

Research-based teacher education in Iceland:

With or without a Master's thesis

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This article aims to discuss the development of research-based teacher education in Iceland, including regulations, structures and contents of master's thesis**, in relation to recent changes in master's programmes at the School of Education, University of Iceland, and the Faculty of Education, University of Akureyri. The findings reveal that the programmes and structures around the master's thesis are similar in these two main institutions of teacher education in Iceland. In both institutions, students in M.Ed. and MA programmes complete courses on research methods, theories and research in education before conducting their research for the master's thesis. In the M.Ed. programmes, other options include developing teaching material or conducting development projects. New laws on education for teachers and administrators, their competencies and recruitment, came in force 2019. The new Master of Teaching programmes, offered in both institutions since 2020, provide opportunities for students to complete courses of 30 ECTS in total instead of a master's thesis. This option became popular already when introduced as part of a governmental plan to increase the number of student teachers graduating each year. It has raised some concerns regarding the research-based aspect and quality of teacher education. Enrolment in teacher programmes on master's level has increased dramatically since 2020 and graduations of student teachers as well.

Keywords: Research-based teacher education, Master's thesis, Iceland, Master of Teaching programme, teacher recruitment

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**Final thesis student teachers write in teacher education master's programmes.

Introduction

Teachers in Iceland face various new challenges. Three of the big ones are; increasingly diverse groups of students attend schools due to high rise in migration to Iceland during the last two decades; growing shortage of teachers, predominantly at preschool level; and falling PISA results that were rather dramatic in tests in 2022. Therefore, the work-related stress on teachers is considerable, not least when negative media discussion sometimes follows.

In response to these challenges, and in aiming to raise interest for teachers' profession and enrolment in teacher education, The Ministry of Education, Science and Culture, the Universities, the Icelandic Teachers' Union, and other stakeholders have worked together on several policy issues, and several action plans have been launched. In 2019 important laws were passed in parliament, the *Act no. 95/2019 on the education, competency and recruitment of teachers and administrators of preschools, compulsory schools and upper secondary schools* (Lög nr. 95/2019 um menntun, hæfni og ráðningu kennara og skólastjórnaenda við leikskóla, grunnskóla og frambaldsskóla, 2019). Furthermore, in 2021 a *New Education Policy 2030* (Ný menntastefna 2030, 2021) was passed along with its first implementation plan for 2021-2024 (Ný menntastefna 2030: Fyrsta aðgerðaáætlun 2021-2024, 2021).

Teacher education in Iceland has undergone various changes during the last decades. The most recent changes are responding to the current situation and two important official actions. The first official action one is *Act No. 95/2019 on the education, competency and recruitment of teachers and administrators of preschools, compulsory schools and upper secondary schools* (Lög nr. 95/2019 um menntun, hæfni og ráðningu kennara og skólastjórnaenda við leikskóla, grunnskóla og frambaldsskóla, 2019), that has had direct influence on the structure of many teacher education programmes and made possible the creation of new programmes without the completion of a master's thesis. The second official action, happening simultaneously, is a five year action plan for 2019-2024, directly targeted on enhancing enrolment in teacher education programmes, and encouraging drop-out student teachers to return and finish their master's programme (Government of Iceland, n.d. c). The most known contribution of that action plan is an incentive of big sum of money for each student teacher that graduates. It is safe to say that available teacher education programmes are now more diverse and flexible than ever before, as are master's theses in terms of form, content and methodology.

This article introduces and discusses teacher education in Iceland from a historical perspective as well as priorities in current teacher education programmes, and the role of research within these programmes. Furthermore, master's theses within these programmes are introduced and discussed, also with consideration of the development of master's programmes from 2019 that do not end with a master's thesis. The article concludes with some remarks on the challenges in teacher education in Iceland.

Educational system in Iceland

The Icelandic parliament, the Althingi, is legally and politically responsible for the education system. The Althingi determines the basic objectives and administrative framework of the educational system. There are four school levels in Iceland: pre-primary (preschool), compulsory (single structure - primary and lower secondary education), upper secondary and higher or tertiary education. However, municipalities are responsible for the operation of

preschools and compulsory schools, whereas the operation of upper secondary schools and higher education institutions is the responsibility of the State.

Since November 2022, two ministries monitor the implementation of all educational laws and regulations, the Ministry of Education and Children, and the Ministry of Higher Education, Science, and Innovation. This change of dividing responsibilities between ministries, reorganising and relocating the professional staff working in the ministries has opened for several new possibilities but also caused some delays such as the creation of a new Directorate of Education.

