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International Perspectives and Interactions in Education

Guest Editors

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Introduction to JALT's inaugural special issue

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I am very pleased to see this inaugural special issue of JALT being published. May it be the first of many to come! It is a very worthy first special issue that originated in EDU2019, an inspiring, international conference that took place in Athens, Greece, in May this year, and that was organised by the distinguished guest-editors of this issue, Dr Margarita Kefalaki (President of the Communication Institute of Greece) and Dr Fotini Diamantidaki (its Vice-President of Research and Academic Affairs).

In their excellent Preface to this special issue on *International Perspectives and Interactions in Education*, Fotini Diamantidaki and Margarita Kefalaki connect the seven well-chosen articles via the educational key concept of knowledge. Please allow me my own brief meditation on knowledge and how it relates to this special issue. Knowledge as actionable information is cumulative and as educators, we are on a mission of continuous learning and teaching, with the hopeful result of increased knowledge in our learners. It has been classified as know-how (or tacit knowledge), know-what (or explicit knowledge), know-who (or social capital) and know-why or care-why.

This multi-layered concept of knowledge can also be seen in the creation of this special issue. Fotini and Margarita have long decided to render their impressive tacit knowledge into explicit knowledge. This, in itself, is not special, as, although we always have more tacit than explicit knowledge (the philosopher Michael Polanyi famously said that 'we can know more than we can tell'), everybody who is reading these lines, in one way or another, is constantly creating explicit knowledge to varying extents. It is special that Margarita and Fotini took on the arduous job to organise a conference with more than 100 participants from 21 countries, during which 'socialisation' (in Knowledge Management guru Nonaka's sense of the word) took place and during which we shared our tacit knowledge with one another. This special issue of JALT is but one form in which the tacit knowledge of educational practitioners from around the world who met at EDU2019, has been rendered explicit. Another two articles from EDU2019 will also appear shortly in the fourth regular issue of JALT (in December, 2019). Fotini and Margarita are also the Editors of the *Journal of Education, Innovation, and Communication* (JEICOM), in which other contributions from the conference have appeared separately, and contributions from future conferences (EDU2020 will be in May, 2020) and beyond, will continue to appear.

The relationship between tacit and explicit knowledge in academic writing may be quite obvious. But the other two aspects of the above-mentioned, multi-layered concept of knowledge (know-who and know-why / care-why) are not less important. I got to know Margarita and Fotini through a mutual friend, Ailson De Moraes (who teaches at Royal Holloway, University of London), and I am honoured to have all three of them on the Editorial Board of JALT. I continue to be amazed by the generosity of their knowledge-sharing, and it is thus unsurprising that we are all involved in open-access, online journals that do not charge anybody anything, and that mutually support each other (JEICOM and JALT).

Why go through all the trouble? The editors of this special issue are passionate about Education and continuous learning via knowledge-creation. Nelson Mandela said that education 'is the most powerful weapon which you can use to change the world', and we are all involved in this, in humbler ways than the great leader. Thus, tacit knowledge, explicit knowledge, know-who and know-why are all beautifully present in this special issue of JALT that I highly recommend to you. It is the inaugural document of a co-operation between the Communication Institute of Greece, JEICOM, JALT, and Kaplan Singapore (as the sponsor of JALT). It is our hope that our co-operation will thrive, with many more such special issues in years to come.

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Preface to the special issue: International perspectives and interactions in education

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Our special issue presents a plethora of perspectives and innovative practices in education contexts from across the world. Authors from Canada, the U.S., South America, Europe and China, argue their case on advancements in educational settings and discuss the value of knowledge. Articles published in this issue include papers presented at the International Conference on Education (EDU2019), organized by the Communication Institute of Greece, 13-16/5/2019, in Athens, Greece.

Following a rigorous peer-review process, we start with an article from a joint effort between Canada and Brazil on the definition of knowledge; what is ideal knowledge, should we strive for it, should we aim for harmonization in society and what constitutes our '*Complete Personal Encyclopaedia*'? Why as human beings do we need to be acknowledged for what we know it to be meaningful and is this an important component of our society? The article argues that different types of knowledge and therefore education are, or should be, welcomed in society. They all serve a purpose, because they are all useful and they are all meaningful in their own way. There isn't such a thing as perfect knowledge but collaboration and a less didactic and transmissive model in education could foster the development of a more comprehensive knowledge. Richard Gagnon, Bruno Santos Ferreira, Gilberto Lacerda dos Santos are the authors of this article, entitled 'Towards complete knowledge for complex problems resolution'.

We then travel to the U.S., where Masaki Mori discusses the issues of four Asian language programmes, including Chinese, Japanese, Korean and Vietnamese ones. Based on the local context and provision, the paper discusses what the issues are in the University of Georgia and what would make the provision better. This article seeks to present recommendations to improve the courses. It searches for the best way to apply the 'knowledge' and for that we need to set things into motion via a plethora of means. In the context of this proposal, finding qualified teachers, developing exchanges and making better use of funding structures

are the tools needed to develop expertise and that more comprehensive knowledge discussed in the previous article is pertinently applied here.

The third article of this issue, entitled 'Developing reading in modern foreign languages: case studies from the classroom', by Fotini Diamantidaki, is contextualised in London, UK, and discusses how different types of knowledge: semantic, syntactic and graphophonic knowledge – or lack of those functioning simultaneously – contribute or not to the developing of reading in the foreign language classroom. Fotini Diamantidaki argues that a more innovative approach to reading through literature and through classroom interaction with a specific creative goal that leads the learners beyond the text itself, allows students to engage with the content of the language more intuitively and make language their own. The aim is to prove that not only the teacher holds the knowledge captive, but the learner can bring their own knowledge into the process with the view to go beyond the given and create an artefact of their own. This is possible only when the knowledge is taught and shared.

