study. Economics followed with 12 respondents. After that, a significant number of participants were enrolled in Social Sciences (n=9), Health Sciences (n=5), Finance (n=4), and Engineering (n=4). Seven respondents selected "Other" as their field of study. Those who chose this option were asked to specify their study path in a text entry field. These additional responses included 2 students from law and others from a diverse range of disciplines: Archaeology, Logistics, Learning & Development in Organizations, Psychology, and Sociolinguistics. To obtain a more organised classification, I have categorized Psychology and Sociolinguistics under Social Sciences and Learning & Development in Organizations under the managerial field. Therefore, the corrected distribution of respondents into the predefined fields of study is presented in Figure 9:

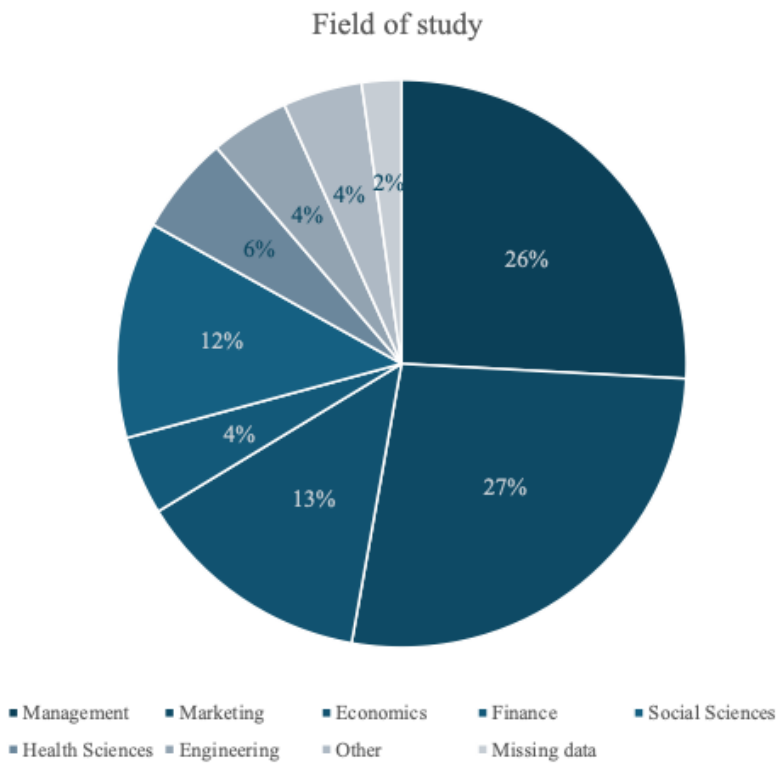

Figure 9. Distribution of respondents' field of study

Hypotheses analysis

Given the structure of the survey, where each respondent was presented first one of the two conditions (no app vs. app) of Paper 1 and then one of the two conditions of Paper 2 (no app vs. app), I analysed the results for each paper separately. Following this approach, it is possible to better understand the impact of the app in each case, providing more comprehensive results. Therefore, in this section "Case A" refers to the analysis of results from Paper 1 (Atalay et al., 2023), comparing perceptions between the no-app condition and the app condition, while "Case B" refers to the results from Paper 2 (Schoenmueller et al., 2022), again comparing perceptions with and without the app.

Before proceeding with the one-way ANOVA and regression analysis, the internal consistency of the scales used in the survey was assessed using Cronbach's alpha as reliability measure. All values exceeded the acceptable threshold of 0.60. Specifically, the scale used for assessing perceptions of the moderator for Case A (USEA) had a Cronbach's alpha of 0.933, while the one for Case B (USEB) recorded a value of 0.937; the scale to measure the control variable for Case A (INTA) showed a reliability coefficient of 0.948, and the one for Case B (INTB) of

0.949. Since all values were well above the threshold, the scales were considered highly reliable. The tables are reported in Appendix A.2.

After verifying the validity and reliability of the scales, another important step was to assess whether the data met the assumptions for parametric testing through a normality check. To perform this check, histograms of the perceived relevance scores (RELA and RELB) were used, revealing bell-shaped distributions (Figures 10 and 11), consistent with the characteristics of a normal distribution. This outcome was expected given the sample size n=89, which is generally sufficient for parametric tests. This means that the data meets the assumptions for parametric testing, and therefore the results of the following analyses can be interpreted confidently.