The main areas of responsibility of the Ministry of Education and Children (n.d.) are education (preschool, primary and secondary school), children and sports. The Ministry is responsible for the implementation of legislation pertaining to school levels from pre-primary and compulsory education through the upper secondary levels, as well as continuing and adult education which is also administered by the Ministry of Social Affairs and Labour Market. The Ministry of Education and Children is responsible for creating curriculum guides for pre-primary, compulsory and upper secondary schools, issuing regulations and planning educational reforms.

The role of the Ministry of Higher Education, Science, and Innovation (n.d.) is to combine the strengths of universities, science, industry and innovation, thereby enhancing prosperity and creating knowledge-based jobs. Key functions under the auspices of the Ministry are science, university affairs, electronic communications, industry, innovation and affairs relating to an information-centered society.

Education in Iceland has traditionally been organized within the public sector, and there are relatively few private institutions in the school system. A fundamental principle of the Icelandic education system is that everyone is to have equal access to education irrespective of sex, economic status, geographic location, religion, disability and cultural or social background. This principle is stated in the Constitution of the Icelandic Republic and also in the legislation pertaining to the various educational levels (Government of Iceland, n.d. a, n.d. b).

Education is compulsory from the age of six to sixteen, i.e. for ten years. Emphasis is placed on providing the opportunity for upper secondary education for all, and everyone has the legal right to enter school at that level, irrespective of their results at the end of compulsory schooling. Those that have the right to enroll in upper secondary school also have the right to study until the age of 18 according to the Upper secondary education act no. 92/2008.

One of the aims of educational policy in Iceland in recent decades has been to raise the general level of education. According to the laws that govern different educational levels, pupils with disabilities at pre-primary, compulsory and upper secondary school levels, are entitled to the same education as other pupils. The main policy thus is inclusion rather than segregation. Schools are expected to provide pupils with disabilities with appropriate opportunities and access. Furthermore, schools are required have reception plans for pupils that speak other mother languages than Icelandic and these pupils have the right to learn Icelandic as a second language.

No legislation deals specifically with special needs or disabled students in higher education. However, higher education institutions may have an official policy on how to meet

students' special needs, including for example support to blind and deaf students, those with dyslexia, physical disabilities, and psychological disorders.

The legislation governing the educational system in Iceland comprises the following: the Pre-Primary School Act of 2008 (Preschool act no. 90/2008), the Compulsory School Act of 2008 (Compulsory school act no. 91/2008), the Upper Secondary School Act of 2008 (Upper secondary education act no. 92/2008), the Adult Education Act of 2010 (Adult education act no. 27/2010), and the Higher Education Institutions Act of 2006 (Higher education act no. 63/2006). The laws are all from the first decade of this century and many changes have been made on them during last 15 or 20 years, as well as on the relevant regulations and curriculum guides. Until now some chapters of these Acts and other policy documents have been revised but a complete review considering the new education policy has not been carried out.

Teacher education: Beginnings and historical development

The education of primary level teachers in Iceland has undergone extensive changes during the last century. Several parliamentary bills on the establishment of a teacher training college were presented during the start of the last century. A bill of legislation on a teacher training college in Reykjavík was passed by the Parliament in 1907 (*Lög um kennaraskóla í Reykjavík* nr. 63/1907) and the Icelandic Teachers Training College was established in 1908.

The first legislation passed on compulsory education for children in 1907 increased the need for teacher education.

The growing number of people with so-called further or secondary education in Iceland during the middle of the 20th century influenced the legislation and a bill of legislation on teacher education was passed by the parliament in 1947 (*Lög um menntun kennara* nr. 16/1947). This legislation marked a turning point in legislation on teacher education, although lack of funding was a continuing obstacle to progress for the remainder of the century. The Icelandic College of Education became the Iceland University of Education in 1971 (Aðalsteinsdóttir, 2007).

The beginning of preschool education in Iceland in 1946 is by many considered the beginning of preschool teacher professionalism. From 1973 the school for preschool teachers has been under the authority of the Ministry of Education. In 1996, the University of Akureyri became the second school offering preschool education. In 1998 the school for preschool teachers merged with the Iceland University of Education and the first preschool teachers with B.Ed. degree graduated that year (Einarsdóttir, 2012). The Iceland University of Education merged with the University of Iceland in 2008, becoming the School of Education, one of the five schools of UI (University of Iceland, n.d. a). At the University of Akureyri, the Faculty of Teacher Education was established in 1993 (University of Akureyri, n.d. a).

