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Principals' financial and pedagogical challenges when choosing programs and educational materials: the scope of the private education industry for preschools

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ABSTRACT

The educational services industry has grown internationally, and there has been an explosion in external programmes that teach basics and behavioural control, as well as administrative data programmes. This growth has affected the governance of preschools worldwide and spurred schoolification and marketisation. In this context, this study examines how the growth of the private education industry within the education system has influenced preschool principals' work in Iceland. Our critical theoretical perspective aims to explore how educational trends grounded in neoliberalism have shaped the work of preschool principals. The data consisted of a questionnaire distributed to all preschool principals in Iceland. The findings showed that schoolification, informed by educational authorities and the private education industry, has shaped pedagogy and preschool principals' autonomy. However, preschool principals are relieved to have some self-monitored programmes at hand. Thus, these changes go hand in hand with the strengthening of professionalism and external marketisation.

KEYWORDS

Preschool principals; manual-based programmes; datafication; marketisation of education; schoolification

Introduction

The educational services industry has grown internationally in recent years. This applies both to the use of simple apps and programmes developed and produced for teaching purposes and to bigger data infrastructure (Gulson & Sellar, 2019; Williamson, 2019) that tech companies have created. These developments have spurred the growth of the EdTech industry at all school levels (Decuypere, Grimaldi, & Landri, 2021; Peruzzo, Ball, & Grimaldi, 2022). Furthermore, this environment has created a pathway for businesses and private actors to sell various packages and solutions to schools, influencing professionalism within the education system. Corporations have strengthened their position within the education market and have even created ways to integrate for-profit services within public school systems. These packages and solutions are supposed to support teaching and learning practices, assessment and school inspection, among other processes, all in the name of efficiency and accountability. At the preschool level, there

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has been an explosion in external programmes to teach basics and behavioural control (Roberts-Holmes & Moss, 2021). It is not always clear how much knowledge and experience within the field of education the providers of these solutions have, how these solutions are developed in collaboration with education professionals or how much the use of such solutions is compatible with teachers' professional autonomy and practices.

Therefore, using Iceland as a case study, this work focuses on the (growing) educational services industry in early childhood education and care (ECEC), framed within the context of the ongoing marketisation of education and education solutions, as well as the datafication of education. Our critical theoretical perspective explores how neoliberal strategies, such as privatisation, marketisation, deregulation and datafication of public education, impact ECEC and the pedagogical work of teachers and principals.

Theoretical background and previous research

In our discussion of the educational services industry in relation to the privatisation and marketisation of ECEC in Iceland, we draw on Ball and Youdell's (2008) framing of the endogenous/internal and exogenous/external privatisation of public education. This conceptualisation is helpful in discussing how private providers of educational services position themselves within the public school system, thus hiding the privatisation of the public sector. However, similar to Lundahl, Arreman, Holm, and Lundström (2013), we find it more suitable in the Icelandic context to use the concepts of internal and external marketisation to describe the same trends, as there is little privatisation within the Icelandic school systems (Dovemark et al., 2018), and profit-making from preschools is practically limited (Reykjavíkurborg, 2022). In short, internal marketisation refers to the adoption of discourses and practices from the private sector by the public sector, making the public sector more business-like, while external marketisation applies to private sector participation in the design and management of various pedagogical solutions within the public school system. Ball and Youdell (2008) argued that these forms of privatisation "change the way in which education is organised, managed and delivered" (p. 9), and they have an impact on, for example, professional development and the nature of teachers' everyday activities.

Within the context of this study, another concept that needs consideration is deregulation, which lays the groundwork for external and internal marketisation. We draw on Dovemark et al. (2018), who framed deregulation in education as a process of removing or reducing state regulations. Such processes can apply to various aspects related to the internal work of schools, student behaviours and the curriculum. Thus, deregulation processes tend to provide leeway for the introduction of external programmes and solutions in schools at all levels.