The fourth article comes from Germany where Alexander Ziegler suggests an innovative approach for curriculum development from the SaaS industry with the aim to drive more curriculum content. It is a technical paper that argues that digital transformation is still ongoing in the area of education and an innovative approach coming from the industry sector, and more specifically from IBM, on how we could possibly consider 'crowdsourcing' as a curriculum development approach. The paper breaks boundaries in our existing knowledge and helps us think differently about curriculum development in education.

Mengyao Zhang, Fei Wang, Xinrong Tao, Zeying Wang and Ning Ma, from China, present "Exploring the relationship between students' interaction in a smart learning environment and various variables through the structural equation model". The authors focus on student interaction and examine which variables affect that in the smart classroom. This is executed

very precisely through the structural equation model and it is applied successfully into measuring the variables that affect positively the interaction in the smart classroom. The article contests the idea of what a 'smart' classroom is, and whether all the variables presented in the article, such as learning data and differentiation in the classroom, are indeed new. What it comes down to eventually is how the teachers make good use of the smart tools provided. An encouraging message proving that human beings do still carry the 'knowledge' and they are the ones who can change it.

The sixth article of this issue comes from the UK, by Li Qing, entitled "Managing rapport in the context of classroom talk: A case study of a London secondary school, UK". It discusses classroom talk in the Mandarin Chinese secondary school classroom. This is a new area of research in the UK, with not much research conducted yet in the mainstream Mandarin classroom. Drawing on the theoretical framework on rapport management, the paper investigates how teacher and students negotiate achievement of their goals and how the rapport is managed in this classroom setting. The article shows that we should always challenge students' thinking skills in the classroom and aim for the more collaborative model rather than a didactic one, the former being more fruitful.

In the final article in this special issue, Fanni Dudok from Hungary, compares education systems in the East-Central European region from the aspect of regulation and curriculum. This is a large comparative study amongst the education systems of Central and Eastern Europe, more specifically amongst Hungary, Romania, Serbia, Croatia, Slovenia, Austria, Slovakia, the Czech Republic and Poland. It looks into whether the systems are similar or unified or whether they have been influenced by domestic changes. The results show that there are many common elements across countries, even though they have progressed in different ways. An example which proves that 'knowledge' can be shared and eventually help harmonize systems.

We would like to thank all of our contributors and peer-reviewers who have very diligently participated during this long process of peer reviewing. Additionally, we would like to thank the Academic Community and administration of the Communication Institute of Greece for making it possible for academics from different countries and cultures to meet, exchange and communicate. Our collaboration with Kaplan Singapore and the Journal of Applied Learning & Teaching (JALT) is an example of how many great things we can achieve via this international endeavor. It has been an honour to collaborate with so many talented colleagues from all over the world and we hope that you will enjoy this special issue on International Education and keep thinking what connects us, defines us and challenges us. This is how we can hope and create a better world full of knowledge of the restless human spirit. Thank you to everyone for joining us on this journey.

Towards complete knowledge for complex problems resolution

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Abstract

Human beings are complex. They learn through means of very different natures — thought, feeling, sensation, intuition — that complement each other without really understanding one another. Truly ideal knowledge would nevertheless involve all these means developed to their full potential and harmonized among them, which is almost impossible since, generally, one or two of them overwhelm the others. However, all would be necessary to understand and solve the crucial and equally complex problems — such as the ones related to immigration and climate change — that only a fully integrated multidisciplinary approach would allow dealing with adequately. It is in this perspective that we explore various categories of knowledge (meaningful, encyclopedic, etc.), as well as how and to what extent we can promote the development of what we have called "complete knowledge", i.e., the richest and most complex that is accessible to an individual or a community. This would imply in practice to engage the learner with all the learning means available to him — they are associated respectively with speculation, appreciation, sensory experience and revelation. Despite the difficulty, an opening to other points of view could then take place, from the simple but already troubling tolerance of these points of view to their gradual integration in the learner's mind. We argue that if a traditional, mostly linear, deductive approach is appropriate for the development of meaningful knowledge — provided certain characteristics of the learner, related to relevance and epistemology, are taken into account —, a dialectical approach should suit better the gradual development of the comprehensive knowledge, then increasingly best regarded as a symbol, required to foster collaborative work when multiple disciplines are involved.

N.B. Part of this article reconsiders and deepens some of the ideas presented in Gagnon and Santos Ferreira (2018, in Portuguese). The masculine gender is used solely for the sake of readability.

1. Introduction

Knowledge defines the human being. According to Aristotle (2002), to look for it is a natural desire, as knowledge serves to orient every one of us with respect to the world, others and ourselves. It is inextricably embedded in almost all human activities and manifests itself in several ways and fields: mythology, philosophy, religion, art, language, science, etc. (Cassirer, 1996). This diversity of manifestations embodies all kinds of ceaseless efforts — although each time with limited success — that Humanity has made throughout History to make sense of who we are, where we are coming from, where we are going, resulting in a complex network of often incompatible elements in so many languages, vocabularies, signs, hypotheses, theories, beliefs, realities, forms, causes, purposes, etc.

Of all those ways and fields of human endeavour, Science, understood as a rational explanation of something, based on rigorous methods recognized by a specialized community, stood out in the last four or five centuries for its ever increasing repercussion in our daily lives and its quasi universal credibility. It allowed us to understand a huge amount of phenomena of all sorts, physical, biological, social, psychological, economic..., but also to develop ever more complex technological systems and devices without which our modern societies would almost instantaneously collapse.[1] This merely illustrates to what extent scientific (and technical) knowledge transformed our societies and their organization. Thus, new social relations of a dynamical and complex nature have been created, particularly since the first half of the twentieth century (Bell, 1977). Similar progress with similar consequences were made in almost every field of investigation, creation and knowledge, but from their own perspective, many of them influenced by the methods and techniques developed in physical sciences since Galileo's and Newton's lifetime, but also by new ways of probing irrational and unconscious phenomena elaborated from the second half of the XIXth century, resulting in the world that we know today.

