# Faculty Development Programs in Higher Education

## An International Perspective

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# Preface

The career advancement of faculty members depends on their progress in teaching, research, and extension activities. Therefore, faculty members from all disciplines need to recognize the best teaching practices, appropriate behaviors, skills, and the use of technology. Improving competency can be achieved through the creation and assessment of faculty development programs. This edited publication explores various facets of faculty development programs from an international viewpoint.

In medieval universities, the transmission of knowledge relied heavily on the expertise of professors. Academic success was deeply rooted in scientific knowledge, and professors enjoyed substantial pedagogical autonomy, with their recruitment and promotion contingent upon research outcomes. However, formal teacher training at universities was not a prominent practice within the academic tradition until after the Second World War. The emergence of faculty development and the concept of scholarship of teaching and learning can be attributed to several factors, including the decline of elitism in universities, the democratization of higher education, increased access for less motivated and less well-prepared students, advancements in information and communication technology (ICT), and research on university teaching and learning. University research underscores the interconnectedness of learning and teaching, emphasizing the influence of the educational context and the efforts of teachers on students' performance and the quality of their learning.

University institutions are making efforts to change academic culture and highlight the significance of teaching. However, these established policies are often met with resistance from educators who are hesitant to accept the necessity of professional development in teaching. This change signifies a major cultural shift within academia.

The term "Faculty Development Program" encompasses a diverse array of initiatives aimed at enhancing the skills and behaviors of faculty members

in the areas of teaching, research, and extension practices. Within the higher education system, faculty development is widely recognized as a critical element in maintaining academic vitality. Traditionally, faculty members were assumed to have pedagogical expertise primarily derived from their content knowledge and exposure to instructional methods during their education. However, the influence of technology, innovation, and evolving labor demands has necessitated adjustments and enhancements within higher education. Embracing emerging technologies to elevate teaching and research practices has become imperative, given the multifaceted roles of educators.

It is widely recognized that the progression of faculty members is closely tied to the improvement of their teaching practices. Therefore, faculty members must grasp the most effective instructional methods and approaches to cultivate strong teaching skills. Despite their expertise in their respective fields, many faculty members in tertiary education may lack adequate training in effective teaching practices. The central question revolves around how they can effectively impart their expertise through improved teaching techniques to better engage with their students.

In the realm of academia, it is common for faculty members to confront various challenges in the sphere of teaching. Regrettably, the crucial need for sufficient mentoring often goes overlooked. Furthermore, faculty members frequently encounter obstacles in the realms of research and extension activities, such as the identification of research topics, acquisition of funding, and the determination of appropriate publication channels. As a response to these prevalent issues, faculty development programs on a global scale are undergoing substantial modifications, both in their essence and substance, to more effectively address these challenges.

Initially, faculty development programs focused on improving teaching and instructional practices. Over time, these programs have expanded to include research and extension activities. There is substantial evidence supporting the idea that faculty development programs can enhance faculty competence and improve instructional practices. The objectives of faculty development programs include helping faculty understand their role as teachers, building confidence in their ability to be effective educators, and developing skills as mentors, researchers, collaborators, team members, leaders, and evaluators. To achieve these objectives, it is essential to have well-designed programs and effective assessment methods in place.

In the post-Covid era, the availability of online resources for instruction and teaching has significantly improved. It is important to recognize that while experienced teachers with advanced technology skills may not automatically become successful e-instructors, there are growth opportunities. Pedagogical strategies effective in traditional face-to-face teaching settings may not yield anticipated outcomes in an online environment. However, this presents an opportunity for educators to embrace new pedagogies, develop essential capabilities, and redefine their roles as online instructors.

An international comparison becomes particularly intriguing when considering the unique aspects of each country and the diverse faculty development programs (FDPs) across different fields. This allows for the identification of evolution, scope, development, change, and evaluation on an international scale. The book aims to provide a critical and objective analysis of this topic by drawing on research from various countries that addresses the different aspects of faculty development programs. It is important to note that the claimed link between faculty development and student learning outcomes has not been explicitly or convincingly demonstrated, either theoretically or empirically in many countries.

This edited publication systematically examines the influence of faculty development practices in both developed and developing nations on the performance of individuals and institutions. It offers an in-depth analysis of the historical progression of faculty development programs, encompassing the integration of online resources in the aftermath of the COVID-19 pandemic. Furthermore, it provides an extensive exploration of crucial dialogues about the assessment, accomplishments, and prospective advancements of faculty development programs.

The editors and the publisher sincerely thank the reviewers for their constructive and insightful comments, which significantly improved the manuscript.

**Editors**

# About the Editors

**Saeed Paivandi** is a full professor in the Faculty of Education at the University of Lorraine in Nancy, France, a position he has held since 2011. Prior to this, he was a senior faculty member at the University of Paris 8 from 1996 to 2011. Saeed Paivandi holds a Habilitation (HDR), Ph.D., and Master's degree in Sociology of Higher Education from the University of Paris, as well as a Master's in Sociology from the University of Tehran. From 2013 to 2017, he served as the director of the LISEC-Lorraine inter-university research center. His areas of research and specialization include Sociology of Education, Faculty Development, Education Policy, Learning & Teaching in Higher Education, and Adult Education. He has authored 14 books (9 as editor) and 65 articles and book chapters. His publications include "*The challenge of teaching at university*" (Paivandi & Younès, 2019, Peter Lang), "*Apprendre à l'Université*" (Learning at University) (2015, De Boeck), "*International Perspectives on Gender and Higher Education; Student Access and Success*" (Fontanini, Paivandi & Joshi, Ed., 2020, Emerald Publishing Limited), and "*Equity in Higher Education: A Global Perspective*" (Paivandi & Joshi, 2016, Studera Press).

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# 5.