Marketisation-Fuels Datafication

The internal and external marketisation of education has become entangled with the intensified datafication of education stemming from technical developments. Williamson (2019) discussed the impact of these developments on the teaching profession, as new "education data scientists" are becoming more and more influential, while

teachers' and professional leaderships' (i.e. principals') professional knowledge is becoming increasingly marginalised. In relation to the teaching profession and the professional autonomy of teachers, the expansion of the educational services industry and the increased datafication of education have been considered particularly troubling. Furthermore, through datafication, the lines between external and internal privatisation seems to be even more blurred.

Technological developments have empowered various interest groups outside of the education profession to influence daily school practices and policy-making in the field of education. These actors have gained power in directing the purpose and aims of education while having little to non-connection to the profession and institutional practices. In this environment, the professional autonomy of both teachers and principals is being challenged, as they need to spend considerable time on data registrations – time that could be used for pedagogical work (Daliri-Ngametua & Hardy, 2022; Grant, 2022). Furthermore, Decuypere, Grimaldi, and Landri (2021) have pointed out how digital education platforms have transformed teachers' work by setting the standard for what is possible and permissible, what good education looks like and what education is about. Holloway (2020) argued that instead of relying on professional knowledge to guide pedagogical decisions, teachers are now under implicit and explicit pressure to use and depend on external tools and pedagogical recipes.

Marketisation-Fuels Schoolification

The impact of internal and external marketisation on the pedagogical leadership role held by preschool principals has yet to be explored in depth. In recent years, preschool principals in Iceland have gained more financial autonomy. By law, they are required to use their professional autonomy to shape the school's vision and practices (Ministry of Education, Science and Culture, 2011). In Iceland (Dýrfjörð & Magnúsdóttir, 2016), as in the Nordic context in general (Lundahl, 2016), we have seen a rise in neoliberal trends and ideas within the education sector over the last few decades. Visible developments include increasingly popular discourses around accountability, efficiency and academic performance within ECEC. Several years ago, Jónasson (2006) discussed the constant emphasis on academic performance in Icelandic preschools. Based on their study of ECEC development in Finland and Sweden, Alexiadou, Hjelmér, Laiho, and Pihlaja (2022) argued that preschools have been subject to considerable policy changes in the direction of increased "schoolification" by different levels of government. This is particularly applicable to the Swedish case, as educational goals reflecting an increased emphasis on school subjects, such as literacy, mathematics and natural science, were implemented, along with increased evaluation and school inspection practices. Even so, legislation in both Sweden and Finland has reflected a shift in focus in ECEC from care to formal education.

These developments are occurring within an increasingly marketised school environment, where public and private actors have become entangled in complex and often hidden ways. With the exception of Sweden, which has more private schools than other Nordic countries, most Nordic schools are run by public actors, and privately run schools are not allowed to make profits (Dovemark et al., 2018; Lundahl, 2016). Interestingly, this does not apply to preschools in Iceland, where regulations around

the profit-making of private preschools are unclear and provide opportunities for owners to make profits; however, some of the municipalities have a clause about profit (Dýrfjörð & Magnúsdóttir, 2016; Reykjavíkurborg, 2022). Drawing on Hogan and Thompson (2021), it must be pointed out that commercialisation can occur without privatisation, such as in instances when public schools buy different educational and assessment services from the educational services industry or outsource portions of their professional tasks. These commercial providers do not own or govern the schools; instead, they work with and within them (see also Rönnberg, Benerdal, Carlbaum, & Holm, 2021). For example, Roberts-Holmes (2019) noted how an increased emphasis on performance in school subjects within ECEC in the UK, in relation to the OECD's International Early Learning and Well-being Study, has opened channels and created new opportunities for businesses to sell various pedagogical solutions and packages.

Bartholdsson (2021) conducted research in Sweden and found that teachers who use prepared and paid programmes rationalise "the use of manual-based programmes with benevolent references to children's needs as well as their general wish for additional support in the form of teaching materials; thus, the programme manuals in reality work as external authorities" (p. 31). This finding could also be generalised to the Icelandic user who sometimes uses the same programmes examined in Bartholdsson's (2021) study.

