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Exploring Barriers, Facilitators, and Benefits of Research-Based Teaching in Higher Education

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ABSTRACT

Research-based teaching (RBT) promotes critical thinking, engagement, and scientific competence, yet its implementation in universities is often hindered by structural, pedagogical, and emotional challenges. This study explored student and professor perceptions of the barriers, facilitators, and benefits of RBT in a third-year undergraduate psychology course. Using a qualitative design, two focus groups were conducted with students (n = 6) and professors (n = 4), and transcripts were thematically analyzed following Braun and Clarke (2006). Three overarching themes emerged. First, attitudes toward RBT reflected positive prior experiences alongside concerns about complexity and fear, while participants emphasized benefits such as enhanced critical thinking, real-world application, increased engagement, and a culture of inquiry. Second, context-dependent barriers included limited academic skills, resistance to change, time constraints, and large class sizes, whereas facilitators involved relevant topics, student choice, current research, and instructor enthusiasm. Overall, effective RBT requires institutional support, smaller groups, and structured skill scaffolding.

Keywords: Research-Based Teaching, Higher Education, Barriers, Facilitators, Critical Thinking

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1. Introduction

Research-based teaching (RBT) is a pedagogical approach that integrates research and learning by actively involving students in inquiry, discussion, and the development of research skills. It can take the form of learning about current research (research-led), engaging in discussions (research-tutored), practicing research methods (research-oriented), or undertaking original research (research-based) (Healey & Jenkins, 2009). RBT seeks to foster critical thinking and connect students directly to the processes of knowledge creation. In RBT, students are the primary agents, and activities are projects that involve research problems and methods (Dohn & Dolin, 2015). In this type of educational methodology, students take an active role in the construction of their knowledge and cease to be passive recipients of information (Rodríguez-Torres et al., 2024). Despite the benefits of these educational methodologies, it is often the students themselves who resist abandoning their passive role in class (Deslauriers et al., 2019; Grundy & Koretsky, 2025; Nguyen et al., 2021).

RBT offers several benefits that enhance both student learning and engagement. Such involvement promotes a culture of inquiry and intellectual rigor, enabling students to critically evaluate evidence, challenge assumptions, and formulate evidence-based arguments (Jensen & Dikilitas, 2025). It facilitates the transfer of research into teaching by using

research to inform instructional practices and by involving students directly in research activities. RBT supports active, inquiry-driven learning, enhances critical thinking and research skills, and can improve academic outcomes, while also fostering a reciprocal relationship between teaching and research activities (Aránguiz et al., 2020; Floyd et al., 2022; Vijaya Lakshmi V et al., 2024; Wessels et al., 2021).

While the benefits of RBT have been documented, so have several barriers to its implementation (Arifin et al., 2022). These encompass a range of factors related to mindset, institutional structures, resources, and pedagogical approaches (Arifin et al., 2022; Brew & Mantai, 2017). One significant barrier is educators' mindsets, such as a resistance to new methods, a lack of skills, and/or a lack of confidence in integrating research into their pedagogical approaches, which can limit the adoption and effective implementation of research-based learning and teaching practices (Arifin et al., 2022; Brew & Mantai, 2017; Rattanaprom, 2019). Other challenges include inflexible or non-conductive curricula, constrictive institutional policies or structures, time constraints, lack of recognition from academic leadership, and limited financial resources (Brew & Mantai, 2017; Floyd et al., 2022; Rattanaprom, 2019).

Recent scholarship has moved beyond documenting the benefits and barriers of research-based learning to emphasize the need for explicit implementation frameworks in higher education. A systematic review identified three broad approaches to RBT implementation: direct adoption, context-specific model development through iterative trials, and partial integration into existing pedagogies (Arifin et al., 2022). This highlights the variability of application across settings. Similarly, recent work has conceptualized research-based learning design as a multi-criteria decision-making process focusing on the central role of students and the interaction of curricular, pedagogical, and institutional factors. Together, these studies underscore that effective RBT implementation depends on alignment among instructional design, student preparedness, institutional culture and resources, framing the adoption of RBT as an institutional change process rather than a purely pedagogical choice.

