

Embedding Validation in the Engagement Strategy of the University: The Case Study of Munster Technological University

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Abstract

This article outlines the processes developed to support the relationships between Munster Technological University, individuals, industry, and the third sector with a particular focus on validation and collaborative course developments. It discusses the innovative approaches pioneered within the university to inform, support, and develop validation with students, staff, industry, and the third sector. It gives insight into the extent of practice within the university, showcasing some examples of validation strategic partnerships, and finally outlining areas for further and future development.

Keywords: validation, enterprise, engagement, experiential, non-formal, learning

Higher Education Landscape

Reflecting on the past 10 years, higher education has undergone a period of rapid change reflective of the broader general socio-economic changes in Ireland and Europe including economic decline and subsequent growth, globalization, digitization, migration, and climate change. Underpinning the changing higher education landscape and sign-posting the opportunities for development are a number of national strategies and position papers, including the recently published *National Access Plan* (Department of Further and Higher Education, Research, Innovation and Science, 2022), which calls for flexibility to enable every student to access and participate in higher education in a way that aligns with their individual needs and circumstances (p. 60). Action 4.3 of the *National Skills Strategy 2025* calls for greater recognition of workplace learning and the development of capacity for the recognition of prior learning (RPL) to respond to skills mismatches and deficits nationally (Department of Education and Skills, 2015). The achievement of this is through the promotion of a common understanding of RPL and supporting the dissemination of good practice across vocational education and training (VET) and higher education.

Published in 2011, the *National Strategy for Higher Education to 2030* already emphasized the key role that Ireland's higher education system must play in building an innovative knowledge-age economy. The report calls for the sector to "innovate and develop if it is to provide flexible opportunities for larger and more diverse student cohorts" (Department of Education and Skills, 2011, p. 10). Significantly, the report calls for clear pathways for progression and transfer, as well as non-traditional entry routes. This National Strategy requested a national framework for RPL to be developed to enable a consistent approach to validation across higher education that would be of benefit to learners.

Since 2014, higher education institutions in Ireland have undergone a dialogue process with the Higher Education Authority (HEA) on setting goals and targets reflective of broader sectoral and societal needs and challenges. There is a requirement that compacts must include an element detailing provision for “Increased participation, equality of access and lifelong learning,” and a specific reference is made to arrangements for clear pathways for access, transfer, and progression. It is within these agreements that some institutions, including Munster Technological University (MTU), state their intentions regarding validation and industry engagement and set metrics for performance over a defined period. Institutional targets within the HEA compact agreements inform institutional strategies and policies.

Nationally, Quality Qualifications Ireland (QQI) is a state agency established by the Quality Assurance and Qualifications (Education and Training) Act 2012, with a board appointed by the Minister for Education and Skills. The functions of QQI include responsibility for maintaining the 10-level NFQ (National Framework of Qualifications). As a national agency, they place the onus on providers to incorporate validation within their policies, procedures, and practice for access, transfer, and progression. They also promote the recognition of prior learning (RPL) as a “process to evaluate the skills and knowledge a person has gained through life outside of formal education and training” (Quality and Qualifications Ireland, 2021).

Munster Technological University (MTU)

Munster Technological University is a higher education institution in Ireland that offers national qualification programs on levels 6-10. It was established on January 1, 2021, following the merger of Cork Institute of Technology and Institute of Technology Tralee. The practice pertaining to validation for individuals and within industry engagement (as outlined in this case study) emerged from Cork Institute of Technology but has continued under the auspices of the university. Programs in MTU are academically focused with a tradition of being informed and underpinned by the needs of industry in the region.

The values, vision, and mission of Munster Technological University:

“We are inclusive, engaging, dynamic, and bold, and our vision is to lead transformation through education. Our mission is to lead change and, through education, empower people for a successful future in a globalised world” (MTU, 2022)

Recognition of Prior Learning in MTU

Validation or Recognition of Prior Learning (RPL) as it is referred to in MTU began in 1996 as part of a three-year European funded project collaborating with an employer organization in developing, upskilling, and reskilling opportunities for their employees. This coincided with the 1996 European lifelong learning initiative.

Recognition of Prior Learning was identified at that time as a possible avenue to build on the existing learning of employees to identify potential opportunities. A strategic commitment was made by the institution in 1999 and validation was resourced as part of the central functions of the institution.