# Adapting Education for Sustainable Development to the Core of University Logics

## The Emergence of the Pedagogy of Robustness - An Essay Rooted in the Context of the Wallonia-Brussels Federation

***Pascal Detroz, Françoise Jérôme, Mathilde Nahan, and Laurent Leduc***

*This text will present some of the major elements leading to a change in higher education (HE) in the Wallonia-Brussels Federation (WBF), which HE institutions are having to face up to. Some of the major elements leading to a change in higher education (HE) in the Wallonia, the general structure of initial and continuing training organised by the state, and the will be presented in this article. In this context, the authors are developing a new concept they refer to as the pedagogy of robustness. This approach emphasizes equipping students with the ability to adapt and thrive in complex, uncertain, and ever-changing environments. It focuses on cultivating resilience, critical thinking, and problem-solving skills that prepare learners to face challenges beyond the classroom. The initial elements of this learning framework will be presented in this article.*

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## Introduction

As elsewhere in the world, higher education in Belgium's Wallonia-Brussels Federation (WBF) has for several years been undergoing significant changes that are having a lasting impact on university teaching practices (Rege Colet and Romainville, 2006). These changes can be grouped into six main categories: the changing student population, the knowledge economy, results-based management, the social role of universities, generative artificial intelligence and the context of a world in crisis. In the following pages, we will describe the content of these themes. We will then look at the structure of initial and continuing teacher training in higher education, which is undoubtedly one of the most effective ways of enabling organisations to cope with these changes. We will see what each university is doing to support the professional development of its teachers. We will then focus on the University of Liège, which is currently working on the implementation of a robustness pedagogy, inspired by the work of Hamand (2022, 2024), to deal with these changes.

## Transformation of the Student Demographic

The first major shift concerns the demographic of students entering higher education. Historically, higher education institutions were primarily tasked with training elites and administrators necessary to maintain social order (Goastellec, 2014). By the late twentieth century, as many OECD countries incorporated the goal of extending higher education access and graduation to a 'universal' level for a broader student population into their political agendas (Gale & Parker, 2014), higher education institutions evolved into massified and universal systems (Trow, 2007).. This transformation has resulted in a significant increase in the student population and greater diversity among students, which has had considerable implications for pedagogical constraints. A distinctive feature of the Wallonia-Brussels Federation is the relatively unrestricted access to higher education, except for certain disciplines such as arts, medicine, dentistry, veterinary medicine, and some engineering fields, where entrance exams are required. For most other programs, a secondary education diploma and the payment of a modest tuition fee are sufficient for enrollment.

Between 2000 and 2017, the number of students increased by 43%, while spending on this level of education only rose by 22.6% (Lambert, 2021). This discrepancy has led to a relative underfunding of higher education per student, estimated to be around 20% below the average of northern European countries (Lambert, 2021). Furthermore, the lack of externally administered final exams in secondary education in the WBF exacerbates the heterogeneity of students' skills upon entering university. In fact, secondary education in the WBF is among

the most unequal in the OECD according to PISA studies (Bricteux et al., 2018). Consequently, the democratization of access to education does not necessarily ensure social equality in access to qualifications (Ortiz &Dehon, 2013)

This shift is also linked to a sociological transformation of the student body. Regardless of the labels used to describe them (Generation Z, Alpha, Millennial, etc.), these students, termed *homo numericus* by Dortier (2013), are characterized by their tendency to construct, articulate, and stage their personal trajectories, often by evading the formal constraints and rules that are essential for collective organization, the relevance of which they may even contest. The pressure to conform in the twentieth century has been replaced by pressure to perform and stand out individually, accompanied by an illusion of limitless possibilities.

In the Wallonia-Brussels Federation, the individualization of the student pathway was formalized in the decree of 7 November 2013, titled "Decree Defining the Higher Education Landscape and the Academic Organization of Studies." This decree abolished the concept of academic years in favor of a credit-based system. Students who earn 45 out of 60 credits are not considered to have failed and may continue their studies, offering a degree of flexibility in constructing study paths. While this has enabled a smaller percentage of weaker students to complete their university studies, it has often resulted in extended study durations and, more critically, in delaying the inevitable acknowledgment of failure by students who systematically postpone the most challenging courses. The difficulty in implementing this decree (in 2018, an open letter condemning its potentially negative effects was co-signed by 400 university professors) and its numerous revisions highlight the tension between higher education institutions, which advocate for some form of standardization or normalization of student pathways, and the political sphere, which seeks more adaptable, individualized training pathways. It is worth noting that a major reform of this decree was planned for 2024 but could not be ratified due to a political impasse that garnered significant media attention.

## Transformation Linked to the Knowledge Economy

Historically, universities served as the custodians of knowledge, with university libraries as the central repositories and professors as the privileged conveyors and transmitters of this knowledge. Today, however, much of this knowledge is readily accessible via the internet, leading students to believe they can independently acquire it. Consequently, professors often perceive the Web as an unfair competitor that diminishes their authority and influence in the realm of knowledge acquisition (Hamel, 2021). The automatic respect traditionally afforded to those who possess and impart knowledge is no longer a given. This shift is exemplified by the emergence of the "sandbag technique" (Le Deuff, 2007), wherein students verify their lecturer's statements in real-time on the Web and, in cases of error, publicly correct them.

In the Wallonia-Brussels Federation, it is noteworthy that all university learning and teaching centers were established in the 1990s, coinciding with the advent of the Web. This timing suggests an implicit response to the perceived loss of control over knowledge, as if this could be mitigated through enhanced efficiency in knowledge transmission. It is as though universities believed that respect from students could be regained through pedagogical or didactic efforts. However, in a context characterized by massification and underfunding, this challenge remains formidable.

Paradoxically, while the Web promotes the free circulation of knowledge, universities are simultaneously engaging in a commodification of knowledge that aligns with capitalist logic. The commercialization of education involves the "packaging" of knowledge and research outcomes into standardized "products" (Rasco, 2020) which, at times, extend beyond the control of their creators and circulate as commodities endorsed by the university (Laval, 2009). Examples of this phenomenon include online courses, MOOCs, and micro-credentials. This shift has significant implications for the work of university professors. As Laval points out, the process of putting courses online often imposes pedagogical standards on instructors regarding both form and content, while also increasing their workload due to the continuous availability of courses and the need to engage in a heightened volume of interactions via forums and email. This trend is particularly evident in the context of MOOCs, where providing after-sales support is crucial, although the primary beneficiaries of these efforts are often the private platforms that host the courses.