The years 2004–2008 were a turning point for teacher education in Iceland. According to Aðalsteinsdóttir (2007), the state of education for teachers in Iceland at the time was the result of decades of development. She notes that the progress made over the years leading to this was systematic cooperation, which did not previously exist, was attained between the Government and Universities. The main objectives of the reorganisation was to improve practical training for student teachers and improve access to further education for young people in the country. These objectives are in accordance with the Bologna Agreement

which aims to coordinate university education in Europe and organize a two-step university education, a three-year graduate programme (first cycle) and a two-year post-graduate programme (second cycle).

Another turning point around this time was the growing emphasis on research. At the Iceland University of Education, later University of Iceland, School of Education, a new policy was approved by the university council in 2004 (Bjarnadóttir, 2012). The objective of the policy was to „increase the quality and coherence of teacher education, increase opportunities for specialization and extend the study to a 5-year research based programme, following standards in the Bologna agreement.“ (Bjarnadóttir, 2012, p. 1). The intention was also to strengthen the links to research and theory, and to the field of practice. Bjarnadóttir (2012) argues that during the years that followed, links to research became broader, and attempts were made to link the content of courses to research, as well as to strengthen courses of research methodology. She notes that the research-based and practical teacher education programmes available in Iceland are of high quality and have international relevance. Many academics in universities which offer teacher education are active researchers who collaborate internationally, as well as cooperating actively with schools in Iceland.

In the years that followed, more flexible and diverse programmes became available based on the new acts on teacher education (Sigurðardóttir, 2014). At the same time, discussions took place on how flexible teacher education should be, that is, how open it should be for graduate students in different subject areas, and which diverse expertise is needed in schools on different levels. This debate has been ongoing until present. Furthermore, growing diversity (in origins, languages, religions, abilities etc.) of students at all school levels has also raised the question of how teachers can be prepared for this reality and in what way teacher education can contribute to develop an increasingly multicultural or global society (Ragnarsdóttir, 2012).

Jónasson (2012) has argued for the importance of discussing teacher education from a very wide perspective and suggests four components of the discussion. The first relates to the wide spectrum of expertise necessary for teaching and other professions. The second concerns the scope of teacher education with particular emphasis on life-long learning. The third deals with the multiple ingredients of teacher education, from the traditional subject content to changing roles of schools. Finally, the fourth component is about coherence versus fragmentation of teacher education and the necessity to retain coherent unity in teacher education.

New law and competence framework for teacher education

General educational requirements to become a Preschool, Compulsory and Upper secondary school teacher are to have a master's degree in addition to a bachelor's degree, 300 ECTS in total (Act No. 87/2008 on the Education and Recruitment of Teachers and Administrators of Preschools, Compulsory Schools and Upper Secondary Schools). Since the laws came to full force in 2011, most teachers graduate with a master's degree in education or in respective fields of subject studies together with Teacher Certification studies. For vocational teachers, educational requirements have been increased as well and include 60 credit units in Teacher Certification studies in addition to a final diploma in vocational field, such as qualification as Master craftsman in a trade.

Interest and enrolment in teacher education on bachelor level fell dramatically following the laws from 2008 requiring all teachers to have a master's degree to get a teacher certificate. Furthermore, according to Sigurðsson, Björnsdóttir and Jóhannsdóttir (2023), the fact that too few student teachers proceeded to the M.Ed. programme after finishing the B.Ed. degree caused great concern for educational authorities and teacher education programmes. Just a few years after the extension of teacher studies from three to five years with a master's degree, stakeholders had to face the fact that this change had contributed to a societal challenge, namely that the number of newly qualified teachers did not meet recruitment needs. Iceland, therefore was and still is heading towards a severe teacher shortage, especially on preschool level, and on compulsory school level in the countryside.

In 2019, new laws were passed, the Act on the education, competency and recruitment of teachers and administrators of preschools, compulsory schools and upper secondary schools (*Lög um menntun, hæfni og ráðningu kennara og skólastjórnenda við leikskóla, grunnskóla og framhaldsskóla*, 2019) and replaced the Act No. 87/2008 on teachers education. The new act included a paragraph on one teacher certificate for all school levels, thus increasing flexibility for teachers to shift between school levels. This was debated as many feared that the preschool level would suffer from a teacher drift towards compulsory school level, and the preschools already had the biggest problem with staffing their schools with teachers.

