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University Extension Activities as a Tool for Transdisciplinary Education

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Abstract: *University teaching demands constant reflection. Traditional teaching methods still dominate much of higher education. Contrasting this approach within the university requires an understanding of alternative proposals to ensure a degree of study autonomy for today's students. Extension projects can serve as valuable allies in fostering these reflections. This article aims to explore how undergraduate students can use extension projects to expand the boundaries of their knowledge, going beyond their primary field of study. Our proposal highlights the potential of university extension activities as a resource capable of providing a transdisciplinary education. The article reflects on traditional teaching methods, the profile of the modern student, and how we can achieve transdisciplinarity in their education. Finally, we present an example of an extension project to reinforce the reflections discussed.*

Keywords: *university extension; traditional teaching method; transdisciplinarity; open education; autonomy.*

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I. INTRODUCTION

The education of students could explore experiences that cross the boundaries outlined in the pedagogical plan of each course. Much of what is learned within university classrooms follows the lines of a traditional teaching model, which begins in the early years of schooling and influences the student's entire educational journey up to postgraduate studies. In the later stages of their education, students adopt a slightly different approach compared to their earlier trajectory. As they mature, students seek ways to develop their autonomy and commitment to their academic and professional development, moving away from the hierarchical position that dominated much of their education. The traditional teaching method, which guided them from the beginning of their journey, struggles to keep pace with the changing behaviour of this new generation of students, particularly how they interact with digital tools and navigate the free access to information provided by online networks.

Within this academic scenario, university students have the opportunity to collaborate on research or outreach projects that complement theoretical and practical learning. These experiences shape their careers, enhance their professional skills, and help them develop a strong critical perspective on their environment and reality. By engaging in projects, students broaden their experiences, interact with different fields of knowledge, and connect with professionals and researchers. This exposure allows them to learn from diverse experiences beyond their formal training.

This article explores how an extension project can help students expand the boundaries of their academic training and how it enables them to interact and acquire new concepts and skills to meet the project's expectations. In this context, we present the experience of developing the *Comunica CPA* extension project at the State University of Maringá, Paraná, Brazil. Through this project, participants enhanced their academic training by integrating knowledge from different fields, such as design, communication and multimedia, and pedagogy. The article examines how the project adopted transdisciplinarity to expand knowledge boundaries, how this approach helped students develop skills beyond classroom learning, and how interaction with different disciplines contributed to carrying out the project's activities.

The article examines the challenges of traditional teaching methods, explores how digital tools have reshaped learning, and highlights transdisciplinarity as a solution to these challenges. It also explains how extension projects can act as a bridge to implementing this approach. Finally, the article reviews the results achieved and explores potential directions for future projects.

II. CHALLENGES OF TRADITIONAL TEACHING

Simply shifting teaching methods to digital resources may not be the best approach for professors. Transitioning from one learning environment to another requires careful understanding and reflection. It is crucial to examine the differences and challenges of traditional education, adapt them where necessary, and support modern students in their learning journey.

Sadeghi and Moslehpour (2007) highlight that, in traditional education, students must attend school or university to interact with professors and receive instruction. They experience a structured, individualised education, with predefined content and processes established by the course and the professor. The student-professor relationship follows a hierarchical, top-down approach, where teaching strategies are dictated from above. Learning materials are restricted to preselected content, and professors control the learning process without considering students' needs and expectations. The professor remains the central figure in the classroom, and learning is confined to direct interactions with them. Assessment primarily evaluates students' memorisation skills rather than the competencies and abilities they develop for future academic and professional use.

The National Common Curricular Base (BNCC) for brazilian schools offers a framework for defining competencies and skills. According to this standard, competencies involve mobilising knowledge, skills, attitudes, and values to address complex real-life challenges in citizenship and the workplace. Skills refer to abilities, learning experiences, or subject-specific topics that students must acquire (Brasil, 2018a).

To overcome the challenges of traditional education, it is crucial to foster students' autonomy and freedom to explore new ways of learning. Encouraging this mindset and approach to acquiring knowledge can be achieved through goal-setting, sharing experiences, and exploring concepts that help students push the boundaries of their academic development.

