

Original Article

Credit Mobility as Educational Infrastructure: Evaluating Global Transfer Pathways through Prior Learning Assessment and Alternative Credit Frameworks

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Abstract: Credit mobility is a key element of today's higher education systems and has the potential to facilitate flexible, inclusive and learner centred pathways across institutions and nations. This is a review paper that views credit mobility as an educational infrastructure and explores how it can contribute to global transfer pathways via Prior Learning Assessment (PLA) and alternative credit. It draws on the literature on credit systems and recognition mechanisms as well as new approaches like competency-based education and digital learning environments. This analysis illustrates the importance of PLA in both validating experiential and informal learning for both access and time to degree, as well as increasing learner motivation. While this is happening, other credit systems can help diversify learning pathways through outcome-based assessment and flexibility. Any comparison to the global context shows that other regions like Europe have established a unified system like the ECTS, whereas other contexts like the United States and Australia are still based on more local and policy based systems. These differences offer opportunities and challenges when it comes to seamless credit transfers. The review also highlights the critical challenges for effective credit mobility such as the absence of standardization, institutional resistance, quality assurance issues, and technological differences. A coordinated effort is needed between policy interventions, effective evaluation systems and digital solutions to enable transparent and trusted credit recognition systems. In conclusion, the paper suggests that in order to make credit mobility more than just a process, it must be recognized as a platform for supporting lifelong learning and global educational equity.

Keywords: Credit Mobility, Prior Learning Assessment, Credit Frameworks, Higher Education, Lifelong Learning.

I. INTRODUCTION

International educational standards, technological advances and evolving student populations have taken higher education institutions through a drastic change over the past 30 years. The key vehicle for flexible lifelong learning and international education programmes to deliver the objective of this specific field is credit mobility. Through the credit mobility process, student credits can be acquired which can be transferred between the different educational institutions and between different academic programmes, in different countries. The process should be considered as more than simply an administrative task since it is an integral part of the education system, and it is a key factor in improving access, equity and institutional productivity.

The developing framework uses Prior Learning Assessment (PLA) or Recognition of Prior Learning (RPL) as its main component. Academic credit may be awarded for PLA when students apply and show their knowledge and skills they have acquired outside of formal learning environments. It is especially helpful for adult learners and nontraditional students, who have a wealth of knowledge from their prior education experiences. Previous research has shown that with the implementation of PLA, educational outcomes have been seen to be improved, such as increased graduation rates and reduced time to degree completion [1]. The system was found to be promoting genuine learning experiences and improve the students' motivation to learn through competence validation [2]. PLA is a credit system where universities can confer academic credentials. Competency-based education (CBE) and microcredentials and modular learning systems are other credit models that alter the way learning activities are delivered and credited by educational systems. These models allow students to develop their own educational trajectory and provide personalized learning experiences for students with measurable skills and actual learning outcomes used as the means of assessment. Their implementation paves the way for direct linkages between educational provision and the needs of the job market; this renders higher education institutions capable of producing graduates who correspond to present needs of the job market and society at large [3].



There is evidence of uneven implementation of credit mobility systems in different regions and countries around the world. The obstacles to the credit transfer process are caused by the various policy frameworks and institutional practices as well as quality assurance methods, which cause delays in the credit transfer process. However, there are two factors that restrict the use of PLA and other credit systems; lack of knowledge by the institutions and unwillingness to adopt the credit system while standards are yet to be established [4]. What the world needs (including higher education systems) is an integrated credit mobility approach that serves as an educational framework to tackle the global challenges.

The research paper will evaluate the function of credit mobility in higher education, by taking a look at transfer systems, around the world, and using previous systems of learning assessment and alternative credit systems. Existing research as well as the key research challenges should be presented as a synthesis of the synthesis to facilitate future systems by educational institutions to become more accessible and more adaptable.

II. CONCEPTUAL FOUNDATIONS OF CREDIT MOBILITY

The educational infrastructure needs an explanation because credit requires understanding the system. It measures learning, recognizes it, and enables it to move across different educational settings. The basic principle of credit mobility states that the evaluation of learning must encompass all educational institutions and every learning format because no conventional testing methods can verify learning that occurs outside defined institutional boundaries. Higher education institutions are evolving their educational ecosystems to focus on student needs instead of institutional requirements.

