



A Comparative Study of Strategies and Challenges Related to Overloaded Curriculum in Primary School in Australia and Ireland: Lessons for Iran

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ARTICLE INFO	ABSTRACT
Received: 29 September 2023 Revised: 08 December 2023 Accepted: 18 February 2024 Online: 27 November 2024	This research was conducted with the aim of comparative study of the strategies and challenges of the selected countries in facing the overloaded curriculum in the primary school. The comparative research method is of a qualitative type based on the Bereday approach and the selection of countries was based on the strategy of "different social systems, different educational outcomes ". The method of data collection was documentary searching the Ministry of Education websites, reliable databases and international reports. The findings indicated that similar strategies in both selected countries were in terms of expanding the content, adopting an integrated and interdisciplinary approach, and in terms of content overload, content rearrangement in the areas of learning, clarity and simplification of early childhood documents and programs. Australia's strategy is to use key concepts and big ideas, reduce the scope of content, experimental implementation and interactive curriculum, and Ireland's strategy is spiral approach and self-evaluation of schools. Similar challenges in the content expansion dimension, adding new topics to the demand of influential groups, and in the content overload dimension, content and documents are repetitive and voluminous, and different challenges are the lack of vertical communication and the difficulty in prioritizing content at the local level in Ireland. Finally, suggestions were presented for Iranian curriculum planners, the most important of which is to use an interdisciplinary approach to include new content in available subjects and to identify and remove unnecessary repetitions of content between subjects and grades.
KEYWORDS Curriculum Planning Interdisciplinary Approach Overloaded Curriculum Primary Education	

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1. Introduction

Extensive developments in social and economic issues require that educational systems equip learners with new skills and competences to benefit from emerging forms of socialization under a system whose main capital is knowledge, Help economic development. The capacity of an educational system to effectively contribute to social and economic development is formed by the curriculum (European Commission, 2014). Curriculum is the heart of the education process that determines what, when and how to teach (Priestley & Philippou, 2019). Kridel et al. (2010) considers the curriculum to include documents that must be covered and followed closely by teachers and institutions, and Gouedard et al. (2020) introduce it as a set of instructions that must be taught through the educational system.

According to these definitions, it is the curriculum that determines what kind of knowledge and skills are most valuable to the people of a society and worth transferring (Amadio et al., 2016). Curriculum of countries is rarely fixed and undergoes regular and almost continuous changes in response to new policies and demands (European Commission, 2014). The adoption of this futuristic approach by countries is necessary for the progress of students in the 21st century (OECD, 2020) and is a characteristic of healthy and high-quality education systems (European Commission, 2014); Because it is a continuous effort to improve education.

In recent years, countries have reformed their curriculum with different intervals and approaches (Steiner, 2017). In some countries, such as Japan, Finland, and Norway, this is done periodically (ten-year periods), and in others, such as Hong Kong, Australia, and Ireland, it is done in response to political, economic, or social changes (Gouedard et al., 2020). Therefore, educational systems are in a constant state of transformation and change. They modify and adjust their practices, systems and structures to meet the demands of society (Baham, 2014). But the problem is that there is never enough time to cover all the topics that students and communities need. This was true even when the curricula were relatively brief. However, it seems that determining what should be in the curriculum, especially in the primary education, has gone beyond the principles of the past and has become something of a trap for planners in some countries; because new topics are continuously injected into the curricula without removing old and irrelevant topics (Majoni, 2017). UNESCO (2002) also states: "Adding some new items to a subject may not be very difficult, but reducing some items is definitely difficult" (Gregorio & Tawil, 2002). Gallagher (2009) believes that if we consider curriculum reform in the 21st century as "green earth, blue sky", there is hardly a patch of empty grass in earth, and sometimes it is hard to see the blue sky on the horizon. What is certain is that school time is limited, and in order to include new material in the curriculum, other

materials must be removed. In other words, a zero-sum exchange should be made (Angus & Olney, 2007); otherwise, the curriculum will suffer from the problem of "overload". In curriculum literature, this situation is called "curriculum overload" or "overloaded curriculum" (Baham, 2014). An overloaded curriculum is also known as curriculum overcrowding among some educational systems (Voogt et al., 2017). For example, in the documents of Australia and England, the term "Overcrowded" is used more than "Overloaded". The National Council for Curriculum and Assessment (NCCA) (2010) defined overloaded curriculum as:

"Curriculum overload suggests some imbalance or incongruity between our capacity to enact or activate a curriculum which itself is perceived as overloaded" (NCCA, 2010, P. 7).

The complex issue of curriculum overload is often an unintended consequence of educational reform (Baham, 2014). Plank (1988) divides curriculum reform into four types: Additive, External, Regulatory, and Structural. Additive reforms are relatively simple to implement and do not affect the organizational character of schools (such as media literacy). External reforms have little impact on the structure of schools and focus on teachers entering the system or students leaving it. Regulatory reforms are related to changes within the school, such as time and academic success, and in Structural reforms, the structure and function of schools are changed. The results of the Organization for Economic Co-operation and Development (OECD) survey in 2020 showed that curriculum overload is mainly caused by Additive reforms and Regulatory reforms. Also, in this study, curriculum expansion and content overload were mentioned as two important factors in creating a overloaded curriculum. Curriculum expansion refers to the tendency to include new content areas in the curriculum as a response to new societal demands regardless of what needs to be removed (Kuiper et al., 2013) and content overload refers to an excessive amount of content in relation to time available for instruction refers to what is often created during curriculum design and revision (Boersma, 2001).