As noted, in Icelandic preschools, programmes developed and sold by private actors and used directly in education are a noticeable trend. However, the mapping of these entities and what is offered to preschools has yet to occur, so little is known about the extent, cost and influence of these solutions and packages on preschool education in Iceland. To address this gap, the current study maps out the scope and influence of the private education industry, with a focus on the scope of educational and administrative solutions and the professional backgrounds of producers. Furthermore, it addresses how schoolification from within the system has shaped principals' work. The data consist of answers in response to closed- and open-ended questions part of a survey that was sent to all preschool leaders in Iceland. This study thus elucidates recent developments and situations surrounding marketisation connected to the schoolification of ECEC in Nordic countries.

ECEC in Iceland: an overview

It is important to have an overview of preschools as institutions and the issues that influence preschool principals' working conditions to understand the reality they face. According to the law and agreement between various stakeholders and unions representing preschool principals, principals' professional autonomy is extensive. They have the power to select and hire staff, greatly influence the pedagogical directions of the curriculum, are both professional and pedagogical leaders of their preschools and are responsible for the school budget according to the owners' (municipality or private) financial plan.

Universal preschool education is provided to children aged 1–6 years in Iceland. About 97% of all children between the ages of 2 and 6 and 48% of all 1-year-olds are enrolled in preschool (Statistics Iceland, 2021). About 89% of Icelandic preschool children spend eight hours or more in school, and about 26% spend nine hours or

more, which is high compared to other European countries (Government Iceland, 2021). Municipalities pay about 85–87% of the costs of running preschools, and parents pay the rest on a sliding scale according to their marital and labour market status. Municipalities are responsible for the operation of public and private preschools in their districts, but the Ministry of Education plays an inspection role (Government Iceland, n.d.). Municipalities run the majority of all preschools in Iceland. In 2022, about 20% of all preschool children were enrolled in private preschools, which comprise about 16% of all preschools in the country (Statistics Iceland, 2023), and most private schools are run by school chains (Dýrfjörð & Magnúsdóttir, 2016).

Instability and declining professionalism in preschool pedagogy in the ECEC field

Due to a law enacted in 2008, teachers at all school levels must hold a master's degree in teaching education before applying for a teaching certificate. Following this change, there has been a sharp decline in the number of students applying for teacher education programmes (The Icelandic National Audit Office, 2017). This has led to a severe shortage of teachers, especially at the preschool and primary school levels. The law states that two-thirds of those working with children in preschools should be educated as preschool teachers (Preschool Act No. 90/2008), but this is not the reality. In 2016, 32% of the preschool workforce comprised licenced preschool teachers, but by 2021, preschool teachers were down to 22.8% of the workforce, reflecting a steep downward slope (Statistics Iceland, 2022). The situation differs between areas, and according to Statistics Iceland (2022), the capital Reykjavík suffers the greatest shortage of qualified teachers, as 60% of preschool staff have no professional education in the field of ECEC (20.7%) or pedagogy (19%). Reykjavík is also the most significant single provider of preschools in Iceland.

Politicians have looked for creative ways to fix the teacher shortage problem, especially in primary schools, possibly at the expense of preschools. Part of the solution has been the deregulation of teaching certificates and teachers' professional titles. Previously, teaching certificates restricted teacher titles to certain school levels. Thus, only those with a master's degree in early childhood studies were authorised to use the title "preschool teacher". However, a 2019 act enabled the official teaching certificate for all school levels to say "teacher" (Act on the Education and Recruitment of Teachers and Head Teachers in Pre-School, Compulsory School and Upper Secondary School No. 95/2019), de facto creating a 3-in-1 teachers' licence. This erasure of teacher specificity threatens professional autonomy and allows teachers to move between all school levels, irrespective of their specialisation.