A deliberate decision was made from the outset that, within the institution, RPL was a central and relevant part of all disciplines, all programs, and at all levels of the national

framework of qualifications. This was a unique position in higher education institutions in Ireland at a time when many were considering the merit of validation and the recognition of learning which was acquired external to an academic institution. This commitment was also reflected in the resourcing put in place, which was further expanded in 2003.

In the initial stages, RPL was primarily used for access to programs, for non-standard entry, or advanced entry beyond year one of a program. As validation has evolved within MTU, the practice expanded into module exemptions and the attainment of full academic awards on all levels of the national framework of qualifications. It has also evolved in the university's interactions with external actors, including industry and the third sector.

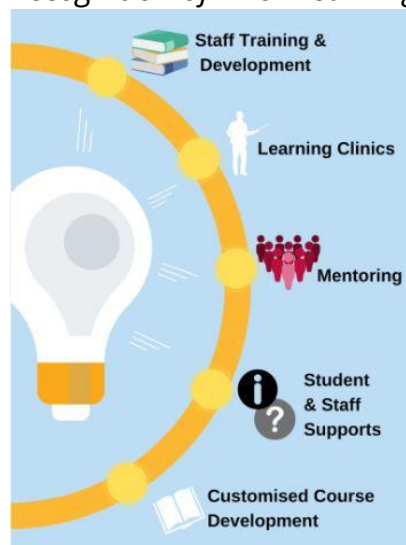
Reflection on the evolution of practice over the past 20 years has shown more than 7,000 successful applications for validation across 797 modules in 231 programs, there have been 37 major academic awards acquired through validation, and 634 assessors have supported the assessment of RPL applications in MTU.

Sustaining and Supporting Validation in MTU

The sustainability and development of RPL are ensured through a multifaceted approach that is depicted in figure 1 and underpinned by core principles including the centrality of the learner, the importance of quality assurance standards, and the valuing of all forms of learning irrespective of where, when, or how that learning has been attained. Validation is also conducted in a manner that is fair and consistent for the learner and participation in validation is voluntary for the individual learner. Support for internal staff and students in terms of mentoring and familiarity with validation and associated assessment are considered. As previously outlined, validation has been further expanded within MTU through purposeful interactions with industry and employer organizations that are committed to the upskilling and reskilling of employees and retaining their competitiveness within global markets.

Figure 1

Recognition of Prior Learning activities at Munster Technological University



Source: <https://extendedcampus.cit.ie>

The following details the types of supports and approaches available within the university:

1. **University Staff Training and Development:** At MTU, staff training and development for validation are delivered in multiple ways. It can take the form of informal discussion sessions that aim to increase familiarity with validation and the benefit it can offer to learners and the institution. Workshops on policy, practice, and assessment are regularly carried out with existing staff but also with new academic staff of the university. Validation or RPL is also a key element of the institution's Master of Arts in Teaching and Learning which focuses on the development of staff in the integration and implementation of validation within modules and programs in line with good practice.
2. **Learning Clinics:** A learning clinic is a service coordinated by the Extended Campus within MTU and offered in conjunction with other academic departments to regional industry partners to familiarize staff with upskilling and reskilling opportunities available to them, including how their prior learning could be considered within an academic program. This is increasingly run as part of an employer's learning and development activities.
3. **Mentoring:** Mentoring is available to all prospective and registered students who are seeking validation. The mentoring is centrally provided through the MTU Extended Campus on a workshop and one-to-one basis. Mentoring is available to staff who are unfamiliar with validation and the validity of an application by a student within an academic program. Mentoring is also available to university staff who are seeking validation for professional development and job promotion opportunities.
4. **Student and Staff support:** Staff and student guidelines and templates have been created by MTU to support the assessor and applicant in reviewing or developing applications for validation. A dedicated website with additional support is also openly available to any individual or group interested in finding out more about validation. Staff and student testimonials provide guidance and encouragement to those who are new to the process of validation.
5. **Customized course development incorporating validation:** Customized courses, which respond to a particular need of an industry or employer and acknowledge the prior learning of the employees, are becoming increasingly popular. Validation is a cornerstone of these interactions with external organizations, which present a unique opportunity for all stakeholders, including the individual employee, the employer, and the university.