One of the most important consequences of the overloaded curriculum is the disruption of the curriculum balance, which is so-called "curriculum imbalance", which usually happens when some subjects are given priority at the expense of other curriculum areas (OECD, 2020). If teachers feel anxious about teaching all the subjects in a busy curriculum, they may end up teaching a shallower version of the curriculum (Voogt et al, 2017) or relegating what is not covered in school teaching time to knowledge. Students give their personal time outside of school (Bray, 2011) or prioritize

subjects and allocate less important time to core subjects such as math (Voogt et al, 2017). All these cases will lead to imbalance and, as a result, curriculum overload.

Some educational systems have adopted a proactive approach to overloaded curriculum. Singapore's approach in this field was one of the factors that made it one of the most successful educational systems in the world (OECD, 2020). In line with its 1997 educational vision program, "Thinking Schools, Learning Nation" (TSLN), Singapore launched the "Teach Less, Learn More (TLLM)" initiative in 2005, which aims to reduce curriculum content. The lesson was meant to free up time for teachers to use innovative learning techniques and create attractive, effective and motivating learning for students. In addition to reducing the amount of content and simplifying the curriculum, this innovative plan gave teachers more freedom to design the curriculum according to the needs of the class and gave students the freedom to choose their interests. In line with this plan, Singapore again reduced its curriculum content by 10 to 20 percent in 2010 (OECD, 2020).

Research shows that overloaded curriculum has involved not only developing countries but also developed countries. In both groups, Angola, Australia, China, England and Wales, Indonesia, Japan, Kenya, Malawi, Netherlands, New Zealand, Philippines, Tanzania, Vietnam, Zambia, Zimbabwe and Ireland have been the countries that reported this issue (Majoni, 2017). This shows that the overloaded curriculum has become one of the important challenges of the curriculum in the present era, which has involved many educational systems (Baham, 2014).

In the meantime, some countries have tried to examine the different dimensions of this challenge and adopt special strategies to deal with it. One of these countries is Ireland; In this country, there is a government body called NCCA, which advises the Ministry of Education. The council's mandate includes making recommendations on early childhood, primary, and post-primary curriculum and is not responsible for implementing changes or reforms in the curriculum. These recommendations are made through research findings, consultation with council members, feedback from educational stakeholders and school networks, and published reports are formal and based on accurate documentation and evidence (NCCA, 2023). In 2010, NCCA published a report called "Curriculum Overload in Primary Schools", in which it assessed the state of the Ireland curriculum in terms of congestion. Since then, many efforts have been made by the Council and the Ministry of Education to improve this situation. Australia's education system has also experienced a situation similar to Ireland's in the primary period. The Australian curriculum, Assessment and Reporting Authority (ACARA) is the body responsible for curriculum development, administration of the national Assessment Program Literacy and Numeracy (NAPLAN) and oversight of the Australian curriculum. In 2014, this institution carried out the first monitoring of the effectiveness

of the Australian curriculum and in the report it published, it introduced the primary curriculum as heavily involved in the challenge of overload and described its situation as worrying. This report led to many reforms in the primary school curriculum (ACARA, 2018).

Among the countries that faced the challenge of overloaded curriculum, only two countries, Ireland and Australia, have published national and official reports, and in other countries, this issue has only been raised in researchers' articles. Some foreign research in the field of overloaded curriculum is as follows: Chen et al. (2023) concluded in their research that the appropriate use of technology in the form of a flipped class can be an effective way to manage time in a overloaded curriculum. In another study, Mbale & Hara (2022) examined the reasons for unsuccessful reading programs in primary schools in Malawi and identified lack of time to cover prescriptive content in a overloaded curriculum as the most important reason. Rasmussen et al. (2022) compared the historical characteristics of the curriculum in different studies and suggested using the idea of "Epochal key problem" proposed by Klafki (1983) as a suggested option. Following this idea, education should show with clear examples how science helps to solve individual and social problems. In this idea, it is suggested that a significant amount of course topics include topics that represent a specific time period. These topics include peace, environment, social inequality, new technologies, development vs. developed, vs. unemployment, social injustice, and mass media. Taylor (2022) proposed a "reductionist approach" in the sense of the concept of compression, in which teachers have the freedom to make decisions about the use of content and can reduce the content of the content to benefit more from cognitive functions.

In his study, Romanelli (2020) proposed the term "curriculum hoarding", which refers to the subject matter experts' sense of ownership of some content and avoiding the removal or reduction of useless and old content, which turns into content congestion, education plan. In their study, Eduwem & Ezeonwumeiu (2020) discussed repetition and volume of content as two important factors in creating the overloaded curriculum and suggested the use of a "curriculum mapping" as an option. Israel & Israel (2019) in their research to reduce the number of subjects in a new primary school in Nigeria concluded that the academic results of students are significant. Researchers have sought to identify the existence of overload in the curriculum of their country only through interviews with teachers, which I can point to the research of Bunting (2019) in New Zealand and Wang & Kokotsaki (2018) in China, in both cases. Teachers reported insufficient time to cover the curriculum. Majoni (2017) also examined the curriculum in Zimbabwe and argued that the cause was more than trying to remove the residual effects of colonialism on the curriculum.

In their study, Morgan & Craith (2015) examined teachers' perspectives and concluded that reductions in documentation of teacher activities increased teaching time and that job dissatisfaction among teachers decreased by reducing curriculum overload. Peko et al. (2014) concluded in their research that although in the revision of the Nigerian primary school curriculum, curriculum overload was reduced by reducing the number of subjects, but giving students too much homework affected the reform. Baham (2014) in the review of elementary school curriculum reforms in different countries concluded that many reforms are the basis for creating curriculum overload. He identified three factors: simultaneous implementation of multiple innovative plans, inconsistency and lack of alignment of innovative plans, and non-adherence to each plan. Usher & Anderton (2014) in the study of the reasons for the failure of the physical activity program in Australia (the state of Queensland), introduced the overload of the curriculum as the most important factor. In a study, Kilkelly (2013) identified two time factors in interviews with Ireland teachers in relation to other content and time-consuming administrative tasks. MacPhail & Hulbert (2005) in their review of the Ireland primary physical education program concluded that teachers are trained to use the two-hour weekly physical education lesson interpretation time to test core subjects. Because they believe that there is not enough time to fully implement the curriculum and this prioritization of teachers has caused the lack of curriculum. Alister et al. (2004) examined technology education in the New Zealand primary curriculum and found that it reached 64% of teachers, believe that it is not possible to allocate technology in the current curriculum and suggestions are made for the integration of technology in other areas of the curriculum.