The credit system functions as a fundamental component of credit mobility because it serves as the standard measurement system which quantifies academic progress. Educational systems have historically required students to complete a specific number of instructional hours and course requirements before they can earn academic credit. Students now face more difficulties to prove their learning achievements because schools use time-based systems to assess student progress, which require students to spend specific time periods at school. Education professionals utilize credit-based systems in continuing education and professional development, but for credit-based systems there are challenges to prove essential learning has occurred while maintaining educational quality across different learning platforms [5]. The existing limitations have resulted in the creation of more flexible modeling systems which deliver better results.

Credit systems link with Prior Learning Assessment (PLA) because PLA establishes a standardized method to acknowledge learning which happens outside traditional educational environments. PLA operates at the boundary between informal and nonformal knowledge and academic validation, transforming informal and nonformal knowledge into academic credit. At undergraduate programs PLA has experienced widespread adoption, but its usage at higher academic levels remains low because academic leaders believe assessment of higher-level academic competence presents an insurmountable challenge for measuring academic capacity [6]. The flexibility of recognition provisions creates a conflict because academic standards need protection while organizations need to create more access pathways.

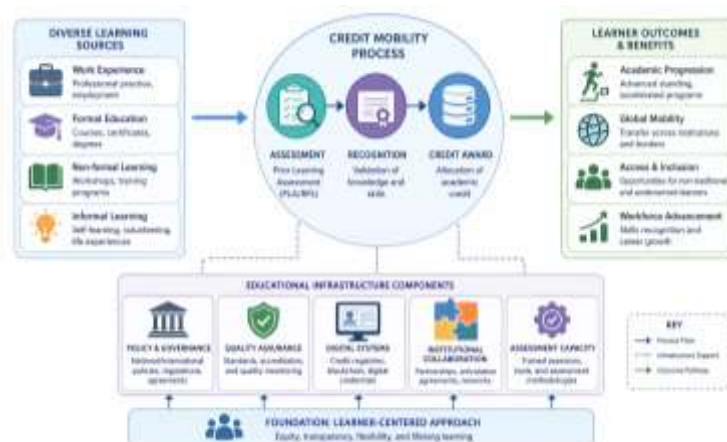


Figure 1: Credit Mobility as Educational Infrastructure: Integrating Prior Learning Assessment

The knowledge transfer and translation process acts as the second major concept which scholars use to study Recognition of Prior Learning (RPL) processes. RPL functions as a technical assessment procedure yet it requires professional educators to implement RPL assessments in order to promote knowledge sharing among different organizations. Institutions use assessment

frameworks to evaluate assessments through their dynamic system of assessment which connects assessment results and assessment results to their evaluation assessment results evaluation process. The process of credit mobility involves both administrative functions and the way knowledge exists between different educational disciplines.

Students with transferable skills must be recognized through specific mechanisms which exist beyond existing recognition systems. Higher education now emphasizes developing universal skills which students should use across professional situations to solve problems and think critically and adapt to changing circumstances. Educational programs show better learning results when they incorporate transferable skills, which create a link between academic learning and its practical implementation in real-world settings [8]. The main goal of credit mobility exists to allow students to transfer their learning experiences between various academic institutions and between different areas of study. The assessment of credit mobility requires measurement systems which define recognition practices and pedagogical methods and skill assessment techniques as fundamental elements of its complex structure. The interconnected elements of credit mobility and global higher education systems function as essential components for understanding what defines academic success in the entire system (Figure 1).

III. GLOBAL CREDIT MOBILITY SYSTEMS

The international higher education framework establishes credit mobility systems, which demonstrate the various educational policies and institutional constraints and the economic conditions of different regions. The principle of learner mobility remains constant, yet the mechanisms through which students acquire and transfer credits show significant differences between different regions. Educational institutions face challenges in implementing credit mobility because different institutions have distinct operational methods and their credit transfer systems have multiple educational pathways that students can use to transfer credits between institutions.