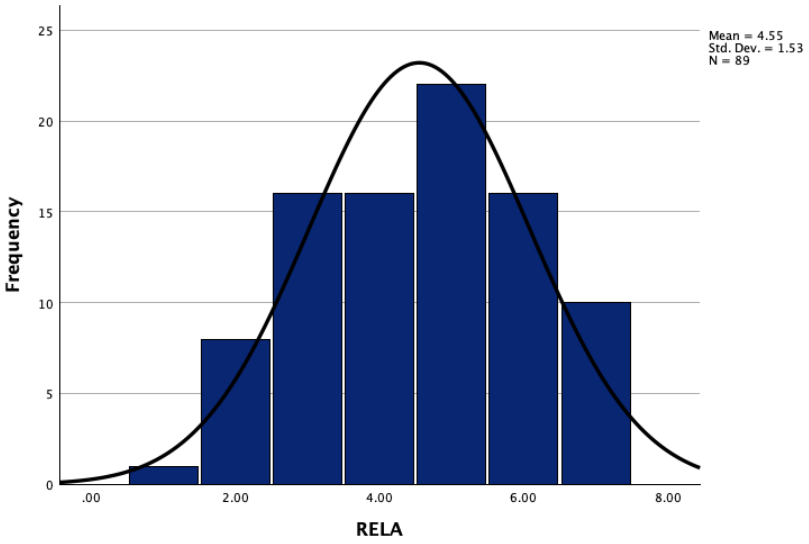

Figure 10. Histogram of perceived relevance scores – Case A (Paper 1)

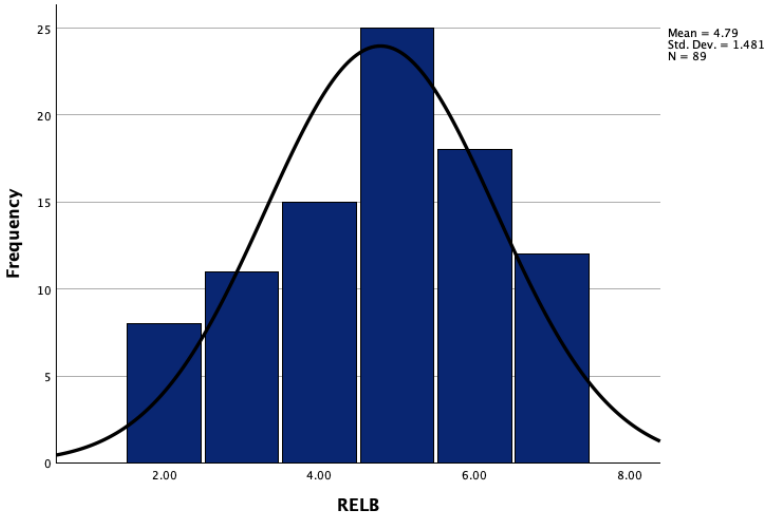

Figure 11. Histogram of perceived relevance scores – Case B (Paper 2)

One-way ANOVA for H1

To test the statistical significance of the first direct hypothesis (H1), a one-way ANOVA was conducted. In this analysis, the independent variable (X) was the presence or absence of the app, which was categorical and coded as 0 (no app condition) and 1 (app condition). The dependent variable (Y) was students' perceived relevance of the academic research, which was measured on a continuous scale.

In Case A (Paper 1), students who were exposed to the research with the app (M = 4.9750, SD = 1.25, n=49) rated the perceived relevance significantly higher than those in the no-app condition (M = 4.2041, SD = 1.658, n=40), F(1, 87) = 5.9, p = 0.017. The same happened in Case B, where students in the app condition (M = 5.1159, SD = 1.29297, n=44) perceived the research as more relevant than those in the no-app condition (M = 4.4222, SD = 1.57377, n=45), F(1, 87) = 5.811, p = 0.018. Therefore, the analysis revealed a statistically significant difference in both cases, supporting the direct hypothesis that the presence of the app (X) enhances students' perception of the relevance of academic research (Y).