In Iran, no research has been done that has explicitly examined the existence of overloaded curriculum, but related research shows the existence of overload in the primary school curriculum. As Talaei (2019) indicated that Iran's school textbook volumes have been fattened, the volume in the primary school is high, and the curriculum needs to be pruned and agile. In another research, Talaei (2021) proposes the large volume of the target for each level of education as a factor in the crowding of the primary school curriculum and considers three intervention factors of governments to reflect the views, opinions of subject experts and find the scope and diversity of human knowledge, It involves creating it. In his research, Ramezani (2017) stated that primary teachers are used to teaching mathematics and Science in subjects such as art and physical education. As mentioned in the curriculum reform literature, this situation is referred to as "Curriculum imbalance", which is one of the signs of the overloaded curriculum. Some Iranian researchers have also specially investigated the status of one of the primary school subjects. Najafi Pazoki, & Delbari (2022) investigated the status of the Quran curriculum in the first grade of

primary school and concluded that teachers and students of the first to third grades consider the Quran to be bulky and disproportionate to the interpretation of time. The results of Gholam Azad's research (2022) in the context of the implementation of the mathematics lesson program of the first year of primary school, one of the weak points of this program is the large amount of content compared to the time expected to teach it during the academic year. Also, the necessity of covering the contents of various textbooks makes it almost impossible to cover only the main syllabus. This issue is investigated in the southern provinces (such as Bushehr) where, due to the weather conditions (high heat), the length of the school year is usually shorter by about a month. Kian & Mehrmohammadi (2013) concluded in their research that the art curriculum in primary school needs to be reviewed in terms of time and content. Karimnejad et al. (2013) examined the sixth grade math lesson from the point of view of the teachers of this grade and came to the conclusion that the teachers mentioned the large volume of textbooks and the large number of students in public schools as the most important factors of students' academic failure.

Amini et al. (2014) in the review of the sixth grade curriculum concluded that the volume of the textbook is not coordinated with the allotted time and the questions and exercises of the book remain unfinished and teachers cannot use active and cooperative teaching methods for some reasons. Zianezhad Shirazi & Ghaltash (2018) investigated the performance of fourth grade students in mathematics and science in the Trends in International Mathematics and Science Study (TIMSS) in 2011 and 2015 and concluded that one of the results of the failure of Iranian students in these tests was volume of textbooks; So that the most important concern of the teachers is to finish the book and the students are deprived of the education of learning and sustainability.

More than ten years have passed when the national curriculum of Iran was changed in 2012 and the new textbooks were written accordingly. But the changes that have been made in the classroom during this period are brief and the national curriculum document has not been revised. Considering the unfavorable results of Iranian students in international tests in recent years (Kabiri, 2023) and the necessity of periodic revision of national curriculum, reform is inevitable. If these reforms are not done properly and the balance and coherence of the content are not observed, it will lead to curriculum overload. Knowing about the overloaded curriculum issue and the experiences of other countries in this field can be informative for Iranian curriculum planners. The main goal of this research is to examine the overloaded curriculum in Australia and Ireland. The sub-goals of this research include:

- Identifying similarities between Australia and Ireland in the areas of overloaded curriculum strategies and challenges.

- Identifying the differences between Australia and Ireland in the fields of overloaded curriculum strategies and challenges.

2. Research Method

The method of research is a comparative qualitative type that was carried out with George Z. F. Bereday's four-step approach at the level of macro analysis (country). The sample included Australia and Ireland, which were selected based on the strategy of "different social systems, different educational outcomes". This choice was made for two reasons: 1) both countries have experienced the problem of density in the primary education; 2) In both countries, a national institute is in charge of continuous monitoring of the entire curriculum process and publishes reports periodically that are a reliable source for comparative study. The data collection method was documentary through the review of all documents, national and international reports and valid articles in the period of 2000-2023 by referring to the Ministry of Education homepage and international databases (such as Eric, Scopus, Taylor & Francis, Emerald, Science Direct, Springer, Elsevier, ProQuest, and UNESCO and OECD sites). The criteria for entering the sources into the research process included the time frame, connection with the primary school and the validity of data. The number of documents searched was 81 sources, of which 27 sources that did not meet the entry criteria and did not have access to their full text or were single abstract or white paper, were removed from the research process and finally 54 sources were considered for review. In order to increase data validity and reliability, the peer review and the researcher's self-monitoring method were used.

3. Findings

In the current research, the findings are reported based on Bereday's four-step approach, including description, interpretation, juxtaposition and comparison.

A) Description

In the first stage, the organizational structure of the educational system as well as the reforms and revisions of recent years of the two selected countries are presented:

Australia: Australia ranks fifth in the world in terms of the Human Development Index (HDI) in 2023, with a score of (0.951). HDI is an index published by the United Nations (UN) and includes

three dimensions a long and healthy life, being knowledgeable and having a decent standard of living (UNDP, 2023). This ranking shows that Australia is among the leading countries in the field of education. The Australian Department of Education operates in a decentralized environment but is nationally driven through agreements with seven states and two territories, focusing on education and funding priorities (Australian Curriculum, 2023). The structure of education in Australia includes foundation, primary, first and second secondary (senior/college), and in general, education from primary to the end of the second secondary lasts 13 years, with the final two years there is no force. One of the notable features of education in Australia is early childhood education. The Early Years Learning Framework (EYLF) has been in place since 2009 for children from birth to the start of school and is not compulsory. This framework includes three issues including belonging, being and becoming and five principles, which are: Secure, Respectful and Reciprocal Relationships, Partnerships, Respect for Diversity, High Expectations and Equity, Ongoing Learning and Reflective Practice (Australian Curriculum, 2023). Early childhood education is for children under four years old and foundation is for children four/five years old. The primary education starts from the age of five/six and continues until the age of eleven/twelfth, which includes the first to the sixth/seventh year.