This development is distressing at the preschool level and a problem for preschool principals who must compete with other school levels to hire preschool teachers. This problem is exacerbated by the fact that preschool principals cannot offer similar working conditions, even though the basic salary is the same at the preschool and primary school levels. After the enactment of the law, the Association of Teachers in Preschools reported outflows from their association to the Association of Teachers in Primary and Lower Secondary Schools; from 1 January 2018 through

1 December 2019, about 7.5% of the members of the Association of Teachers in Preschools left for the Association of Teachers in Primary and Lower Secondary School (Gíslason, 2022).

Schoolification of Icelandic preschool education

Dýrfjörð (2019b) showed that working conditions in many Icelandic preschools are not good. Her study revealed high turnover rates, many sick days being taken, short preparation times (which could be reduced or eliminated when there was a staffing shortage) and a low ratio of qualified preschool teachers. Furthermore, a poor physical environment (Jónsdóttir & Coleman, 2014) and a lack of respect from society have been ongoing issues (Dýrfjörð & Hreiðarsdóttir, 2020). To fight against this development, the Association of Teachers in Preschools has prioritised obtaining the same or similar working conditions for preschool teachers as those for primary school teachers. It has created a new contract for increased preparation time and is fighting for more changes to harmonise working conditions between the preschool and primary school levels. However, the lack of educated teachers has led to a new division of labour inside preschools where preschool teachers have taken on more bureaucratic roles. Thus, in practice, this means that experienced preschool teachers are taking administrative positions, devoting much of their time to the leadership and guidance of unskilled staff. This means that most people working with preschool children on a daily basis are not qualified to act as preschool teachers (Einarsdóttir & Jónsdóttir, 2019; Hreinsdóttir, Karlsdóttir, Björnsdóttir, & Ólafsdóttir, 2022).

At the same time, as preschools are facing teacher shortages and challenging working conditions, they are subject to increased demands for academic pushdown from the primary school level. This development can be partly attributed to the fact that in 2014, the Ministry of Education, Science and Culture (2014) published a white paper on literacy, which, among other things, suggested that each preschool makes its own literacy policy. The preschool literacy policy in Reykjavík, for example, shows the clear influences of primary school discourse (Dýrfjörð, 2019a). Thus, the emphasis on literacy within preschools has intensified, creating fertile ground for various companies to produce literacy and language stimulation programmes, just as we have seen in other educational and new management contexts (Roberts-Holmes & Moss, 2021).

Because of these changes in the pedagogical environment and working conditions for the staff, preschool principals are under pressure. They are expected to uphold the quality standard described in the National Curriculum for the Preschool (Ministry of Education, Science and Culture, 2011). At the same time, they are not able to hold on to or recruit new preschool teachers. This has led to very stressful times, especially every autumn, when principals try to fully staff their preschools and simultaneously satisfy parents pushing for a place for their children.

Methods

This study mapped out the scope and influence of the private education industry, with a focus on the scope of educational and administrative solutions and the professional

backgrounds of the producers. In doing so, the study explored how neoliberal strategies impact education and pedagogy.

A survey was conducted using Survey Monkey, and the entire population of preschool principals in Iceland was targeted (231 preschools), excluding a few preschools that are part of primary schools. Selected members of the preschool community reviewed and commented on the questionnaire as part of the study's preparation phase before it was sent out via email to each preschool's public email account. The questionnaire opened on 18 January 2023 and closed on 31 January. In all, 137 principals completed the survey, providing us with a 59% response rate. All responses were anonymous and untraceable. Information concerning how the data would be used was provided as part of the introduction to the questionnaire.

The questionnaire consisted of closed- and open-ended questions, providing quantitative and qualitative data (Robson, 2002). The closed-ended questions dealt with data systems and uses, external educational solutions, approaches and the aim of gathering data from children, as well as questions concerning respondents' backgrounds and the preschools in which they worked. The quantitative data were analysed using descriptive statistics. The open-ended questions focused more on principals' ideas about their professional work and their staff, such as changes and challenges regarding the working environment, bureaucracy and datafication and how they felt about these changes. The written answers were thematically coded by Atlas.ti, which framed codes and looked for patterns, themes and similarities (Miles & Huberman, 1994).