Experiences serve as valuable tools for adults to take responsibility for their learning paths. They accumulate knowledge through curiosity, ideas, aspirations, and continuous self-improvement (Benjamin, 2009). Adult learning can also involve transgenerational knowledge transfer, where fragments of stories and lessons are passed down from older to younger generations (Lessa, 2016). Personal experiences shape individual development. In educational settings, professors play a key role in transmitting their expertise, acting as intermediaries between students, their environment, culture, and social interactions (Alves, 2019).

For this reason, a professor's critical perspective carries significant weight in shaping a child's or adolescent's worldview. Their insights hold symbolic meaning, helping young learners interpret their surroundings and navigate their interactions within them.

Students who seek to learn now have various tools at their disposal to expand and complement their education. In the past, traditional education was dominant—libraries served as the primary source of information, and professors were the sole reference for acquiring new knowledge. Over time, this process evolved and adapted to digital tools. The internet has profoundly impacted learning and knowledge acquisition, transforming passive behaviour into a more active, open, and collaborative process. To embrace this new way of learning, students must develop the maturity needed to take ownership of their education—identifying gaps in their knowledge, determining the skills they wish to acquire, and defining the competencies they aim to develop. The internet and unrestricted access to diverse content have democratised education, offering students resources from various fields that cater to learners at all levels, from primary education to postgraduate studies (Sadeghi & Moslehpour, 2007).

Open education is driven by students' needs and connects their interests with the tools they use to meet them. Today, open education helps build bridges that allow students to learn in a networked environment, share their experiences, and access an important set of digital content. With web access, modern students engage in debates in forums and discussion groups, observe, analyse, and evaluate experiences shared by professionals and fellow students, and interact with various types of digital materials—including videos, texts, podcasts, web pages, and expert commentary—when these are available openly. Open education creates structures where social media platforms foster interest-based groups, facilitate experience-sharing, and support the exchange of resources, ideas, needs, expectations, and personal insights related to their studies (Weller, 2011).

Big Tech statistics indicate a significant increase in the use of search engines and social media for educational purposes. More users read web-based material and interacting with educational content or interest groups. Mobile devices have played a crucial role in popularising open learning, making information increasingly accessible to users from diverse socio-economic backgrounds, educational levels, and social classes. The web has become a key ally in addressing the knowledge demands of modern students. The ease of access to information across various fields has reshaped how people learn and teach their subjects of interest.

Professors are no longer the sole source of knowledge. Students now need to take a more strategic approach to learning, using available resources wisely, efficiently, and in a way that fits this new educational environment. Today, students use the web as a means to explore, discover, and learn what they truly need and find useful (Weller, 2011).

Open education allows students to change the way they learn, removing the limitations imposed by textbooks or course handouts. With this shift, students can improve their performance, gain flexibility, and develop autonomy. To achieve this autonomy, they must cultivate a certain level of maturity to take charge of their intellectual growth (Nahar et al., 2016).

Unlike traditional education, open education brings the learning structure directly to students, designing the process for a collective experience that encourages collaborative teaching, learning, and interaction. This approach positions students at the centre of the learning process, treating them as active participants in this new model of education. Learning now takes place within a networked system, primarily aimed at fostering autonomy, enabling students to explore and acquire knowledge independently. Professors take on the role of guides and supporters, rather than simply transmit content they consider essential for intellectual development. Instead, they suggest possibilities and pathways, offering students flexibility and independence to reap the benefits of their own efforts. In this shift, technology no longer serves as a mere accessory but becomes a fundamental tool that helps students establish an intelligent learning system, providing the necessary resources to satisfy their curiosity and academic needs (Sadeghi & Moslehpour, 2007).

The transition to open education brings both advantages and challenges for students. A three-year study conducted in Jordan revealed that students engaged in open education often perform better than those following traditional teaching models (Nahar, 2016). However, this improved performance depends on students' ability to use digital tools effectively, as well as their maturity, responsibility, and commitment to their learning process. This is why postgraduate students and professors typically adapt well to open education. It helps students address gaps left by traditional methods, but this does not mean education should simply shift from one model to another. The transition must be carefully understood and adapted to a flexible and open framework that meets students' evolving educational needs. Open education enables learners to explore disciplines beyond their original field of study. By venturing into new domains, students can build bridges that foster transdisciplinary learning.