More recently, with the advent of computers, societies began to organize themselves along the principles of communication and information processing governing these machines (Castells, 1999). One started to experience a "computerized society" organized so to speak in networks of individual societies. Consequently, the fabric of social reality is continually reconfiguring itself, our control over nature is expanding, and social relations as well as our way of perceiving the world are deeply transformed. Simultaneously, our notions of time and space "dematerialize", boosting what many authors call modernization or globalization (Tabachnick & Koivukoski, 2004; Morin, 2014). It is no wonder then that, under these conditions, education, as we conceive it nowadays, be strongly questioned.

The fact is that until recently one could say with relative certainty and peace of mind that indeed this way of functioning worked. It succeeded in Man reaching the Moon, to stop and prevent a large number of epidemics, to feed entire populations with only a few farmers, to understand the causes and effects of many social phenomena, to connect people all over the world almost instantaneously, to fill museums and libraries with extraordinary works of art, etc., using hypotheses, controlled experiments, analyses, deductive reasoning, sophisticated technologies, trials and errors, imagination, dreaming, automatic writing, etc., meanwhile, unknowingly perhaps though with the best of intention, generating new and quite severe problems intractable by usual methods: environmental degradation, social inequalities, climate change, demographic crises, and many others, not to mention socially controversial issues opposing scientists, artists and citizens who regularly do not share the same point of view on matters of public significance (Muessig & Aldrich, 1975).

In our contemporary world, more and more, everything intertwines, mixes up, influences everything else, breeding doubt and uncertainty that no single approach, technique or methodology, no matter how powerful, can resolve alone. New challenges require new ways of thinking and the reduction of every problem to a single point of view using an all-encompassing method is not one of them. Too many variables are involved, many of them perhaps unknown, many others probably unidentifiable as such. In other words, complexity (Morin, 2014) is among us! As a consequence, monodisciplinarity, i.e., a single way to approach something and a single perspective on it, will not suffice to accommodate our world, every discipline — scientific, social, artistic, spiritual, etc. — will have to contribute generously and openly, to the point of transcending themselves, and we shall have to innovate in order to know what to do, because we ignore it, really.

Multidisciplinarity — which consists in the study of a same question by several disciplines — and interdisciplinarity — which involves the transfer of methods from one discipline to another in a collaborative spirit (Darbellay, 2011) — could be first steps as these approaches are broader and extend beyond the framework of a single discipline. However, they would end up short as the contribution of each discipline would remain within its own boundaries, juxtaposed to the others more or less like a patchwork instead of forming together a truly integrated response to the actual question, limiting a true and shared understanding of its meaning and consequences. For Darbellay (2011), the disciplinary organization of knowledge hinders and even precludes the elaboration of a unified theory or worldview articulating all or at least parts of these disciplinary contributions. This is because specialization in particular fields, hermetic from other perspectives, delineates rigid limits of understanding in these fields, creates its own vocabulary and develops techniques and theories to solve its specific problems (Gusdolf, 1977). What one needs rather is a way to transcend these boundaries separating the fields in order to reach a synthesis necessarily of a symbolic nature required to better deal with complexity, such an elusive concept. Only then could one thus accept as simultaneously valid numerous interpretations from a number of perspectives even when they appear to contradict each other, in a true transdisciplinary manner (Nicolescu, 2008).

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[1] More precisely, science and technology are inseparable, the evolution of one triggering the evolution of the other.

Morin (2014) argues that complexity calls for a new approach at the epistemological, methodological and theoretical levels, as well as for the necessity to rethink the idea of fragmented and compartmentalized knowledge that dictates the logic of science production and the limits of scientific knowledge. Nicolescu (2008) adds that the classical scientific ideal is discordant with the objective and the design of a complex new knowledge. We add that rational and irrational perspectives must be reconciled, i.e. science and art, myth and science, spirituality and earthly life, and the like, in order to glimpse into true complexity.

What does this tell us from an education point of view, when we are trying to determine what we should focus our attention on in educating, preparing rather, individuals and communities to cope with the above, to enter complexity?

Indeed, the general path is rather clear, but the detailed one is almost invisible. One must first recognize that the human mind resembles the world it appears to inhabit: complex. And that this complexity can bridge the learner and the object of learning. Human being learns through means of very different natures — thought, feeling, sensation, intuition (Jung, 1971) — that complement each other without really understand one another. Therefore, truly ideal knowledge would involve all these means developed to their full potential and harmonized among them. This would generate a rich, complex and ideally balanced knowledge from a human point of view. However, this is impossible since, generally, one or two of these means overwhelm the others, particularly when we are young. With maturity and experience, given the chance and the opportunity, we may develop other means but only up to a certain extent (Jung, 1971).

It is in this perspective that we explore in this article various categories of knowledge, as well as how and to what extent we can promote the development of what we have called *Complete Knowledge*, i.e., the richest and most complex that is accessible to an individual or a community. We obviously do not reach definitive conclusions but we propose lines along which one could travel in order to approach this complete knowledge that we are seeking for as much as possible.