Most research in the area focuses on either student or professor perspectives. However, classroom dynamics are the interplay between the learners and educators. We conducted focus group interviews with a combined perspective to contribute to our understanding of RBT and to inform educators and institutions aiming to adopt this approach. The present study aimed to explore opinions of and attitudes towards RBT, as well as barriers and facilitators to its implementation among students and educators of the third year of the undergraduate program in Psychology (BLINDED) at the University of BLINDED in BLINDED.

2. Method

2.1. Participants

Two focus group interviews were conducted, one with undergraduate students (n = 6) and one with university professors (n = 4). All undergraduate students were in the third year of the University's Psychology Bachelor's program and in their early 20s. Three of the four professors taught in the third year of the Psychology program. One was an early-career researcher, and three were permanent senior faculty members.

2.2. Procedure

Participants were recruited through post-training self-selection following a one-day university-wide workshop on research-based teaching (RBT). The workshop was offered by the Vice-Rectorate for Degrees and Teaching Innovation and was open to both undergraduate students and faculty members. The course aimed to introduce participants to the methodology and application of a research-based pedagogical approach, combining theoretical foundations with practical examples. The course included interactive activities and case studies to reflect on its application in university teaching. All workshop attendees were invited to participate voluntarily in follow-up focus group interviews.

This recruitment strategy was purposive, as it targeted individuals who had been recently introduced to the principles and practices of RBT and ensured that participants had a shared conceptual understanding of RBT. Therefore, participants were able to reflect meaningfully on its perceived benefits, barriers, and implementation challenges, enabling richer discussion while still allowing for variation in attitudes, prior experiences, and levels of confidence with the methodology. As participants were recruited after attending the workshop, we considered the possibility of priming. To mitigate this, focus group questions were intentionally open-ended, and moderators encouraged participants to reflect on their own experiences and concerns, resulting in both supportive and critical perspectives in the data.

Attendees were informed about the purpose of the study and invited to participate in a focus group discussion if they were willing to share their perspectives. Participation was not incentivized, and no prior experience with RBT was required. The study was conducted in accordance with ethical guidelines for research involving human participants. All participants received written and verbal information about the study's aims, procedures, voluntary nature, and data use before participation. Written informed consent was obtained from all participants. Focus group discussions were audio-recorded with permission, transcribed verbatim, and anonymized to protect participant confidentiality. All data were securely stored on password-protected devices accessible only to the research team, in compliance with data protection regulations.

Two focus group sessions were conducted, one for educators and one for students. Moderators prompted participants with questions and audio-recorded the sessions, which lasted approximately 30 minutes (see Annex 1). This study is exploratory and interpretive; the analysis aimed to identify recurring patterns of meaning rather than to achieve full theoretical saturation. The themes presented here reflect the most salient patterns that emerged within this dataset and should be interpreted as analytically meaningful insights from information-rich cases rather than an exhaustive representation of all possible perspectives.

Audio recordings were transcribed verbatim and analyzed using inductive reflexive thematic analysis (Braun & Clarke, 2006). Two researchers with qualitative analysis experience independently conducted an initial round of open coding to identify meaningful units related to participants' perceptions, emotions, and experiences of research-based teaching. Codes were developed iteratively and compared through analytic discussion. The researchers then met to refine code definitions, resolve discrepancies, and cluster related codes into preliminary subthemes. Through successive rounds of review, subthemes were examined for coherence and distinctiveness and organized into overarching themes. Final themes were agreed upon through discussion rather than the calculation of intercoder reliability coefficients, consistent with reflexive thematic analysis principles. Throughout the analytic process, particular attention was paid to how codes were conceptually grouped and interpreted. Candidate subthemes were developed by examining patterns of shared meaning across participants while preserving variations and minority perspectives. The research team

repeatedly revisited the transcripts to ensure that theme definitions remained grounded in participants' accounts rather than reflecting preconceived expectations about RBT.