The Australian national curriculum was developed in 2014 in accordance with the Melbourne Declaration (2008). Prior to the introduction of the national curriculum, the States and territories were left with full control of their curricula (Gleeson et al., 2020). The curriculum development process in Australia is systematic and model-based (ADDIE). This model consists of five steps, which are: Analyze, Design, Develop, Implement, and Evaluate (Gustafson, 2002). The national curriculum has a three-dimensional model that includes general competencies, cross-curricular priorities and Areas of learning for students from foundation to Year 10. General capabilities include reading and writing literacy, computing literacy, technology and communication capabilities, critical thinking and creative, personal and social information, moral understanding and intercultural understanding. Areas include English, mathematics, science, health and physical education, humanities and social sciences, art, technology and language and cross-curricular priorities are: the aboriginal and Torres Strait islander histories and cultures, Asia and Australia's engagement with Asia and sustainability (Australian Curriculum, 2023).

ACARA is the body responsible for NAPLAN in addition to curriculum oversight. ACARA started curriculum development in 2009, and by mid-2014, it had developed curriculum for eight educational areas (including 19 subjects, including 4 languages), and by mid-2015, it had added seven more languages to the curriculum (ACARA, 2018). In 2014, the Ministry of Education gave the

assessment agency the responsibility to put the curriculum in a six-year evaluation period. This was done with the aim of improving the Australian curriculum in all eight areas and reorganizing and removing the curriculum, and it was recommended that only changes and changes in the overall structure be made. The Ministry of Education stated the main reason for this evaluation on "key concepts" or "Big ideas" in order to avoid excessive content and deep expression (Australian Curriculum, 2023).

ACARA conducted the first Australian curriculum effectiveness monitor in October 2014, which was followed by a worrying report on curriculum overload in primary school. In this report, it was stated that the amount of content that primary teachers must teach is excessive, and the excessive amount of content, including the inclusion of general capabilities and cross-curricular priorities, and the lack of curriculum integration in the primary years, especially in the humanities and social sciences, causes overcrowding and curriculum overload has been (ACARA, 2018).

In this report, the amount of content, the number of progress standards and the introduction of new and unfamiliar subjects in the primary school curriculum and specific implementation issues, including the allocation of time for courses, timetables and extent of changes, as well as the specific conditions and contexts of the local curriculum and conditions and the requirements of the school authority were mentioned. Also, the states of New South Wales, Victoria and Western Australia expressed concern about the changes in the primary school curriculum. Therefore, the curriculum was revised and on October 20, 2015, the revised curriculum was published as the 8th edition on the Australian curriculum website. In these reforms, for example, the field of learning humanities and social sciences was replaced by the subjects of history, geography, civics, citizenship, economics and business in the first to sixth/seventh year, and the number of content descriptions and learning standards was reduced (ACARA, 2018). Again in June 2020, the Australian Department of Education ordered ACARA to review the curriculum with the aim of revising and reducing the amount of content in all eight learning areas to focus on essential content; Because the teachers had sent many complaints about "cluttered" and "crowded" curriculum to ACARA and demanded to modify and reduce the content and transparency in the three dimensions of the curriculum. After these amendments, the ninth edition (current edition) of the Australian curriculum has been placed on the site (Australian Curriculum, 2023).

Ireland: Ireland ranks eighth in the world in terms of HDI in 2023 (HDI = 0.945), which shows the high importance of education in this country (UNDP, 2023). Ireland has a centralized education system where the curriculum is controlled by the Ministry of National Education and guided by the

NCCA (Gleeson et al., 2020). In Ireland, the NCCA is tasked with advising the Department of Education (DES) and DES is responsible for implementing the curriculum, and the State Examinations Commission (SEC) is responsible for evaluating students. In this country, the curriculum is not revised periodically, but often due to community concerns about its quality (NCCA, 2017). The curriculum design model is systematic and model-based (ADDIE).

The revised primary curriculum, launched in 1999, was the first complete revision of the curriculum since 1971. The revised curriculum for raising children was designed according to all dimensions of life, including spiritual, moral, cognitive, emotional, imaginative, aesthetic, social and physical dimensions, which includes preschool, primary and secondary curriculum (NCCA, 2010). Education is compulsory for children in Ireland from the age of six to sixteen, or until students have completed three years of upper secondary education. Ireland developed a framework for early childhood education called Aistear in 2009, which applies to children from birth to six years of age. Aistear means "journey" in Irish and refers to the fact that children begin their lifelong journey of learning from birth. This framework includes four interconnected themes to describe children's learning and development, which are continuously revised according to the latest findings in medical science and developmental psychology, and they are: 1) wellness, 2) identity and belonging, 3) communication, and 4) exploration and thinking (NCCA, 2023). This country has made significant progress in the field of high quality primary care and education in recent years. Under the National Policy Framework for Children, "Better Outcomes, Brighter Futures", implemented since 2014, the government committed to increasing investment in early years care and education for all children. According to this policy, more funds were allocated for early childhood education, and in practice, children attended schools from the age of four. So that in 2023, 99% of Irish children will be enrolled in school before the age of five and will study in primary schools for eight years until the age of 12 (Des, 2023).