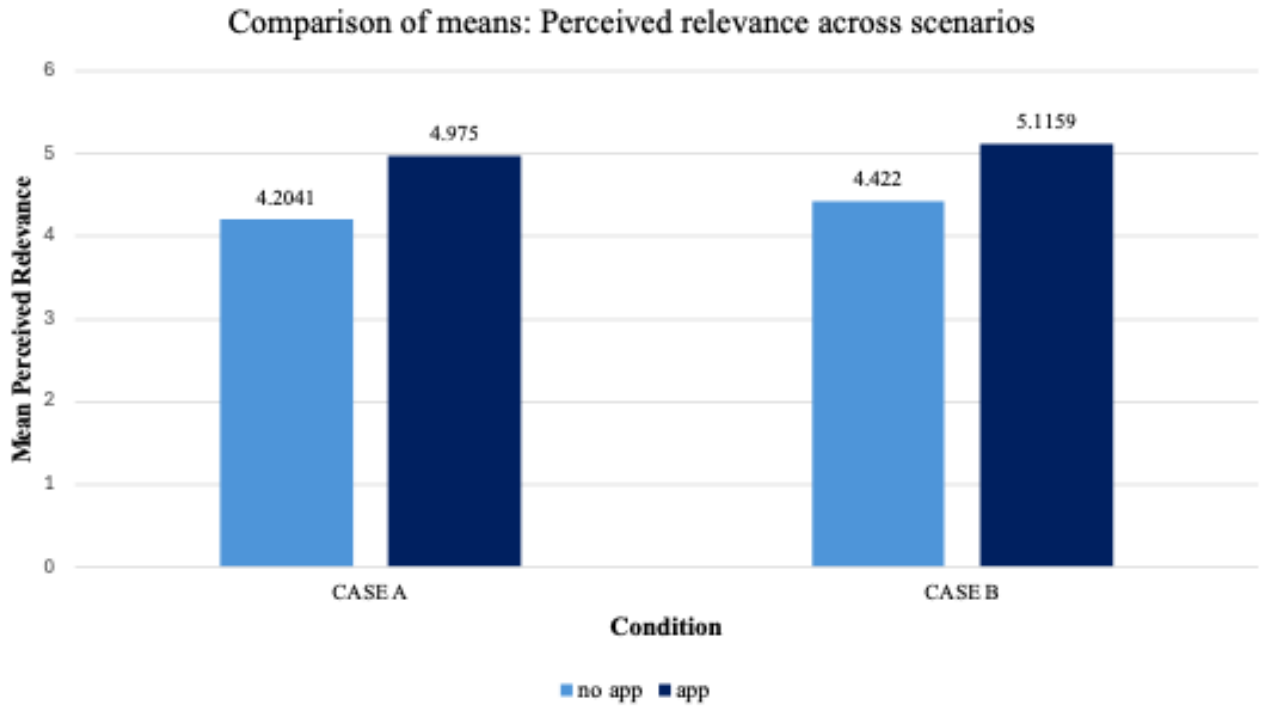

Figure 12. Comparison of mean perceived relevance across the no-app and app scenarios for Case A (Paper 1) and Case B (Paper 2).

Descriptives

RELA

	N	Mean	Std. Deviation	Std. Error	95% Confidence interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0.00	49	4.2041	1.65806	0.23687	3.7278	4.6803	2.00	7.00
1.00	40	4.9750	1.25038	0.19770	4.5751	5.3749	1.00	7.00
Total	89	4.5506	1.53009	0.16219	4.2282	4.9729	1.00	7.00

Table 3. Descriptive statistics one-way ANOVA Case A

Descriptives

RELB

	N	Mean	Std. Deviation	Std. Error	95% Confidence interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0.00	45	4.4222	1.57377	0.23460	3.9494	4.8950	2.00	7.00
1.00	44	5.1591	1.29297	0.19492	4.7660	5.5522	2.00	7.00
Total	89	4.7865	1.48072	0.15696	4.4746	5.0984	2.00	7.00

Table 4. Descriptive statistics one-way ANOVA Case B

ANOVA

RELA	Sum of squares	df	Mean Square	F	Sig.
Between Groups	13.088	1	13.088	5.902	0.017
Within Groups	192.934	87	2.218		
Total	206.022	88			

Table 5. ANOVA summmary table Case A

ANOVA

RELB	Sum of squares	df	Mean Square	F	Sig.
Between Groups	12.080	1	12.080	5.811	0.018
Within Groups	180.864	87	2.079		
Total	192.944	88			

Table 6. ANOVA summary table Case B

Levene's Test was performed to check homogeneity of variances. The test was significant in both cases (Case A: $p = 0.046$; Case B: $p = 0.046$), meaning that the assumption of homogeneity of variances was violated.

Test of Homogeneity of Variances

		Levene statistic	Df1	Df2	Sig.
RELA	Based on Mean	9.009	1	87	0.004
	Based on Median	7.195	1	87	0.009
	Based on Median and with adjusted df	7.195	1	86.927	0.009
	Based on trimmed Mean	8.674	1	87	0.004

Table 7. Levene's Test for equal variances Case A

Test of Homogeneity of Variances

		Levene statistic	Df1	Df2	Sig.
RELB	Based on Mean	4.085	1	87	0.046
	Based on Median	3.273	1	87	0.074
	Based on Median and with adjusted df	3.273	1	84.770	0.074
	Based on trimmed Mean	3.861	1	87	0.053

Table 8. Levene's Test for equal variances Case B

Therefore, Welch's ANOVA was conducted to account for the unequal variances. This test also showed significant results in both cases (Case A: F(1, 86.5) = 6.243, p = 0.014; Case B: F(1, 84.508) = 5.836, p = 0.018), confirming the robustness of the findings.