The European Credit Transfer and Accumulation System (ECTS) establishes the principal credit mobility system that European educational institutions adopt. ECTS requires transparent educational outcomes and measurable student workload to enable international student mobility and international degree assessment between different countries. The system establishes a structured method to enable academic credential recognition between countries which serves as a model for developing standardization processes at the regional level. The alignment of institutional processes with these systems encounters challenges because institutions need to establish credit equivalency standards between different educational contexts, especially in professional and vocational educational settings [9].

The United States employs a decentralized system that allows educational institutions to establish their own credit mobility processes through various pathways, including community college transfers and Credit for Prior Learning (CPL). The system lacks standardized procedures, which leads to different institutions recognizing. Because the CPL program creates challenges for U.S. institutions, including higher graduation rates and enhanced academic performance. Thereby establishing CPL as an essential component of credit mobility [10]. The U.S. system demonstrates that it can use flexible methods while managing the complex challenges posed by standardization requirements.

The Australian approach to implementing RPL offers a different perspective. Current policy developments emphasize RPL's role as a vital instrument for facilitating lifelong learning and professional development. It may be achieved in particular through microcredential programs and modular educational pathways. The initiatives aim to establish inclusive educational systems by recognizing diverse learning methods. The frameworks require institutions to conduct their operations under centralized control and established procedures, thereby producing reliable outcomes in their credentialing systems [9].

Emerging and developing regions face infrastructure challenges, resource distribution challenges and difficulties in establishing policy frameworks that support their development goals. The increase in international education and online learning has increased the requirement for international credit recognition to be established between countries, yet different institutions face challenges in implementing these systems because of their technology access and institutional capacity differences. The transition to online and hybrid courses of learning has shown that low- and middle-income countries face challenges in digital infrastructure, which leads to difficulties in recognizing and transferring credits earned from nontraditional educational pathways [11]. The differences between countries emphasize the necessity for countries to work together and invest in educational infrastructure development projects.

Credit mobility systems depend on institutional quality assurance systems and academic program development to determine their effectiveness. Research shows that standardized systems encounter challenges with credit distribution and course development. Institutions need to alter their credit assignment and curriculum-matching systems. It may enhance

student mobility while maintaining proportional credit transfers based on students' actual learning achievements [12]. An organization's institutional practices must align with national educational regulations to support efficient credit mobility processes.

The credit mobility systems that operate worldwide show how educational systems struggle to find a balance between establishing common standards and maintaining local educational flexibility. The ECTS system demonstrates how regional systems create educational frameworks, which should be used by decentralized systems to design customized solutions that meet various student requirements. The educational system needs to establish connections between the different approaches used in educational settings to create transparent pathways that provide students with equal access to educational resources (Table 1).

Table 1: Comparison of Global Credit Mobility Systems

Region	Credit System	PLA/RPL Availability	Flexibility Level	Key Challenges
Europe	ECTS	Moderate	High	Standardization across institutions
USA	Credit Hours + CPL	High	Very High	Lack of uniformity
Australia	National RPL Framework + Microcredits	High	High	Implementation consistency
Emerging Regions	Mixed / Developing Systems	Low-Moderate	Variable	Infrastructure and policy gaps

IV. PRIOR LEARNING ASSESSMENT AND CREDIT TRANSFER PATHWAYS

The Higher Education system uses Prior Learning Assessment (PLA) and Recognition of Prior Learning (RPL) as vital procedures to implement credit mobility. The process enables official acknowledgment of knowledge and skills which people acquire through non-academic means to establish different entry points and educational paths for various student groups. The Educational system uses PLA as an essential tool to help people progress through all types of learning spaces which include formal, nonformal, and informal environments.

PLA transforms all types of experiential learning and workplace experiences into academic credit which institutions will recognize. The evaluation techniques that are usually used in this process are portfolio analysis, standardized tests and competency tests. PLA confirmation of existing knowledge enables students to avoid studying duplicate material while they learn new competencies. Empirical data has shown that students attending PLA programs have had a high rate of academic benefits that include shorter levels of time before a degree is earned, lower costs of education, and better achievement of academic outcomes [13]. The advantages which PLA provides demonstrate its capacity to enhance both operational efficiency and educational effectiveness while simultaneously advancing the entire educational system.

