

Converging cultures? A comparative analysis of South Korea and Sweden's national curricula 1980–2018

Abstract

Relating to world culture theory, this article aimed to discern similarities and differences between the South Korean national curriculum (1981, 2015) and the Swedish national curriculum (1980, 2018) and a set of complementary documents, both more broadly and with special emphasis on middle school level mathematics education. The findings suggest that the latest curricula emphasise knowledge and skills. However, Sweden's national curriculum underlines knowledge and values, while the South Korean counterpart stresses character education and a 'well-rounded personality'. Mathematics education has not changed much since 1980 in both countries. However, cosmopolitan tendencies are more present in the latest Korean curriculum. Overall, an unequivocal converging effect has not been discerned.

Keywords: Korea, Sweden, curriculum, world culture theory, Lgr 80, Lgr 11

Introduction

At this point, a plethora of critical academic works have emphasised the downsides of OECD-related global competition and policy borrowing practices (e.g., Sung 2011; Imsen, Blossing, and Moos 2017; Steiner-Khamsi 2014; So 2014; Sjøberg 2015). However, a less well-researched area is if OECD countries are converging due to what is known as world culture theory (e.g., Dale 1999; Dale 2000; Carnoy and Rhoten, 2002; Carney, Rappleeye, and Silova 2012; Schriewer 2016; Johansson and Strietholt 2019). For instance, does the curricular content point to striking differences or are the countries converging due to for instance globalisation, OECD membership and policy recommendations? To examine this topic, it is important to have a historical outlook and compare at least two distinct periods both diachronically and synchronically. Therefore, the current article focuses on South Korea (hereafter Korea) and Sweden as their national curricula were constituted around 1980 and how they are constituted regarding current curricular documents at the national level.

Whereas Korea and Sweden are, indeed, not the only countries relevant for such a comparison they are appropriate to analytically juxtapose for four major reasons: first, Korea may be regarded as a ‘model country’ for Sweden since it outperforms the latter in PISA mathematics (e.g., OECD 2019); second, there is a gap in the literature and no such country comparison has been made; third, Korea is sometimes portrayed in the Swedish media and among academics as an ‘extreme’ country in regard to educational diligence, competition and quantity (e.g., Viktorsson 2016) and this depiction needs further examination in order to discern complexity and nuances; fourth, two nations as intuitively different as Korea and Sweden make up an important case in regard to world culture theory. The period 1980–2018 is chosen because it is vast enough for curricular and broader educational changes to occur,

without being too extensive in time. This does also imply that intermediate curricular documents in the 1990s and early 2000s are not analysed.

Hence, the current article aims to answer the following research questions:

RQ1: What major similarities and differences are identified in the South Korean and Swedish curricular documents in terms of values, subject content, and general emphasis?

RQ2: May a convergence (or homogenisation) tendency be identified in the curricula, meaning that the two countries have become more similar?

The article proceeds with sections on related literature, the theoretical framework, methodology, a brief historical backdrop of each country, a presentation of the findings, and a discussion and conclusion.

Related literature

An important contribution to transnational curricular studies is Kim (2010), who provides a critical overview of curricular discourses of Korea's past and suggestions of future endeavors in the field. The author hopes for a partial 'Koreanisation' of curricular understandings. Further, Kim (2018) stresses that Korean high school students construct schematic narrative templates of world history and link the suffering of other people to Korea's colonial past. Kim and Chang-Rundgren (2019), on their part, emphasise that as Korea gradually becomes more ethnically heterogeneous due to a large influx of migrants, social inclusion (SI) of students with a multicultural background (SMBs) has become a more pertinent issue in regard to educational reform and practice. Kang and Choi (2018) on their behalf have found that Korean mathematics textbooks are more theoretical and put less emphasis upon mathematical

reasoning compared to American counterparts, where the latter also focus on ‘everyday problems’ to a greater degree. This proclivity is also discussed by Kim (2010).

Using interviews, documents, and other data, Sung and Lee (2018) examined a progressive school-change project in Korea called the *Hyukshin* School (HS) movement. They found that within the HS movement, globalisation as a decentralised practice interacts with local politics. This creates a new practice of contemporary East Asian pedagogy that reflects a response to a compressed modernisation trajectory (Sung and Lee 2018; see also Chang 2010).

Tahirsylaj and Wahlström (2019), who partly build on Wahlström (2016), analysed curricular and policy documents in the Albanian and Swedish school systems in relation to ‘twenty-first century skills’ such as ‘critical thinking’. In regard to Sweden, the authors underscore that critical thinking is more implicit in the Swedish context as compared to the Albanian counterpart.

Sundberg and Wahlström (2012), and Alvunger (2018), have stressed that Lgr 11 might be understood as a combination of a ‘neo-conservative’ curriculum tradition (subject focus) and technical-instrumental curriculum ideology.