This study employed qualitative methods, specifically focus group interviews, as they allow researchers to explore participants' attitudes and experiences through dynamic group discussions that generate rich, contextualized insights which can be difficult to obtain with other methods (Bachtiar et al., 2024; Chand, 2025). Focus groups are an efficient way to collect diverse perspectives through dynamic group discussion, often generating insights that may be difficult to obtain through other qualitative methods (Bachtiar et al., 2024; Chand, 2025; Nyumba et al., 2018).

Reflexivity was considered throughout the research process. The research team comprised university educators actively involved in teaching innovation and the implementation of research-based pedagogical approaches. This positionality likely shaped both the framing of the research questions and the interpretation of participants' accounts. To mitigate potential bias, the researchers engaged in reflexive dialogue during coding meetings and prioritized participants' language in theme development.

This research was carried out as a part of the Teaching Innovation Projects 2024-2025 of the University of BLIND Vice-Rector's Office for Undergraduate Studies and Teaching Innovation, entitled: "Cross-curricular application of the research-based pedagogical approach in the third year of the Degree in Psychology". The training course and focus groups were conducted before the implementation of the research-based teaching project in the classrooms so that the knowledge generated, and lessons learned could be applied to the project.

3. Results

Thematic analysis of the two focus groups (students and professors) revealed a range of perspectives on research-based teaching (RBT). Three overarching themes were identified: (a) opinions and attitudes towards RBT, (b) barriers and facilitators to RBT, and (c) benefits of RBT. Each theme contained several subthemes that highlighted both shared and divergent perspectives across the two groups (See Table 1).

Table 1: Themes, subthemes, and exemplary quotes of the thematic analysis of two focus groups regarding research-based teaching.

Theme: Opinions and Attitudes Toward RBT	
Subtheme	***Codes and Illustrative Quotes***
(Pre)disposition toward RBT	**Positive engagement:** *"It's true that research is interesting, especially if it's a topic you choose… I remember all the material and everything we did, and I feel like I learned more because it was applied to a real-life setting."* (Student) **Perceived complexity:** *"This is complicated… it requires a lot of prior work on the part of the teacher."* (Professor) **Fear:** *"It makes me a little afraid and insecure because we have never done anything like this before."* (Student) *"I haven't done it, and it terrifies me to think about it. It would have to be with highly motivated people."* (Professor)
Benefits of RBT	**Enhanced critical thinking**: *"I think it is a way of strengthening reasoning and critical thinking in students."* (Professor) **Real-world application:** "*We developed an idea and carried it out in class… I feel I learned more because it was applied to a real-life setting."* (Student) **Increased engagement:** *"When we do work based on what really interests us, it awakens curiosity and motivates us to keep studying."* (Student) **Fostering a research culture:** *"They must understand how knowledge is generated. For me, this is essential for differentiating university education from purely professional training."* (Professor)
Context-dependent	**Class sizes**: *"This type of work… would have to be done with very small groups so*

Theme: Opinions and Attitudes Toward RBT	
Subtheme	***Codes and Illustrative Quotes***
barriers or facilitators	*we can truly be more than teachers who deliver content—we can tutor."* (Professor) **Student motivation and engagement:** *"If they propose a question or an activity that interests you, it sparks curiosity. But if it's summarizing articles… it can feel boring and repetitive."* (Student) **Resource allocation:** *"Working in these types of rooms isn't the same… students can't move or collaborate, and it frustrates them."* (Professor)
Barriers	**Student challenges and difficulties:** *"Students don't know how to think or reason. They give superficial answers, sometimes just saying 'just because.'"* (Professor) **Resistance to change:** *"Many people's first reaction is, 'Ugh, I have to read a text. Can't we do something else?'"* (Professor) **Time constraints***: "Setting up an activity like this requires hours, days, and weeks of work, while other activities can be prepared more quickly."* (Professor)
Facilitators	**Relevance of topics and student choice:** *"The positive experiences we've had, being able to do projects on what interests us, awakened curiosity and motivated us to keep studying."* (Student) **Use of current research and instructor enthusiasm:** *"When we talk about our own research work, it brings them closer to the reality of research… I've seen that it connects."* (Professor)

3.1. Opinions and Attitudes Toward RBT

This theme reflects participants' evaluations and opinions of RBT. These include both initial reactions or predispositions to the concept of research-based teaching for those who had no or limited experience with this pedagogy, as well as the evaluations of prior experience with this teaching methodology. We identified two subthemes: (pre)disposition toward RBT and benefits of RBT.