The preschools represented in the survey were from all over the country; about 54% were in the capital area, 18% were in urban communities with 5–20 thousand inhabitants, 19% were in rural areas with around 1–5000 inhabitants and 9% were in rural communities with fewer than 1000 inhabitants. The respondents' experience as preschool principals differed: about 36.5% had five years or less, 19.4% had 6–10 years, 9.7% 11–15 years, 11.2% 16–20 and 23% 21 or more. To verify the data, the answers to the size of the preschools were compared with a public number of preschools in each category. The data mirrored the available statistics almost precisely. The same can be said regarding the ratio of privately run preschools to public preschools, according to Statistics Iceland (2023). There are some limitations to the study design, as participants were self-selective, and the answers may have proportionally mirrored the views of those more interested in the topic (Tjønndal & Fylling, 2021).

Results

In the following sections, we map out the scope of the private education industry within ECEC in Iceland, with a focus on the scope of educational and administrative solutions. First, we provide an overview of the programmes and their main producers before discussing some of them in greater detail, both those that can be classified as management programmes, providing big data, and those that adhere to pedagogical solutions in the preschools.

Table 1. Overview of programmes and pedagogical packages.

Type	N	Largest proportion	Creator/author	Origin
3Rs packages: Language development, phonetics	7	Four largest are used by 74% to 99.8% of schools	Educational contractor, speech pathology	Mostly Icelandic
3Rs packages: Math	2	32%	Educational contractor, primary school teacher	Nordic and International
Discipline and behaviour programs	4	62%		Nordic and International
Whole-school educational programs	4	28%	Educational contractor, various actors	International and Icelandic
Big management and pedagogical programs	2	(Missing %)	Computer scientists, no preschool teachers	

General overview of the programs

The main aim of the questionnaire was to map out the external programmes and pedagogical packages currently used in preschools. In total, 19 different programmes and packages were mentioned by the principals (see Table 1). The use of programmes sold to preschools by external actors was widespread, as 85% of preschool principals reported that they bought external services as part of their pedagogical practices. The table below provides an overview of the types of programmes, their dominance within the education market, their authors and their origin. In the sections below, we further discuss the nature of these programmes.

As seen in the table, nine programmes specifically reflected a strong emphasis on the 3Rs (Reading, Writing and Arithmetic) and, of which seven were aimed at language (Dýrfjörð, 2019a; Dýrfjörð & Magnúsdóttir, 2016; Einarsdóttir & Hreinsdóttir, 2022), and two focused on mathematics. These were also some of the most widely used programmes. Their development has been repeatedly addressed by scholars who have concluded that they reflect the idea that the role of preschools is foremost to be a preparatory step towards primary school (Dýrfjörð, 2019a; Dýrfjörð & Magnúsdóttir, 2016; Einarsdóttir & Hreinsdóttir, 2022). Furthermore, these developments strongly emphasise literacy benchmarks from preschool to 15 years old that have been at the forefront of Icelandic state education policy since 2014 (Magnúsdóttir & Jónasson, 2022; Ministry of Education, Science and Culture, 2014).

Additionally, it is remarkable that most of these programmes are Icelandic or were adapted to Icelandic conditions, and speech pathologists are the main creators/authors behind such language programmes. Still, another noteworthy fact is that people from the preschool world have had little involvement in developing most of these programmes, even as co-authors. This is another example of other professions' influence on the preschool world (Dýrfjörð, 2019a) and part of the schoolification of the preschool.

External solutions that are sold as must-haves to Icelandic preschools can be divided into two categories: hard and soft governance. This extends the idea of soft governance as playing an increasing role in education policy (Niemann & Martens, 2018). Municipalities mainly buy hard governance programmes, or big management programmes, to assist in organising and running the preschool and gather big data

about, for example, children's attendance, employee information and finances. Preschool principals mainly buy soft governance programmes and solutions, and they are usually of pedagogical origins, such as to support behavioural issues, sustainability or, for example, to support the 3Rs. Interestingly, there is not much difference between privately run and municipality-run preschools regarding the use of these programmes. This implies that the pressure to introduce the most common programmes is stronger than the differences in the ownership of the schools and the ideology behind them.