The Act no. 95/2019 preceded the Education Policy 2030 (*Ný menntastefna 2030*, 2021) but in governmental argumentation for the policy and in its first Action Plan 2021-2024 (*Ný menntastefna 2030: Fyrsta aðgerðaáætlun 2021-2024*, 2021) it is reinforced that tackling teacher shortage is a main priority. The Action plan contains nine focus points and two of them are very relevant for teacher education: Number 4 on the necessity of increasing the number of qualified teachers, and number 5 about the importance of developing competence amongst all education professionals, and on continuing professional development in line with changes in the society. The Act no. 95/2019 on education, competency, and recruitment, stipulates the required competences for teachers and school leaders. It is stated that teachers' qualifications should include required general competences for all, in addition to more specialized competences referring to school subjects and educational goals at the three different school levels.

General competences include creating an encouraging learning environment for students in accordance with the age, development, and diversity, class management, use of appropriate didactics, conducting home-school relations etc. These should constitute a minimum of 60 ECTS in education and pedagogy courses.

Specialized competences that relate to school subjects, subject-specific pedagogies and other factors related to teaching, educational context, and practices, and in accordance to acts for the different school levels and national curriculum guides, should constitute a minimum of 90 ECTS. Within master's programmes of 120 ECTS, there are only 30 ECTS left, exactly sufficient for a master's thesis, when the above mentioned requirements have been met.

The most debated statement about competence in Act no. 95/2019 is the requirement for teachers to be able to communicate their knowledge in Icelandic. Such a requirement has not been stated in any laws on education before. The debate has reflected an

ongoing discussion on how to meet the societal changes as Iceland is now a multicultural and multilingual society, and the challenges that Icelandic language is facing in general.

Given the numerous programmes available within teacher education, and the number of tracks available depending on students' previous studies, the competences and requirements are further defined in a regulation from 2022 (Reglugerð um hæfniramma með viðmiðum fyrir almenna og sérhæfða hæfni kennara og skólastjórnenda við leik-, grunn- og framhaldsskóla, 2022). The regulation is called "the competence framework" and it aims at defining and clarifying the priorities of competencies. The framework is very detailed and meant to be useful not only in university education but also in teachers continuing professional development.

It is fair to say that the unified efforts of the ministries, the universities, the Icelandic Teachers' Union, and other stakeholders to enhance interest in teachers' profession and education have been fruitful in these last years.

Table 1 Graduated teachers in Icelandic universities in 2015-2023

	2015	2016	2017	2018	2019	2020	2021	2022	2023
University of Iceland	118	138	122	117	113	146	308	334	338
University of Akureyri	26	34	24	29	31	61	98	91	83
Reykjavík University	5	7	10	4	6	10	5	9	4
Iceland University of the Arts	25	15	20	13	15	21	23	28	23
Total:	174	194	176	163	165	238	434	462	448

As Table 1 shows clearly that graduations of newly qualified teachers rose extensively after 2020, thanks to the enforcement of the new laws in 2019, and the measures taken according to the action plan 2019-2024 to enhance enrolment by incentives to student teachers and greater collaboration with the school regarding teaching practise. Enrolment of new students in teacher educational programmes multiplied, but also several students that had dropped out of master's programmes returned to finish their studies.

A variety of teacher education programmes

Teacher education programmes are primarily available at the School of Education, University of Iceland (UI) and the Faculty of Education, University of Akureyri (UNAK), both offering programmes on bachelors and master's level. The Iceland University of the Arts offers programmes only on master's level and primarily for teacher with bachelor's degree in art and crafts, and the University of Reykjavík offer one teacher education programme on master's level for those becoming sport teachers. Programmes in UI and UNAK include preschool, primary, lower secondary and upper secondary teacher education. Additionally, there are different options for specialization within these programmes, and they are still

organized mostly in line with different school levels and school subjects, despite the change to one teacher certificate. Teacher education is offered both as an integrated five-year teacher education, and within consecutive teacher education programmes which means that students can enter teacher education on the second cycle, master's level, building on the first cycle, relevant bachelor's education in school subjects such as Icelandic or mathematics, or in psychology, leisure studies or other subjects related to children's development.

The diversity of programmes available are expected to promote increased professionalism due to research-based education and specialization, followed by increased job satisfaction. It is also expected to encourage people to attend teacher education as well as provide more career opportunities. It was also anticipated that by uplifting all teacher education to master's level, teachers would gain more status in society and become more respected as professionals. Unfortunately, no research on status and respect has been conducted in Iceland. On the other hand, it has been found that the rate of newly qualified teachers dropping out of the teaching profession in their first years has been greatly reduced (Sigurðardóttir & Kjartansdóttir, 2018). The new teachers were generally very satisfied with their five-year education, but they felt that training and practical knowledge should be improved and there was too much emphasis on theory (Sigurðardóttir et al., 2018; Sigurðardóttir & Kjartansdóttir, 2018).