The techno-marketing of knowledge risks transforming educators into workers whose activities are increasingly standardized and monitored, subject to new production constraints and administrative controls, which could significantly curtail their autonomy, particularly in teaching. If not carefully managed, learning and teaching centers, if they become overly prescriptive, may evolve into instruments of standardization and control, potentially impoverishing pedagogical practices.

## Transformation Linked to Results-Based Management

In the contemporary landscape, universities are increasingly confronted with international competition. The rise of online and hybrid teaching models, MOOCs, and the physical mobility facilitated by European programs such as Erasmus have significantly heightened competition among institutions. For many universities, maintaining competitiveness is often a matter of survival. European universities are experiencing a gradual shift from public to private funding sources. For instance, in England, the government has permitted the imposition of high tuition fees, thereby enabling a reduction in public funding (Lambert, 2021). In the Wallonia-Brussels Federation (WBF), tuition fees are legislatively set at comparatively low levels (ranging from 175 to 835 euros per year), while public funding for higher education remains limited. Moreover, the limited resources

from the closed funding envelope are distributed based on the number of students per institution, underscoring the importance of attracting students. Consequently, students are increasingly viewed as consumers of education in the broadest sense, necessitating the offering of an appealing product. In other words, universities in the WBF face relative underfunding, the severity of which is influenced by the proportion of students they enroll compared to other universities. This financial strain and competitive pressure have amplified the need for accountability in the use of public funds and the quality of education provided.

This trend is neither recent nor unique to Belgium. As early as 2006, the U.S. Department of Education stated: "To meet the challenges of the 21st century, higher education must move from a system based primarily on reputation to one based on performance. We advocate the creation of a robust culture of accountability and transparency throughout higher education." New Public Management, heavily influenced by the OECD, has become the prevailing managerial paradigm in higher education, where educators are increasingly held accountable for the quality of their work. In the WBF, the concept of monitoring teaching performance was implemented in all universities approximately twenty years ago through the introduction of student evaluations of instruction. This system has been more recently adopted in high schools. Admittedly, the procedures for student evaluation of teaching effectiveness vary across institutions: in some cases, the questionnaires are mandatory and administered annually, while in others, they are offered voluntarily by instructors. Sometimes the results are factored into career advancement, while in other instances, they are provided to instructors solely for developmental purposes. Regardless of the specific approach, these evaluations are most often used as indicators of teaching quality.

While it is positive that students can provide feedback on their courses, the challenge for learning and teaching centers lies in ensuring that the results of these evaluations enable teachers to be more engaged. Such evaluations can encourage teachers to engage in reflective practice, contributing to their professional development. However, as Arthur (2009) describes, this focus on performativity can also lead to a desire among teachers to improve quality indicators without genuinely enhancing the pedagogical quality those indicators are meant to reflect. Arthur draws on the concept of performativity from Ball (2003), who argues that it can lead to a misalignment of practices. According to Ball, educators may no longer be certain of their motivations: are they teaching because the content is important and meaningful, or simply because it will be measured or compared? If the focus is solely on what is measured and valued, there is a significant risk that these indicators will replace our educational objectives, thereby distorting teaching practices. Our role, academic advisors, is therefore to encourage teachers to view these quality indicators, when they reveal pedagogical deficiencies, as catalysts for pedagogical change, ideally in tandem with developing their skills in the scholarship of teaching and learning.

## Transformation of the Social Role of Universities

The fourth transformation relates to the evolving social role of universities. Historically, in Europe, the prevailing model was the one implemented by Von Humboldt in Berlin, which emphasized universities as institutions where education aimed to cultivate freedom and critical reasoning. However, the dominant model today is increasingly influenced by neoliberalism. Universities are now expected to work in close collaboration with private enterprises to ensure a prosperous economic future for the environment in which they operate. The focus is no longer on transmitting academic knowledge and culture, but on developing skills that can be directly applied in professional settings. Moreover, with the competency-based approach, it is often businesses that dictate—at least in part—the competencies that universities must teach students.

As Houda (2022) notes, companies now have a significant influence over the vision, mission, and policies of universities, as well as their curricula. Research is not immune to this shift. To secure the best funding, researchers must produce knowledge that aligns with industry criteria and needs. Funding, whether public or private, is increasingly directed towards meeting the strategic needs of the economy. Consequently, universities are becoming primarily hubs for recruitment and training, where students are put in competition with each other. In this sense, universities are gradually evolving into systems that train entrepreneurs, where success is measured by the ability to develop projects with direct professional applicability, ideally serving the interests of big capital. As Laval observed in 2011 (p. 12), "in what is now called the knowledge economy, the economy dictates what knowledge should be: profitable information, a continuous stream of innovations, or the basis for profit. What has no economic value in the market is not considered knowledge."

Over the course of a few decades, universities have transitioned from a political project aimed at improving individual and social well-being to an economic project. This evolution has been relatively under-discussed, and while there are some dissenting voices, it appears widely accepted today that academics are no longer intellectuals charged with producing knowledge for societal improvement but are instead cogs in a knowledge economy whose primary goal is economic development through structured responses to business needs.

It is important to note that the Wallonia-Brussels Federation (WBF) is a region where the entrepreneurial landscape is largely composed of small and very small enterprises. Even when multinational corporations are present, their decision-making centers are often located abroad. In fact, the economic landscape is primarily made up of small to very small businesses. According to statistics from the Institut Wallon de l'Évaluation, de la Prospective et de la Statistique (IWEPS), 88% of Walloon companies have fewer than 20 employees, while only 2% have more than 100. This does not necessarily imply that the economic influence on universities is lesser, but rather that university research is expected to have

economic value, with a focus on creating new businesses or spin-offs. Indeed, this expectation is a sine qua non for securing multiple sources of funding.