Robust Tests of Equality of Means

RELA	Statistic[a]	Df1	Df2	Sig.
Welch	6.243	1	86.504	0.014

Table 9. Robust test of equality of means Case A

Robust Tests of Equality of Means

RELB	Statistic[a]	Df1	Df2	Sig.
Welch	5.836	1	84.508	0.018

Table 10. Robust test of equality of means Case B

The effect sizes were also similar across the two cases. In Case A, the presence of the app explained 6.4% of the variance in students' perceptions of relevance ($\eta^2 = 0.064$), while in Case B it accounted for 6.3% ($\eta^2 = 0.063$) of the variance. These are considered moderate effects, suggesting that the app has a meaningful influence on how students perceive the relevance of the research, but also that there are likely other factors that contribute to the variation.

ANOVA Effect sizes

			95% Confidence Interval	
		Point estimate	Lower	Upper
RELA	Eta-squared	0.064	0.002	0.180
	Epsilon-squared	0.053	-0.010	0.170
	Omega-squared Fixed-effect	0.052	-0.010	0.169
	Omega-squared Random-effect	0.052	-0.010	0.169

Table 11. ANOVA effect sizes Case A

ANOVA Effect sizes

			95% Confidence Interval	
		Point estimate	Lower	Upper
RELB	Eta-squared	0.063	0.001	0.178
	Epsilon-squared	0.052	-0.010	0.169
	Omega-squared Fixed-effect	0.051	-0.010	0.167
	Omega-squared Random-effect	0.051	-0.010	0.167

Table 12. ANOVA effect sizes Case B

Moderation Analysis for H2

To assess the statistical significance of the moderation hypothesis H2, a regression analysis was conducted with the PROCESS Macro (Model 1) for IBM SPSS. This allowed to examine the combined effect between the independent variable (app vs. no app) and the moderating variable (usefulness) on the dependent variable (relevance). Specifically, the independent variable (X) is the categorical variable, distinguished by the two conditions 0 (no app) and 1 (app), and both the moderating variable (W) and the dependent variable (Y) are continuous.

The model was statistically significant in both cases, with 46.94% of the variance explained in Case A ($R^2 = 0.4694$, $F(3, 85) = 25.0693$, $p < 0.0001$) and 36.74% in Case B ($R^2 = 0.3674$, $F(3, 85) = 16.4561$, $p < 0.0001$).

Outcome variable: RELA

Model Summary

R	R-sq	MSE	F	Df1	Df2	p
0.6852	0.4694	1.2860	25.860	3	85	0.0000

Table 13. Regression model summary Case A

Outcome variable: RELB

Model Summary	R	R-sq	MSE	F	Df1	Df2	p
	0.6061	0.3674	1.4359	16.4561	3	85	0.0000

Table 14. Regression model summary Case B

The statistical significance of the hypotheses was assesed according to a 95% confidence interval with a reference α of 5%, and the confidence interval extremes (LLCI = Lower Level of Confidence Interval; ULCI = Upper Level of Confidence Interval) were observed to check that they maintained consistent signs (both positive or both negative), ensuring that the zero did not fall within the interval. Finally, the β coefficients of all the relationship between variables were examined to assess the sign and magnitude of each effect.

In Case A, the direct effect of the moderator on the dependent variable revealed a p-value of 0.0000, a favorable confidence interval (LLCI = 0.5945; ULCI = 1.0590), and a positive regression coefficient (β = 0.8268). Therefore, this effect was statistically significant, confirming the relationship between the moderator and the dependent variable.
The interaction effect between the independent variable (IVA) and the moderator (USEA) on the dependent variable (RELA) showed a p-value=0.0820, an unfavorable confidence interval (LLCI = -0.6642; ULCI = 0.0404), and a negative regression coefficient (β = -0.3119). Therefore, this effect was not statistically significant, failing to confirm the moderation effect.