2. A meaningful knowledge

What is knowledge? The etymology of the term refers to its origin in the Latin word *cognoscere*, meaning "act or effect of knowing". Thus stated, the notion of knowledge seems simple and obvious. Inside us, we feel it as something given, intimate, familiar. But as soon as we try to understand better its true meaning, it eludes us, paradoxically transforming itself into something unknown and complex (Morin, 1986). This uncomfortable phenomenon has fascinated philosophy from its beginning and continues to do so: on one hand, what knowledge means remains an open question, but on the other, it constitutes the most solid foundation on which all human science in every field rests. It is a "catch 22" situation, "[i]t is as if there was no starting point, since the act of thinking about knowledge presupposes that knowledge is already

there, as the support and cause of thought" (Morin & Brunet, 2000, p. 43, our translation). Nevertheless, we shall assume that there is no knowledge without a subject in possession of this knowledge. And we shall consider that knowledge partakes of the perspective of a subject in a twofold manner. On one side, it is entirely subjective, private, singular, proper to the individual, intimately related to his personal history, preferences and particular ways of thinking and acting; on the other side, it is social, public, corresponding to what is shared with other people, common with them, objective shall we say, like culture, like language. It can also be very simple, like an elementary grammar rule whose understanding involves solely the use of thought, or quite complex, to the point of incomprehensibility, like a symbol whose different interpretations are mostly inexhaustible and involve all the learning means at our disposal in an inextricable sort of way. When, therefore, can we say that we know? And when is this knowledge really meaningful? These are tough questions to answer in a satisfactory manner but many years ago one of us (see Gagnon, 2013) proposed an operational definition of what a meaningful knowledge could be, which seems to pass the test empirically (Zourhlal, 1998). The definition goes as follows:

> Knowledge is meaningful for an individual when it is relevant and valid from his point of view, i.e., in accordance with his epistemological position. In the same way, knowledge is meaningful for a community when it is relevant and valid from the point of view of the community in accordance with its epistemological position.[2]

When these two types of knowledge coexist and are compatible with one another in an individual, it means that what he knows and considers meaningful — specifically, the social part of it — is also recognized as such by a reference community, for instance, an engineer in a community of engineers or a citizen in his social community. The individual thus trusts what he knows and trusts himself, feels confident and autonomous, and acknowledged by the reference community to which he belongs.

In view of the above, we propose the following definitions:

- A knowledge exists for a subject from two complementary perspectives: 1) individual, subjective, unobservable from the outside; 2) social, objective (i.e., from others' point of view), observable from the outside. We shall call *Individual Knowledge*, knowledge considered from the first perspective and *Social Knowledge*, knowledge considered from the second perspective. For instance, listening to a detailed explanation of a theorem in mathematics or watching a demonstration of a particular technique in automotive mechanics from experts in these fields is witnessing Social Knowledge while the experts themselves proceed from Individual Knowledge.

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[2] Relevance is related to the effort required to learn something and to the effect of this new knowledge on the context of the individual or the community (Zourhlal, 1998, 2015; Gagnon, 2013). To validate a knowledge means to make sure that this knowledge is true and trustworthy (Gagnon, 2013). This is done according to the epistemological position of the individual or the community. Pepper (1970) has defined and characterized the following epistemological positions: mechanism, formism, contextualism and organicism.

- Two categories of Individual Knowledge can be established: 1) private, non-sharable absolutely (sensations for instance, which must be felt by oneself, like the taste of an orange which cannot be truly grasped otherwise) or intentionally (anything that one chooses to keep to oneself, examples abound in each of us) and, therefore, invisible in the Social Knowledge; 2) public, shared with the reference community and visible in the Social Knowledge (like the common language of the reference community). In general, individual knowledge is a mixture of private and public knowledge — for instance, we all know what snow or beach means but we all have different experiences associated with them — and it is likely that, strictly speaking, pure private or public knowledge do not exist in an individual. We shall call *Private Individual Knowledge* the first category of Individual Knowledge and *Public Individual Knowledge* the second category. Let us note that what we have called Social Knowledge is larger than the Public Individual Knowledge as the former manifests not only the latter (for example, the specialized vocabulary of a reference community is found in both categories) but also the Private Individual Knowledge (for instance, personal tricks or idiosyncrasies that are not easily transferable, if ever possible, to other people and therefore restricted to this category). Thus, all Public Individual Knowledge is Social Knowledge, but not all Social Knowledge is Public Individual Knowledge. It is on this sole basis that, most of the time, we distinguish the best people in their field (in sports, for example) from less gifted ones: they *know* something, no matter how or why, that no one else does but clearly detects and recognizes as outstanding, if not magical.

- Making use of these definitions, we shall call *Individual Meaningful Knowledge*, knowledge pertaining to the individual perspective of the subject, private and public, considered relevant and valid by the individual. This is simply a rephrasing of the original definition of the meaningful knowledge of an individual given above. This knowledge will be termed *perfect* as it corresponds fully to what the individual requires to attribute to it value, trust and truth.

- Finally, we shall call *Public Meaningful Knowledge* the public part of the Individual Meaningful Knowledge. Recall that to be recognized by the reference community, it must be relevant from the perspective of the community and validated according to its epistemological position. It is quite generally upon this category of knowledge that curricula are based.

3. Encyclopedic Knowledge

Meaningfulness of knowledge is generally what is wished for both by a particular individual or a society. Obviously, scientific disciplines look for it, seeing in it an ideal of perfection, not only formally but as a means to solve problems specific to them in the best possible way. As discussed earlier, knowledge gains meaning through an epistemology which links it to other knowledge forming together an organized system whose sturdiness depends on the degree of relevance and validity of its constituents. In an individual, this results in a series of strong (neuronal) interconnections constituting a network of meaningful knowledge. A large group of individuals in the same discipline would agree on quite a lot of particular meaningful knowledge specific to the domain even without *a priori* sharing all of it. Together, they could map the whole network on which they agree, which would constitute essentially the totality of the public meaningful knowledge associated with the domain. Likewise, a large group of individuals in every discipline could do the same. The collection of all public meaningful knowledge associated with each discipline would then constitute the totality of the recognized meaningful knowledge of Humanity at a given time. This is what we generally called a Universal Encyclopedia.