3.1.1 (Pre)disposition toward RBT

This subtheme comprises participants' attitudinal positions towards the methodology, evaluations of past experiences, perceptions of, and emotional responses to the concept. Three codes were identified within this subtheme.

3.1.1.1 Positive Engagement with RBT

Both students and professors described RBT as engaging and rewarding when implemented effectively. Students emphasized that research-related activities were more memorable when they could choose topics of personal interest or apply concepts to real-life scenarios. This fostered curiosity and deeper learning. For example, one student reflected,

> *"It's true that research is interesting, especially if it's a topic you choose… You developed an idea and implemented it in class, and I remember all the material and everything we did. I feel like I learned more because it was applied to a real-life setting."* (Student)

Professors similarly valued RBT for its potential to stimulate student interest, encourage reasoning, and promote a scientific mindset. Student engagement was thus viewed as a distinctive and positive aspect of RBT that enriched teaching and learning.

3.1.1.2 Perceived Complexity

Both groups noted that RBT is complex, demanding, and intellectually challenging. Professors described the open-ended nature of RBT as requiring a shift from delivering content to guiding students through knowledge generation. One professor admitted,

> *"This is complicated… it requires a lot of prior work on the part of the teacher."* (Professor)

Students also recognized that RBT required higher-order thinking skills such as analyzing articles, justifying conclusions, and applying concepts beyond memorization. While this rigor sometimes felt daunting, it was also valued as a distinctive feature of RBT that fostered authentic learning and critical thinking.

3.1.1.3 Fear

Fear emerged as a recurring theme in both groups. Students reported fear of the unknown, insecurity when facing novel tasks, and concerns about workload or lack of preparation. As one student put it,

> *"It makes me a little afraid and insecure because we have never done anything like this before."* (Student)

For professors, fear was tied more to the responsibility of guiding research processes and anticipating difficulties. One admitted,

> *"I haven't done it, and it terrifies me to think about it. It would have to be with highly motivated people you see with curiosity and interest."* (Professor)

3.1.2 Benefits of RBT

Despite challenges, both groups emphasized the significant benefits of RBT, which extended beyond immediate learning to broader educational and professional development.

3.1.2.1 Enhanced critical thinking

RBT was perceived as a powerful tool for fostering critical thinking and reasoning. Professors stressed that it encouraged students to move beyond memorization and engage analytically:

> *"I think it is a way of strengthening reasoning and critical thinking in students."* (Professor)

Students also reported that defining research questions and analyzing evidence sharpened their critical thinking competencies.

3.1.2.2 Real-World Application

Students valued opportunities to apply knowledge in realistic contexts, which enhanced retention and professional readiness:

> *"We developed an idea and carried it out in class. I still remember everything we did, and I feel I learned more because it was applied to a real-world setting." (*Student).

Professors reinforced that evidence-based practice was essential in their disciplines:

> *"My subject is completely experimental—we can't give answers if there is no research. Everything must be justified by evidence."* (Professor)

3.1.2.3 Increased Engagement

Both groups highlighted higher engagement as a major benefit of RBT. Students noted that when tasks were relevant and personally meaningful, they experienced curiosity and enjoyment:

> *"When we could do work based on what really interests us, it awakened curiosity and motivated us to keep studying"* (Student).