Model	coeff	se	t	p	LLCI	ULCI
constant	1.1388	0.4624	2.4630	0.0158	0.2195	2.0581
IVA	1.4549	0.7910	1.8393	0.0684	-0.1178	3.0277
USEA	0.8268	0.1168	7.0781	0.0000	0.5945	1.0590
Int_1	-0.3119	0.1772	-1.7603	0.0820	-0.6642	0.0404

Table 15. Regression analysis results Case A

Also in Case B the direct effect of the moderator on the dependent variable revealed a p-value of 0.0000, a favorable confidence interval (LLCI = 0.4160; ULCI = 0.9192), and a positive regression coefficient (β = 0.6676), indicating again a statistically significant direct effect between the moderator and the dependent variable. However, the interaction effect between the independent variable and the moderator was not statistically significant, with a p-value of 0.3053, an unfavorable confidence interval (LLCI = -0.5526; ULCI = 0.1751), and a negative regression coefficient (β = -0.1887). Therefore, the moderation effect was not confirmed also for Case B.

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.3032	0.4396	5.2393	0.0000	1.4292	3.1773
IVA	0.8624	0.7271	1.1861	0.2389	-0.5832	2.3080
USEA	0.6676	0.1265	5.2754	0.0000	0.4160	0.9192
Int_1	-0.1887	0.1830	-1.0314	0.3053	-0.5526	0.1751

Table 16. Regression analysis results Case B

In summary, these results suggest that perceived usefulness is a direct predictor of perceived relevance, but its role as a moderator is not significant.

After testing the two hypotheses, another regression analysis was ran to determine the effect of the control variable (interestingness) on the dependent variable. In both cases, interestingness had a statistically significant effect on relevance: in Case A, the output revealed a p-value of 0.0016, a favorable confidence interval (LLCI = 0.1942; ULCI = 0.7964), and a positive regression coefficient (β = 0.4953), while case B presented a p-value of 0.0090, a favorable confidence interval (LLCI = 0.0968; ULCI = 0.6598), and a positive regression coefficient (β = 0.3783), further supporting the role of interestingness in influencing perceived relevance.

Outcome variable: RELA

Model Summary	R	R-sq	MSE	F	Df1	Df2	p
	0.7276	0.5294	1.1542	23.6229	4	84	0.0000

Table 17. Regression model summary Case A

Model	coeff	se	t	p	LLCI	ULCI
constant	0.7454	0.4543	1.6409	0.1046	-1.580	1.6487
IVA	1.5383	0.7498	2.0515	0.0433	0.0471	3.0294
USEA	0.4087	0.1691	2.4178	0.0178	0.0726	0.7449
Int_1	-0.3288	0.1680	-1.9578	0.0536	-0.6628	0.0052
INTA	0.4953	0.1514	3.2712	0.0016	0.1942	0.7964

Table 18. Regression model results Case A

Outcome variable: RELB

Model Summary	R	R-sq	MSE	F	Df1	Df2	p
	0.6457	0.4170	1.3392	15.0195	4	84	0.0000

Table 19. Regression model summary Case B

Model	coeff	se	t	p	LLCI	ULCI
constant	1.7524	0.4719	3.7135	0.0004	0.8140	2.6909
IVA	0.7951	0.7026	1.1316	0.2610	-0.6021	2.1923
USEA	0.3912	0.1601	2.4433	0.0166	0.0728	0.7096
Int_1	-0.2020	0.1768	-1.1424	0.2565	-0.5535	0.1496
INTB	0.2783	0.1416	2.6725	0.0090	0.0968	0.6598

Table 20. Regression model results Case B

This confirms that, beyond the perceived usefulness attached to the research, the level of interest that students had in the study also played an important role in shaping their perception of relevance.

Discussion

The results of this study provide valuable insights into the impact of integrating a Design Science Research tool in academic manuscripts on students' perceptions of relevance. For both the papers shown to the survey respondents, the presence of the app significantly enhanced students' perceived relevance of research, thus supporting the first hypothesis of my conceptual model. In other words, students who were exposed to the version of the research with the app were more likely to rate the research as relevant than those who saw the version without the app. This result suggest that students' perceptions of academic research relevance can be positively impacetd by making the studies more interactive and engaging through digital tools. This is in line with existing literature on the digitalization of learning, which highlights that students today, as digital natives, find it difficult to learn with traditional, passive methods but prefer more interactive and immediate approaches (Prensky, 2001). Research-based applications can provide this type of learning experience, as confirmed by this study, suggesting that such tools can effectively enhance students' perceptions of research relevance. It is also worth noting that although the effect was statistically significant, the variation in students' responses suggests that other underlying factors may have a role in shaping how students perceive such tools. Future research could explore how these additional factors interact with digital interventions to optimize their effectiveness in increasing perceived relevance.