Pedagogical programs and their main producers

It is possible to group soft governance-based external pedagogical programmes used in Icelandic preschools into two main categories: one is what we have termed "whole-school programs and disciplinary programs", and the other is those related to subjects such as language development, phonetics and maths.

International associations or organisations, including Safe Children, Eco-Schools and United Nations Educational, Scientific and Cultural Organization (UNESCO) schools, mainly create whole-school programmes. These programmes, such as Eco-School, are supposed to affect every aspect of the pedagogy and running of a preschool; others, such as Safe Children, have narrower paths of influence. Additionally, an important fact is that these programmes are nearly always sold to preschools. Some programmes, such as Safe Children (Friendship), have effective marketing strategies, and their developers send preschools emails and offers almost every week, reminding them about the programmes, how to use them and upcoming events.

The second category relates to programmes that deal with a specific subject matter. An example of the most influential 3Rs package is Lubbi finnur málbeinið (Lubbi finds the languages bone). It is a language development and literacy package built on one of its authors' doctoral studies in speech pathology (Másdóttir, 2008). As a result of this research, first came a children's book based on the thesis in 2009 (Gísladóttir & Másdóttir, 2009), and later a company was founded. Its objective is to promote and develop materials based on Lubbi for preschools. These materials include cards, songs (CDs), posters and instructions on using the company's pedagogical materials. The materials and related courses are specifically marketed towards preschools. Lubbi was originally created and promoted for children who need extra help in developing language skills. However, it has gained popularity, and according to our data, it is now a tool used in most preschools for children aged 1 to 6 (86%). Furthermore, the posters and related cards can be seen hanging on most preschools' walls. In a way, it may be proclaimed that Lubbi has gained hegemonic status within the ECEC system in Iceland.

When looking at the open-answer data from the survey, some responses feature ambivalence towards using pedagogical packages, especially towards the constant buzz of offers and different approaches to learning. The following excerpt from one of the principals illustrates specific pressures related to different kinds of packages offered to preschools:

> Children must enjoy their preschool years and have the opportunity to learn and be themselves. We (teachers, head offices and politics) must not exceed ourselves in our ambitions and expectations. We need to remember that we cannot do everything—we need to choose subjects and learning methods and not drown ourselves because we want to do all the new things that are available or use all the learning methods that are in focus.

Another put it this way:

> To be immersed in an endless supply of new educational materials and methods … creates anxiety and stress because it can be challenging to choose the right one or to keep calm in the face of not choosing. (among other things, at the cost of spontaneous play in Icelandic preschools)

As seen in the above examples, aggressive marketing can create anxiety among principals, as they are worried about the disappearance of the most important pedagogical practice in preschools: spontaneous play. Notably, spontaneous play is advocated as the primary pedagogical approach in the Icelandic public preschool curriculum; therefore, the absence of programmes that support spontaneous play is intriguing. Some of those programmes are partly based on a play but mainly teacher-directed and partly based on an agenda connected to the authors primary goals.