Johansson and Strietholt (2019) have tested the world culture theory using multiple regression analysis in regard to TIMSS data (1995–2011). They found that the achievement patterns within different countries are far from uniform but that the most striking differences are in absolute terms where some countries perform high and others substantially lower. Little supplementary evidence suggests that international assessments like TIMSS or PISA affect the national curricula similarly in all countries. Moreover, several countries seem to preserve

specific curricular patterns at the national and regional level. For example, in Russia algebra is taught from primary schools upward whereas in most Western countries it is not implemented until the eighth grade. Overall, the authors found little evidence of a convergence effect at the global level (Johansson and Strietholt 2019).

Theoretical framework

According to the world culture theory of education, nations throughout the world are expected to converge and become more similar over time and space. However, this requires a critical lens. Carney, Rappleeye and Silova (2012) stress:

Although rejecting the Parsonian notion that norms are necessarily internalized, world culture theorists offer the remarkable image of actors—individuals, organizations, and nation-states—adopting, unreflexively, the same universal messages irrespective of history, identity, or national context. Similarly, world culture theorists evoke Weber for his insights into certain aspects of societal rationalization rather than individual human rationality.

This signifies a critique of naïve universalism in relation to education. Indeed, each national culture has its own particular features, why there are always instances of hybridisation; this largely reflects the broader social context and unique historical patterns. For instance, in Korea westernised features such as liberal democracy, consumerism, and capitalism (Lie 2014) co-exist with local and regional features such as contemporary versions of Confucianism (Shin 2011), linguistic politeness (Kim 2011), and Buddhism (Baker 2008). As a rather unique artefact, the ‘responsible mean’, ‘lagom’, is typical for Swedish culture (Barinaga 1999) and seems to almost contradictorily co-exist with increasing neoliberal individualism and competitiveness (Harlow, Berg, and Barry 2013). It is palpable that from

the 1980s onward, Sweden and the other Nordic countries have become more globalised and affected by neoliberal competition. While there is somewhat of a ‘developmental lag’ in Korea relative to Japan and other wealthy countries (Chang 2010; te Nijenhuis, Cho, Murphy, and Lee 2012), changes occur at an even faster rate in an era of globalisation and digitalisation. The OECD membership of both countries might lead to further convergence in regard to educational policies.

Regarding curricular texts it is important to underline the normative character of such discourses as they result of parliamentary decision-making processes and current pedagogical trends and ideals (Lappalainen and Lahelma 2016; Fredholm 2017). Since education policy documents partly reflect the current state of the national culture we stress that it is pertinent to discern themes (patterns) which may demonstrate convergence (i.e. homogenisation), divergence (see Wahlström 2016), or hybridisation (i.e. merging of Western/global ideas with local or regional features, such as Korean nationalism and moral education). In this regard, we focus on the curricular texts and related contexts to shed light on how and to which extent Korea and Sweden converge, diverge, or merge in regard to educational development.

Methodology, data, and analytical procedure

The analysed data comprise a) The Swedish curriculum Lgr 80 (1980) and the current national curriculum from 2011 (Lgr 11) and partially revised in 2018 (Skolverket 2018); b) The Korean national curriculum based on the fourth five-year plan (1977–1981, see NCIC 1981), documents presented in Korean and translated into English by the second author); c) the latest version of the national curriculum in Korea (NCIC 2015, which is an updated version of the 2009 national curriculum) and the key document ‘Education in Korea 2017’ (Ministry of Education Korea 2017, hereafter MEK 2017).

The two authors are proficient in Swedish, English, and Korean which enables a tripartite linguistic understanding and analysis. The first author coded all the curricular documents in Swedish and English, while an external researcher – who is also a well-experienced mathematics teacher – contributed with judgements and comments about mathematics content in all documents. This joint effort has been conducted to increase interrater validity (Cho and Allen 2006) and trustworthiness (Lincoln and Guba 1986), a term similar to validity (Cho and Allen 2006). Moreover, it follows suggestions in regard to cross-cultural research in mathematics education (Clarke 2013).

In regard to Sweden, some additional documents were considered such as Skolverket (2013), which focuses on non-cognitive abilities. The analysis of these documents provides both diachronic comparisons between Sweden (1980) and Sweden (2018), Korea (1981 compared to 2017), and synchronic comparisons between Sweden and Korea (around 1980 and 2018).

To increase coherence and address the research questions, only middle school/lower-secondary education was considered, although some broader directions and guidelines in the introductory sections of each document were also relevant and therefore studied. Since educational research is centered in an English-reading international community, we have focused on the English translations of the latest national curriculum in Korea and Sweden (NCIC 2009/2015; Skolverket 2011/2018). However, the documents from 1980/1981 were in Korean and Swedish and therefore translated into English where appropriate. Due to the uniqueness of the translation of Korean into English of the 1981 curriculum, the translations are rather extensive. An additional benefit is that a descriptive approach that builds on excerpts and quotations eschews critical-subjective interpretations that may obfuscate the comparisons over time and space.