As Jorda (2007) highlights, this transformation is changing the nature of academic work, requiring faculty to acquire new skills, which he details on page 54: "new skills such as knowledge of the local market and the jobs for which they are preparing students, welcoming, guiding, and selecting students, managing increasingly complex teaching teams that include both professionals and academics, developing standardized models that impose strong technocratic constraints, designing technical manuals to specify objectives and assessment methods for the components of the model, etc."

These new competencies, which seem essential today, are often poorly mastered by young university teachers in WBF, who are still largely selected based on their ability to produce research results. Therefore, it is up to the academic advisor to provide initial or ongoing training on these specific themes, while also encouraging faculty to think creatively and critically about what some consider to be the utilitarian drift of knowledge.

## Transformation linked to Generative Artificial Intelligence

The fifth and quite recent, significant change lies in the advent of generative artificial intelligence. With the emergence of ChatGPT in November 2022, universities in the Wallonia-Brussels Federation initially expressed concerns. They wondered how they would be able to award degrees to students whose work might be partially or wholly generated by artificial intelligence. The responses were relatively conventional: guidelines for proper use, exam monitoring tools, in-person evaluations, or assessments for which AI provided unsatisfactory responses (contextualization, linking information, personal opinions, etc.).

In a second phase, universities recognized the benefits of using certain AI features to facilitate their daily tasks and bring new energy to their pedagogy.

Today, however, they are slowly facing a new reality: AI is set to rapidly and profoundly impact their environment. As previously mentioned, the Web had already begun to act as a formidable competitor to educators. What, then, of this artificial intelligence that can provide information more quickly and sometimes better structured than some teachers. An AI capable of supporting learning by offering students a large number of standardized questions to bolster their understanding of the material, and providing rapid and accurate diagnostic feedback? Will the university teacher of tomorrow be reduced to a mere overseer of AI-generated outputs? If so, will it still be necessary for these profiles to be active in research? Moreover, if the university is no longer the primary venue for teaching, why would public authorities continue to fund research institutions with public funds when this research increasingly benefits multinational corporations? These questions weigh heavily on the future of university institutions: the pillars of the temple are trembling (Meyer and Nizet, 2023).

Furthermore, artificial intelligence presents another danger to universities. It is likely that AI will significantly transform the jobs of tomorrow. Even in a complex field such as clinical reasoning in medicine, AI achieves impressive results (Pelaccia et al., 2020), leading the AMS Healthcare Association to declare that the students and doctors of tomorrow must become leaders to ensure that AI contributes to the goal of providing improved and compassionate patient care. In high-value-added professions, humans may then become the guardians of AI, which, in turn, performs the work. Even without endorsing such pessimistic views, it is undeniable that AI will profoundly transform professions, including those for which universities and colleges in Belgium are currently training students. In this regard, some believe that artificial intelligence is a disruptive force so powerful that it could contradict Schumpeter's theory, which conceived of innovation as a force of "creative destruction," where new economic structures emerge from the ashes of the old. According to authors like Laurent Alexandre (2023) and Éric (2024), the revolutions in artificial intelligence could, perhaps for the first time in history, be job-destructive without generating a new economy, at least one based on employment. Even when adopting a more nuanced perspective on AI, it will have consequences on the objectives and training frameworks offered to higher education students.

In conclusion, it is undeniable that universities, both in the Wallonia-Brussels Federation and elsewhere in the world, have undergone and will continue to undergo profound changes of various kinds. Learning and teaching centers symbolize this mutation while also serving to mitigate its impact. They are symbols because the effective training of tomorrow's workforce has suddenly become a strategically crucial task to support a failing economy and has become an absolute necessity for integrating into a knowledge economy. They serve as a means of mitigation because professional development for teachers, provided it is not overly prescriptive or dogmatic, can equip them with the necessary skills to function optimally in this ever-changing environment.

## Transformation of the Social Context: A World in Crisis

In 2011, Laval observed that "higher education today is no longer equipped to enable students to grasp the realities, issues, or challenges facing humanity. Since education is aligned with employment demands, students are deprived of the judgment faculties or knowledge needed to become engaged global citizens, as the utilitarian drift has even managed to transform the very meaning previously attributed to knowledge." In a world focused on growth and economic indicators, and in a context of full employment, Laval's observation might appear less significant. However, such a world is gradually receding.

Simultaneously, crises are unfolding in succession. Climate and ecological conditions are deteriorating, questioning, at the very least, our civilization's choices oriented towards infinite growth. Populism and political extremism are gaining ground in Europe. The COVID-19 pandemic has severely impacted our

pedagogical practices (Detroz et al., 2024). War is now affecting Europe, which seems to be looking elsewhere (Audoin-Rouzeau & Bujon, 2023).

In our view, without critical reflection and appropriate reforms, higher education could find itself engaged in a rear-guard struggle to sustain yesterday's world, out of step with the urgent challenges of ecological and social transition, while it could instead contribute to shaping the world of tomorrow. Just as the competency-based approach addressed the needs of businesses, it is now crucial to develop a pedagogy focused on environmental and transitional challenges. Without such a transformation, it seems that current education systems will continue to essentially equip students to become more effective vandals of the Earth (Howlet et al, 2015). It is imperative that Learning and Teaching Centers envision this future pedagogy. Currently, Learning and Teaching Centers are in a phase of transition. They are, of course, subject to the same pressures as educators. They too must adhere to legal, economic, institutional norms, as well as prevailing pedagogical standards such as evidence-based practice and the scholarship of teaching and learning. Moreover, they are bound by scientific norms, as they must publish to remain viable. However, these centers, due to their central role in institutional frameworks, represent a significant force for change that should be mobilized to effect a paradigm shift (Vosniadou, 2007) in pedagogy, enabling higher education to adapt to new challenges.

These 6 changes therefore have a significant influence on teaching and learning in higher education. In turn, however, teaching must also adapt to these changes and evolve accordingly.

Before describing an attempt to adapt teaching, by referencing the concept of the pedagogy of robustness that the authors of this document have begun to conceptualize, we will present the general structure of higher education in Wallonia-Brussels Federation in the following sections of this document.