Use of big management programs

Almost without exception, two big management programmes – Karellen and Vala – were bought and used in all the preschools, as seen in Table 1 above. Karellen was originally developed by one of the private school chains in Iceland but has since been sold to Info Mentor, now a Swedish-based EdTech company, and it is used widely by both municipality-run and privately run preschools. Advania, a multinational consulting and software development company, developed and kept Vala. Their webpage says, "Vala is made up of several core units that work as a whole unit to provide municipalities with an excellent solution related to preschools, after-hours activities and school food". Vala helps keep track of the day-to-day operation of preschools, where it is possible to view children's daily attendance, keep track of waiting lists and children's placement and share information and photos with parents. Some information about the staff is also kept in Vala, for example, the information that each preschool must present to Statistics Iceland annually. Still, it has yet to be possible to synchronise transactions between, for example, the salary system and Vala. However, the municipalities that use Vala have daily information on children's attendance. Almost all the biggest municipalities in Iceland are part of VinnuStund, owned by Advania; VinnuStund is a programme that keeps track of all working hours, sick leaves, vacation time, etc. According to the Advania website, managers can see staff's time records and working hours, keep track of shifts and staffing and approve requests for shift changes and vacations. VinnuStund provides good reports, statistics and an overview of employee rights. Vala is used by some of the biggest municipalities, such as Reykjavík, as well as Kópavogur, which is the second most populated place in Iceland.

These big data programmes were chosen and bought at the municipality level, and in some cases like Kópavogur, those are bought both for publicly runs as well as privately run preschools. And the principals had little or nothing to do with their purchasing. Reykjavík must, for example, advertise bidding for such programmes, as their cost

exceeds the amount allowed in the European Economic Area without tender. Those programmes are, in many cases, part of streamlining the running of municipalities and are often used by diverse types of municipality organisations. For large municipalities, such as Reykjavík, it is beneficial to look closely and get an overview of, for example, the attendance of children and employees without having to contact the preschools. The following quotes are examples of positive responses from the preschool principals, who argued that standardisation through programmes enhances professionalism:

> To become better professionals, we need to document our work. I appreciate the challenges and the increase in bureaucracy that follow. It is like, with many other things, we need to see some purpose in what we are doing.
> More and better oversight of operations, better systems to work with, e.g. the system concerning children/employees and the accounting systems. A much better and simpler recruitment and interview system.

Generally, the principals, particularly principals from larger schools, were positive towards using data management systems and perceived those systems as aids in running the schools. In total, 82% of the principals considered it helpful or very helpful to use information from big data programmes as part of their management routine. Around 70% of them used information about financial and employment issues from big data programmes daily. Just under 10% used them very rarely. When looking at the big data systems, the principals in the smallest schools were least likely to use the community's central computer systems. In contrast, those working in larger schools used the data system without exception.

However, not all were happy, as seen in the examples of principals who argued that their professional autonomy had decreased compared to before. When looking at the open-ended answers, those who said that their autonomy had decreased mentioned that they now had more projects from "above" school offices and experienced more centralisation and less consultation concerning central decision-making. Their answers reflect the theme that there is a growing bureaucracy, over which they have no control. For example, one principal said that the change in professional autonomy could be explained by "more paperwork that takes up time that I felt could be better spent on professional leadership". Similarly, one principal experienced decreasing autonomy and more bureaucracy in her everyday work:

> [There are] more managed projects from the municipality, and increased bureaucracy, especially concerning salary and employees' personal matters, has grown in seriousness, and the daily workload has increased.

While these quotes illustrate some nuances in principals' perceived levels of professional autonomy, most principals from the larger schools maintained that their professional autonomy over pedagogical and leadership directions had grown. At the same time, they also reported an increased workload.

Discussion and conclusion

The findings showed that educational and management programmes and solutions are widely used in Icelandic preschools and affect them in diverse ways, both pedagogically and administratively. Several administrative and pedagogical solutions have gained

a dominant position in preschools, even to the point where, in practice, they can be considered compulsory. Preschool principals usually have little choice over which administrative solutions are bought; this is particularly the case for larger municipalities because of European regulations over buying software and related services. The principals working in the smallest and privately run schools generally perceived their autonomy over pedagogical programmes as greater. "To be immersed in an endless supply of new educational materials and methods" is a sentiment uttered by one principal that echoed in others' responses, and this is a problem that is affecting their governance and the principal's feelings of autonomy and being professionals. For many preschool principals, the flow of data is overwhelming, especially if there is little time for pedagogical exploration and determining how programmes shape everyday pedagogical activities. They have less time on the floor with children than ever before but are supposed to shape pedagogical practices at a distance by choosing the "right" programmes. This situation has resulted in anxiety, as there are not endless financial resources to correct "wrong" choices.