PLA enhances academic productivity, while it also boosts students' ability to stay engaged with their studies. The process helps students recognize their existing skills, which helps them build self-assurance and develop their identity as competent learners who will succeed in higher education. Working professionals and adult learners face this particular situation because they possess multiple academic qualifications but they encounter difficulties in establishing their educational pathway through standard academic programs. Studies also show that PLA participation is linked to higher levels of self-efficacy and greater correspondence between educational experiences and career objectives [14]. The assessment tool shows the student empowerment through its evaluation purpose.

The introduction of PLA has brought about various advantages created multiple operational difficulties. The main problem centers around how assessment methods need to demonstrate dependable and accurate results. Experience Learning

requires subjective evaluation which results in varying assessment outcomes across different educational institutions and their respective assessors. The majority of cases show institutions lack both the capacity and expertise to develop and execute effective PLA systems. Research has discovered that there exists a gap between PLA official policies and their actual implementation in educational settings because assessors requirement training remains unfulfilled and because procedures lack standardization [15]. The problems present in PLA activities decrease their ability to produce dependable findings which apply to broader circumstances.

PLA enables organizations to transfer knowledge through its work in different environments. The modern approaches require students to convert their experiential learning into academic knowledge through the process of interpreting their previously acquired learning. This view of PLA defines it as an active process which requires all three parties namely learners and institutions and knowledge systems to work together in a particular academic discipline. RPL translation models establish structured pedagogical support as the preferred method to achieve effective integration of prior learning into established educational paths which formalize their academic progression [16]. The strategy establishes PLA as a credible assessment method which enables genuine learning development to take place (Figure 2).



Figure 2: Global Pathways of Credit Transfer through Prior Learning Assessment

V. ALTERNATIVE CREDIT FRAMEWORKS AND EMERGING MODELS OF LEARNING RECOGNITION

The evolution of credit mobility has progressed through the establishment of new credit systems that challenge existing beliefs about how educational achievements should be structured and assessed and recognized. The educational models which include competency-based education (CBE) and microcredentials and digitally mediated learning environments enable students to learn through more flexible learning methods which focus on their individual needs while assessing their progress through specific outcomes. The workforce demands different skills together with the unique learning requirements of students which leads to the adoption of alternative credit systems as a standard mechanism to achieve credit mobility.

The fundamental aspect of alternative credit systems depends on competency-based learning which eliminates time-based learning methods to concentrate on proving specific skills and knowledge through measurable results. CBE, in contrast to traditional credit systems, which depend on the classroom hours, enables learners to progress when certain competencies are mastered. The system allows students to acquire and transfer academic credits based on their validated learning outcomes through various learning paths which they can access. Research has demonstrated that competency-based educational methods deliver equivalent educational results to standard educational practices while providing greater adaptability for adult and nontraditional students [17]. CBE serves as a crucial tool enables students to pursue personalized learning paths.

The second essential element of alternative credit systems combines online and digital learning environments which enable institutions to provide and verify their educational achievements to a wider audience. The online education platforms like MOOCs enable students to go beyond the geographical and educational boundaries to learn from anywhere. The platforms allow users to easily access their content, but they can be difficult for users to stay engaged and do some assessments and to make sure they're producing quality content. The research shows the learning outcomes obtained in online education can be the same as those using face-to-face education, however the success of learning online can be determined by various factors such as user interaction, communication, and help of students [18]. The findings show that solid credit frameworks are required to achieve credibility and transferability of educational achievements that are bequeathed on students through digital learning.

New teaching frameworks are integrated with online teaching and learning systems, resulting in proven systems to set up new education systems for alternative credit programs. An example of this would be use of virtual simulations and technology enhanced learning tools which have demonstrated potential in skill and transfer of knowledge development. The methods enable students to learn from real situations, occurring in the controlled environment that provides a "link" between theory and practice. The methods that are declared by research as effective, have positive results on learning in professional education since from this method students experience learning results that are positive [19]. Based upon this, students now have more opportunities to learn and experience a variety of learning paths using the various credit-bearing models.