Krippendorff (2018, 192) has outlined a set of key principles in regard to content analysis, an analytic field which has evolved over the last decades. For instance, he stresses:

Multiple interpretations are not limited to qualitative scholarship either. Content analysts can adopt multiple contexts and pursue multiple research questions. The researchers' reflexive involvement – systematically ignored in naturalist inquiries, often acknowledged in qualitative scholarship – manifests itself in the awareness that it is content analysts who construct contexts for their analysis, acknowledging the worlds of others, in the pursuit of their own research questions and in the adoption of analytical constructs based on available literature or prior knowledge about the contexts of given texts. (Krippendorff 2018, 89)

Thus, it is similar to Fairclough's (2003) critical discourse analytical framework in which the broader contexts are pertinent. The social context was predominantly described by earlier research. To the extent that quantitative features are pertinent we have examined the frequency of key concepts such as knowledge (*kunskap* in Swedish and 지식 in Korean) and quantified the current mathematics curricula. This is appropriate since the analysis is mainly descriptive and comparative.

Partially based on 'the guiding set of principles' (Bryman 2016, 587) and a '6 phase approach of thematic analysis' (Clarke and Braun 2014, 90), the analysis proceeded with the following steps. In order to fit the specific requirements for this particular set of texts and analytical design, only four major steps were essential.

Step 1: Initial reading of the curricular texts.

Step 2: Translation into English (from Swedish and *Hangeul*).

Step 3: Identification of themes and sub-themes in all documents and relate them to earlier research and the theoretical framework.

Step 4: Write findings and insights and tie them to the research questions, previous research, and theoretical framework in order to suggest a relatively coherent discursive pattern.

Background

The History of Education in South Korea

Korea has made a rapid development from a Confucian to a democratic society. This process has implied that educational opportunities were extended from a small elite to virtually all segments of society within the span of five decades, although formal class inequality was eroded in the late nineteenth century in the aftermath of western influences that were retrieved from Japan, prior to and during the colonial period (1910–1945), when Korea was annexed by Japan (Chang 2010). As Sin (2018) underlines, Korea experienced a multilingual situation as early as 1894–1919 since Confucian scholars used the Chinese and Korean (*Hangeul*) script interchangeably, and there were incentives to learn Japanese and English (Sin 2018).

In 1945, the literacy rate in Korea was only 22% whereas by the time that the democratisation process was implemented in the late-1980s more than 93% of South Koreans could read. 'Education remained the single most important factor affecting social mobility in the 1990s.' (Savada and Shaw 1992). This has occurred in conjunction with rapid urbanisation and westernisation (Baker, 2003). In the mid-1970s, the average Korean class had almost 70 pupils (Korea Development Institute 1978; see also Kuznets 1990; Kim 2013). As Savada and

Shaw (1992, 114) note, since 1945 the curriculum is and has largely been based on American standards: six years of primary school, six years of secondary school (middle school and high school), and four years of higher education (college or university). Clark (2000, 144–146) and Kim (2010) have identified a similar pattern that started in the 1980s and continued during the 1990s. Furthermore, the curriculum of mathematics has been revised nine times since the independence in 1945. The latest revision was implemented in 2011 to address the problem with rote learning and negative attitudes toward mathematics, as well as to foster greater character and creativity (NASEM 2015). As Kim (2010) notes, much of Korea's curricular development – inclusive of nationalist-leaning Moral Education (ME) – was implemented from external, specifically North American sources. Hence, an element of 'Americanisation' has been present since 1945. In recent years, the US as an external reference has been challenged by alternative discourses such as intra-Asian networks for school policy and development (Sung and Lee 2018) but the largest influence is nevertheless American.

Between 1960–1980, Korea experienced a vast economic growth, and the country is now considered 'wealthy' (Kuznets 1990; Chang 2010). In more recent decades, the education system has been affected by neoliberal elements, partly influenced by the OECD (Soh 2014; Sung and Lee 2018). Some concrete examples include more school choice agency for families and students, teacher evaluations, and greater decentralisation (Sung and Lee 2018).

The History of Education in Sweden

An important development of education in Sweden occurred when the Public-school bylaw (Folkskolestadgan) was implemented in 1842. The subjects in the general curriculum included reading, writing, calculation, geography, history, science, physical education, singing, Christendom education, and Biblical history. Whereas poverty, unclear regulations, and poor

infrastructure contributed to low participation rates throughout the nineteenth century, the population (despite significant emigration to the United States), education system, and participation rates grew steadily. As of the year 1900, approximately 10 100 elementary schools were employed, compared to only 1718 in 1870 (Richardson 2010, 50–72).