The model of validation and associated structures in MTU is unique within higher education in Ireland. By recognizing the workplace and indeed other life experiences as valid opportunities for learning, MTU has sought to encourage adult education and lifelong learning through a multi-faceted approach. Validation has also been incorporated into the broader engagement agenda of MTU through the MTU Extended Campus. The impact of customized or tailored courses for those in the workplace which build on the prior learning of the individual acknowledges the workplace as a valued and valuable center of learning. The potential opportunity for workplace staff to act as mentors, facilitators, and assessors is also considered within the process.

Industry Engagement

While there is a strong awareness of the potential for and of collaboration between higher education, industry, and communities to contribute to economic renewal and social innovation, this is often difficult to achieve, as the higher education institution can present a fragmented interface for the external organization. Worse, the interface often comprises a confusing array of academic disciplines and acronyms representing research units and centers. From an external perspective, it may appear that one's problem or opportunity statement needs to fit neatly into a particular academic discipline or field to interact with higher education.

At MTU, there is a recognition that "higher education institutions could be more dynamic and coherent in their approach to collaboration." This view is echoed by Healy, Perkman, Goddard, & Kempton (2014), who assert that "despite the resurgence in business-university collaboration, research reports consistently find that cooperation practices are highly fragmented and uncoordinated, particularly when it comes to the educational offer" (p. 6). This fragmentation can result in a lack of consistency and coherence in developing relationships and interactions with industry and those external to the university.

Working closely with community and industry partners has always been an important focus of Munster Technology University's mission. This includes ensuring the curriculum is relevant and current for local, regional, and national employers, working in partnership with enterprise experts to develop applied research solutions, and supporting, exploring, and responding to emerging workforce reskilling and upskilling needs. Despite having longstanding relationships with external organizations and employers, many of the interactions in the past were conducted as separate, distinct activities with little overview of the totality of interactions across the university. Anecdotally, this situation led to Heads of Academic Departments passing each other in the car park of local multinational companies neither knowing what the other one was doing there. This disconnected nature of the activity also meant that when one academic department or unit of the institution had a successful interaction with an enterprise organization, the knowledge was often lost to the organization as a whole and not used to build a broader strategic relationship or contribute to organizational learning or structures to stimulate or support more engagement through existing synergies.

The Extended Campus Model

In determining how collaboration with a particular focus on validation has been so successful within Munster Technological University, it is necessary to look at the model and infrastructure adopted within the university. This infrastructure is to complement the existing processes and supports for individual learners seeking to return to higher education and build on their prior learning.

The model adopted by the university is that of a connected institution that has put formal structures in place to facilitate engagement across the three broad pillars of graduate formation, workforce development, and research and innovation between the university and those external. It is under the pillar of workforce development that validation and work-integrated learning is parsed. A department was established in 2011 to enable a coordinated and considered response to requests and opportunities

that arose with those external to the university. Responding to this reality and seeking to enhance the practice and potential of external engagement interactions by changing the way we interact with, and are viewed by, industry partners, internal changes have been implemented in MTU to seek to join up and maximize the benefits of an already actively engaged institution. The objective of the restructuring was to:

Make it easier for external organizations to engage in mutually beneficial interactions with MTU academics and researchers.

Develop a clear view of the extent and depth of existing and desirable engagement interactions to feed into institutional strategy and decision-making.

Stimulate more interactions and measurably support regional economic development.

Ensure that the variety of interactions with companies are collated through a Customer Relationship Management System (CRM) to develop broader supportive long-term mutually beneficial partnerships.

Support enhanced practice development by exploration of processes and sharing of good practices.

The MTU Extended Campus model builds directly on the strategic importance of engagement for the university, the knowledge, experiences, and expertise gained through the leadership of many collaborative projects, and an exploration of practice internationally. The role of the Extended Campus is to facilitate initial needs analysis and consultation sessions for external organizations and their staff with a view to matching them with appropriate internal units and individuals who are best placed to respond to their queries. Following this initial phase, the external organization is introduced to the appropriate internal unit(s). At all stages in the interactions, a customer relationship management system supports the collation of appropriate information and the compilation of information on queries and interactions, which provides a rich source of business intelligence for the strategic management of the institution.

The MTU Extended Campus seeks to stimulate the demand for interaction with higher education through the publication of case studies or vignettes illustrating previous interactions, including some exploration of the need or problem statement and the process involved in partnering with higher education to address the need. In each case, a brief synopsis of the difficulty or opportunity and the enabling factors is presented. These case studies are chosen from a range of interaction types and across a range of external organization sectors and sizes. Having stimulated the interactions and generated the queries, consideration must then be given to the process that will support these interactions through to resolution.