Structures of preschool and compulsory school teacher education

An integrated five-year teacher education consists of a B.Ed. degree of 180 ECTS that allows for applying for a master's degree of 120 ECTS which is required for a teaching certificate according to Icelandic law. B.Ed. teacher education programmes include courses in pedagogy, the educational areas of the respective school level, courses in academic skills, theory of education and pedagogy, research methods and final theses. The main goal of the studies is for students to gain knowledge about learning and teaching children in preschool or compulsory school (primary and lower-secondary school level). The studies are closely related to the potential field of work and include practical training on both B.Ed. and master's levels. Courses on school subjects and subject-specific pedagogies are also offered on both levels.

Consecutive teacher education programmes are two years master's programmes that build on a BA or BS degree in relevant bachelor's education for teachers. In those programmes, students are supposed to bring with them content knowledge and diverse competencies, so these programmes are concentrated on general pedagogy and education, and subject-specific pedagogies.

The principle is that the applicant for a master's programme has completed a bachelor's degree with a first grade (7.25). However, admission requirements vary depending on the study programmes, and the programmes for teacher candidates with other bachelor's degrees than B.Ed. add some requirements depending on how the studies fit as preparation for the programmes in question.

At the University of Iceland, graduate programmes in the *Faculty of Education and Pedagogy*, are offered in two departments: *Preschool and compulsory school education* focusing on preschool and primary grades in compulsory schools, and *Inclusive education* which is a new department founded in 2022 focusing on preparing teachers to lead inclusion and multicultural and multilingual awareness and practises in schools. Graduate programmes are more than 20 in six departments at the *Faculty of Subject Education*, covering all school subjects, except

two, in compulsory and upper secondary schools. Those subjects are covered by programmes within the *departments of Health Promotion and Home Economics, and Sport and Health Sciences*, in the *Faculty of Health Promotion, Sport and Leisure Studies*. Then there are several interdisciplinary programmes within UI focusing on subject teaching in upper secondary schools by combining subject studies and courses in teacher certification studies conducted by the *Faculty of Subject Education*.

Most qualified teachers hold a degree from the University of Iceland, School of Education. Even so, the many programmes described above are intertwined in many ways, for example by offering courses that are included in several different programmes. Another consequence of this multitude of programmes is that many courses belonging to student specialisation can only be offered every other year. In the other universities, teacher programmes are either limited to a few specialisations or are planned more general in nature and focusing on school levels as main specialisation such as teacher education programmes at the University of Akureyri (University of Akureyri, n.d. b).

A master's programme for teachers is largely based on independent reading and assignments that test critical thinking and reasoning skills. Students are expected to be able to read sources on foreign issues and to be able to use the diverse ways of the information society in acquiring and sharing knowledge. Requirements are made for the initiative, critical thinking, independence in working methods, and the ability to cooperate (University of Iceland, n.d. b).

Of the courses in the master's programme, 5-10 ECTS are courses on research methods and further 10 ECTS courses on theories and research in education. The reason for so few ECTS dedicated to research methods is that a research-based teacher education is founded on the idea that research is intervoven into all courses, and students should read and interpret research articles and have diverse research related assignments and discuss their findings.

Master of Teaching, a degree without a thesis

In 2019, the Act on the education, competency and recruitment of teachers and administrators of preschools, compulsory schools and upper secondary schools (Lög um menntun, hæfni og ráðningu kennara og skólastjórnenda við leikskóla, grunnskóla og framhaldsskóla, 2019) had a major impact by changing all teacher certificates to being one teacher certificate for all school levels. Simultaneously, two other important actions were made to address foreseen teacher shortage. One was that teacher programmes for preschool- and compulsory school teachers were changed so student teachers could do their practice in their last year of studies as paid employees within the schools, easing their burdens as many student teachers study full time and work full time at the same time. The other important action was the creation of new master's programmes finishing with a degree called Master of Teaching (MT), starting in autumn 2020. Holders of the M.Ed. and MT degrees can equally apply for teacher certificates, but only those holding M.Ed. degrees can continue into doctoral studies. When comparing programmes, the courses accounting for specialisation for student teachers, the difference between M.Ed. and MT programmes is not big. Nor is it big when programmes for those holding a B.Ed. degree or a BA or BS are compared. For example, both groups of students on M.Ed. and MT programmes are required to attend courses on research methods as all students are in research-based teacher education.