The effective implementation of alternative credit frameworks as educational systems in higher education requires institutions to solve existing hurdles which currently block their implementation. The central issue of the study is the evaluation of the equivalency of the alternative credentials to the regular school requirements that a student must satisfy. The challenges to institutions in the learning assessment process lie in determining how institutions will evaluate nontraditional learning experiences for academic credit. Various differences between the learning design method and assessment method and technological system in student learning produce various learning outcomes. It is indicated from the research that educational institutions should have a single system that correlates education, learning goals and assessment mechanisms in order to maintain academic integrity in the implementation of credits with the different system of learning.

Alternative credit frameworks create a total transformation determine and recognize student learning outcomes. The traditional systems of crediting academic work which students complete through their studies receive support from these systems because they offer an improved solution for students who need to transfer their academic achievements between programs. The implementation of multiple learning paths into formal education depends on institutions establishing reliable quality assurance systems and institutional procedures which create an effective system for students to follow their educational paths.

VI. CHALLENGES IN CREDIT MOBILITY SYSTEMS

The higher education system now faces increased focus on credit mobility as an essential component yet the higher education system struggles to implement this vital component because of its fundamental structural and institutional and pedagogical barriers. The problems which exist now stop credit transfer systems from working properly because they prevent international educational systems from developing into authentic global operational networks.

The main system operates because institutions and systems need to establish unified operational standards. The existing credit transfer system and recognition model framework which exists for establishing academic equivalence fails to achieve its purpose because universities and colleges usually customize their educational programs through distinct assessment and institutional regulations. The systems which lead to credit differences prevent schools from establishing equivalent academic standards thus making academic transfer procedures less effective. The educational institutions of different countries experience problems when they attempt to create mutual recognition deals because their assurance processes for educational quality differ from each other [21].

The other very important problem is the conformity between formal and informal learning systems. Credit mobility framework development now recognizes experiential learning as a vital element but educational institutions face difficulties in implementing this nontraditional learning system. Institutions require assessment mechanisms to convert informal learning into academic credit yet existing assessment mechanisms face uneven development across different educational institutions. The existing policy requirements for educational institutions create access restrictions which hinder learners who need alternative access paths to educational programs [22].

The process of credit mobility encounters obstacles because institutions show resistance to these movements. Institutions exist within academic frameworks which expect them to use traditional methods for teaching and assessment. The university system tends to undervalue credits which students earn from online courses and microcredentials and assessments that occur during their employment. Institutions show resistance to the system because they worry about maintaining their academic standards and protecting their institutional identity and their accreditation status. Educators and administrators continue to doubt alternative learning models even though research shows these models lead to comparable educational outcomes [23].

The process of delivering digital and transnational education faces additional difficulties due to the restrictions which exist in both technology and infrastructure. Online learning platforms and digital credentialing systems now enable credit mobility yet these systems need reliable technology access together with digital literacy to function properly. Most regions

experience difficulties because their technological infrastructure differs from the needs which emerging technologies require. The existing system prevents universities from achieving efficient credit transfer processes because it lacks digital platforms which support credit verification and transfer between academic institutions [24].

The educational outcomes which credit mobility produces create difficulties because they impact students learning progress through their transferred credits. Learning generates academic credits which educational institutions use to create knowledge and practical skills but these credits do not guarantee successful learning. Students who want to learn deeply need their teachers to develop the entire educational process because the current system prevents them from accessing essential learning materials. Educational research shows that students need to use reflective and experiential learning methods so they can transfer academic credits which increase educational quality without lowering it [25].

VII. CONCLUSION

The current higher education system uses credit mobility as a fundamental element which enables students to create personalized learning paths that accommodate their needs in different educational situations. The review shows that the work of Prior Learning Assessment together with credit systems enables academic institutions to recognize different learning outcomes and establish students' academic advancement. The systems achieve their goal of improving student access and learning productivity and learning involvement but their success remains limited because of three main obstacles which include standardization problems and institutional practices and quality assurance systems. The differing credit systems used around the world create additional challenges for establishing effective transfer systems between different educational systems. The existing problems require unified efforts to establish policy alignment which needs to enforce assessment practices while developing technological systems that ensure transparent operations and system compatibility. The presentation of credit mobility as educational infrastructure enables equitable treatment of lifelong learning because it allows students to receive proper recognition for their acquired knowledge and skills which they have learned through formal education systems.

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