Examples of Collaborations with Enterprise for Validation

The approach developed within the Extended Campus to facilitate engagement for upskilling, reskilling, or up-qualifying in collaboration with employers and employees has evolved over the years. The initial stages include raising awareness of the opportunities available to employers and employees through engagement with MTU. This is achieved through running a “learning clinic” within the enterprise that informs them and their staff of the opportunities available. Staff can discuss their own individual

learning needs and opportunities with university representatives which may be satisfied through existing programs and modules or may require a more customized approach. In the event the employer identifies a need for further development in a particular area due to the changing profile of the business, a skill gap analysis is recommended which is conducted by the employer as supported through the MTU Extended Campus. Through the analysis, the employer and the employee gain insight into existing knowledge, skill, and competence. They also discover areas that require future learning due to new job profiles, changing business models, or new promotional opportunities. The design of the destination award is influenced by the employer's perspective of the future direction of the work in the organization as well as by the individual's motivation, current, and future aspirations. Prior learning considerations are both collective and individual within the process.

In the case of a cohort of employees requiring upskilling, the skill gap analysis is designed to ascertain the base level knowledge, skill, and competence of employees to determine the common starting point for all seeking further education opportunities. The additional benefit of conducting the analysis is to decide if the perceived skill gap is a real need and if there are additional or alternative needs. The analysis also assists in determining if needs are individual or cohort-based. This informs the potential opportunities and solutions presented to the employer by the university for individuals. The university can review the existing curriculum modules and programs to determine if a solution already exists or if a tailor-made solution is required. Consideration is also given through all stages to the prior informal, non-formal, and formal learning of the employees and how it can be utilized within the proposed solution in terms of access, exemptions, or academic awards. The process of validation is guided by the learner and supported by the employer and university. The awards can vary in duration and volume from single subject certification of 5 ECTS credits (European Credit Transfer and Accumulation System) to full major academic awards of 240 ECTS credits.

The university as a public higher education institution must determine its ability to respond to the needs of an employer following the employer's needs analysis. In addition to determining if the university can respond to the identified need, there are other considerations such as the sustainability of the engagement. This includes determining if the need is unique and cannot be satisfied through the existing curriculum and if there is sufficient return on investment for the university in the engagement. Another determining factor is the longevity of the relationship and the number of potential iterations of the program to determine if it merits investment by the university. The university is an education rather than a training provider, so the lead time for program or module development is longer due to quality assurance and other institutional processes.

In summary, a standard methodology was developed to structure engagements with industry and employees to create awareness about the opportunity of upskilling and reskilling incorporating validation. It comprises several steps including:

Creating awareness of the availability of flexible programs of study within the university through engagements such as learning clinics that reach the individual employee and the employer, through convened industry-university meetings, or through industry contacts.

Identifying and exploring the need to determine the nature of the inquiry and the prior learning of the individual(s) seeking further education opportunities. These meetings could be with a learner outlining the options available to them and how their prior learning can be validated or in a tri-partite meeting between employer, university, and learner.

Managing expectations within the engagement including that of the enterprise partner and the individual learner(s). There may be limits as to what is feasible or reasonable regarding the program, level of recognition on the national framework of qualifications, or the proportion of prior learning which is deemed relevant within a particular academic program.

Negotiating and planning and the time required within the process for these activities. If validation is being considered within an existing program, then this tends to be less than the time required for new program development incorporating validation.

There are different forms of validation including cohort or individual applications. Cohort validation is where a group of learners from an individual employer or sector seek and are granted validation for access into and exemptions within academic programs. The learners typically have a similar learner profile with the proviso that some may have additional learning, but there is a baseline of comparable learning from workplace training or accredited learning that is common to all learners. The process for cohort validation involves significant discussion and negotiation between the higher education institution, the employer, and the employees. This may take place within a tripartite agreement. It requires an understanding of the different business processes of the enterprise and of the higher education institution.

An example of such an engagement with an enterprise is the BSc (Honours) in International Business with Aviation Studies. This engagement emerged from a strategic partnership with the Atlantic Flight Training Academy and the Department of Marketing and International Business at MTU. The process involved mapping the pilot professional license and experience to the Irish National Framework of Qualification and determining its equivalence to 120 ECTS credits. This process informed the potential point of entry into an honours degree program. In addition to the validation process, the negotiation of the most appropriate destination award including the learning and program outcomes of the proposed program were discussed. The process of validation enabled pilots to complete an honours degree in two years part-time online and to avail of further opportunities within the airline industry. Students with additional informal and non-formal learning could seek exemptions from additional modules within the program.