Professors observed that novelty and interactivity helped capture student interest:

> *"What is most attractive is that you can engage students with a different kind of approach. When you offer them something unusual, it captures their interest."* (Professor)

3.1.2.4 Fostering Research Culture

Finally, RBT was seen as cultivating a culture of inquiry. Professors described it as a distinguishing feature of higher education:

> *"They must understand how knowledge is generated. For me, this is essential for differentiating university education from purely professional training." (Professor).*

Students also recognized the long-term value of early exposure to research methods:

> *"From our first year, we were given a structure for reports—introduction, results, conclusions. We've become familiar with searching for scientific information and databases." (Student)*

3.2. Barriers and Facilitators to RBT

When prompted regarding barriers and facilitators to the implementation of this pedagogical approach, both students and educators provided a wide range of ideas and experiences. Nine codes were identified. Some topics could simultaneously be a barrier or a facilitator, such as class sizes. For example, large class sizes were voiced as a barrier, whereas small class sizes were a facilitator. For this reason, we organized the codes into three subthemes: Context-dependent barrier or facilitator, barriers, and facilitators.

3.2.1 Context-Dependent Barrier or Facilitator

3.2.1.1 Class Sizes

Large class sizes were consistently described as a structural barrier to RBT. Professors explained that managing groups of 30–40 students limited opportunities for supervision, dialogue, and mentoring:

> *"This type of work, group research projects, would have to be done with very small groups so we can truly be more than teachers who deliver content—we can tutor."* (Professor)

Students echoed these concerns, noting that large groups often heightened anxiety or limited participation, particularly for more introverted individuals. Smaller, more interactive group experiences, however, were remembered as positive and emotionally rewarding:

> *"I am a bit more introverted, and when they say, 'let's work in groups,' I think, 'oh no, what will they say?' But afterwards, those are the activities I remember most, and they gave me positive emotions."* (Student).

Class size was therefore seen as a key structural factor shaping whether RBT functioned as a barrier or facilitator.

3.2.1.2 Student Motivation and Engagement

Professors frequently cited low motivation and apathy as barriers, describing students as reluctant to read scientific texts or engage in inquiry. As one noted,

> *"We all agree on this widespread problem: a kind of laziness or lack of motivation that we always find in students."* (Professor)

Students, however, attributed disengagement less to laziness and more to the repetitive nature of tasks such as article summaries. One student explained,

> *"If they propose a question or an activity that interests you, it sparks curiosity. But if it's like what we've been doing for three years—summarizing articles—it can feel boring and repetitive."* (Student).

When activities were novel, relevant, and connected to personal interests, both groups agreed that motivation and engagement increased significantly.

3.2.1.3 Resource Allocation

Infrastructure and resources were also reported as barriers. Fixed classroom layouts, malfunctioning technology, and inadequate spaces limited collaboration and flexibility. As one professor observed,

> *"Working in these types of rooms isn't the same as in ones where the tables are anchored to the floor. Students can't move or collaborate, and it frustrates them."* (Professor).

In contrast, flexible learning environments with functioning technology were seen as important facilitators.

3.2.2 Barriers

3.2.2.1 Student Challenges and Difficulties

Professors highlighted students' struggles with academic skills as barriers to RBT. These included difficulty reading and interpreting scientific texts, a lack of reasoning skills, and challenges in academic writing. As one professor noted,

> *"Students don't know how to think or reason. They give superficial answers, sometimes just saying 'just because (porque sí).'"* (Professor)

Students also expressed frustration with technical tasks such as APA formatting, which they perceived as bureaucratic rather than meaningful. Despite these difficulties, both groups

acknowledged that with clearer scaffolding and gradual guidance, students could build the skills necessary for inquiry.

3.2.2.2 Resistance to Change

Professors perceived strong resistance to RBT, particularly around reading tasks. One stated,

> *"Many people's first reaction is, 'Ugh, I have to read a text. Can't we do something else?'"* (Professor).

Students, however, framed their resistance more as hesitancy than rejection. One explained,

> "*I was a bit hesitant, but the novelty did catch my attention… it's something different from what we're used to, not the typical repetitive activity."* (Student).

This suggests that what professors saw as resistance was often fear of the unfamiliar, which could be mitigated through scaffolding and focusing on relevance.

3.2.2.3 Time Constraints

Professors consistently identified time as a barrier, emphasizing that RBT requires substantial preparation and supervision.

> *"To be honest, setting up an activity like this requires hours, days, and weeks of work, while other activities can be prepared more quickly."* (Professor).

Heavy teaching loads exacerbated this issue, leaving little time for innovation. However, some suggested that reduced teaching burdens or cross-course integration could make RBT more feasible.