In a recent chapter, Sigurðsson et al. (2023), the authors address the changes that have taken place in recent years where the master's thesis has been made optional as noted in the discussion on the MT programmes above. When teacher education was extended into a five-year programme in 2008, it resulted in fewer applications, the enrolment in teacher education dropped, students' progress was slow, and the dropout rate rose. Teacher shortages were foreseen. The measures of making the master's thesis optional have benefitted both the recruitment and study progress. However, the authors argue that without the master's thesis, "the balance between research and practice seems to have tilted in favour of practice, which raises questions about the quality and status of teacher education." This view undermines the use of research that is emphasised in all courses. Furthermore, one can also argue that the quality of master's programmes have risen by favouring practice and allocating extra 30 ECTS to students to deepen their studies for specialized competences that relate to school subjects, subject-specific pedagogies or other factors related to teaching and educational context.

Råde's (2014) systematic review of international research concerning final thesis in teacher education in European countries is relevant for the Icelandic context. In his article he discusses three main models; the portfolio model, with a mainly teaching-professional orientation; the thesis model, with a mainly academic orientation; and the action research model, related to both orientations. He notes that of these three models, the portfolio model seems dominant. Eklund (2019), similarly investigated master's theses written in 2016 and 2017 by primary school student teachers at a teacher education department in Finland. She found that students wrote master's theses of high scientific quality. However, she notes that the knowledge gained from their theses seemed not to transfer to their professional practice. This issue has been widely discussed in Icelandic universities and how to bridge between research and practice more generally.

Students' choices of completing master's programmes with or without a thesis

As this offer of M.Ed. and MT programmes side by side only started in autumn 2020 it is a bit early to draw big conclusions on if it is a step in developing teacher education for the better or for the worse. It is clear though that the flexibility along with other measures attracted more student teachers to enrol on master's level than in the years before. Both students in integrated five-year teacher education and students attending consecutive teacher education programmes seem drawn towards the MT programmes so for now (2024) the majority of students in master's programmes for preschool and compulsory school enroll in the MT programmes. As a result, there are fewer master's students now "delayed" in their studies because of an unfinished thesis and students that prefer deepening their studies within courses rather than with doing research projects are hopefully more content.

Table 2 Graduations from programmes in Teacher Education at University of Iceland 2018-2023

	Teachers graduating from University of Iceland		
Programmes	2018-2020	2021-2023	
Preschool teachers M.Ed.	61	35	18%
Preschool teachers MT		163	82%
Total:	61	198	100%
Early years, primary schools M.Ed.	64	15	10%
Early years, primary schools MT		132	90%
Total:	64	147	100%
Home economics, primary schools M.Ed.	10	1	7%
Home economics, primary schools MT		13	93%
Total:	10	14	100%
Sports and health, primary schools M.Ed.	12	8	13%
Sports and health, primary schools MT		53	87%
Total:	12	61	100%

Table 2 shows how the teacher education programmes at UI expanded in 2020. More notable is the big interest MT programmes, master without thesis, got from the very beginning. There are some differences between the programmes, but in general one can assume that in a group of ten new student teachers only one or two are enrolled in an M.Ed. programme and the other eight or nine students have chosen a MT programme. This fact makes new demands on teacher educators, who must now, even more than before, teach about research on education and organise research-related projects within the courses.

Rules and policies regarding final thesis in teacher education

Rules for final theses in teacher education are similar in both universities, the School of Education, University of Iceland and the University of Akureyri. M.Ed. projects are 30 ECTS, while MA projects are 40, 50 or 60 ECTS.

In the course description of M.Ed. final projects are 30 ECTS at the school of Education, UI (n.d.c), the learning outcomes particularly emphasise understanding of systematic and specific knowledge as well as being able to use scientific concepts and theories on a certain subject in the professional field. The learning outcomes are presented as follows:

“When the M.Ed.-final project is finished, the student should:

- have obtained a systematic understanding of the newest knowledge within the discipline in question.
- have deepened understanding of specific knowledge of the subject that the student specializes in.
- have a systematic knowledge of the subject that includes the newest information and research in the field.
- have the ability, competence and initiative to find relevant scientific resources, analyse them and assess, in accordance with acknowledged professional practice and methodology in the field in question.
- be able to put the topic into the context of previous research or comparable projects in the discipline in question.
- be able to use scientific concepts and theories on a certain subject in the professional field.
- be able to discuss critically the resources, theories and theoretical moot points.
- be able to explain theoretically based findings, orally and in writing, in a clear, professional and creative way.”

The rules about the M.Ed. final project state that an M.Ed.-final project is an individual research project. The choice of the topic is first and foremost the responsibility of the student who, however, needs to consult the supervisor. The heads of departments mediate the choice of the topic, and the supervisor and students must always consult the head of the department before the supervisor is chosen. It is important to make sure that the project connects with the specialist field, the programme and the specialisation that the student has chosen.