Due to the cumulative processes of democratisation, modernisation and emancipation of women (Stanfors 2003), as well as the growth of material wealth and prosperity in the early twentieth century, the education system was reformed numerous times between 1900–1970. Increased secularisation paved the way for non-confessional education in the 1950s onward. However, the major reforms, such as the introduction of the current version of upper-secondary education and the municipal adult education were introduced around 1970 and the regulations have been relatively stable ever since (Richardson 2010, 89–140). Sweden implemented multiculturalism in 1975 (Regeringen 1975). Similarly, Imsen, Blossing, and Moos (2017) underline that the Nordic model went from social democracy via progressivism to neoliberalism. Fredholm (2017) stresses a conservative response to progressive and horizontal teacher-student relations associated with decreased discipline which have occurred during a period of deepened neoliberalisation since the 1990s. These changes have paved the way for a hybrid model of centralisation and de-centralisation of the Swedish education system (Bunar 2010; MacIntyre, Neuhaus, and Blennow 2018).

Lpo 94 is the national curriculum that was implemented and used between Lgr 80 and Lgr 11. According to earlier research (e.g., Linde 2006; Wahlström 2016), the subject contents were less specified in this document. A new feature was that the curriculum was hereafter goal-oriented (Linde 2006).

The national curriculum has been revised several times. The last major revision for the entire school system was launched in 2011, with a partial revision in 2018. Sweden offers nine years of mandatory elementary school education, in which ‘Årskurs 7–9’ can be translated into middle school or lower-secondary school education. Furthermore, it consists of three years of non-mandatory upper-secondary school, and typically three to five years of higher education. (Skolverket 2018).

Findings

Curriculum contents in Korea and Sweden (1980-81)

Directions and values

We have included excerpts from chapter one and two, as well as the mathematics curriculum, of the full translation of the national curriculum in Korea (NCIC 1981).

Chapter 1: Directions of the Curriculum’s Composition

Our nation is now entering a time with hopes of unity and construction, after many years of trials and times of crisis. The Fifth Republic indigenizes democracy, builds a welfare state, and realizes a just society, while also implementing educational reform and making cultural promotion an indicator of national affairs.

Accordingly, our education aims at fostering an independent and creative people that can actively contribute to the construction of a democratic and just welfare society.

The school education must therefore achieve a holistic development and help [the student] grow into a healthy person who trains his right mind and strong body; an aesthetic person who has a high taste and pursues beauty; a person who is able to rationally solve problems by

being knowledgeable and skillful; a moral person who respects human beings and acts according to the norms; an independent person who himself decides and takes action on issues pertaining to himself and the community.

This curriculum has carefully selected appropriate educational content to achieve the above objectives for the school education, so that an integrated educational experience can be achieved at an early stage. It is organised to gradually expand and deepen this [educational experience] and is constructed with an emphasis on the formation of a moral character and the raising of ethnic community awareness.

1. Fostering a healthy mind and body

- a. A healthy body
- b. Rich emotions
- c. Refined hobbies
- d. Strong will
- e. Aesthetic attitude

2. Cultivation of knowledge and skills

- a. Basic learning skills
- b. Scientific inquiry skills
- c. Basic knowledge and skills
- d. Problem solving ability
- e. Ability to develop career paths

3. Forming a moral character

- a. Independent self-realisation
- b. Honesty and integrity

- c. Autonomy and responsibility
- d. Fairness and consciousness of order
- a. Attitude of human respect

4. Enhancement of national community consciousness

- a. Social solidarity consciousness
- b. Devotion to building a democratic and just welfare society
- c. Thorough national consciousness
- d. Motivation to develop the national culture
- e. Human co-prosperity consciousness

Chapter 2: Goals and organization of the education

A. Educational goals

With the national school education as the basis, the middle school aims at nurturing a healthy mind and body and make [the students] acquire the knowledge and skills necessary to search for careers that match their personality, as well as nurturing fair judgement and the ability to act autonomously.

1) To make [the students] have a strong body and will power to adapt to physical and emotional changes.

2) To make [the students] develop healthy hobbies so that [they] make good use of [their] leisure time and live an emotionally rich life.

3) To make [the students] use the language correctly, accurately, and to have the ability to think logically.

- 4) To make [the students] understand basic theories and principles of nature and social phenomena and to have the ability to think scientifically.
- 5) To make [the students] acquire basic skills useful in life, search for careers that are suitable for [them] and have the skills necessary for lifelong education.
- 6) To make [the students] properly judge and act upon various problems [they] face in [their] daily lives and to be responsible for the results.
7. To make [the students] understand democratic institutions and principles of life and practice [these] autonomously.
8. To make [the students] understand our cultural tradition, as well as to [make them] have an independent view of the nation and have a sense of solidarity.

B. Organization and time distribution

1) Organization

A) The curriculum is divided into school subject activities and special activities.

(1) The school subject activities are organized into twelve subjects: Moral Education, Korean Language, Korean History, Social Science, Mathematics, Science, Physical Education, Music, Art, Korean Literature, Foreign Language, Business¹ and Family Education.

C. Operating instructions

1) Planning

A) In accordance with this curriculum, schools should establish an operation plan of the curriculum that is appropriate for the students' mental and physical development, the school's specific characteristics, and the local community.