The results concerning H2, which examined the moderating role of perceived usefulness, showed that in both the papers analyzed, usefulness had a strong direct effect on relevance, meaning that when students found the app useful, they were more likely to perceive it as relevant to their learning. This finding aligns with the research of Schaeurte et al. (2023), who identify usefulness as a key driver of managerial relevance in academic research within marketing and management. However, despite the robust direct effect of usefulness, the findings did not support the hypothesis that usefulness moderates the relationship between app presence and perceived relevance. In other words, usefulness did not significantly alter the

impact of simply having access to the app on how relevant students perceived it to be. Even in Case A, where the interaction effect approached significance under a slightly relaxed statistical threshold, the overall evidence for moderation remained weak. This lack of moderation suggests several possible explanations. First, it could indicate that the mere presence of an app influences relevance in a relatively uniform way, regardless of how useful students perceive it to be. This might imply that factors other than usefulness—such as usability, prior familiarity with similar tools, or even initial expectations—play a more significant role in shaping students' perceptions of an app's relevance. Second, it is possible that students do not consciously differentiate between usefulness as an inherent quality of the app and relevance as a broader judgment of its value in their learning process.

While the primary focus of this study was on the influence of the app and the moderating role of perceived usefulness, the inclusion of the control variable “interestingness” in the analysis provides further insights into whether the appeal of the research topic itself played a role in shaping students’ perceptions. Indeed, the results showed that interestingness had a significant positive effect on perceived relevance in both cases, suggesting that, beyond the presence of the app and perceived usefulness, the degree to which students find the research engaging strongly influences their perception of its relevance.

Overall, these findings reinforce the importance of usefulness as a direct predictor of relevance but challenge the assumption that it interacts with app presence to shape relevance perceptions. This indicates that efforts to enhance students’ perception of relevance should focus not only on ensuring the app provides practical and effective support for learning but also on enhancing engagement and fostering curiosity about the subject matter itself. Future research could further explore whether other individual differences, such as prior experience with digital learning tools, motivation, or cognitive styles, may influence the interplay between app presence, usefulness, and perceived relevance. To design truly impactful strategies to make academic knowledge more accessible, it’s essential to explore more ind depth when and how digital tools can genuinely enhance student engagement with research.

Theoretical and practical implications

This study contributes to the well-established body of literature on the theory-practice divide in managerial contexts, with a particular focus on the role of students. While prior research has

mostly targeted experienced practitioners as the main audience of academic work, this study highlights how students, as future professionals, engage with academic findings and how digital tools can enhance their perception of research relevance. By confirming that research-based applications positively influence students' perceived relevance of academic studies, this study offers fresh insights into academic engagement and effective knowledge transfer, shedding light on how to make research more meaningful for tomorrow's practitioners.

Furthermore, this study builds on existing research on digital learning and interactive education, showing that students—who are increasingly familiar with technology-driven learning environments—respond more positively to academic content when it is presented in an interactive, practical format. Prior studies have suggested that "digital natives" struggle with traditional, passive learning methods and tend to prefer hands-on, immediate, and technology-enhanced approaches (Prensky, 2001). The findings of this study support this idea, indicating that integrating research-based applications into academic publications could be a great way to modernize how scholarly work is shared and make it more relevant.

The findings have therefore relevant practical implications for researchers and academic institutions, as well as educators.

First, academic journals and researchers should promote the inegration of research-based applications where feasible to make their work more accessible and engaging. Since the goal of academic research aim is to have a real-world impact, these tools offer a promising way to make findings more applicable, possibly boosting readership and engagement also among students and other non-experts. In this way, academic insights would be able to finally reach a wider audience and have more practical impact.

The diffusion of knowledge beyond academic cycles would strongly benefit practitioners, policymakers and industry professionals. The same tools that help students engage with research could make scholarly insights more accessible to professionals who might not have the time or expertise to interpret complex academic papers. Thus, encouraging the adoption of research-based applications could strenghten the connections between academics and practitioners, ensuring that valuable research findings translate into real-world applications.

Finally, universities and educators could also consider adding research-based applications to their teaching methods to promote engagement with research, making theoretical concepts feel more tangible and connected to real-world challenges. Since students are the future

professionals who will apply academic insights in their careers, helping them connect with research early on can improve their ability to put theory into practice.