## Structure of higher education in Wallonia-Brussels Federation

In the Wallonia-Brussels Federation (https://www.federation-wallonie-bruxelles.be/), the authority responsible for organizing educational policies in the French-speaking part of Belgium, higher education currently comprises four types of institutions. According to the Academy for Research and Higher Education (https://www.ares-ac.be/fr/), French-speaking Belgian higher education consists of five universities, nineteen colleges of higher education, sixteen schools of arts, and eighty-one institutes of adult education. All these institutions are grouped into five academic clusters based on geographic areas. Each cluster oversees mobility and education. According to the Academy, the landscape of French-speaking Belgian higher education currently includes 220,000 students and 22,000 staff members.

Given the diversity of higher education institutions, it is challenging to provide a concrete and detailed account of the teaching staff training offer specific to each type of institution.

The prevailing trend, supported by political authorities since the early 2000s, has been to develop and organize pedagogical training specifically for higher education teachers. Previously, no specific pedagogical qualification was required to teach at the higher education level.

The CAPAES Decree (https://www.gallilex.cfwb.be/document/pdf/26934_003.pdf), ratified on July 17, 2002, mandates colleges of higher education and institutes of adult education to require their new teachers to obtain the Certificate of Pedagogical Aptitude appropriate for Higher Education (CAPAES). Specific pedagogical training is provided by operators who must comply with the decree's provisions. The training operators are the universities for candidates with a master's degree and the pedagogical sections of adult education institutes for candidates with a bachelor's degree. Successful completion of the pedagogical training leads to a certificate of success, enabling teachers to submit a professional portfolio to the CAPAES commission, an entity under the Wallonia-Brussels Federation, demonstrating their teaching competencies. If the commission evaluates the teacher's portfolio positively, the CAPAES certificate is awarded.

Starting from the academic year 2023-2024, the Reform of Initial Teacher Training changes teacher training organized in the Wallonia-Brussels Federation in three ways:

1. The common core teacher training is extended from three to four years. During the fourth year, an extensive internship allows students to gain practical experience in the field.
2. Teacher training programs now result in a diploma jointly awarded by two different types of higher education institutions (university and college of higher education or school of arts).
3. Relevant higher education institutions are required to organize a written test to assess students' proficiency in the French language.

Due to the newness of the reform, it does not make much sense to describe training programs that are still in their early stages. Each French-speaking university is involved in implementing the reform.

Since the early 2000s, the five French-speaking universities of the country have taken the initiative to develop and organize pedagogical training for their own teaching staff (Trowler & Bamber, 2005; Robson, 2017). To do this, they have established specialized centers, like Teaching and Learning Centers in anglophone universities (Palmer et al., 2011). These centers operate with a degree of autonomy in their activities, reporting solely to the academic authorities. However, similarities can be observed among the training offerings of the five universities, including minimum training and mentoring.

## An Attempt to Adapt to the Multiple Challenges of Higher Education — The Pedagogy of Robustness

The authors of this text, active within the Institute for Training, Research, and Support in Higher Education (IFRES) at the University of Liège (ULiège) initiated a reflection several months ago on a potential paradigm shift in higher education pedagogy. This new approach, termed "robust pedagogy," draws on the work of Olivier Hamand, a French biologist, who has authored two significant works: *La troisième voie du vivant* (2022) and *De l'incohérence, philosophie politique de la robustesse* (2024). Although it is difficult to encapsulate Hamand's ideas succinctly, he contrasts growth and optimization with the concept of robustness. Using examples from the natural world, he demonstrates how nature organizes a form of robustness in response to environmental stressors or uncertain futures, sometimes at the expense of high growth, which could be both feasible and profitable in the short term. Hamand emphasizes that, in this context, nature does not systematically choose to over-optimize processes. Indeed, while such standardization might be advantageous in the short run, it can diminish adaptability to environmental fluctuations. Hamand also references various societal practices that already reflect this approach, prioritizing robustness over systematic growth.

Although Hamand rarely addresses pedagogy directly, his ideas have clear implications for higher education, particularly in preparing students to navigate the numerous environmental, societal, and professional changes they will face. What skills will be necessary for students in this transitional context? What pedagogical approaches might best equip them with these skills? How should educators be trained to support these pedagogical shifts? We are only at the early stages of this reflection, which is expected to deepen in the coming months.

These questions are not unprecedented. They align closely with the goals of Education for Sustainable Development (ESD) and its adaptation to higher education, known as Higher Education for Sustainable Development (HESD). Two recent competency frameworks that resonate with (our early vision of the) principles of robust pedagogy include the European Sustainability Competence Framework (GreenComp) developed by Bianchi et al. in 2022 for the European Commission, and the report published by Eurydice titled *Learning for Sustainability in Europe: Building Competences and Supporting Teachers and Schools*.

Given the existence of these competency frameworks within the ESD domain, one might question the necessity of developing a distinct concept of robust pedagogy. Especially since ESD is well-established, with the international community acknowledging that education is critical for sustainability, and numerous countries committed to implementing comprehensive education for sustainable development (Figueiró & Raufflet, 2015).

However, we argue that there are compelling reasons to pursue this concept, which we will now elaborate.

Firstly, the field of sustainable development, particularly its theoretical underpinnings, remains underdeveloped. As Bianchi and al. (2022) note, "sustainability is a complex concept to define and is very ambiguous." This lack of clarity extends to its pedagogical application. Various authors, including Sterling in 2014, have attempted to structure the field by distinguishing three stages of pedagogical development: [1] Education/learning "about" sustainable development, which focuses on information dissemination and cognitive learning; [2] Education/learning "for" sustainable development, which builds on knowledge and understanding while encouraging critical reflection on existing assumptions, values, and beliefs in light of the urgency of sustainability; and [3] Education/learning "as" sustainable development, which emphasizes capacity building, empowerment, and action competence, fostering the ability to navigate uncertainty, complexity, and ambiguity, and to learn iteratively from real-world engagement. While these frameworks are valuable, they do not fully address the complexities at hand. In his critical review of HESD, Probst (2022) concludes that, after analyzing 357 articles published between 2013 and 2020, debates about **what** and **how** to teach in HESD remain conceptually contentious and empirically inconclusive.