In a 2010 report, the NCCA stated that national and global social, economic and technological changes had largely contributed to the overloaded curriculum in Ireland's primary school and that eleven subjects in the curriculum were being taught to excessive standards. In this report, teachers were surveyed and they declared that they do not have enough time to fully implement the subjects (Kilkelly, 2013). Also, the results of this report showed that the size of the 1999 curriculum was one of the factors in creating the overloaded curriculum; Because in the process of developing the curriculum, fourteen groups were responsible for developing the program, each group prepared the study program independently, and each of these groups had a strong motivation to include their content in great detail. One of the consequences of the structure of the group in this way was the

large volume of documents that were prepared in 23 texts, which included a significant amount of repetitive and unnecessary content. The next factor was curriculum development; The results of the report showed that many programs have been imposed on schools by different social groups, some of which include health issues (such as dental hygiene, healthy eating and self-care), prevention of drug use, tree planting and green schools, fitness body and specific sports (NCCA, 2010).

In addition to the primary period, the Irish curriculum has experienced curriculum density in the lower secondary period as well. The lower secondary curriculum was developed in 1996 to include subjects such as citizenship, which became compulsory in 2000. Also, in the same year, health education and a new subject of religious education were adopted by a large number of schools. As a result, in many schools, students were studying 12 or more subjects for their final exams. At the same time, schools were asked by universities and the labor market to also teach subjects such as entrepreneurship education and technology skills. These led to the overloaded curriculum that led to the revision of the junior high school curriculum in 2015 (NCCA, 2017).

Ireland introduced School Self-Evaluation (SSE) in 2011 and made it compulsory from 2012. This process provided an effective tool to help schools engage in the school's internal review process and foster a culture of collaborative and reflective review. This process requires schools to collect and analyze evidence about teaching and learning practices and to set targets in curriculum areas that allow for in-depth analysis of curriculum implementation in schools (OECD, 2020). In the latest curriculum review in 2023, Ireland designed and presented its primary curriculum framework based on the Aistear early childhood framework and in line with the secondary curriculum framework. This framework has eight principles, seven competencies and five general areas of learning. These eight principles include learning environments, communication, teaching methods, transfer and continuity, inclusive and diverse education, collaboration, assessment and progress, and commitment and participation. Competencies include being an active citizen, being creative, being a digital learner, thinking mathematically, communicating and using language, being healthy, and being an active learner, and the five learning areas include language, STEM education, wellness, art, and social and environmental education (NCCA, 2023).

B) Interpretation

At this stage, the curriculum of selected countries in the field of overload is presented separately.

Australia: In the curriculum document of the fourth edition of Australia, the development of deep knowledge and understanding was considered, which was not realized in the implementation. In 2015, the Minister of Education stated: "The issues related to the overloaded curriculum should be achieved by reducing the amount of content, adding more depth and less expanse." One of the reasons was the excessive description and expression of unnecessary details of the content (scope) in the content, and the Ministry of Education used the strategy of focusing on big ideas to overcome the challenge; For example, in mathematics, a set of six big ideas was considered (Hurst, 2015). Also, in the reforms of 2020, the strategy of removing, clarifying and simplifying the description of the details of the content in the learning areas was used and part of the content of the primary course was modified (OECD, 2020). The Australian curriculum introduces sixteen subjects in eight learning areas that are taught in primary school. Australia has used both subject-based and competency-based approaches simultaneously in adding new subjects to the curriculum. While some countries adopt only one approach; For example, China only applies the issue-oriented approach (OECD, 2020).

All three levels of national priorities in the 3D curriculum are taught through cross-curricular themes. Using an interdisciplinary approach is a strategy that Australia has used to replicate content across grades. In recent years, Australia has included many new subjects in the curriculum from primary to tenth grade, including labor studies (ninth and tenth grade), citizenship (third to tenth grade), peace (primary to tenth grade), media arts (year 3rd to 10th), design and technologies (foundation to 10th year); which was able to overcome the challenge of expanding the content by adopting the strategy of key or core cross-curricular competencies and including them in existing subjects or learning areas (OECD, 2019). Also, the field of learning humanities and social sciences replaced the subjects of history, geography, civil and citizenship, and economics and business in the first to sixth grade levels. This change led to a significant reduction in the amount of content and improved manageability of the primary curriculum (ACARA, 2018). Also, this country did not consider a separate subject for health education and presented it in the field of physical education and presented media arts as one of the five subjects in the primary and secondary art curriculum (OECD, 2019).

Also, Australia has used the integrated approach of STEM (Science, Technology, Engineering, and Mathematics) which later included more subjects by becoming STEAM and STREAM, as a strategy to overcome a lot of content. STEM is done in the real sense in places called "Maker Spaces" with 3D printers, computers, robotic tools and other facilities that Australia has provided in some schools (Australian curriculum, 2023).

The current Australian curriculum (ninth edition) is available to all on the website of the same name. This means that teachers can easily access it and don't have to track down a lot of redundant or unrelated material in physical documents to get what they need. This can reduce the workload of teachers and reduce their perception of curriculum overload. A distinctive and innovative feature of this curriculum is its interactivity, which allows teachers to filter the curriculum to customize their view for a specific purpose (Australian curriculum, 2023).

Ireland: The current Ireland curriculum is organized around six distinct curriculum areas covering 11 subjects. In its report, NCCA (2010) identified the volume of primary curriculum documents that were compiled in 1999 as excessive and cited it as one of the reasons for the overloaded curriculum in Ireland; In the review, this issue was taken into consideration and the volume of documents was reduced. Difficulty in prioritizing or designing curriculum content at local and school levels was another problem that led to curriculum overload. Schools with inadequate training and limited understanding of national guidelines on how to design an effective and coherent local curriculum covered content beyond the national curriculum; because they lacked the capacity to make informed decisions about curriculum priorities (OECD, 2020).