A second cohort example is the Merchant Navy and formal recognition of the professional certificate through a sectoral validation process, equating it to most of the curriculum of the BSc Honours in Nautical Science. To achieve the requirements of the BSc, learners had to undertake the dissertation module. Grades achieved within the professional certificate were applied to the students' records and they were awarded a classified award on the national framework. This has significance for learners seeking to pursue postgraduate studies where a minimum award classification may be required.

In addition to cohort validation for access into and exemptions within programs, individual employee requests for validation also arise. The queries may emanate from a learning clinic or through our enterprise interactions management may identify key talent of the enterprise linked with promotional opportunities or retaining key staff.

As the university has a well-established validation system that is open to all citizens interested in pursuing academic studies, any individual queries from those in industry are supported through the well-established RPL student support process which is outlined above.

Key to Success

Recognition of Prior Learning and industry engagement are valued by the university and are part of its strategy. Access, transfer, progression, and lifelong learning are incorporated into the ethos and culture of the university, which has been embedded into the approach to curriculum development.

Quality assurance is an integral part of higher education and the awards made by institutions. Munster Technological University is mindful of the importance of maintaining standards and the integrity of awards by ensuring that all assessment is subject to the same rigorous standards.

Engaging with industry has always featured strongly within Cork Institute of Technology and has continued within Munster Technological University for general program development with a focus on graduate attributes and skills. Lifelong learning and access, transfer, and progression within higher education have been integral to the mission and vision of the university.

A fundamental key to success has been the resourcing of RPL and engagement with employers within the university. Beyond the physical presence of staff to respond to queries, it also delivers a powerful message as to the strategic importance of RPL to those within and external to the university.

Conclusion

In conclusion, the approach to validation within MTU is an all-encompassing focus and activity of the university that enables learners to seek further learning opportunities building on their informal, non-formal, and formal learning. In addition to facilitating learners with prior learning returning to formal education, it is also regarded as part of the engagement strategy of the university. RPL or validation is very much a part of the ethos and culture which have been embedded successfully into the infrastructure of the university.

In developing curriculum, university staff are mindful of those with existing prior learning who may pursue formal recognition and seek to ensure that module and program content allow for the attainment of learning outcomes through a variety of contexts and evidenced in a number of ways. Quality assurance standards are common and retained across all aspects of the university using learning outcomes and the National Framework of Qualifications academic standards, which are the foundation of the university's programs and modules.

Recognition of Prior Learning is resourced within the university, which enables greater visibility of validation internally amongst staff and students and those external to the

institution. The approach to RPL is one of flexibility to enable accessibility for those external to the university at the point most appropriate for each individual learner. It is considered an opportunity for the university beyond enrolments on modules and programs by senior management who consider validation as part of a longer-term engagement with an individual or employer.

The range of support available for RPL is considerable within the university and is intended to provide assistance to staff, students, and enterprises in their engagement for validation. These have been consciously developed over an extended period within the university in response to broader changes within and across higher education. The most significant support is the mentoring provided to individual learners in developing their applications for validation.

The MTU Extended Campus model of engagement, which incorporates RPL, demonstrates how the university enables engagement between those internal with those external to the institution. This enables the university to respond cohesively to external requests and opportunities from individuals, industry, and the community.