The second reason is related to the ideological nature of sustainable development. Sustainable development is not an ideologically neutral concept. While there is growing academic consensus that our ecosystem is deteriorating and that human activity plays a role, there is no agreement on how to respond. The debate between a technocentric view, which relies on technological innovations to solve problems, and a vision advocating for some form of degrowth remains lively. At the University of Liège, the rectoral authorities proposed a reform requiring the integration of two credits of sustainable development education into the curriculum of first-year undergraduate students, sparking debates that highlighted how environmental issues do not have universal support.

The third reason is strategic. Many sustainable development training programs begin with a discourse reminiscent of collapse theories, which generates a form of eco-anxiety that is not conducive to mobilization because it implies a need for abrupt transition to change the situation. Bianchi and his colleagues, introducing their competency framework, define ESD as *"prioritizing the needs of all life forms and the planet by ensuring that human activity does not exceed planetary boundaries (p. 12)"*. This is an incredibly ambitious program that far exceeds the efforts that universities can undertake. However, we believe that most educators are ready to reflect on a gradual improvement of their pedagogy by integrating elements of training focused on robust skills, enabling students to navigate fluctuating environments. These objectives may seem less ambitious than those of sustainable development, but they appear capable of sustainably transforming significant areas of the institution, something that sustainable development education has struggled to achieve. Indeed, in Probst's critical review mentioned earlier, he highlights that most scientific productions concern a course or part of a course, giving the impression that ESD is not systematically integrated into the university

ecosystem but exists in silos, possibly driven by a few motivated teachers who are exceptions or, at best, pioneers. He concludes by stating that "*Considering that HESD is aiming to rethink higher education to strengthen its contribution to a necessary sustainability transition, the proposed outcomes of higher education were rather conservative*" (p. 11). Here, 'conservative' should be understood as favoring a form of status quo.

In summary, just as the competency-based approach has emerged in university pedagogy to support the development of a market economy, we believe it is essential for learning and teaching centers to conceptualize a pedagogy capable of forming citizens who can interact with and even shape the world of tomorrow, which will be a world of constant change. We believe that ESD can be a formidable source of inspiration. However, even though we share its values, ESD seems to be philosophically and politically too charged to be widely adopted by all higher education instructors. Additionally, it is methodologically and pedagogically underdeveloped. Probst, once again, concludes:

> *In conclusion, I suggest that for empirical inquiry into HESD to move forward, it will need to build momentum through a deliberate investigation into novel and theoretically sound learning approaches. Such research could be co-creative, in-depth, contextualized or comparative, larger-scale, and longitudinal. In all cases, it will need to be conceptually and instrumentally precise, inviting diversity rather than avoiding controversy through the use of conceptual umbrellas (p.18).*

These are the recommendations we plan to follow by implementing a robustness pedagogy framework. It does not disregard all the literature on education for sustainable development but aims to conceptualize its strengths and reduce its weaknesses.

Consequently, it seems both urgent and productive to establish a competency framework and pedagogical methodologies that are firmly rooted in the context of higher education. This framework should take into account all the inherent dynamics of this level of instruction and be capable of effecting a paradigm shift in this domain. These are the ambitions encompassed by the pedagogy of robustness.

As we have mentioned, we are only at the beginning of our exploration regarding the pedagogy of robustness. Drawing upon the work of Hamant, the frameworks derived from Education for Sustainable Development (ESD), and consultations with a number of colleagues, we are, however, able to present an initial overview of the ten competencies targeted by the pedagogy of robustness, which are:

## 1. Systems Thinking and Complex Analysis

- **Understanding Complex Systems:** Ability to grasp interconnected systems and analyze their dynamics.
- **Identifying Interdependencies:** Skill in recognizing interactions among different elements of a complex system.

- **Managing Uncertainty:** Ability to work with incomplete information and navigate uncertain situations.
- **Agency in Systems:** Capacity to recognize and act upon one's role and influence within complex systems.

### 2. Resilience and Adaptability

- **Cognitive Flexibility:** Ability to adjust strategies and behaviors in response to unexpected changes.
- **Stress Management:** Skill in maintaining performance and well-being under pressure.
- **Continuous Learning:** Ability to acquire new skills and knowledge throughout life.
- **Capacity for Action:** Ability to take initiative and make informed decisions even in ambiguous or changing circumstances.

### 3. Critical Thinking and Decision-Making

- **Information Evaluation:** Ability to analyze and evaluate data from diverse and sometimes conflicting sources.
- **Informed Decision-Making: S**kill in making decisions considering short- and long-term implications.
- **Complex Problem-Solving:** Ability to develop innovative solutions for multifaceted problems.
- **Proactive Decision-Making:** Ability to anticipate potential issues and proactively address them.

### 4. Interdisciplinary Skills

- **Knowledge Integration:** Ability to apply perspectives and methodologies from different disciplines to solve complex problems.
- **Interdisciplinary Collaboration:** Skill in working effectively with experts from various fields to achieve common goals.
- **Managing Complexity:** Ability to coordinate actions and projects involving multiple areas of specialization.
- **Cross-Disciplinary Agency:** Capacity to leverage interdisciplinary knowledge and approaches to drive effective solutions.

### 5. Communication Skills

- **Effective Communication:** Ability to convey ideas clearly and listen actively in various contexts.
- **Negotiation and Mediation:** Skill in resolving conflicts and finding acceptable compromises between different parties.

- **Crisis Communication:** Ability to manage communication during crises or unexpected events.
- **Influential Communication:** Capacity to persuade and mobilize others towards shared goals and actions.

### 6. Innovation and Creativity

- **Creative Thinking:** Ability to generate new ideas and challenge existing paradigms.
- **Prototyping and Experimentation:** Skill in testing and refining ideas through prototypes and experiments.
- **Innovation Management:** Ability to introduce and manage change in dynamic environments.