According to the description, the purpose of the M.Ed.-final projects is first and foremost that students deepen their understanding of a specific topic in the field of their specialisation and that they practice research and academic skills, i.e. discussing resources, theories and theoretical moot points in a critical way. It is important that students choose projects connected to their work field so that it is useful for them to improve their professionalism and work practice.

Different types of master’s projects can be completed within the M.Ed programme. These include:

- Master’s project in the form of a research article, along with a report.
- Research thesis (theoretical research).

- Research report (a thesis that builds on research), where the student collects data in independent research or uses data from a larger data collection.
- Creation of teaching material, such as textbooks, visual material, teaching instructions. This has to be accompanied by an academic report in which the significance of the material, its background, theoretical underpinnings and links to the curriculum, are discussed.
- Creation of curricula, for example for schools, a school subject, a course or a module.
- Assessment, including aims, object of assessment and assessment methods.
- Evaluation project (evaluation of education process)
- Development project, which involves creating a developmental plan for a concrete school development project (project to improve a certain aspect of school-work) or carrying out certain school development project and evaluating how it succeeded.
- Action research, where a teacher researches her own work, looks for solutions or tries, for example, a new teaching method or a new teaching material.

In summary, the different types of master's projects which master's students in teacher education in Iceland can choose from range from research engaged to research informed, or from empirical research to development and practice as discussed in Yildirim, Åström & von Brömssen's (this issue) conceptual framework for final thesis orientations.

Master's projects are supervised by at least one supervisor and a specialist reads the plan and manuscript regularly to monitor its process. When they agree that the manuscript is ready, the project is sent to the external examiner for evaluation.

Rules, guidelines and learning outcomes for MA projects are like the rules for M.Ed. projects, with the exception that MA projects are generally research that is concluded with a research thesis. The main purpose of the project is that student practices research and academic skills, in particular by:

- creating a research proposal
- shaping effective and interesting research questions
- collecting data in a purposeful way
- processing data in an organized and fruitful way
- finding resources in databases
- viewing own data and research of others critically
- writing an organized and readable text

When the supervisor and the specialist agree that the manuscript is ready, the project is sent to the external examiner for evaluation. The external examiner submits a written evaluation and he/she takes part in master's defence. Grades in the form of digits are not given for MA projects. At the School of Education, UI, defences are only held for MA projects that are 50 or 60 credits. For 40 credit projects, instead of a defence, students present their project at a student conference. The external examiner makes comments about the final manuscript and that she/he requests that improvements are made. The student makes such improvements in consultation with her/his supervisor, and she/he submits the final version of the project, in accordance with detailed instruction (University of Iceland, n.d. d)

Master's thesis at the University of Akureyri are defined as an independent piece of research, a work-related development project, the design and creation of a curriculum or teaching materials, or another subject related to education and schooling. The student, in consultation with the supervisory teacher of master's theses and a mentoring teacher, chooses a subject in his/her elective field and works on the thesis under the guidance of the mentoring teacher. Emphasis is placed on the development of advanced knowledge and understanding within the chosen field of study, along with students' ability to work systematically and apply their knowledge and understanding in an independent treatment of the subject.

The University of Akureyri offers programmes that include both M.Ed. and MA theses (University of Akureyri, n.d. c). A MA thesis of 60 ECTS credits is a research project of the student's own choice in the field of education and schooling supervised by an academic expert. The student should choose, in cooperation with his or her supervisor, a subject within an area of specialization. The thesis shall be a wide-ranging exploration of the theories, assumptions and research in the chosen subject. The student must apply reliable methods in these explorations describing and explaining his/her object of study independently to discover new knowledge.

The learning outcomes state that upon completion of the course the student should:

- demonstrate in-depth and comprehensive knowledge and understanding of concepts, theories and the most recent research in the chosen field,
- demonstrate reliable knowledge of the chosen methods and ability to apply knowledge and understanding in analyzing data and the presentation of findings,
- demonstrate critical thinking, originality and independent treatment of his/her subject,
- be able to discuss the results in the light of the theoretical presuppositions of the project and rationally argue for their contribution to knowledge of the field,
- demonstrate the structure, language, and presentation of the research project to submit the thesis and publish the result,
- explain the project's connection to other parts of schooling and educational policy as is relevant,
- start doctoral studies.