However, it's important to recognize that digital tools alone are not enough. The findings show that both interestingness and usefulness play a key role in how students perceive research relevance, as those who found the research interesting and useful were also more likely to see it as relevant. This means that researchers and educators should carefully consider not only what makes a topic interesting but also how its usefulness is conveyed. While research-based applications can help, they may not be as effective if the content itself is not particularly engaging or does not seem valuable to students. To make academic work more meaningful, it's essential to focus not just on the tools used, but also on how the research is presented, communicated, and connected to real-world applications.

Limitations and suggestions for future research

While this study provides concrete insights on how research-based applications affect perceived relevance of academic research, there are some limitations worth noting. First, the study did not focus on a particular area of interest or market focus. The survey was distributed across multiple European countries as well as on international online platforms, which allowed to obtain a sample that, while diverse, was oversimplified in scope. While this diversity strengthens the generalizability of findings, it might be interesting to explore whether cultural factors affect the way students engage with technology and academic content.

Similarly, another limiration was the academic backgrounds of participants. Students from a wide range of disciplines were included in the sample, but only about half of the respondents came from management or marketing fields. Those from other fields might very well have different concepts of relevance, usefulness and interestingness as someone in a managerial field would. Consequently, their responses might have lowered the overall perceptions of both scenarios, with and without the app. A future study could focus exclusively on business students to get more precise insights.

Additionally, some feedback from participants suggests that the survey design itself may have affected their responses. While most participants found the survey experience positive, with nuances of "okay", "good", or "interesting" , some noted difficulties in fully grasping the

concepts presented ("*I like it, but personally I found the second one was more difficult to understand*"; "*I believe this topic is a little bit complicated than showed here, therefore I think there should have been a longer explanation to get a better understanding*."; "*the survey was short, which is good, but more complicated than I thought*"). Others mentioned that the survey questions did not always feel entirely connected to the research paper abstracts they were assessing ("*Pretty relaxing, but I didn't get the point of some questions*"; "*Good, although the connection between the studies and the questions was not that obvious*"). Refining the way research is presented and ensuring stronger alignment between survey questions and the research content could enhance the clarity and validity of future studies.

Lastly, the selection of research studies presented in the experiment may have influenced the findings. The two papers shown to respondents were chosen from a moderately wide pool of options, but other studies with diverse levels of difficulty or topic could yield different results. Future research could test other studies among those with a research-based application already implemented to determine whether certain research topics are more effective in making academic research more revelant to students when presented through digital applications.

Future research should expand beyond students and explore the practitioners' perspective. Since studies on the academic-practitioner gap have primarily been concerned with the disconnect between scholarly research and industry professionals, investigating whether research-based applications can enhance the perceived relevance of academic work for practitioners would make a significant contribution to the existing literature by addressing many unanswered questions. Understanding how these tools influence professionals' engagement with research, decision-making processes, and application of insights in real-world settings would provide a more comprehensive view of their effectiveness.

Another avenue for future research could be to focus on exploring the mechanisms underlying the impact of research-based applications. While my study confirmed that these tools enhance students' perceived relevance of academic work, it does not concretely clarify why this effect occurs. Future studies could examine potential mediators, such as increased engagement or comprehension, or stronger motivation to explore academic content, to better understand the pathway through which research-based applications influence students' perceptions.

Similarly, future research could explore other moderating variables beyond perceived usefulness. For instance, individual factors such as students' familiarity with the topic or digital literacy in research may shape how they interact with research-based applications.
Additionally, it would be interesting to investigate whether specific app characteristics can increase or diminish the perceived relevance of research. Elements such as visual appeal, gamification features, or presence of multimedia elements like videos, infographics, or interactive diagrams could play a role in making the research feel more engaging and applicable. Similarly, it would be valuable to explore how user experience (UX) influences engagement with the resarch itself. Identifying these factors could provide practical insights for optimizing research-based applications to maximize their effectiveness and impact not just for students, but for the whole academic work audience. Finally, future research could compare different possible formats for the presentation of research insights, such as mobile apps versus web-based applications, to determine which platforms are more effective in enhancing engagement and accessibility.

By examining both mediators and additional moderators, as well as by expanding the target audience and refining the study design, future studies could offer a more complete understanding of how research-based applications effectively increase perceived relevance of research, paving the way for more successful tools that bridge the theory-practice gap.