(1) Establish an annual, semesterly, weekly and daily operation plan based on the time-distribution criteria.

(2) Find a balance in the weekly and daily time distribution by considering the characteristics of the subjects, teaching materials and toolsⁱⁱ, the students' mental and physical development, the school's circumstancesⁱⁱⁱ, etc. However, depending on the characteristics of the subjects and the content of the special activities, the time for these classes can be extended.

(3) As the time allocated for special activities is limited to student council activities and club activities, the time for school events is to be saved separately.

(...)

C) Civic high schools and other schools equivalent to the middle schools operate around the goals and content presented in this curriculum. However, they are to match the students' characteristics and the uniqueness of the local community and [thereby] properly adjust the course content and the standards for time distribution and guide [accordingly]. The civic high schools shall particularly note the following.

(1) The number of class days per year is over 170 days, and the class hours for subjects and special activities amount to over 80% of the total class hours presented in this curriculum.

(2) At the discretion of the principal, special classes may be conducted at the request of students and the local community. (6)

Mathematics

A. Goals of the subject

To make [the students] develop the ability to think mathematically about objects and their phenomena, with basic knowledge of mathematics as the basis, and to apply this to their lives.

(1) To make [the students] understand the basic concepts, principles and laws of mathematics.

(2) To make [the students] use mathematical terms and symbols correctly and have the ability to think mathematically about various phenomena that occur in life.

(3) To make [the students] use mathematical knowledge and skills to rationally solve problems.

Third grade (Grade 9)

1) Goals

A) To make [the students] understand the properties of operations in the realm of real numbers, and to efficiently handle [mathematical] expressions through multiplication formula and factorization.

B) To make [the students] learn how to solve quadratic equations so that [they] can apply this to problem solving.

C) To make [the students] understand the properties of quadratic functions and their graphs, and the relationship between quadratic functions and quadratic equations, and to utilize them.

D) To make [the students] understand the meaning of probability through numbers of simple cases and enable them to find simple probability.

E) To make [the students] understand the Pythagorean theorem and the properties of trigonometric ratios, and systematically find out the properties of a circle and thereby be able to solve problems efficiently.

(NCIC 1981, translated from Korean into English by the second author)

With regard to the values and directions described in the first sections, it is possible to identify both nationalist and modernist tendencies. While democracy was not realised until 1987 (Kim, 2010), democracy is still underlined on a few occasions. Moreover, there appears to be an emphasis on moral character and physical fitness, signified by phrases like a ‘strong body’, ‘aesthetic person’ and ‘has a high taste and pursues beauty’. The last two enunciations are themselves value-laden – what is an ‘aesthetic person’? what is a ‘high taste’? and what is ‘beauty’ – but the reader is not provided any additional descriptions or explanations. Our understanding of this is that at this time, Korea was influenced by a hybrid system of Korean Confucianism, American humanism and capitalism, and Japanese and American military-style influences that glorified physical and aesthetic prowess (Lie 2014; Clark 2000). Be that as it may, such content is downplayed in later Korean documents (NCIC 2009/2015) and in the Swedish counterparts.

Sweden

In Lgr 80, whose syllabus consists of Art, English, Home and consumer studies, Physical education and health, Mathematics, Modern languages, Music, Science (Biology, Physics, Chemistry), Social science (Geography, History, Religious Education, Social knowledge), Swedish, Crafts, it is apparent that Sweden was ahead of many other countries in regard to modern democratic values, such as gender equality, environmental concern, and inclusion of migrants. Korea had yet to be transitioned from a military dictatorship to a full democracy (Clark 2000) and while Korea has focused on extended gender inequality since the 1990s many striking gender differences remain (Kim 2010). However, in the latter regard our curriculum analysis of the national curriculum (1981) found an anti-sexist stereotype notion.

Nonetheless, assuming that Sweden has gradually become less authoritarian – and it certainly has (e.g., Richardson 2010) – it is apparent that the curricular language has changed. For instance, Lgr 80 (16) stresses, ‘Skolan skall fostra’, in which the word ‘fostra’ might be translated as ‘to foster’, which has more traditional-authoritarian connotations than the terms used in Skolverket (2018). As will be underlined below, Skolverket (2018) is knowledge and value oriented. However, this was already the case in 1980. For instance, the sub-headings ‘Kunskaper och färdigheter’ (Knowledge and skills, 14) and ‘Fostran och utveckling’ (Fostering and development) and the related content clearly demonstrates this. In that regard, the Swedish education system has ‘stagnated’ as it already had laid out the foundations about 40 years ago. There are some differences, however, such as the emphasis on a detailed description of the typical school day, elements lacking in Skolverket (2018). This is a typical formulation in Lgr 80 (21): ‘The school day shall include time for relaxation and rest. All do have a need to under controlled conditions speak to each other about experiences and events as well as to think and process experiences in peace and quiet.’