Historically, the *Encyclopédie* was one of the most ambitious intellectual endeavors of all time. The project, led and edited by Diderot and d'Alembert in the Age of Enlightenment, aimed at presenting a synoptic view of all the scientific, artistic and professional knowledge of the time, to constitute, in a structured manner, a synthetic and coherent totality of the then actual human knowledge. The editors meant to present the general understanding of specific knowledge and the articulations between them, as they suggested in their *Discours préliminaire* (Guilbaud, 2017). The work would thus appear both as an encyclopedia, detailing the general course and evolution of human knowledge, and as a dictionary, presenting what was considered essential to know about each specific entry. The hope was that, assuming a minimal common vocabulary among the different disciplines and topics, the entries would explain one another as in a musical counterpoint.

Pursuing our work of defining different types of knowledge, we shall quite naturally call *Encyclopedia*, partial or universal depending on its scope, that kind of meaningful knowledge which, obviously in this case, contains nothing but public knowledge.

Reduced to the individual, we shall call *Personal Encyclopedia* all individual meaningful knowledge including both their public and private part. It is by definition *perfect* since it only contains meaningful knowledge. The term *Private Personal Encyclopedia* will refer to the whole of the private knowledge associated with individual meaningful knowledge, and the term *Public Personal Encyclopedia*, to the totality of the public knowledge associated with individual meaningful knowledge. The subset of the meaningful social knowledge of an individual[3] will be called Perfect Social Personal Encyclopedia and the set of all Perfect Social Personal Encyclopedias will constitute the entire meaningful knowledge of Humanity, i.e., a true *Universal Encyclopedia*, the closest form of *Social Complete Knowledge* that what one can think of. This very inclusive definition of Perfect Social Personal Knowledge thus leads to the easily recognized fact that Humanity knows much more in a meaningful way

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[3] It corresponds to the totality of individual meaningful knowledge, including idiosyncrasies, considered from the social perspective (see section 2).

than what can be made objective in words or otherwise. In a sense, it can be said to contain a very precious portion of human freedom, hopefully acknowledged as such by most of us.

4. Individual Complete Knowledge and the World Wide Web

Several observations can be made when we consider all the elements that have been presented above. Some are rather obvious since we are used to seeing them retained and implemented in the majority of the learning environments that we know of. Others are more problematic because they raise questions that we do not know how or do not always want to resolve.

Let us consider, first, the individual meaningful knowledge. We declared it perfect because it has all the characteristics that an individual requires to value and trust his knowledge. On the one hand, it is desired by him, since he considers it useful, interesting, pleasant to know or for some other reason which, from his point of view, confers to knowledge its relevance. On the other hand, it has been validated in the way that the individual favours when he wants to validate his most valuable knowledge, i.e., in conformity with his epistemological position or, in practice, with his learning style according to Kolb's classification (1984). Clearly, a given piece of knowledge can be singular, at the limit known by only one individual, it can also be false for others, but for this individual, it is loaded with meaning and precious. If it ever becomes necessary to alter this knowledge, it will be difficult.

Facing the individual meaningful knowledge, one finds the public, collective or social meaningful knowledge. It is shared by a community of individuals favouring the same epistemological approach, the same methods of knowledge validation, like the specialists of a domain, or the same language, the same culture, like a homogeneous society. Any observation or characteristic that could be attributed to individual meaningful knowledge would essentially also apply to public meaningful knowledge as it concerns a distinct community — thus comparable to an individual —, in a society that comprises many. Seen from this angle, a public meaningful knowledge can be, paradoxically, singular, but also false or unacceptable to other people or communities.

In general, any individual living in a society possesses hybrid knowledge, i.e., made of public and private elements. For instance, all mechanical engineers master the principles of fluid mechanics or the mechanical properties of materials, they are common knowledge in this community, but the experience of each engineer about these contents is singular and partly unconscious, so that the resulting knowledge forms a composite mixture, partially indeterminate, peculiar to each. It will be recognized by society only if it has been validated by it — more precisely the public elements —, which is done through its educational institutions and professional orders. A first source of conflict then arises, when what is relevant for an individual is not necessarily relevant for the society or the group of individuals concerned. For instance, the history of mechanical engineering does not usually enter the curricula universities propose in the field, which could frustrate a student showing a strong interest in the matter. More damaging still, a significant disinterest in mathematics by a student will greatly affect his training in the field because engineering quite generally makes extensive use of mathematics. The same is true of the knowledge validation process. If the epistemological positions of the individual and of the reference community coincide — and the knowledge in question is relevant to both — we get back to this situation which we have described earlier as perfect, both for the individual and the reference community. Then the individual really feels at home in this community who, reciprocally, acknowledges him from the outset as one of its members. But if, otherwise, the modes of knowledge validation do not coincide, if, for example, a strictly analytical approach of the mechanistic type — which considers the whole as the sum of its parts, as it is common in mechanical engineering — is privileged on the one hand, but that on the other, an organic-type approach — which maintains that the whole is more than the sum of its parts, as biologists often proclaim — another problem appears, because the individual has no choice but to demonstrate to the reference community that he knows and shares its methods. In practice, the individual most often chooses to adapt to the reference community, at least while being evaluated, and returns to his preferences whenever possible. Anyone with an experience in teaching will recognize this phenomenon! In those situations, knowledge loses some of its perfection. A few years ago, Gagnon (2015) proposed some ways to implement gamification in education and training environments taking into account similar issues. The interested reader may refer to his analysis.