3.2.3 Facilitators

3.2.3.1 Relevance of Topics and Student Choice

Student choice emerged as a strong facilitator of RBT. When students selected topics aligned with their interests or career goals, they reported higher motivation and enjoyment:

> *"The positive experiences we've had, being able to do projects on what interests us or what we like, awakened curiosity and motivated us to keep studying."* (Student).

Conversely, imposed or repetitive topics were described as monotonous and disengaging.

3.2.3.2 Use of Current Research and Instructor Enthusiasm

The integration of current research was valued as a way to make RBT more appealing and authentic. Professors described how using recent studies—and even their own research—boosted their enthusiasm and helped students connect with the realities of knowledge production:

> "*When we talk about our own research work, it brings it closer to the reality of research, which can feel distant. I've seen that it connects—maybe not with everyone, but more easily.*" (Professor).

Students similarly valued activities that were connected to real-world issues rather than outdated or overly theoretical materials.

3.3. Summary

Although most participants emphasized the benefits of research-based teaching, a minority expressed more ambivalent or critical perspectives. In particular, some professors questioned the feasibility of implementing RBT beyond highly motivated student groups, citing concerns about uneven engagement and workload demands. Likewise, some students framed their initial reactions as hesitant rather than enthusiastic. These negative or ambivalent cases refine the analysis by highlighting that positive attitudes toward RBT were contingent on adequate scaffolding, relevance, and institutional support, rather than being universally experienced.

Overall, RBT was viewed as an engaging and rewarding approach that could strengthen critical thinking, enhance relevance, and cultivate research skills. At the same time, its implementation was challenged by structural barriers (e.g., class sizes, time, and resources), student skill gaps, and emotional responses such as fear and hesitancy. When adequately supported, however, RBT had the potential to transform learning into a more meaningful, applied, and inquiry-driven experience for both students and faculty.

4. Discussion

The present study explored the perceptions of students and professors regarding research-based teaching (RBT) in the third year of an undergraduate psychology education program. The findings align with existing literature emphasizing both the potential and the challenges of integrating research into teaching (Brew & Mantai, 2017; Healey & Jenkins, 2009). Both groups valued RBT for its capacity to foster critical thinking, enhance engagement, and situate learning within real-world contexts. This resonates with prior work showing that RBT not only strengthens disciplinary knowledge but also cultivates transferable skills essential for professional practice (Thiem et al., 2023; Wessels et al., 2021).

The present findings empirically substantiate recent implementation frameworks for research-based teaching by demonstrating how their core decision criteria are experienced in practice. Participants' accounts suggest that the perceived success and feasibility of RBT depended less on the instructional approach adopted and more on the alignment among student preparedness, pedagogical design, and institutional conditions, consistent with models emphasizing iterative integration rather than uniform adoption (Arifin et al., 2022). Students' mixed expressions of engagement and apprehension highlight the centrality of their role in the learning process, while faculty concerns regarding workload, class size, and resources reflect the institutional and cultural constraints identified in multi-criteria decision frameworks (Pourhejazy & Isaksen, 2024). Together, these findings position RBT implementation as an institutional change process enacted through negotiated alignment across curricular, pedagogical, and organizational levels.

At the same time, our results highlight substantial barriers that constrain effective implementation. Professors described large class sizes, time limitations, and resource constraints as significant obstacles, concerns echoed in previous studies across higher education (Brew & Mantai, 2017; Floyd et al., 2022). Students similarly noted difficulties with academic skills and expressed feelings of fear and insecurity when confronted with new research-oriented tasks. These findings underscore that while RBT has strong pedagogical value, it cannot be effectively sustained without institutional support and targeted scaffolding.

Interestingly, both groups emphasized the dual role of certain factors as either barriers or facilitators, depending on context. For instance, class size was seen as a barrier in larger cohorts but a facilitator when groups were small enough to allow mentoring and dialogue. Similarly, student engagement fluctuated depending on the perceived relevance and novelty

of tasks. These insights suggest that successful implementation of RBT depends not only on structural conditions but also on the intentional design of learning experiences that balance rigor with accessibility.