Another challenge that plagued the Ireland curriculum was the expansion of content resulting from new demands from society, especially from influential groups. Many of the new topics that were added in the curriculum were as a result of the expectations of different groups. Ireland has incorporated these new subjects into the curriculum with two subject-based and competency-based approaches. One of these new subjects is physical literacy and health education, which was independently added to the curriculum of primary and secondary education with the aim of creating a healthy lifestyle, or in another example, media education was a competency that was introduced as an independent subject. Also, some new interdisciplinary topics are included in the curriculum. For example, approximately 28% of the content in areas such as humanities, arts and national language is included interdisciplinary in the content of science and technology, home economics and even in mathematics (OECD, 2019).

The lack of connection in learning progress at different levels of education was another issue in the Ireland curriculum. This was particularly criticized by teachers in 2019, in the new Irish language curriculum that was implemented for all students in primary and secondary years. To meet this challenge, Ireland adopted a "spiral curriculum" strategy. According to this approach, in the Ireland curriculum, some subjects in different grades are deliberately repeated like a cycle so that students can learn the material gradually and with more depth. This approach not only

contributed to greater coherence of curriculum content across grades, but also reduced unnecessary repetitions (OECD, 2020). In the most recent revision of the primary school curriculum in 2023, Ireland presented a strategy for an integrated STEM approach to reduce content and deep learning (Des, 2023).

C) Juxtaposition

In this step, based on the data obtained in the description and interpretation step, the findings are classified to pave the way for comparing the similarities and differences in the subject under investigation. For this purpose, first the characteristics of the educational system and then the strategies and challenges of both countries were classified and examined through the neighborhood.

Australia's education system is decentralized. ACARA, commissioned by the Ministry of Education, designs and revises the curriculum and supervises the curriculum implementation process. Curriculum is organized by learning areas. Curriculum development is based on five stages of analysis, design, development, pilot implementation and monitoring/evaluation and is derived from the ADDIE systematic model. The curriculum is not revised in a certain period of time; Rather, it is modified whenever needed. In the middle of the curriculum implementation cycle, a mid-term review is conducted so that corrections can be made if needed. Also, any new subject that enters the curriculum and makes changes to it, is first implemented on a local level (pilot) and a decision is made after collecting feedback. In recent years, in response to society's demands, Australia has added new subjects with a subject-based and competency-based approach in the primary school curriculum.

The Ireland education system is centralized. NCCA is responsible for evaluating the curriculum and making recommendations to the Ministry of Education. The curriculum is organized by learning areas. Curriculum development is based on the ADDIE systematic model. In Ireland, the curriculum is revised as needed and there is no periodic review. This country has implemented an initiative called self-evaluation of schools, in which schools continuously review and report their performance according to the curriculum. Ireland has used both subject-based and competency-based approaches in adding new subjects to the curriculum.

Table 1 shows the characteristics of the educational system and curriculum of Australia and Ireland.

Table 1. Juxtaposition of Educational System and Curriculum of Selected Countries

Components	Australia	Ireland
Type of education system	Decentralized	Centralized
Curriculum monitoring	ACARA	NCCA
Curriculum design model	ADDIE	ADDIE
Type of curriculum	A framework based on a three-dimensional model for foundation to secondary education	A separate framework for early childhood, primary, first and second secondary education
Curriculum feedback	Piloting	School Self-Evaluation (SSE)
Curriculum revision	No periodic revision	No periodic revision
Early childhood education time	From birth to five/six years old	From birth to six years old
Primary school time	Foundation + six years	Six years
New subject in primary school	Citizenship, peace, media arts, design and technologies	Physical literacy and health, Media education
Approach of adding new topics	Subject-based & competency-based	Subject-based & competency-based

In Australia, specific strategies have been employed to prevent or deal with the overloaded curriculum. Early childhood education is one of the strategies that reduce the excessive pressure on the primary school; which Australia has implemented as a national program. Launching a fully digital and interactive curriculum was an initiative that Australia successfully implemented (OECD, 2020). This country has been able to minimize unnecessary repetitions by using an interdisciplinary approach in organizing the content, or reduce the content to a great extent by using an integrated approach. Also, so that the national priorities do not cause congestion in the curriculum, add related content to the existing curriculum through cross-curricular themes. Change in learning areas is another strategy aimed at reducing content overload. Also, removing, clarifying and simplifying the description of the details or the scope of the content are also reforms to deal with the overload that have been applied in the latest version of the curriculum (2020).

Ireland has also used early childhood education as one of the strategies that has been able to greatly reduce the overload of primary education. Although the curriculum documents of this country are physical; But in order to reduce the number of pages, clear and specific frameworks for each course have been developed and provided to teachers. By reorganizing some learning areas, Ireland was able to reduce their overload and use an interdisciplinary approach to incorporate new topics into existing content. He was also able to prevent any unwanted repetition in the curriculum by adopting a spiral approach and planned repetitions in the content. This country added the

integrated approach of STEM in its curriculum so that in addition to reducing the content of math and science courses, students' learning becomes deep and meaningful. The introduction of School Self-Evaluation was also an initiative that helped the Ireland education system to give schools a share in monitoring the implementation of the curriculum. Table 2 shows the strategies related to overloaded curriculum in Australia and Ireland.