Still, perhaps surprisingly, perfect knowledge is not ideal knowledge, neither for the individual nor for the community, as it is profoundly exclusive. It retains as meaningful only what fits with them, regarding relevance and validity. This explains, in particular, why different highly educated individuals specialized in different fields might not get along, to the point of denigrating each other sometimes, despite their excellent reputation in their respective fields; or why, quite often, the various faculties of a same university are wary of one another, for poetry or theology, for example, rarely speak the language of experimental sciences. This reflects the idea that the perfect personal or public encyclopedias, whether they deal with science, literature, politics, philosophy, technology or religion, complement each other, exposing our multiple perspectives on the world, but they do not necessarily communicate well with each other, oftentimes contradicting and denying one another. The effects can be observed daily!

To overcome this potentially explosive problem, we should, in the spirit of what Gagnon (2013) previously proposed, promote the development of what can be called *Complete Knowledge*, i.e., a knowledge necessarily imperfect since it can never reach its full development, but nevertheless the richest and most complex that is accessible to an individual or a community. In practice, this would imply making sure to engage in learning all the cognitive means available to human beings, namely thought, feeling, sensation and intuition,

associated with respectively speculation, appreciation or evaluation, sensory experience, and revelation (Gagnon, 2013). Despite the difficulty — we will come back to this question later — a progressive opening to other points of view should then take place, from the simple, but already troubling, tolerance of these other points of view in the mind of the learner to their, hopefully, evermore complete integration. Fortunately, it is such an approach that we are witnessing more and more nowadays, since the concepts of pluri-, multi-, inter-, even transdisciplinarity become increasingly relevant in our discourse and practice. However, we are still at the very early stages of the process. The fact is that we do not really want such progress to be made, that quite the contrary we fight it vigorously, because it implies to assume and accept in ourselves or within a community the coexistence of, perhaps fiercely, opposing positions, that perfect knowledge is incomplete and not the only valid one we thought it was, that the very foundations of our lives is, therefore, debatable. A process quite similar to grief is then required, and it costs a lot. For several centuries, we specialized, separating human activity into increasingly sharp areas of study, investigation, creation or practice, with, as a consequence, the gradual abandonment of a general culture[4] that constituted bridges between humans of different professions and trades. Since then, each specialty continually asks for increasingly specific knowledge and longer training, relegating to oblivion contents of general culture. Under these conditions, the "single thought" finds a breeding ground of the most fertile, which accentuates the differences between the various domains to the point of fracture. A brief overview of vocational, technical or university curricula is enough to convince us of this. We shall never insist too much, these are foreign "countries" to be reconciled, "countries" in which we speak, the one, the language of the spirit, the other, the language of the heart, the other still, the language of the body, when not, as in the arts of creation and the spiritual domains, the incomprehensible language of intuition. A real Tower of Babel! Polyglotism is not innate! Nevertheless, it is by cultivating the less familiar aspects of ourselves, those that we reject as negative or improper, that gradually we can achieve the necessary opening to other points of view. As an example, it is by admitting that theoretical knowledge can find practical applications that the most obstinate theoreticians of physics, who *a priori* do not care for applied science, can understand and accept more generously the point of view of engineers; and by admitting as valid, even without understanding them, the economic arguments of administrators, business people or accountants, that the most stubborn defenders of the environment, of education or health care will contribute to the solution rather than the aggravation of the problems by their stubbornness. Paradoxically, if this is so, the ideal knowledge remains and will remain forever partially developed, imperfect, a source of tension necessary to its vitality, but also a source of serenity in front of our undeniable impotence towards the impossible. Complete Knowledge, however, comes with a price: the painful sacrifice of a perfect knowledge, fully meaningful, the utopia *par excellence* of the scientific activity.

One will easily concede that education and training oriented this way will not be popular, that specialized curricula are much preferred instead, as they are much simpler to carry out and much more profitable in the short term, but that they will likely be more harmful in the long run, from the perspective of sustainable development in particular, although this is questionable.

But all things considered, would not the Internet provide a plausible model pointing towards Complete Knowledge, at least on the public, social and collective side? One may certainly recognize in it a rather faithful image of human knowledge and the various mind dispositions and attitudes underlying it. In particular, one finds in the Internet a great deal of meaningful knowledge relevant and valid for communities of individuals rightfully recognized socially in almost every area of human activity. One encounters sites of professional associations, corporations, for-profit or not-for-profit organizations, private and public institutions of all kinds, ministries or governments, developed by or in collaboration with authoritative experts, that we can usually trust. All these sites would form the essence of a perfect social encyclopedia growing and improving day by day and exceeding by far in quantity, accessibility and possibilities of use all classical encyclopedias, compendiums, dictionaries and works of all kinds traditionally published on paper, which are now found almost entirely on the Web of which they constitute a very small part. Because of their diversity, these sites also cover a set of knowledge fields extremely representative of human activity as well as the epistemological positions and methods of knowledge validation that prevail in these fields. In this respect, it can be compared with a traditional university where the deeply original cultures of its faculties generate almost spontaneously affinities and oppositions. This is why many other sites intent to counterbalance these "perfect" sites, as their authors defend other views. This is obviously healthy and desirable when it is done with respect and dignity, but it exacerbates the tensions and antagonizes the parties otherwise. All these sites could be put to use advantageously in learning environments, either for the purpose of specialization, for those seeking the development of meaningful knowledge in a given field, or to question status quo in a reference community. In the latter case, it would allow to acquire a different kind of knowledge, strange or weird perhaps as some unusual clothes, but enriching previous knowledge and conferring on the result an imperfect character that tempers and nuances early certainties and weakens dogmatisms. However, learners in these environments should be taught to balance things down to reduce cynicism, inappropriate behaviour, indoctrination, manipulation and other malfeasance of which the human being is obviously capable, particularly on the Internet, where everything, by far, is not worth the same.

Moreover, alongside the knowledge that can be considered socially meaningful on the Internet is an undoubtedly larger quantity of non-meaningful knowledge; most likely because they have not been validated socially. They fall within the opinion, which does not satisfy a "well-made-head". People in education are well aware of the problems that this creates, but they are a far cry from resolving them.[5]

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[4] For the lucky few fortunate enough to attend school, the vast majority having been confined to ignorance.