III. LEARNING PATHS IN TRANSDISCIPLINARY FIELDS

In a collaborative process, educators can encourage students to use open teaching methods as resources to transcend the boundaries of their formal education, enabling them to acquire competencies and skills that foster a critical perspective on the knowledge they typically employ. Extension projects serve as a valuable avenue for promoting this stimulus towards transdisciplinarity. Their implementation facilitates practices that involve students from diverse academic backgrounds.

This project explored several design-related requirements necessitating the application and utilisation of web-based tools, alongside the creation of content underpinned by digital resources. In response to these requirements, project members engaged in collaborative learning and shared experiences through open educational practices. This collaborative approach facilitated the successful adaptation of digital tools to promote teamwork and ensure the achievement of project objectives.

At the undergraduate level, transdisciplinarity should not be perceived merely as the incorporation of exercises from other disciplines or fields of knowledge to broaden students' practical experiences. Instead, extension projects can set challenges that encourage students to explore knowledge, concepts, and skills that are not typically part of their academic training (Klein, 2004). This form of transdisciplinarity should enable students to transcend their specific field of study and engage with content from other domains. By adopting a transdisciplinary perspective, students can explore diverse fields of knowledge, including the arts, education, health sciences, engineering, ecology, biology, and computer science—some of which may be entirely new to them. Engaging with these areas promotes knowledge-sharing, strengthens teamwork, and supports both academic and professional growth (Klein, 2018; Last, 2007).

Transdisciplinary teaching is a crucial aspect of students' education, as it enables them to connect two or more fields of study from different perspectives. Jean Piaget is believed to have introduced the term transdisciplinarity in 1970, defining it as an advanced stage that follows interdisciplinary relationships by combining and integrating specialised research projects (Bernstein, 2015). Interdisciplinarity involves the interaction of methods, tools, theories, and concepts to facilitate the understanding of fundamental knowledge for problem-solving (Klein, 2018). Multidisciplinarity, which is particularly common in industrial and design projects, gathers insights from different disciplines and synthesises them into a cohesive framework, forming an integrated body of knowledge (Holbrook et al., 2020).

Transdisciplinarity fosters interaction among various fields of knowledge, addressing broad and complex issues. This approach moves beyond reductionist perspectives to generate knowledge that seeks to establish a discipline encompassing all necessary concepts. The interaction between disciplines can incorporate discussions on ethics, spirituality, and creativity in both the learning process and project development (Klein, 2004). A transdisciplinary research project encourages students to acquire techniques that develop skills and knowledge spanning both theoretical and human-centred domains. By adopting this approach, students perceive

the world through the lens of complex problems and develop the ability to solve them by integrating the most suitable tools and knowledge for each project (Exter et al., 2020).

Transdisciplinarity plays a key role in advancing new research. By adopting this approach, knowledge emerges through the interaction of diverse fields that extend beyond traditional academic disciplines. This practice incorporates ethical, metaphysical, and even mystical perspectives to address real-world complexities. Its methodology connects competencies and skills within a context that considers lived experiences and societal realities, acknowledging the complexity inherent in real-world challenges (Holbrook, 2020).

Through transdisciplinarity, students and researchers can interrelate knowledge from multiple disciplines. A transdisciplinary study seeks to transcend disciplinary boundaries and establish continuity between investigation and the generation of new knowledge. Transdisciplinary research places humanistic concerns and the value of life at its core (Bernstein, 2015). This approach treats all problem-solvers as equals, valuing diverse knowledge and experiences in tackling challenges across different levels and dimensions. When applied to social issues, transdisciplinarity allows students to explore various materials, perspectives, and content to generate new knowledge (Slater & Robinson, 2020).

Transdisciplinarity fundamentally transforms how students learn. This approach allows them to apply their own skills to analyse, exchange ideas, and reflect from multiple perspectives. Under a transdisciplinary model, educators move beyond the traditional role of knowledge mediators, while students become active participants in the learning process, deepening their engagement with research and expanding their scope of intellectual interaction (Kubish, 2020). Transdisciplinarity spans multiple disciplines, breaking traditional academic boundaries by bringing together researchers from different fields and non-academic participants. This integration makes research projects more collaborative and participatory (Pereira, 2023).