Mathematics

Mathematics does also underline the significance of everyday life and concrete experiences. Problem solving is likewise emphasised (Lgr 80). In Lgr 80, mathematics comprises *problem solving, basic arithmetic, real numbers, percent, geometrical relationships, algebra and basic functions, statistics and probability theory, computer use and computer learning*. Compared to other subjects, mathematics covers ten pages (Lgr 80, pp. 98–107). Thus, the syllabus is rather comprehensive, advanced, and detailed. Mere computer use signifies a striking difference between Sweden and Korea as these contents were not mentioned in NCIC (1981).

At the time, Korea was still relatively poor compared to Sweden (KDI 1978) whereas Sweden – unlike the Korea – was already a full democracy and had ensured a sufficient level of educational quality. Furthermore, Sweden has never had any entrance exams related to secondary schools in the first place, although it had always had school grades as means to entering upper-secondary and/or tertiary education (Richardsson 2010). Thus, the ‘developmental lag’ is palpable: Sweden, at that time, could focus on specific descriptions and prescriptions while Korea had to prioritise basic structural reforms and quality improvements. Whereas the Americanisation of Korea’s education system has been an ongoing process since World War II (Kim 2010), the contextual conditions were quite different in comparison to wealthy Western nations and Japan.

Curriculum contents in Korea and Sweden (2018)

Directions and values (Korea and Sweden)

Within the first pages of the ‘School Curriculum of the Republic of Korea’ (MEK 2017) and the Swedish counterpart, ‘Curriculum for the Compulsory School, Preschool Class and School-age Educare’ (Skolverket 2018), knowledge and democracy are mentioned multiple times and appear to have salient positions. Perhaps *knowledge* is such a basic concept that it becomes trivial, but to which degree it is emphasised and in connection to what other discursive elements matter. Moreover, in the first paragraph Confucianism is underlined, ‘Education held an important place in Korea’s Confucian tradition, which reveres learning. Parents’ interest in and passion for their children’s education was tremendous.’ ‘Was’ implies that Confucianism does not perhaps longer play an important role in Korea; the country has transitioned into a post-Confucian state (Baker 2008), although with some continuity between

the past and present (Shin 2011). However, equity and compensatory measures to handle underachieving students are also underlined:

The Basic Academic Skills Diagnosis-Adjustment System, which seeks to detect underachieving students early and give them support, was expanded to cover school years one to ten from its original range of three to nine years. Under this system, a support group is set up in school to provide assistance to underachieving students. These underachieving students first receive diagnosis of their learning difficulties and then are given consulting and coaching to improve their learning outcome. If the number (or percentage) of underachievers is relatively high, schools can volunteer or be designated as a “DoDream school,” and receive appropriate support. (MEK 2017)

The Swedish syllabus includes Art, English, Home and consumer studies, Physical education and health, Mathematics, Modern languages, Music, Science (Biology, Physics, Chemistry), Social science (Geography, Religious Education, Social knowledge), Swedish, Crafts, and Technology (Skolverket 2018). Since Imsen, Blossing, and Moos (2017) emphasise that the curriculum reform in Sweden, launched in 2011, is knowledge oriented, one may suspect that themes like knowledge and skills will be repetitiously underlined throughout the document. Indeed, Skolverket (2018) is entrenched by the concept of knowledge, although often interrelated to themes such as values, skills and individual experiences (e.g. ‘can consciously determine and express ethical standpoints based on knowledge of human rights and basic democratic values, as well as personal experiences’, 10). In Skolverket (2018), the fundamental values and goals are presented:

The school should stimulate pupils' creativity, curiosity and self-confidence, as well as their desire to translate ideas into action and solve problems. Pupils should have the opportunity to take initiatives and assume responsibility, and to develop their ability to work both independently and together with others.

An environmental perspective provides opportunities not only to take responsibility for the environment in areas where they themselves can exercise direct influence, but also to form a personal position with respect to overarching and global environmental issues. Teaching should illuminate how the functions of society and our ways of living and working can best be adapted to create sustainable development. It is important to have an international perspective, to be able to understand one's own reality in a global context and to create international solidarity, as well as prepare for a society with close contacts across cultural and national borders. (Skolverket 2018, 8)

One may therefore assert that the Swedish national curriculum is knowledge *and* value oriented.

The general educational objectives in Korea are to develop individuality in order to foster a 'well-rounded character'; demonstrate creativity with a solid foundation in basic knowledge and skills; to explore career paths on the basis of broad intellectual faculties; to create new values which hinge upon the national culture; to contribute to the community through democratic citizenship (MEK 2017). The goals in middle school education are to promote a well-balanced development of mind and body; help students foster problem-solving skills for learning and everyday life and to equip them with the ability to express thoughts and feelings; to inculcate national pride; and to cultivate an understanding of fundamental values and

democratic principles. The ten main subjects in middle school are Korean language, Moral education, Social studies, Mathematics, Science, Practical studies, Technical studies/home economics, Physical education, Music, Art, and Foreign language (English) (NCIC 2009/2015). Only Korean literature and business have been excluded from the 1981 curriculum.