Conclusion

This study makes a significant contribution to the existing literature on bridging the theory-practice gap (e.g. Dwivedi et al., 2024; Alpert et al., 2022; de Man et al., 2022; Green, 2023; Rajaeian et al., 2018; Bartunek & Rynes, 2014; Lehmann, 2014; Weideman, 2014; Winer, 2014; Crosier, 2004; Gulati, 2007; Walsh et al., 2007; Reibstein, 2009; Lilien, 2011; Piccoli & Wagner, 2003) by exploring how research-based applications can enhance the relevance of academic research. By examining specifically the perceptions of relevance, this study extends the literature on the managerial significance of research (e.g., Schauerte, 2023; Rajagopalan, 2020; Toffel, 2016; Nicolai & Seidl, 2010; Jaworski, 2011; Tushman & O'Reilly, 2007; Vermeulen, 2005; Varadarajan, 2003), showing how research can be made more impactful for emerging leaders. By focusing on students' perspectives, this study sheds light on an underexplored area and so contributes to the literature on improving students' academic literacy and engagement with scholarly research (e.g., Shehata et al., 2017; Crosier, 2004; Alghail & Mahfood, 2016; Taylor, 2021; Wingate, 2006; Fujimoto et al., 2011; Hunt, 2002; Van Dyk, 2013; Weidman, 2013), highlighting how interactive research-based applications can enhance students' ability to understand, interpret, and apply academic findings in their studies and future careers.

Additionally, it contributes to the growing body of literature on Design Science Research tools in academia (e.g., Halstrick, 2023; Hevner et al., 2004; Gregor & Hevner, 2013) and more specifically in the marketing field (Halstrick, 2023) by demonstrating how integrating DSR tools can enhance perceptions of research relevance.

While this study can be considered a pioneering effort in understanding the potential of research-based applications, it also underscores the need for further exploration. Gaining a deeper understanding of the mechanisms that make these applications effective in increasing the perceived relevance of research will help clarify the path to closing the gap. Identifying best practices could help ensure that academic research reaches a wider audience, including practitioners and professionals, and is eventually applied in real-world settings.

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Appendix

A.1 Survey questions

This appendix presents the list of all the survey questions adapted to my study from previously validated scales. These materials are provided to ensure transparency and allow for potential replication of the study.

Each version presented the same set of questions to avoid biases. Participants were asked to answer questions measuring their perceptions of the abstracts they read and the figures they saw, followed by demographic questions at the end of the survey. Depending on the question type, participants responded using either 7-point Likert scales or multiple-choice formats.

A.1.1 Perception measurement questions

These questions assessed respondents' opinions on relevance, usefulness, and interestingness of the presented studies. All questions used a 7-point Likert scale, with responses ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

Perceived relevance *(1-item scale, adapted from Hoeber & Yang, 2007)*

- "*How relevant do you perceive this research to be?"*

Perceived usefulness *(6-items scale, adapted from Davis, 1989)*

- *To what extent do you agree with the following statements about the research?*
  - This research would enable me to accomplish tasks more quickly.
  - This research would improve my performance in academic or practical tasks.
  - This research would increase my productivity in relevant activities.
  - This research would enhance my effectiveness in understanding and applying its findings.

- This research would make it easier to accomplish my academic or professional goals.
- I would find this research useful for my learning or work.

Perceived interestingness *(8-items scale, adapted from Kleespies et al., 2024)*

- *To what extent do you agree with the following statements about the research?*
  - The research inspired me.
  - The research is exciting.
  - I was very concentrated when reading about the research.
  - I would like to work on the topic in the future.
  - I would like to know more about this topic.
  - This research made me curious.
  - What I learned from this research can help me someday.
  - What I learned from this research is useful for me.

A.1.2 Demographic questions

Demographic questions were all multiple choice, except for the final question, which asked for feedback on the survey experience and was therefore an open-ended response. A text entry option was also included in the last item of the question "Field of study" to collect more detailed information about respondents' educational backgrounds.

Age

What is your age?

- *<18*
- *18-23*
- *24-29*
- *29-34*
- *>34*

Gender

What is your gender?

- *Male*
- *Female*
- *Non-binary / third gender*
- *Prefer not to say / Other*

Field of study

What is your field of study?

- *Management*
- *Marketing*
- *Economics*
- *Finance*
- *Social Sciences*
- *Health Sciences*
- *Engineering*
- *Other (please specify)*

Survey feedback

How did you find the overall experience of taking this survey?

A.2 Scales reliability results

Moderator: USEA

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha based on standardized items	N of items
0.933	0.933	6

Table A.2.17 Reliability statistics USEA

Moderator: USEB

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha based on standardized items	N of items
0.937	0.937	6

Table A.2.18 Reliability statistics USEB

Control Variable: INTA

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha based on standardized items	N of items
0.948	0.947	8

Table A.2.19 Reliability statistics INTA

Control Variable: INTB

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha based on standardized items	N of items
0.949	0.948	8

Table A.2.20 Reliability statistics INTB