Table 2. Juxtaposition of Strategies Related to Overloaded Curriculum in Selected Countries

Country	Strategy	Type of strategy	Objective related to overloaded curriculum
Australia	Early childhood education	Preventive	-Reducing the content overload in primary and higher
	Integrated education (STEM)	Corrective	-Reducing math and science content, understanding the connection between subjects, deepening learning
	Integration of some subjects in the field of learning humanities and social sciences	Corrective	-Reducing the content of history, geography, civics, citizenship and economics and business in the primary school
	Launching a digital-interactive curriculum website	Corrective	-Removing the physical document of the national curriculum for easier access -Simplification and transparency for all stakeholders
	Applying an interdisciplinary approach in content organization	Corrective	-Removing repetitions in the content
	Removing, clarifying and simplifying descriptions and details (scope) of the content	Corrective	-Reducing and simplifying the content
	Cross-curricular themes	Preventive	-Inclusion of national priorities in the new curriculum
	Focus on key concepts	Preventive	-Prevention of overload in the new curriculum in the redesign
	Applying big ideas to basic subjects such as math	Preventive	-Maintaining the balance of the new curriculum -Fulfilling the goal of learning to learn
Ireland	Early childhood education	Preventive	-Reducing the density of course content in primary and higher
	School Self-Evaluation (SSE)	Preventive	-Empowering schools in designing and prioritizing local programs -Collecting and analyzing evidence from curriculum implementation -Maintaining the balance of the curriculum at the local level
	Integrated education (STEM)	Corrective	-Reducing math and science content -Understanding the connection between the lessons and deepening the learning
	Simplifying the physical curriculum document	Corrective	-Simplifying and clarifying through the formulation of specific frameworks for each course
	Reorganization of some		-Transferring some content from one learning

	learning areas	Corrective	area to other areas through an integrated approach
	Applying an interdisciplinary approach in content organization	Corrective	- Inclusion of new topics in the curriculum
	Adopting a spiral approach in organizing content	Preventive	-Maintaining vertical communication and eliminating unnecessary repetitions

In the national reports of Australia, it has been raised that the number of pages and words in the content of the primary curriculum is excessive; So that in 2014, the physical documents of the Australian primary curriculum were more than 1700 pages. In the design of the primary curriculum versions before 2015, sufficient attention was not paid to the two principles of balance and coherence in the organization of the content, and these versions are challenged by the repetition of content in some subjects, additional repetitions of the content in some bases, and the description of additional details. They were faced in the content of some subjects. Also, due to the addition of new subjects in the process of development and revision of the aforementioned versions of the curriculum, the content of some bases has been overloaded.

In Ireland's national reports, it is stated that the 1999 version of the primary curriculum is presented in 23 books with more than 3,650 pages, and this large volume has caused dissatisfaction among teachers. The inappropriate design of this curriculum had caused, in addition to unnecessary repetitions of content in some subjects and among grades, the lack of vertical communication between learning levels in different grades also became a big challenge for teachers. Also, the pressures of influential groups to add new social issues in some areas such as hygiene and health had led to an increase in the volume of content. Ireland has also experienced problems at local and school level due to inadequate training of principals and teachers and their limited understanding of national guidelines, which led to inconsiderate decisions about content prioritization at school level. Table 3 shows the challenges related to overloaded curriculum in Australia and Ireland.

Table 3. Juxtaposition of Challenges Related to Overloaded Curriculum in Selected Countries

Country	Challenge	Reason
Australia	Excessive volume of curriculum documents	-High number of words and pages in physical curriculum documents prior to 2015 edition
	Time-consuming to use the physical document of the curriculum	
	Repetitiveness of content in some subjects	-Improper content design in the previous curriculum
	Repetition of content in some grades	-Not using the integrated approach in older versions (2014 version)
	Unnecessary details in the content of	

	some subjects	-Insufficient attention to amendments in versions before 2020
	Too much content in some grades	-Adding new topics to the curriculum in response to community expectations
Ireland	Excessive volume of curriculum documents	-High number of words and pages in previous physical document (1999)
	Lack of communication in learning progress between different levels	-Improper content design due to the large number of program development groups -Not using a spiral approach
	Repetitiveness of content in some subjects	
	Repetition of content in some grades	Disregarding integration in the previous curriculum
	Too much content in some grades	-Pressure from social and influential groups to add new topics
	Difficulty prioritizing content at the local or school level	-Ignorance of principals and teachers about curriculum priorities -Inadequate training of national guidelines to principals and teachers

D) Comparison

According to the research method, similarities and differences have been examined in the last stage. Despite the fact that the structure of the educational system of Australia and Ireland is different in terms of focus, but in the field of curriculum overload, they have experienced almost the same challenges and the adopted strategies have been similar in some cases. As mentioned earlier, the challenges of the overloaded curriculum are usually related to the two factors of content expansion and content overload, which by considering these two dimensions, the similarities and differences between the strategies and challenges in both countries have been compared and in table 4 it is considerable.

Table 4. Comparison of Strategies and Challenges Related to Overloaded Curriculum in Selected Countries

			Australia	Ireland
Strategies	Content expansion	Interdisciplinary teaching to incorporate content into curricular subjects/areas of learning	✓	✓
		Utilization of integrated approach	✓	✓
		Rearrangement of content and subject matter in each learning area	✓	✓
		Choosing topics as key concepts and big ideas	✓	-
		Removing unnecessary and repetitive descriptions and details in the content	✓	-
		Deliberate repetition of subjects in the grades with a	-	✓

	Content overload	spiral approach		
		Test implementation of content and evaluate its impact	✓	-
		Greater clarity, simplification and reduction of curriculum documents	✓	✓
		Early childhood curriculum development	✓	✓
		Developing the capacity of schools for content design and self-evaluation	-	✓
		Using digital-interactive curriculum	✓	-
Challenges	Content expansion	Adding new subjects due to pressure from influential groups and society's demands	✓	✓
	Content overload	Excessive volume of physical curriculum documents	✓	✓
		Excessive volume of content in the primary grades	✓	✓
		Repetitiveness of the content among the subjects or in the grades	✓	✓
		Lack of communication in learning progress between different grade levels	-	✓
		Difficulty prioritizing content at the local or school level	-	✓

4. Conclusion

In this research, it was tried to examine the strategies and challenges related to overloaded curriculum in two countries, Australia and Ireland, in order to benefit from their experiences. Both selected countries have experienced an expansion of content in the primary education. This issue was created during the process of numerous reforms and in response to the demands of different social groups and the addition of new content without reducing the previous content; Because both countries lack periodic review and the curriculum is often modified due to community concerns about its quality.