[5] Will they ever be solved considering how fast the Internet is changing?

Individuals also find meaningful knowledge on the Internet, but which a community could not sanction. It is about singular knowledge, personal or specific to few people, essentially private. Limited in scope, this knowledge is anecdote to other people, although it may interest some in the manner of a work of fiction or a biography and possibly give rise to generalizations. Social networks are full of this type of knowledge that we should preferably call information. Of course, caution is here again necessary to avoid confusing the particular with the general.

5. Discussion and conclusion

Human beings are complex. The learning means at their disposal are the same for everyone, but they are not equally developed, neither in each person nor from one individual to another. They complement each other but one could say that they all speak different languages. As a result, a truly ideal knowledge, i.e., one that would fully manifest the contribution of all these learning means developed to their full potential and harmonized with each other, is not possible and we must be satisfied with a lesser deal. Harmonization is inevitably difficult, painful too, and always partial since one or two of these learning means take precedence over the others. These strongly contribute to determine our fields of interest, our most basic epistemological position and our dominant learning style, therefore our perfect knowledge from our perspective, which altogether constitutes our perfect personal encyclopedia. If we add to it everything else that we know, that do not satisfy all the conditions for meaningfulness, and is often unconscious, we get the whole of our knowledge, our complete knowledge.

From another point of view, the richness of what we know about a given object of knowledge depends on the contribution of those learning means that we generally neglect, the least skilled and the least valued to be clear, thus generating elements of knowledge on this object little or not meaningful and, by definition, imperfect. The resulting knowledge, mobile and evolving, will thus be, in part, meaningful and perfect, and, in part, little or not meaningful and imperfect, but it will surely be superior, more complete and preferable to the sole meaningful component. More nuanced and less affirmative, it will open in the learner perspectives that he previously ignored or depreciated, fostering acceptance and understanding of people who rely primarily on these learning means and of points of view based on them. The totality of this enriched knowledge constitutes our *Complete Personal Encyclopedia*.

We also live in society. It is therefore necessary that our knowledge be recognized as meaningful by it if we want to belong and feel accepted. For this to occur, individual and social interests must be compatible — they obviously may differ —, so that knowledge relevant to an individual will also be relevant to society or, more generally, to the reference community. Moreover, the knowledge validation modes accepted in the reference community will have to be mastered by the individual sufficiently to satisfy the minimal requirements of the community in this respect, even if, for him perhaps, they are less meaningful. If these conditions are met, the integration and recognition of the individual in the reference community is almost assured.

Under these conditions, several types of education and training environments of different degrees of complexity can be conceived of, depending on the goals aimed at. For instance, to teach to the learner knowledge that the reference community wishes him to master, i.e., meaningful to this community, the process remains relatively simple, since it suffices to select the relevant knowledge, to specify the objectives pursued and the knowledge validation modes accepted by the community. This type of teaching, however, will not produce, other than by chance, knowledge meaningful to the learner, but it can meet a collective need, provided one accepts the risk to sabotage the efforts of at least some learners, ill at ease with the teaching methods, even, in the worst cases, endangering them. Nevertheless, this type of device is clearly the most common choice for workplace training. But if we rather choose to generate knowledge meaningful both to the learner and to the reference community, the size of what needs to be developed will increase considerably, but not much the degree of difficulty nor the complexity attached to it. It will obviously require more work, resources and investment, but it would essentially consist of an appropriate juxtaposition of a number of learning environments of the first type,[6] each one embodying a single epistemological position or a single learning style. However, a new difficulty arises since the degree of relevance of the knowledge looked for and the actual reasons why it becomes relevant to a particular individual may vary with each of them. They are not predetermined as in the previous case. To help to resolve this difficulty, it should be necessary to identify, through appropriate tests, the epistemological positions, or the learning styles, of the learners in order to propose to them suitable learning activities. Bigger and more open than learning environments of the first type, this second type would appeal to those people and organizations who seek to train autonomous and confident people, equally at ease socially and well adapted to their own environment.

So far, we sought the development of perfect knowledge, limited to a reference community in the first case, both for individuals and a reference community in the second. But would it be possible, in spite of the foreseeable difficulty, to develop a third type of learning environment, one that would allow and deliberately seek the development of complete knowledge, i.e., a meaningful knowledge enriched by the contributions of the learning means usually neglected and belittled by the individual or the reference community and most often dismissed for the same reasons, painfully harmonized with the prominent learning means, and whose development requires, for all intents and purposes, the work of a lifetime? As this question is stated, a readily answer would obviously be a loud and clear "No!", but let us refine it.

Let us first remember that knowledge becomes meaningful by acquiring relevance and validity. To become relevant, it

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[6] Normally five, i.e., four to account for the four fundamental epistemological positions, or the four learning styles according to Kolb's classification, and a fifth accounting for the specific characteristics of the reference community.

must be desirable to the learner, promising him, in a way, that it will bring him something good, that will have a favorable effect in his life. Otherwise, the learner will not try hard enough — if, of course, the effort required is not overwhelming him —, most often because he feels that the knowledge in question is not worth it. Regarding validity, the learner must ensure that the knowledge appears true to him, convincingly, that he is not mistaken. To achieve this, he will follow an epistemological process that he trusts, which led him to constitute probably the major part of the knowledge he relies on the most, an epistemological process that mirrors his temperament and is closely related to the learning means which he privileges and which he particularly cultivated. He will have developed, consciously or not, a kind of algorithm that he scrupulously respects, so to speak, when he really wants to learn something. In this way, he increases qualitatively and quantitatively his meaningful knowledge in a more or less regular progression, connecting it from the same perspective, in a sort of linear and traditional fashion, the disciplinary perspective.