The pursuit of autonomy and the development of the learning-to-learn skill remain uncommon practices in classrooms. However, certain methodologies invert traditional roles, transforming students into active agents in shaping their own educational journeys.

Educational institutions should actively discuss student autonomy across various spheres, particularly within the academic area. Autonomy serves as an essential resource for individuals to cultivate intellectual freedom, personal independence, and the ability to make decisions and manage their own lives (Michaelis, 2015). Rather than being confined to self-study and independent learning, autonomy encompasses a broader perspective, incorporating freedom, rights, responsibility, self-governance, self-control, self-discipline, and the development of individual independence. It is an important part of a student's journey toward intellectual and moral maturity.

Comenius (2001) highlighted autonomy as a means to facilitate student learning and to nurture their intrinsic motivation for acquiring knowledge. Similarly, Qi (2012) associated autonomy with students' responsibility in developing their skills and reinforcing their commitment to the learning process. According to the author, autonomy grants individuals control over their education and ensures their right to exercise freedom in their learning journey. To achieve autonomy, students must establish goals, devise plans, implement strategies, monitor their progress, and evaluate their learning outcomes.

Coronado and Miyashiro (2019) defined autonomy as closely tied to self-directed learning. According to this perspective, autonomy empowers students to cultivate critical and reflective thinking, enabling them to learn and grow independently. To achieve this, learners need to take initiative, develop strategies, stay dedicated, and persist in overcoming challenges. However, Yan (2012) challenged the idea that autonomy means learning entirely independently, without teacher guidance. Instead, he described it as a lifelong learning skill, where students take control of their own development, make informed decisions, and take responsibility for their educational progress. In essence, autonomy is built through the ongoing development of independence and responsibility.

Paiva (2016) linked the development of autonomy to active teaching and learning methodologies. The author characterised autonomy as a form of freedom grounded in creativity, reflection, and actions that individuals undertake in relation to their reality. According to the author, autonomy is both a pursuit and a transformative/creative force.

Transdisciplinary education, particularly within constructivist approaches, provides students with opportunities to expand their knowledge beyond the constraints of traditional teaching methods (Kubish et al., 2020). The transdisciplinary STEAM model (Science, Technology, Engineering, the Arts, and Mathematics) enables students to engage with multiple disciplines, fostering an understanding of how creativity, design, and scientific advancements interact with the arts. This model not only integrates various fields but also encourages the development of essential skills such as critical thinking, collaboration, and innovation across different academic levels. STEAM equips students with problem-solving abilities, ethical reasoning, and the capacity to work effectively with peers and professionals from diverse backgrounds (Wilson et al., 2021).

Problem-Based Learning (PBL) represents an alternative approach that enables educators to implement interdisciplinary teaching practices. Lopes et al. (2019) emphasised that problem-oriented learning allows

courses to involve faculty members with expertise in different fields, thereby developing the curriculum in a structured and integrated manner. Under this methodology, students assume an active role in their learning processes. Addressing complex problems requires them to investigate multidisciplinary aspects of their education, establish meaningful connections, and apply knowledge to real-life scenarios. As a result, acquired knowledge becomes relevant to their academic and professional experiences (Glasgow, 2019). Even in courses that adopt constructivist methods, student autonomy is not commonly practised in many educational institutions. This is reflected in courses that promote discipline but show limited interaction with other domains of knowledge. When some interaction does occur, the disciplines facilitate exchanges primarily focused on the field of knowledge and skills within their own courses. Broader interactions with other areas, which transcend the boundaries of their specific competencies, tend to occur only sporadically.

To become transdisciplinary, some courses may reflect on the education of their students from new perspectives. Klein (2004) argues that it is not sufficient merely to simplify and offer a single discipline or a "super discipline" that addresses various themes of knowledge. A transdisciplinary approach broadens students' education by presenting challenges that encourage them to engage with new tools and concepts, thereby enabling them to acquire the necessary skills to achieve specific goals. These goals can be accomplished with the support of resources available on the web. Interdisciplinarity and transdisciplinarity are aspects that should form part of extension policies, serving as components for the curricula of undergraduate courses. Through this approach, activities function as dialogical interactions between the university and society, reinforcing the inseparability of teaching, research, and extension. From this perspective, extension activities impact both the education of undergraduates and social transformation (Basso, 2023).