Finally, fear and hesitancy emerged as important emotional barriers for both students and professors. Rather than reflecting rejection of RBT, these emotions highlighted a lack of familiarity and confidence with the approach. This finding adds nuance to discussions of resistance to pedagogical innovation, suggesting that with proper support and training, both students and educators may transition from initial apprehension to active engagement with RBT.

4.1. Limitations

First, participants were recruited through post-training self-selection following a one-day workshop on research-based teaching, which may have introduced a priming effect and favored individuals who were more motivated or positively disposed toward pedagogical innovation. The transferability of this relatively small, single-program sample with training-related priming may be limited to contexts with similar disciplinary, institutional, and pedagogical conditions.

Although this is a qualitative study, it is worth noting that the participation of only six students and four instructors is not fully representative of a typical third-year psychology cohort. This limited participation may be related to the students' intrinsic motivation to take an active role in their learning process. It could also be assumed that students who engage more readily with innovative methodologies are those who are already more motivated to learn. Motivation is known to have a facilitating effect on academic performance, mediated by a sense of responsibility; however, it has been demonstrated that motivation alone does not modulate cognitive aspects (Lerma-Cabrera et al., 2022). The activation of fundamental cognitive processes is essential for learning (DeLozier & Rhodes, 2017), as occurs with the RBT approach (see Lascanoet al., 2025 for a review), which fosters critical thinking and has been shown to enhance students' cognitive engagement and reflective skills.

Faculty participation was also limited. Age and years of professional experience may help explain instructors' differing predispositions toward adopting interdisciplinary and innovative pedagogical methods in the teaching–learning process (Rodriguez-Torres et al., 2024). Consequently, this low level of faculty involvement may hinder the creation of a coherent and complementary learning environment that integrates disciplinary knowledge with interdisciplinarity. What should ideally be the norm in university teaching thus becomes the exception. To address this limitation, it is essential to strengthen collaborative spaces that promote the implementation of innovative methodologies such as RBT.

4.2. Practical Implications

The findings carry several practical implications for institutions and educators seeking to integrate RBT. First, universities should create conditions that make inquiry-driven learning feasible, such as allocating smaller class sizes for research-focused courses, investing in flexible classroom spaces, and reducing teaching loads to allow for activity preparation. Providing professional development opportunities for faculty may also help reduce feelings of fear and complexity associated with implementing RBT.

For instructors, the results suggest that scaffolding academic skills is critical, particularly in the early years of undergraduate programs. Breaking down research activities into manageable steps and progressively building students' confidence can mitigate fear and

enhance motivation. Additionally, integrating current and relevant research, providing opportunities for student choice, and showing personal enthusiasm for research appear to be powerful facilitators of engagement. Together, these practices can help cultivate a sustainable culture of inquiry across curricula.

These focus group interviews were conducted following a one-day training session and before implementing a research-based teaching project. This was done to extract potential learnings and best practices from the teachers and students involved, which were indeed considered when implementing the project. In other words, the focus group itself served to extract lessons that were implemented during the development of the project.

Based on the findings from the focus group interviews, we propose the following practitioner checklist for implementing research-based teaching to maximize the transferability and applicability of the study to real-world pedagogical contexts:

4.2.1 Practitioner Checklist for Implementing Research-Based Teaching

Before implementation

Assess students' prior experience with research and provide structured scaffolding.

Clarify students' role in the research process and the expected level of autonomy.

Course design

Align research tasks with course objectives.

Ensure research activities are perceived as meaningful rather than repetitive or procedural.

Plan assessment formats that support inquiry rather than content reproduction.

Institutional alignment

Consider class size, physical learning spaces, and available resources.

Acknowledge faculty workload and provide time or support for RBT design.

Foster a departmental culture that supports experimentation and iterative refinement.

During implementation

Monitor student affect (e.g., fear, uncertainty, engagement) and adjust scaffolding accordingly.

Treat implementation as iterative, refining design based on student and instructor feedback.