### 7. Ethics and Responsibility

- **Ethical Decision-Making:** Ability to assess the ethical implications of decisions and act with integrity.
- **Social Responsibility:** Skill in understanding and responding to responsibilities toward society and stakeholders.
- **Global Awareness:** Ability to appreciate the global implications of local actions and act accordingly.
- **Ethical Agency:** Capacity to advocate for and implement ethical practices in various contexts.

### 8. Technological and Digital Skills

- **Technology Proficiency:** Ability to use and understand emerging technologies and their applications.
- **Data Analysis:** Skill in interpreting and using data to inform decisions.
- **Digital Security:** Ability to protect information and understand cybersecurity issues.
- **Tech-Driven Agency:** Capacity to harness technological tools and data for effective problem-solving and decision-making.

### 9. Management and Leadership Skills

- **Adaptive Leadership:** Ability to lead and inspire others in changing contexts.
- **Project Management:** Skill in planning, executing, and evaluating projects considering resources and goals.
- **Change Management:** Ability to drive change processes and support teams through transitions.

## 10. Cultural and Global Competence

- **Cultural Competence:** Ability to understand and navigate diverse cultural contexts.
- **Global Perspective:** Skill in understanding global issues and opportunities in a worldwide context.
- **Diversity Awareness:** Ability to work with individuals from different backgrounds and value diverse perspectives.

Currently, this framework does not hold any official status within our university.It's moreover an essay from the authors. It arises from collective reflections based on various documents, our expertise, and the analysis of faculty discourse. It should be reinforced by collaborative action research involving researchers, educators, and beneficiaries of this pedagogy. A doctoral thesis will be conducted on the subject as part of an international collaboration. To attain broader significance, it is essential that it undergoes critical evaluation by the university's faculty members. To date, only preliminary work has been undertaken, and action research is being conducted in this regard.

To develop this framework, several pedagogical modalities seem appropriate:

- **Interdisciplinary Case Studies**: Employ case studies that integrate multiple disciplines to address complex issues.
- **Collaborative Projects**: Promote projects requiring cooperation among various stakeholders and experts.
- **Simulations and Scenarios**: Utilize simulations to prepare students for unforeseen situations and uncertainty management.
- **Creativity and Innovation Workshops**: Organize workshops to stimulate creative thinking and the generation of new ideas.
- **Constructivist Approach**: Enable students to build their own complex competencies independently.

In our view, this robustness pedagogy should be integrated within each course. Clearly, the robustness pedagogy still needs to be developed, refined, and modeled to avoid the pitfalls identified in the analysis of ESD. This represents an interesting collaborative challenge research endeavor in which we are already engaged.

In this text, we found it valuable to describe and formalize our thinking to clarify the subsequent sections, which will be more descriptive, aiming to present directly the various actions undertaken by IFRES within the University of Liège. On the surface, these actions may appear disparate, lacking coherence, and addressing diverse audiences such as faculty and students. They may sometimes seem highly normative, while at other times fostering more unrestrained creativity. Some are highly pedagogical, whereas others aim for broader professional development. IFRES, like most learning and teaching centers, is currently torn between its primary mission of enhancing the pedagogical skills of faculty and

students to promote their success and employment readiness, and a fundamental societal mission: ensuring that the university continues to adapt to anticipated world changes. Our training catalog and various activities thus promote a form of diversity. It is up to the faculty and departments to choose those which best support their pedagogical development.

## The Pedagogy of Robustness: Already in the IFRES framework?

At the University of Liège, to which the authors of this chapter belong, the Institute for Training and Research in Higher Education (IFRES) (website: http://www.ifres.ulg.ac.be/portail/), established in 2006, plays a crucial role in the academic environment. The institute is responsible for the initial pedagogical training of newly appointed lecturers and teaching assistants, as well as for the ongoing pedagogical development of the university's teaching staff. In addition to these core responsibilities, IFRES is engaged in various activities related to higher education.

The institute operates at the intersection of teaching innovation and societal needs, striving to bridge the gap between theoretical research and practical application in education. IFRES is committed to a dual mission. Firstly, it focuses on enhancing the pedagogical competencies of faculty and students to foster academic success and smooth integration into the workforce. Secondly, it addresses a broader societal mission, which involves ensuring that the university continues to adapt to anticipated societal changes.

IFRES's activities are diverse and multifaceted, including:

- **Pedagogical Training:** Providing a range of training programs designed to improve teaching skills and methodologies for both new and existing faculty members.
- **Educational Research:** Conducting research to inform and enhance educational practices and frameworks.
- **Innovative Workshops:** Organizing workshops aimed at stimulating creativity, innovation, and interdisciplinary collaboration.
- **Collaborative Projects:** Engaging in projects that involve various stakeholders to address complex educational challenges.

While these activities may initially seem disparate, they collectively contribute to a comprehensive approach to pedagogical development. The institute supports various pedagogical approaches and encourages faculty and departments to select those that best align with their specific educational goals and needs.

In summary, IFRES serves as a pivotal entity within the University of Liège, balancing the enhancement of teaching practices with the need to adapt to the evolving educational landscape. Its broad and inclusive approach ensures that

both faculty and students are well-equipped to meet the challenges of the modern educational environment. The pedagogical training offered by IFRES is mainly of two types: a mandatory basic training program (Leduc & Verpoorten, 2017) and several non-mandatory programs of further training. It is noteworthy that the optional training programs are less attended than the mandatory one.