The first finding of the current research showed that numerous revisions and reforms in these two countries were the basis for the formation of overload in the curriculum. This finding is consistent with the research of Baham (2014); Usher & Anderton (2014) and OECD (2020) have identified the root of curriculum overload in the implementation of numerous reforms. The results of this research show that periodical reforms are more efficient than successive and repeated reforms in terms of time and cost. In this regard, the research results of Kuiper et al. (2013) and Voogt et al. (2017) show that adding new content for any purpose, although it can add a new sense of student learning to the curriculum; But at the same time, it imposes an excessive burden on the curriculum and if the measures of educational systems are not sufficient in this field, it will lead to an excessive expansion of the content. Also, in line with this research finding, the results of Rawling's research (2015) show that if educational systems want to consider and support the

wishes of all interested groups, the learning goals will become too ambitious and the content will become a victim of various political necessities and the risk It will lead to overload.

The strategy of both countries has been to choose an interdisciplinary approach and an integrated STEM approach in order to deal with the challenges related to content expansion. The results of the OECD (2020) research confirm that the interdisciplinary approach is the best and most common approach to prevent and deal with excessive content expansion; Because incorporating issues into what already exists is a less expensive policy option. Also, the research results of Aydin (2020) and Gallup et al. (2021) show that the use of STEM integrated approach in the primary school greatly reduces the amount of content and adds depth to the learning of science, math and technology subjects.

Another finding of the research indicates that both selected countries have experienced content overload for different reasons. Australia's problems in this field have been less than Ireland's. Both countries have experienced the voluminous content of documents, the excessive volume of content, and the repetition of content. In addition to these challenges, Ireland has also faced the challenge of lack of connection in learning progress between different grade levels and content problems at the local level. The findings show that the long process of curriculum development in Australia and the multiplicity of curriculum development groups in Ireland were the main causes of content overload. This finding is consistent with Majoni (2017); Voogt et al. (2017) and Eduwem & Ezeonwumelu (2020); because the results of this research show that the repetition of content is caused by mistakes in the curriculum design process.

Ireland's strategy to meet the challenge of the lack of connection in learning progress at different levels and prevent it from happening again in the future has been to use the "spiral curriculum" approach, which was previously used successfully by Finland in its curriculum. In this approach, curriculum content is not covered in a specific grade, but is intentionally repeated across grades, learning cycles, and levels of study to ensure that students' understanding deepens over time. Such an approach contributes to greater coherence of content across foundations and reduces the risk of unnecessary duplication. This finding is in line with the results obtained in the research of Confrey (2019) and Igbokwe (2015).

Ireland has also mandated School Self-Evaluation (SSE) in an innovative initiative to address the challenge of prioritizing content at the local and school level. This problem arose when principals and teachers preparing local curricula added new aspects without removing previous content or taking time into account. In this regard, the research results of Gregorio & Tawil (2002) and Alexander & Flutter (2009) confirm that when content is prioritized without paying enough

attention to what content should be removed or replaced, the curriculum may lose its overall balance. By making SSE compulsory in schools, the internal monitoring process was enabled and schools collected and analyzed evidence about teaching and learning practices in a collaborative manner. Australia's strategy for dealing with the large volume of curriculum documents is innovative and instructive for other countries, because it has presented its curriculum in a completely digital-interactive way. This means that teachers can easily access elements related to their teaching methods on the curriculum site. Also filter the curriculum to customize your view for a specific purpose. For example, a teacher who wants to focus on developing their students' critical and creative thinking skills can filter the curriculum based on their desired grade, topic, and critical and creative thinking ability. In this regard, the results of the OECD (2020) research show that the digitization of curriculum documents reduces the workload of teachers and reduces their perception of curriculum overload.

Another strategy that both countries have used is the design and development of early childhood curriculum. The findings of the current research in the field of content overload show that these two countries have succeeded in reducing the content overload in the primary school to a great extent by recognizing and supporting this program. This finding is in line with the research of Mclachlan et al. (2013) and OECD (2020). The results of this research show that the early childhood curriculum helps align school requirements more with the natural process of learning and the child's growth stages, and like continuity, before primary and middle school, it prepares students to overcome future challenges with a progressive approach; This process reduces the overload of curriculum content in primary and higher.

In general, the important lessons that can be learned from the experiences of selected countries in the field of curriculum overload prevention and considered in the revision of the national curriculum of Iran is that the principle of coherence should be considered as one of the key design principles; respond to the demands of the influential and stakeholders of the curriculum, taking into account the time and capacity of the schools and reducing the previous content; A consolidated approach should be used in order to reduce content and time management; An interdisciplinary approach should be used to include new content in existing subjects; The new content should first be implemented in some schools as a pilot and its effect checked; maintain a proper balance between the breadth of learning areas and the depth of content knowledge; The content of some learning areas should be integrated in order to reduce the content; Some content descriptions are reduced to a number that can be taught in a typical class and in the actual class time available; A part of duplicate content that is unnecessarily repeated in the grades, to be identified and removed;

Some new topics should be presented as optional courses; Avoid hasty decisions and plans that may lead to curriculum overload in schools; Curricula should be presented online and interactively; A system should be set up to obtain teachers' feedback from the course content; Curriculum documents should be brief, simple and understandable for all stakeholders; Pay attention to early childhood education and revise the national curriculum periodically. Finally, researchers are suggested to deeply analyze each of the strategies proposed in this research; because each of them may have strengths and weaknesses, the detailed study of which can be helpful for curriculum planners in the process of curriculum design or reform.

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