Mathematics

In regard to mathematics, the Korean 2009/2015 mathematics curriculum for middle school level comprises five content domains: Numbers and Operations, Variables and Expressions, Functions, Probability and Statistics, and Geometry. Further:

In the secondary school Mathematics Curriculum, the content is also comprised of five strands: numbers and operations, variables and expressions, functions, probability and statistics, and geometry. In the `numbers and operations` strand, including the concepts of sets, integers, rational and irrational numbers, and approximate values are dealt with. In the `variables and expressions` strand, including the concepts of polynomials, the interpretation and application of the four fundamental rules of arithmetic, and the contents of linear equations and inequalities, simultaneous linear equations and inequalities, and quadratic equations are presented. In the `functions` strand, the contents of the concepts of linear and quadratic functions and their applications are presented. In the `probability and statistics` strand, including the basic meaning of probability, the contents of frequency distribution, representative values, and the measure of dispersion are included. In the `geometry` strand, the contents of understanding and proof of the properties of basic figures, the understanding of the Pythagorean

theorem and its application, and the concept of trigonometric ratios are presented.

(NCIC 2009)

This appears similar to the 1981 curriculum, although with less content saturation.

The Swedish mathematics curriculum in relation to grade 7–9 underscores *understanding and use of numbers, algebra, geometry, probability and statistics, relationships and change, and problem solving* (Skolverket 2018, pp. 59–60). Thus, in this regard Lgr 80 and Lgr 11 are strikingly similar, as if Skolverket had travelled back three decades in time in order to find inspiration. On the other hand, ‘huvudräkning’ (mental arithmetic) and ‘överslagsräkning’ (rough estimate counting) are emphasised in Lgr 80 but not in Lgr 11, whereas the latter accentuates mathematics understood in various cultural and historical contexts. Thus, some diachronic differences are manifested.

Key Similarities

Some of the major similarities between Korea and Sweden are the focus on knowledge and skills, democratisation, internationalisation, equity, and subject content. Both curricula emphasise the importance of creativity and confidence, problem-solving skills, and mathematical knowledge. The values and multi-faceted curricula contents appear to reflect a modern humanitarian discourse, although the element of national pride in Korea may reflect a hybrid discourse (humanitarian-nationalist) which in part is associated with a patriotic American influence (Kim, 2010). For instance, the Swedish curriculum says, ‘The task of the school is to promote learning by stimulating the individual to acquire and develop knowledge and values. In partnership with the home, the school should promote the all-round personal

development of pupils into active, creative, competent and responsible individuals and citizens.’ (Skolverket, 2018, 7). This is quite similar to Korea’s general guidelines. Indeed, Korea’s curriculum has become more cosmopolitan since 1981.

A school factor that lends support to convergence is that Korea’s school classes have decreased from almost 70 pupils per class in the mid-1970s (KDI 1978) to less than 30 in 2017, while Sweden has about 20 (OECD 2018). Whereas Sweden had large classes in the past this was not the case in the 1970s (Richardsson 2010). On the other hand, Korea had only about 170 school days in 1981 compared to 190 in 2018 (OECD 2018, 347). However, whether this reflects a specific school development factor, or a macro-economic development process is difficult to disentangle as these might be parallel trajectories.

Key differences

A value-related difference is that Skolverket (2018) stresses its Judeo-Christian heritage and Western humanism, while only Confucianism is mentioned in a similar regard in the Korean counterpart. This is because Christianity and humanism are more recent phenomena in Korea (Baker, 2008) while deeply rooted in Sweden (Richardsson 2010).

Subject-wise, in Korea mathematics is divided into algebra and geometry, whereas in Sweden they are integrated into a singular subject. The mathematics content appears to be slightly more advanced in the Korean curriculum (see Online appendix). Moreover, the Korean curriculum underscores that the use of calculators in the classroom is prohibited, which may foster greater arithmetic skills. These may be somewhat useful in relation to for instance PISA tests. Another difference is that mathematics in Sweden, similar to American textbooks (Kang & Choi, 2018), emphasise everyday life and reasoning rather than pure theoretical knowledge.

When contextualising these findings in relation to the broader social and educational contexts, it is notable that when measured around 2009 Koreans spend almost twice as many hours on schoolwork (regular school, homework, and cram schools) compared to Swedes (Ahn and Baek 2012; SCB 2015). Thus, this particular difference has diverged over time, at least until 2009.

Furthermore, ethics and *hanja* are not part of the Swedish equivalent, although some schools offer basic Chinese (Skolverket 2018, 69–72) and ethics are sometimes implemented in Religious Education or within the other subjects (Sporre 2019). Moreover, Moral Education (ME) is not included in the Swedish curriculum, at any level of the education system. Perhaps ME has assisted in the inculcation of character skills to a greater degree than in the Swedish population.