The professionalism around the programmes is interesting. The producers of these programmes are distant from preschools in terms of professional knowledge of preschool education and, in some instances, also geographically (Nordic/international). As gatekeepers for the preschools they run, it is up to the preschool principals to decide which external pedagogical programmes are purchased under their management; however, the question remains: It is a relevant question to ask: When 90% of the country's preschools buy the same programmes, is the pressure on the preschool principal to follow suit too strong to withstand? Even when pedagogical reasons point the preschool principals towards a more critical stance, for example, one widely bought solution develops Icelandic phonetics in young children (toddlers) up to five years of age, the critical question to ask is; why do children who are developing their primary language skills, work on phonetics instead of vocabulary and communication skills? According to Bartholdsson (2021), this is a prime example of top-down professionalism.

A new national curriculum for preschools will be implemented in 2024. In it, spontaneous play is emphasised as the primary way of organising preschool children's education. The new curriculum will place a responsibility on the preschool principals to be very critical when choosing solutions and packages used in preschools. The question is: Will external programmes rooted in special education continue to shape preschools as strongly as seen in our data, where special education programmes such as Lubbi have become hegemonic? As Bartholdsson (2021) pointed out, even when a package no longer exists, the content may still shape how preschool teachers perform their work; a programme may be so internalised that it becomes manual. Roberts-Holmes and Moss (2021) mentioned that it is not always clear who creates programmes and solutions for preschools; in the Icelandic case, developers are likely to be specialists who work in fields outside of education. These specialists do not always understand the emphasis on, for example, spontaneous play and the daily organisation of preschools.

Hence, external privatisation visualised through some of these programmes' proliferation sometimes takes the shape of schoolification. Keywords such as efficiency and individuality have taken on primacy, where each child becomes, to some extent, a data that must show achievements in literacy, numeracy and behaviour/discipline, no matter their early age. Thus, the preschools could be

considered a target of soft governance in education policy (Niemann & Martens, 2018). Providers of such programmes have gained a way into the preschool system, as they have achieved authority and voice through policy packages without being involved in traditional hierarchical or formal governmental steering. The administrative solutions and systems developed and sold by EdTech companies intended to monitor performance and financial elements further reflect "dataveillance", which means changes to the principals' work towards increased paperwork, often without a clear purpose (Daliri-Ngametua & Hardy, 2022).

The schoolification of Icelandic preschools is being manifest not only through external programmes and solutions but also through forces from within the system, such as municipalities, ministries and preschool teachers' unions that have in some sense pushed for schoolification. For some actors, schoolification is a way to gain society's respect, and for others, their goal is to meet future PISA marks and other benchmarks to be competitive in transnational globalisation.

Schoolification appears, as mentioned above, in at least three dimensions: an emphasis on comparable working conditions between preschool and primary schools, the 3-in-1 teachers' licence and the focus on the three Rs, vastly visible through the most widely used external programmes. The changing nature of the preschool landscape may be considered an opportunity but also a threat in a landscape where fewer and fewer staff members are educated preschool teachers. This development may lead preschool principals to lean more towards soft governance solutions in the form of educational packages. This is especially relevant when, in many cases, preschool principals are experiencing tighter timeframes for task completion and more chaotic situations due to external changes in the structure of preschools. Thus, principals are relieved to have some self-monitored programmes at hand because they can bolster a feeling of stability and structure in an unstable situation stemming from staff, professionalism and community (migration) issues.

Our main conclusion is that datafication, with the heavy blurring between internal and external privatisation, has become the normative stance within the public preschool system. It did not take long for programmes to become so hegemonic within the field that they have adopted an almost mandatory state-dictated status (86–98%). Instability and the decrease in professional teachers within preschools have created an open playing field for the educational services industry in Iceland, where the weakening professional status of preschool teachers seems to be playing into its hands.

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