A communication student can learn HTML and basic programming languages to write and publish content. This learning helps them build simple structures, implement analytical tools, and publish information collaboratively. Pedagogy students can learn to work with graphic tools to organise their thoughts and present concepts and ideas visually and didactically, aiding web readers in understanding the content. Design students can improve their writing skills to help website visitors better comprehend the material presented. Access to this knowledge extends slightly beyond the structure provided by their original courses. However, nothing prevents students from acquiring and applying this information solely within the context of their projects or specific needs. Certainly, part of this knowledge is available on the web, enabling students to explore topics beyond their primary field of study. For this reason, it is essential to guide students on the most appropriate use of open educational resources. These skills can be addressed as complementary subjects or integrated into the demands of projects and disciplines, allowing students to enhance their work and foster greater engagement in their course activities.

Transdisciplinarity should connect different domains of knowledge. Developing transdisciplinary thinking involves organising tasks that encourage students to explore concepts and resources that help them acquire new knowledge and reflect on what they have learned. Once this content is addressed, it can enable students to elaborate, interpret, and understand the potentialities and limitations present in other fields. This approach helps students grasp the realities of other areas and meet the goals and demands of specific tasks, which may be carried out collaboratively (Klein, 2004). To achieve this objective, students must employ transdisciplinary practices to commit to their own learning, incorporating these insights into their educational development and teamwork processes (Klein, 2018).

IV. TRANSDISCIPLINARITY IN THE CONTEXT OF UNIVERSITY EXTENSION

The *Comunica CPA* extension project aimed to provide information about the activities, meetings, and decisions made by the Internal Evaluation Committee (*Comissão Própria de Avaliação*) of the State University of Maringá. The provision of this information aimed to increase transparency in the Committee's decisions and actions. Establishing a web website enabled the internal community and representatives from various centres to access the necessary materials to explain the importance of evaluations both within and outside the institution. In addition to ensuring transparency, a website fostered greater participation among other departments within the university and facilitated the sharing of experiences and tools with other educational institutions (Camelo, 2020). The project lasted 24 months and resulted in a website containing information on legislation, the history of committee, and relevant documents for both internal and external audiences, such as reports, laws, and public resolutions. Part of the activities involved the development of a corporate identity. A work routine was established, allowing the Committee's secretariat to record and publish the actions and decisions of periodic meetings. The outcomes of the extension project laid the foundations for web-based communication for future management teams and the communities involved in the university's activities.

The project involved undergraduate students from the Design course at the Regional Campus of Cianorte, as well as students from Communication and Multimedia and Pedagogy courses at the Main Campus in Maringá. To organise the project, activities were guided by professors from the Design and Pedagogy courses, with the collaboration of a university staff member.

The project's development occurred remotely, facilitating interaction among members from the main campus and the regional campus. These meetings was conducted even before the remote isolation measures due to COVID-19. Some of the activities established in the first year of the project involved collecting, compiling, and organising the available materials and documents related to the CPA. Part of this content originated from an old website that had been deactivated due to a lack of maintenance. The team organised photos, reports, and official documents to structure the information hierarchy and define the navigation path for web visitors. The university provided a Content Management System (CMS) based on the Plone platform. The framework was studied and explored by the members, particularly by the students. They learned basic HTML concepts and fundamental Javascript principles. The organisation of the collected material required careful consideration of hierarchy and online content mapping. By reviewing CPA websites from other institutions, the members identified patterns and features that could be incorporated into the website under construction. They shared their impressions and experiences during remote meetings. Tutorials available on the institution's website allowed the members to familiarise themselves with the tools required for organising the site.

A corporate identity for the committee was developed in collaboration with the Design and Fashion Lab (Laboratório de Design e Moda - LDM) of the State University of Maringá (UEM). To create this material, project members prepared a briefing containing explanatory texts, the identification of required graphic materials, and a list of demands, such as symbols, graphic elements, and digital assets to be adopted in the committee's future presentations. During the development process, the team proposed alternatives and applications (e.g., business cards, official letters, and reports), which were discussed with all participants of the extension project and the committee members.

The experience gained encouraged reflection on the role of extension activities as a tool for transdisciplinary learning. It allowed undergraduate students to explore and learn concepts, principles, and skills that went beyond their primary field of study.