The subject of the master's thesis (M.Ed.) is a project related to the student's area of specialisation (educational level/elective field/professional field), education and educational work. The student chooses a subject in consultation with the supervisory teacher of master's theses and a mentoring teacher and works on the thesis under the guidance of the mentoring teacher. The aim of the project is to bring together theoretical perspectives and practical value. The project can comprise a design of curriculum or teaching material for a selected group, a dissertation, an action research report, or an action plan for a certain sector of schooling or education, work-related development project or another subject related to education and educational work. Emphasis is placed on the development of advanced knowledge and understanding within the chosen field of study, along with students' ability to work systematically and apply their knowledge and understanding in an independent treatment of the subject.

Contents of master's theses

After submissions, master's theses are uploaded to an online platform called Skemman (see <https://skemman.is/>). There, it is possible to search by keywords.

Exploring the contents by keywords provides a rough overview of the emphasis of master's theses, while a deeper understanding of their contents would require more in-depth research. In general terms, the overview sheds light on the issues that students, and most likely their teachers as well, find most important or relevant to focus on in their final master's thesis.

Listing all master's theses submitted at the School of Education, UI and the University of Akureyri by all keywords entered, the most common keywords in both universities relate to educational practices and methods, school levels (preschool, compulsory school, upper secondary school), subject teaching (different subjects), reading and literacy, children's and students' special needs and disabilities, intervention, behaviour issues, autism, bullying, inclusive education, student motivation, health and wellbeing, immigrant children, bilingualism, multicultural issues, democracy, equity, curriculum development, classroom management, professionalism, working environment of teachers, cooperation, team teaching, educational leadership, individualised learning, learning styles, assessment, educational attainment, creativity, educational context, outdoor teaching, educational dropout, homework, home-school cooperation, and educational policy.

Further research on content and possible changes when it comes to choices of topics of master's theses could be an interesting contribution to the study of the development of teacher education more generally. However, it is possible to trace some developmental steps indicating changes in master's theses, by looking at a revised version of regulations on master's studies that has not yet been translated into the English version of the description of M.Ed. final projects at the School of Education quoted in the beginning of this sub-chapter. The example here refers to changes made in August 2022, opening for more cooperation between student teachers and flexibility in representation of the M.Ed. theses:

Connected projects of two or more master's students: Connected projects are available in some cases, with the approval of the supervisor and the chairperson of the programme. These are

projects that are the work of individuals (the project is an individual project), while collaboration with others is a rich part of the master's project. A subject can, for example, be the creation of study material, the creation of a study or work portfolio or a development project, where a connection between two or more projects only gives the whole more depth and breadth. Projects under this heading can also be related to the development work or research of the supervisor. As an example of interconnected projects, we can mention a website with four master's projects that are published at www.tengjumst.hi.is. In those projects, each intern was responsible for the theoretical basis of their project, wrote a script for a video with associated web content, and submitted a theoretical report. Together, the master's students worked on the videos and the presentation of text and images on the web. (Vefur um meistaraverkefni, n.d.)

Concluding remarks

This article aimed to discuss the development of research-based teacher education in Iceland, including regulations, structures and contents of master's theses, in relation to recent changes in master's programmes at the School of Education, University of Iceland, and the Faculty of Education, University of Akureyri. The findings revealed that the programmes and structures around the master's thesis are similar in these two universities. In both programmes, there are the options of developing teaching material or conducting development projects instead of doing research for the master's thesis. In addition, the new MT programmes in both universities provide opportunities for students to complete courses instead of a master's thesis. The MT programmes have raised some concerns regarding the research-based aspect and quality of teacher education. Enrolment in teacher programmes on master's level has increased dramatically since 2020 and graduations of student teachers as well.

However, organizing teacher education is an ongoing process in Iceland as well as in other countries. The debate on the balance between research and practice (Sigurðsson et al., 2023), as well as how this should be interwoven in courses continues. Furthermore, the future development of teacher education in Iceland is likely to need to increasingly consider the various aspects of diversification in Icelandic society and the education system, children's and students' different needs and the diverse expertise required for teachers to respond to these.

In conclusion, there are various challenges facing research-based teacher education in Iceland. A few have been addressed above. The diverse programmes and many options can be helpful when it comes to recruiting students but can at the same time provide complications. Being able to opt out of writing a master's thesis can also be a challenge and raises the question of the situation of the research-based emphasis in teacher education. Some have argued that research is indeed a part of and interwoven in most courses within teacher education, so that students read research as part of their studies. Furthermore, that students conduct smaller research projects within courses. So, the question remains, whether the creation of MT programmes without thesis reduces or strengthens the quality of teacher education. This change has also sparked new types of research projects and inspired students and teacher educators to find new ways to intertwine research and practice and to focus more on cooperation and creative work.

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