References

- Council of the European Union. (2012). *Council recommendation of 20 December 2012 on the validation of non-formal and informal learning*. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:398:0001:0005:EN:PDF>
- Department of Education and Skills. (2011). *National Strategy for Higher Education to 2030*, Dublin: Government of Ireland.
- Department of Education and Skills. (2015). *Ireland's National Skills Strategy 2025*. https://www.education.ie/en/Publications/Policy-Reports/pub_national_skills_strategy_2025.pdf
- Fenton, P. & Goggin, D. (2020). Facilitating Educational Opportunities for Pilots using Cohort RPL . In R. Duvekot, A. Karttunen, M. Noack, & L. Van den Brande (Eds.), *Making Policy Work; Validation of Prior Learning for Education and the Labour Market*. Houten/ Berlin: European Centre Valuation of Prior Learning & Bertelsmann Stiftung, pp. 137-146.
- Goggin, D. (2020). Building Sustainability through Organisational Arrangements. In R. Duvekot, A. Karttunen, M. Noack, & L. Van den Brande (Eds.), *Making Policy Work; Validation of Prior Learning for Education and the Labour Market*. Houten/Berlin: European Centre Valuation of Prior Learning & Bertelsmann Stiftung, pp. 57-66.
- Goggin, D. & Sheridan, I. (2017). Validation of Workplace Learning: Examples and considerations in the context of national development in VPL. In R. Duvekot (Ed.), *The Learner at the Centre*. Aarhus: European Centre Valuation of Prior Learning / VIA University College, pp. 173-190.
- Goggin, D., Sheridan, I. & Horgan, T. (2014). In R. Duvekot, B. Halba, K. Aagaard, S. Gabršček & J. Murray (Eds.), *The Power of VPL ; Validation of Prior Learning as a multi-targeted approach for access to learning opportunities for all*. Vught, The Netherlands: Inholland University AS & European Centre Valuation Prior Learning , pp. 219-226.

- Goggin, D., Sheridan, I., O Leary, P. & Cassidy, S. (2015). *A current Overview of Recognition of Prior Learning(RPL) in Irish Higher Education: Focused Research Report No 2*, Dublin: National Forum for the Enhancement of Teaching and Learning in Higher Education.
- Government of Ireland (2018). *Technological Universities Act 2018*.
<https://www.irishstatutebook.ie/eli/2018/act/3/enacted/en/print.html>
- Government of Ireland (2012). *Qualifications and Quality Assurance (Education and Training) Act 2012*.
<https://www.irishstatutebook.ie/eli/2012/act/28/section/1/enacted/en/html#sec1>
- Healy, A., Perkman, M., Goddard, J. & Kempton, I. (2014). *Measuring the impact of University Business Cooperation: Final Report* , Luxembourg: Publications office of the European Union.
- Higher Education Authority, N.d. *Strategy and Performance Dialogue*. <https://hea.ie/funding-governance-performance/managing-performance/strategy-and-performance-dialogue/>
- Higher Education Authority; Department of Further and Higher Education, Research, Innovation and Science (2022). *National Access Plan; A strategic action plan for equity of access, participation and success in Higher Education 2022- 2028*.
<https://hea.ie/assets/uploads/2022/09/National-Access-Plan-2022-2028-FINAL.pdf>
- Higher Education and Training Awards Council (2009). *HETAC Assessment and Standards;Implementing the National Framework of Qualifications and Applying the European Standards and Guidelines.*, Dublin: Higher Education and Training Awards Council.
- National Qualifications Authority Ireland (2005). *Principles and Operational Guidelines for the Recognition of Prior Learning in Further and Higher Education and Training.*, Dublin: NQAI.
- Munster Technological University (2022). *Our shared Vision Strategic Plan 2022-2027*.
<https://www.mtu.ie/contentfiles/images/strategic-plan/MTU-Strategic-Plan.pdf>
- O'Connor, M., Patterson, V., Chantler, A. & Backert, J. (2013). *Towards a Performance Evaluation Framework: Profiling Irish Higher Education*, Dublin: Higher Education Authority.
- Quality and Qualifications Ireland (2021). *Recognition of Prior Learning for providers*.
<https://www.qqi.ie/what-we-do/qqi-awards/recognition-of-prior-learning-provider>
- Quality and Qualifications Ireland (2013). *Green Paper on the Recognition of Prior Learning, for consultation*.
<https://qsdocs.qqi.ie/Publications/Publications/Green%20Paper%20-%20Section%204.7.pdf>
- Quality and Qualifications Ireland (2021). *Recognition of Prior Learning for Providers*. [Online]
 Available at: <https://www.qqi.ie/what-we-do/qqi-awards/recognition-of-prior-learning-provider>
- Sheridan, I. & O'Connor, M. (2012). *Towards a National Approach to Engagement in Irish Higher Education* , Munster: s.n.

About the Author



Ms. **Deirdre Goggin** has been actively involved in the area of RPL in higher education in a research, development and lecturing capacity since 2003. She led Irish national reports on RPL in Higher Education in 2015 and on RPL in VET in 2017 completed with her colleagues in the MTU Extended Campus. Within MTU she supports staff capacity building, policy, process development and engagement with industry for the purposes of validation including customized courses in consultation with MTU staff and industry representatives responding to current and emerging industry needs and encompassing validation.