V. PRELIMINARY ANALYSIS

A brief analysis of the project's outcomes allowed us to reflect on several challenges within traditional education, the development of resources based on new technologies, the identification of barriers faced by traditional teaching methods, the changing ways in which students learn, the role of transdisciplinarity in this evolving context, and the potential of extension projects to provide a transdisciplinary experience.

Traditional education faces significant challenges due to shifts in student behaviour, changes in institutional structures, increased access to information, and the pursuit of autonomy in learning. Educators must recognise that today's students increasingly engage with multimodal online structures. Artificial intelligence plays a significant role in reducing routine tasks. Although its knowledge base may lack the expected consistency, teachers must consider its advancements as a tool. The central role of the educator must adapt to this new reality. Modern students possess a degree of fluency with digital tools, enabling them to explore and navigate cloud-based resources with ease. Their learning can be active, as they now seek, read, and absorb information within their fields of interest, driven by curiosity and the desire to complement their education. Online networks offer resources that cannot always be presented in the classroom. Therefore, it is not enough for teachers to provide supplementary materials; they must also stimulate students' creativity, ensure their active participation in constructing their own knowledge, and sustain their interest and curiosity to explore new content in the form of texts, videos, and other materials available online. In this way, we believe it is possible to encourage learning, foster greater engagement with content, and promote the sharing of experiences.

Digital resources have moved beyond being simple tools; they are now essential parts of the learning process. They encourage students to explore and acquire new concepts, principles, and skills. Today's students require new models to learn and engage with the information available. Open teaching methods are becoming increasingly accessible, facilitating consultation, discussion, reading, and networked learning, enabling students to analyse and evaluate the information presented to them. We observed that the hierarchical and pyramidal teacher-student relationship, once prevalent, has shifted in recent years. Modern students have the opportunity to become active, responsible, and committed agents in shaping their own knowledge. It may be essential to identify ways to encourage these students to use digital tools to reaffirm their active participation in learning and reinforce their autonomy as agents of lifelong learning, with lasting impacts on their academic and professional trajectories.

The COVID-19 pandemic prompted a reflection on digital resources, traditional teaching methods, and the impact of social isolation. The mandatory shift to emergency remote teaching and the frequent use of IA revealed that educators must understand the diverse approaches to using digital tools, as well as the role of networked and open learning. In this context, educators need to engage with these resources, develop fluency, and adapt to the learning styles of today's students. Simply transferring traditional teaching methods to digital platforms is not a suitable approach for post-pandemic education. Therefore, it is crucial for education professionals to deepen their understanding of the challenges, barriers, and resources available online. By

mastering these tools, educators can effectively share knowledge and experiences, encourage students to access and use information responsibly, and support a broader, more future-oriented education. In this context, educators must inspire and sustain students' interest in learning. They should nurture curiosity, which is vital throughout students' academic and professional lives, and keep their passion for exploring new areas of knowledge.

Open learning methods enable students to transcend the content and experiences provided by their academic training. We observed that extension projects have the potential to meet with this approach by offering challenges that go beyond those presented in the classroom. Through such projects, we can encourage students to develop autonomy. As they gain access to new knowledge, it is important for students to share their experiences in seeking and completing tasks with their project peers. Throughout the extension project, we noted that students explored theoretical and technical knowledge, applied this knowledge to achieve objectives, and shared their experiences collaboratively. The knowledge and skills acquired demonstrated that students are willing to engage with domains outside their traditional academic trajectory. We believe it is possible to expand their learning, enriching their education and providing a broader perspective on competencies that will positively impact their academic and professional activities.

In addition to exploring new knowledge, students can interact with groups from other university departments and external stakeholders. This interaction stimulates curiosity and interest in incorporating insights from other fields, helping students understand that their research can enhance their worldview. Completing such work brings recognition and serves as motivation to participate in future projects.

VI. CONCLUSION

We hope these reflections emphasise the importance of university extension activities in shaping students' academic development and the benefits they bring to the communities and institutions involved. This study explores the experiences of undergraduate students as they ventured beyond their traditional training, expanding their knowledge into new areas. The experience acquired during the extension project enabled us to identify new knowledge and content previously unfamiliar to the students, contributing to the development of materials used by the Internal Evaluation Committee (*Comissão Própria de Avaliação - CPA*) of the State University of Maringá (UEM). Within this context, the study emphasised some of the transdisciplinary aspects learned and the potential effects of these interactions on the students' academic and professional careers. The reflections suggest that extension projects can provide students with rich experiences, creating a transformative learning environment that transcends the realities constructed during their academic journey.