5. Conclusion

This study contributes to the growing body of evidence that research-based teaching offers substantial benefits for higher education, including enhanced critical thinking, deeper engagement, and the cultivation of a research-oriented culture. However, the findings also point to clear challenges, particularly structural barriers, limited resources, and gaps in academic skills, that must be addressed to realize the full potential of RBT.

To strengthen the integration of RBT, institutions should prioritize smaller group learning opportunities, provide faculty with time and resources to design inquiry-based activities, and scaffold student skill development early in the curriculum. Instructors' enthusiasm, the use of current and relevant research, and opportunities for student choice emerged as key facilitators that can make RBT more meaningful and sustainable. By addressing these conditions,

universities can help transform RBT from an aspirational pedagogical model into a practical and impactful approach that benefits both students and educators.

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Appendix

Annex 1: Focus Group Protocol

Perceptions and Experiences of Research-Based Learning at the University of Almería

Purpose of the Study

The purpose of this focus group is to explore participants' experiences and perceptions of research-based learning (RBL) as a pedagogical approach. In particular, the discussion will examine how RBL is currently implemented in teaching and learning practices at the University of Almería, as well as perceived benefits, challenges, and opportunities for improvement.

The findings will contribute to the evaluation and improvement of a teaching innovation project and may be disseminated through academic conferences and peer-reviewed publications.

Participants

Two types of focus groups may be conducted:

Faculty members teaching at the University of Almería

Students enrolled in undergraduate psychology courses.

Separate focus groups are recommended to encourage open discussion within each group.

Informed Consent and Confidentiality Script (Opening Statement)

Welcome and thank you for participating.

My name is [Moderator Name]. Today, we will discuss your experiences and perceptions of research-based learning in teaching and learning.

The goal of this discussion is to better understand how this pedagogical approach is experienced at the University of Almería, including its advantages, limitations, and possible improvements.

The results of this study will be used to improve a teaching innovation project and may be presented at academic conferences or published in specialized journals.

Your participation is voluntary, and you may choose to stop participating at any time without any consequences.

To ensure accuracy, the session will be audio recorded. The recordings will only be used for research purposes and will be transcribed anonymously. No identifying information will appear in any reports or publications.

Before speaking, please introduce yourself using your first name or a pseudonym. This name will not be used in the final reports.

All participants are asked to respect the confidentiality of the discussion and not share what others say outside this session.

Discussion Guidelines

Before we begin, please keep the following guidelines in mind: There are no right or wrong answers—we are interested in your perspectives and experiences. Feel free to agree or disagree with others. Different viewpoints are valuable. Both positive and negative comments are welcome and equally useful. Please try to allow everyone the opportunity to speak. Speak clearly so the recording captures your comments accurately.

General Questions

- Have you had any experience with research-based learning?
- What was that experience like?
- How would you evaluate its role in the learning process?
- What aspects of research-based learning do you find most appealing or engaging?
- What barriers or challenges do you think exist when implementing research-based learning in university teaching?

Questions for Faculty

- Do you incorporate your own research into your teaching?
- Why or why not?
- How do you integrate it into your classes?
- How do you think students perceive this?
- Do you include recent research from your field in your teaching?
- Why or why not?
- How do you present or integrate it in your classes?
- How do you think students respond to it?
- Have you assigned research projects as part of your courses?
- Why or why not?
- How do you think students perceived or responded to these projects?
- How do you feel about assigning research projects in your classes? What kinds of reactions or emotions does this idea generate for you?

Questions for Students

- Do your professors incorporate their own research into their teaching?
- How do they do this in class?

- How do you perceive or experience it?
- Do your professors include recent research from the field in their teaching?
- How do you experience or perceive its inclusion?
- Have you completed research projects as part of your coursework?
- What was that experience like for you?
- When a professor assigns a research project, what kinds of reactions or feelings does it generate for you?

Closing Question

Is there anything else about research-based learning that we have not discussed but that you think is important?

Closing Script

Thank you very much for sharing your perspectives. Your contributions are extremely valuable and will help improve teaching practices related to research-based learning.

If you have any additional thoughts after the session, please feel free to contact the research team.