Moreover, there are of course national particularities such as North Korean defectors mentioned in MEK (2017). Furthermore, in regard to core values some such are emphasised in the Swedish curriculum but not in the Korean counterpart.

The school should promote understanding of other people and the ability to empathise. Concern for the well-being and development of the individual should permeate all school activity. No one should be subjected to discrimination on the grounds of gender, ethnic affiliation, religion or other belief system, transgender identity or its expression, sexual orientation, age or functional impairment or other degrading treatment. All such tendencies should be actively combated. Xenophobia and intolerance must be confronted with knowledge, open discussion and active measures. The internationalisation of Swedish society and increasing

cross-border mobility place high demands on the ability of people to live with and appreciate the values inherent in cultural diversity. (Skolverket 2018, 5)

Moreover, character plays a more dominant role in the Korean curricular discourse. While the emphasis on a well-rounded personality is present in both the Korean and Swedish versions, character specifically is more frequently evoked as a theme at the middle school level. The word ‘character’ – either as a singular word or as part of character education or character-building – is mentioned 30 times in the section which treats middle school education but not once in the Swedish document. This points to inspiration drawn from influential education economists such as James Heckman (e.g., see Heckman, Stixrud, and Urzua 2006). On the other hand, Skolverket (2013) underlines similar vocabulary and research but that report is not a part of the curriculum.

Discussion and conclusion

Whereas there exist palpable similarities and differences in regard to curricular contents and the broader educational and sociocultural contexts, it is less clear to which extent a convergence effect is present or not. In other words: have Korea and Sweden education-wise, and specifically curriculum-wise, become more similar? Our answer can only be a fuzzy yes and no because there are contradictory tendencies in that regard. Syllabus-wise much remains the same in both countries, although Korea has excluded (e.g., Korean literature) while Sweden has added a few subjects (e.g., Technology). Many of the essential values of Sweden, such as normative gender equality and inclusion of migrants, were already implemented in Lgr 80 while typically lagging in Korea (Kim, 2010). This signifies different sociohistorical trajectories. MEK (2017) is not overly concerned about gender equality. More focus is on creativity and character education, perhaps to increase entrepreneurship and innovation, avoid rote learning, and increase wellbeing among students.

In line with earlier research on Lgr 11 (Andersson 2011; Sundberg and Wahlström 2012; Wahlström 2016; Alvunger 2018) we found an emphasis on knowledge, knowledge development and various subject-specific skills. This is because such parlance is typically used and therefore identified at the surface level in many subjects, including Swedish (Wahlström 2016), social science (Alvunger 2018), and mathematics (Andersson 2011).

With regard to critical scholarship on world culture theory (e.g., Carney, Rappleeye, and Silova 2012; Schriewer 2016; Johansson and Strietholt 2019), we have used this framework to examine to which extent the curricula in Korea and Sweden have become more similar over time or not. Nevertheless, even our relatively straightforward descriptive and comparative analysis implies that the socio-historical contexts and trajectories matter. Even surface level similarities and overlaps in mathematical content cover broader and deeper differences at the cultural and social levels of the education systems. In pure quantifiable terms Korea and Sweden have similar amounts of school days, class sizes do not differ considerably, and the subject contents overlap in mathematics, but the implementation of these elements within structures are indeed not the same.

This article aimed to discern some similarities and differences between the Korean national curriculum and the Swedish national curriculum and a set of complementary documents, both more broadly and generally and with special emphasis on middle school level mathematics education to identify content convergence over time (1980–2018). A set of striking similarities and differences were identified, such as the emphasis on character education in Korea which is largely ignored in Sweden. While many differences persist, a slight homogenisation or convergence effect may be identified, especially if school material factors such as class size (but not annual number of school days, which were somewhat more similar

four decades ago) are considered. In other words, due to economic growth, globalisation and westernisation disparate cultures may converge to some extent.

Our contribution is not extensive in the sense that only two countries have been examined and as such in relation to one particular subject (mathematics). Therefore, it may be regarded as adding incremental knowledge to critical scholarship on world culture theory. However, it is groundbreaking in the sense that it is, to our knowledge, the first curricular comparison between Korea and Sweden and the first translation of the 1981 curriculum from Korean into English. Further research may deepen or broaden the research using complementary texts and methods, such as interviews and observations in contemporary school contexts (e.g., see Sung and Lee 2018; Alvunger 2018), or other countries.

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1. In the original document, the term "siröp" is used, and it shall not be confused with the subject of business administration, i.e. *kyöngyönghak*.

2. In the original document, the words "kyoche" and "kyogu" are used, which the author has chosen to translate as "teaching materials and [teaching] tools." Moreover, "kyoche" is probably a misspelling of the word "kyochae", since "kyoche" means "fellowship" or "intercourse," which does not make much sense in this context.

3. This is also most likely a typo in the original text, where "söljöng" (which means "institution" or "foundation") is written, while it probably is supposed to be "siljöng", which means "(actual) circumstance(s)."