The basic training program in higher education pedagogy corresponds to a total amount of 10 credits (or training units), which equals five to six days of training. Trainees customize their program with the help of the "Training Catalogue for Teaching Staff". The catalogue is updated at the beginning of each academic year. It contains around fifty training sessions; each session being scheduled several times during the academic year. There are essentially two types of sessions: face-to-face half-day sessions in the form of interactive lectures or practical workshops (one credit), and implementation seminars (3 credits). The latter involve the concrete experimentation of targeted pedagogical practices (flipped classroom, research-based teaching and learning, open educational resources, teaching and learning with AI, …). The topics covered during half-day sessions are also varied: pedagogical planning, teaching and assessment methods, motivation, teaching ethics, micro-teaching, inclusive teaching, pedagogical developpement, but also some more practical workshops such as "My Strengths and Weaknesses in Service of My Teaching". A few years ago, 'first year seminars' were added to the basic training program. These seminars are held at the beginning of each academic year. They inform the new recruits about the institutional resources available to them and provide a basic pedagogical framework that they develop further by selecting additional training sessions and/or seminars from the catalogue. When teachers have completed their ten credits of mandatory training, they write a reflective report of two to three pages explaining what they have gained from the sessions / seminars they attended in terms of pedagogical skills useful for their teaching practice.

The programs of further training offered by IFRES mainly include the Interfaculty Certificate of Pedagogical Development in Higher Education (CIDéPES website: http://cidepes.uliege.be/) and the Master of Specialization in University and Higher Education Pedagogy (Formasup website: http://formasup.uliege.be/).

The pedagogical training offered by IFRES, as described above, has several characteristics that make it attractive and robust. In an era where uncertainties are multiplying - uncertainties about the future, required skills and professional expertise, changing institutional/professional frameworks, etc. - it is important to implement higher education pedagogy that enables teachers to cope with the unexpected (the years of the Covid-19 pandemic being a striking example) while ensuring quality teaching: socially useful, meaningful, and motivating (Detroz et al., 2024). This robustness (Hamant, 2022, 2024) relies primarily on the flexibility of social actors, who, like living organisms, can adapt to fluctuations in their environment, particularly through questioning performance for performance's

sake, through interaction and cooperation (2024, pp. 44-46). Although not all of the training sessions fully align with the principles of robustness pedagogy, the training methods we employ are never far removed from it. We educate our target audience by starting from their preconceptions, allowing debates to emerge, and gradually introducing reflective elements without imposing them. We offer a pedagogy that is neither dogmatic nor prescriptive. In this sense, we allow complex thought to emerge from the debates—a complex thought characterized by markers such as creativity, adaptability, and ethics, in short, a series of elements that resonate with the pedagogy of robustness we have just described. The fact that supervisors can choose from a fairly extensive training catalog also contributes to this movement towards teachers taking ownership of their own development. Furthermore, two new training programs will be introduced in the academic year 2024-25, with a more direct focus on the pedagogy of robustness. These programs are "Integrating Education for Sustainable Development and the Pedagogy of Robustness into Higher Education" and "Introduction to Service Learning: Theory, Practice, and Implementation at the University"

Of course, IFRES's activities are not limited to teacher training. At the institutional level, IFRES occasionally plays a consulting role by informing and organizing in-depth debates and experience-sharing events on current topics relevant to higher education (Archibald et al., 2023; Detroz & Verpoorten, 2023). For example, this year's annual 'IFRES Day' focused on artificial intelligence and its implications for higher education. The event began with a summary of the AI survey conducted by IFRES among ULiège teachers. It included a general conference, a roundtable on various AI-related issues (ecological, ethical, docimological, etc.), AI tool discovery workshops, and presentations on practical pedagogical applications of AI. The concept of the pedagogy of robustness was introduced for the first time during this event.

In addition, IFRES participates in initiatives aimed at enhancing students' learning experiences. For example, IFRES supports a project designed to ease students' transition into higher education through a mentorship program that pairs teachers with first-year undergraduate students (Huart et al., 2022, 2024). In practice, this program fosters an ongoing supportive relationship between the teacher and the assigned student, providing advice, reassurance, coaching, and challenges to facilitate both academic and personal success. This mentorship model, which emphasizes the importance of the relational aspect in the learning process, has been proven effective in North America for years. It also aligns with students' desire for closer relationships with instructors, identified as a key success factor in a survey conducted by ARES from 2014 to 2017.

The SI-PASS project, also promoted by IFRES, was introduced at ULiège a few years ago (Puttaert & Verpoorten, 2023). SI-PASS is an international peer tutoring program (https://www.si-pass.lu.se) that engages second- or third-year undergraduate students to supervise small groups of first-year students in the same study program. The program focuses on particularly challenging courses

with high failure rates. Academic and social integration support is provided by trained student tutors who facilitate peer discussions on specific course topics. Tutors are compensated for their work, and IFRES is involved in their training.

The collective dimension aiming at adaptation represents, in these two projects, markers that we consider significant for the pedagogy of robustness. Although these projects predate our current reflection on the necessary paradigm shift in higher education, the strategic choices made by IFRES suggest that the institution is now prepared to engage with this concept.

Another factor that reinforces our confidence in our ability to implement such a change within the institution is our ongoing commitment to integrating our reflections with research. Indeed, while IFRES is primarily composed of academic advisors, the institute also includes three university professors whose mission is to advance research in higher education. This blend of roles within IFRES highlights its commitment not only to pedagogical support but also to the development and dissemination of research aimed at enhancing teaching practices.

Specifically, we plan to conduct collaborative action research to explore this concept further. We anticipate that these research efforts will reveal the productive potential of the pedagogy of robustness and hope that the results will confirm our intuitions regarding its significance and relevance. This, we believe, will lead to a strong institutional conviction that this concept is both important and deserving of being established as a prominent institutional marker.

## Conclusion

In the Federation Wallonia-Brussels, the challenges in university pedagogy are analogous to those encountered elsewhere, although the specific context of access to higher education is somewhat unique due to the minimal entry barriers. Facilitating the development of pedagogical expertise among educators is a task undertaken by all universities. In the University of Liège, however, we exhibits a distinctive feature by engaging in a paradigm shift in higher education through the conceptualization of a robustness pedagogy. Although this pedagogy remains largely under development and conceptualization, it has already influenced the way IFRES-Uliège structures and presents its pedagogical development activities. We would like to conclude with a call for collaboration. If the concept of robustness pedagogy resonates with you and you would be interested in dedicating some time to it, we would be pleased to have you contribute.

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