In our experience, transdisciplinary learning occurred when students explored, studied, and applied knowledge from areas such as information technology, digital content development for the web, digital content management, collaborative work, networked learning, and information processing for creating briefs and using visual elements to communicate with design professionals. The flexibility with which they approached new knowledge allowed students to navigate technical content, utilise digital resources that may prove useful in their academic and professional activities, share experiences, and engage in teamwork using GSuite tools or remote collaboration platforms. Knowledge from various fields can be explored to guide students in achieving their objectives and meeting the project's goals.

For the development of the project, each student acquired experience in using web-based resources and exploring content such as courses, articles, and tutorials. The design students brought an aesthetic sense and technical expertise to implement the team's ideas. Students of the Communication and Multimedia course contributed by defining routines for recording, publishing, and managing digital content. Meanwhile, the Pedagogy students focused on organising and developing materials to enhance visitors' understanding and interaction with the web pages.

As future work, we believe it is essential to foster in new students the ability and autonomy to use open educational resources in ways that best suit the needs of each project. This approach will enable students to explore and learn content that aligns with their interests and provides useful knowledge for their future academic and professional activities. We observed that it is possible to encourage transdisciplinarity by introducing concepts for broader learning, involving areas such as the arts, health promotion, reflections on social issues within their own communities, and identifying ways to improve the contexts in which they live and work. We understand that the integration of extension activities into the curriculum, as established by the National Council of Education (Brazil, 2018b), should be seen as a means to promote transdisciplinary knowledge formation. This approach helps students develop a critical perspective on their surroundings and encourages them to take transformative actions.

We hope this critical perspective shall inspire meaningful changes and guide actions that allow universities to make a positive impact on their surrounding communities. It is essential to see extension activities not just as additions to coursework but as opportunities to offer students genuinely transformative experiences.

The integration of extension activities into the curriculum should promote a holistic education, enabling students to transcend the knowledge acquired in their formal training while fostering greater autonomy in their pursuit of new learning. Transdisciplinarity cannot be guided solely by the inclusion of exercises or the creation of "super disciplines" that incorporate concepts, principles, and skills from other fields. It is essential to adopt a broader perspective within disciplines and develop activities that grant students the autonomy to explore knowledge from other domains (Klein, 2004). The wider scope of work encouraged by extension projects guides students to address authentic problems drawn from contexts where their course and its participants can interact. This approach allows for the integration of transdisciplinarity into the teaching process, as students navigate other fields to meet the demands of the project and their discipline. Shifting perspectives within disciplines can introduce modern teaching concepts into the classroom, providing students with pathways to enhance their engagement and commitment to their education. Through extension activities and the treatment of real-world problems, students can observe the impact of their contributions within the social context of their course.

This shift in teaching practices requires collective reflection. Student learning at university should not be interpreted merely as a phase in their education. The development of transdisciplinary teaching must be understood as a long-term educational process. This transdisciplinary approach will have lasting effects on students' academic and professional trajectories. Transdisciplinary teaching can provide resources and skills with prolonged impact on students' development and the construction of a critical perspective on their economic, political, social, and environmental surroundings. We should encourage group discussions to identify ways to make changes. These changes should involve everyone who interacts with, contributes to, or benefits from the project.

As educators, we suggest that teachers should act as catalysts for transformation. Extension activities serve as a tool for promoting a transformative transdisciplinary vision. In this way, educators acknowledge the possibility of offering students a new approach to learning. When this boundary is crossed, it is unlikely that students or the educational landscape will revert to traditional teaching methods. It is crucial to stimulate our capacity for lifelong learning, encourage students' interest in acquiring and applying new concepts and skills, and empower them to use resources that ensure positive outcomes and contributions to their surroundings. In doing so, we will help students learn, transform their worldview, and provide resources with an impact that extends beyond their traditional education. University extension activities should represent another step in the lifelong learning journey of this new generation of students.

Conflict of interest

There is no conflict to disclose.

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