But when it comes to concede value to elements of knowledge or points of view of all kinds (intellectual, emotional, psychomotor) that the learner spontaneously considers as secondary or inappropriate, even "false", because they escape his understanding, it goes otherwise, as these elements and points of view are neither desired by him, nor can they be validated in his usual way. It is this kind of feeling that we experience when a position on a given subject is defended with conviction by someone else who sees the world in a way elusive to us, like — put in a cartoonish manner — a poet in front of a scientist, or an athlete in front of an intellectual. These are, in appearance, irreconcilable representations of the world, but equally true and, therefore, complementary. However, in this case, contrary to what we concluded regarding meaningful knowledge, one cannot move from one representation to another "linearly" because they are of different natures and cannot be apprehended with the same learning means. To open to these, weird to us, representations, we must instead use the learning means that we do not master and often depreciate. It must be done step by step, avoiding direct confrontation with the opposite point of view, which is associated with the least developed of our learning means and remains unacceptable to us. Priority should be given to the learning means following in importance our most valued ones, in order to cushion the shock. For example, going from feeling to thought to intuition, in the case of a learner who favours sensation, next feeling.[7] In other words, following a dialectical path, but in a minor mode. In this way, knowledge will get enriched with new and sometimes contradictory aspects and elements — that will have to be reconciled — increasingly assuming the form and characteristics of a symbol. Meanwhile, frontiers between distinct disciplines will fade out, allowing transdisciplinarity to emerge gradually as well as a positive but careful appreciation of complexity. Clearly, much work remains to be done before we meet with some of the new well-made heads.

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[7] According to Jung's model of the human psyche. In this model, sensation opposes intuition and thought opposes feeling (see Jung, 2014).

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The issues of East Asian language programs at the University of Georgia

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Keywords

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Abstract

The paper looks into the current situations of the four Asian language programs, including Chinese, Japanese, Korean, and Vietnamese, at the University of Georgia in the fall of 2018, in order to point out similar issues among them as well as different problems particular to some of them. Reflecting the local, national, and international circumstances, the findings largely, but not entirely, confirm the recent data provided by the Modern Language Association and the United States Census Bureau. Possible solutions to the issues include the hiring of non-native graduate teaching assistants as language teachers, the creation and expansion of exchange programs, and more effective utilization of funding for recruitment.

Introduction

As the flagship public university in the southeast state of Georgia, U.S.A., the University of Georgia (UGA) offers many language courses, of which I have been directing four Asian language programs housed in the Comparative Literature Department since the fall of 2018, including Chinese, Japanese, Korean, and Vietnamese. This new vantage position enables me to delineate succinctly the situation in which each of those programs was placed as I found it then,[1] thereby elucidating points of comparison not only among the four Asian programs at UGA but also potentially with language programs in institutions of higher education elsewhere. It turns out that, apart from some elements particular to them, the UGA programs largely follow the national trends that a 2018 report by the Modern Language Association (MLA) reveals on foreign language education at American colleges and universities in 2016 (Looney & Lusin, 2018).[2] The 2017 demographic data by the United States Census Bureau (USCB) also support the current findings.

Geographical Background

According to the MLA report, Georgia is one of only four states that scored a positive percent change of language enrollments from 2013 to 2016 along with Idaho, Rhode Island and Indiana, with 6.6% gain only second to Indiana's 8.0% increase, while absolute enrollment numbers place Georgia in the twelfth with 45,603 in 2016 (Looney & Lusin, 2018). The state's outstanding success with foreign language education is hardly accidental, and at least two factors contribute to these statistics. With Atlanta as its capital city pivotal to the southeast region of the United States, the economy of Georgia has steadily been growing. As a place of vibrant opportunities, the state has attracted a large influx of new residents and corporations, international as well as domestic, over decades, and the long-term tendency has resulted in certain demographic changes in urban areas. Then, to ensure further growth based on international trade, the state government encourages foreign language education on all levels. Accordingly, a Georgia Department of Education website stresses the importance of "[d]eveloping international perspective and advanced language proficiency, particularly as this relates to college and career readiness" (GaDOE, 2019).

The Japanese Language Program

As forerunners of Asian language education, Chinese and Japanese language courses had been taught at the University of Georgia for years before the minor programs in Japanese and Chinese were established in 1991, followed by the Japanese major program in 1992. As part of the Comparative Literature Department, these major/minor programs consisted of two components of language and literature, thereby called a major/minor in Japanese Language and Literature and a minor in Chinese Language and Literature respectively. Between the two, the Japanese Language Program offers good starting points for contrast with the other Asian language programs. In line with the

nationwide data that find Japanese the most popular among Asian languages (Looney & Lusin, 2018), the Japanese Language Program tends to have the largest enrollments of the four Asian language programs (Figure 1). In the fall semester of 2018, the total enrollment number amounted to 290, comprising six sections of the first-year course, three of the second year, two of the third year, and one class of the fourth-year course. Four teaching assistants, one part-time instructor, and a faculty member taught those classes.

With major and minor programs in place and yearly enrollments constantly around 500 over the past decade, the Japanese Language Program has not only a stable basis but also potential for further growth. For instance, all the six sections of JPNS 1001 were full or almost full in the 2018 fall semester. To meet the large demand for the entry course, the language program began to offer a class of the first basic course, JPNS 1001, for the first time in the spring of 2018, and the class has been full with 30 enrollments for two successive springs in 2018 and 2019. On the other hand, a problem that hampers the growth lies in the difficulty of finding qualified teachers. Due to the budget limitation, to hire a new assistant professor or a lecturer has not been attainable. To acquire an additional teaching assistant should be more feasible, but, apart from the budget restriction, few graduate students with native or at least a certain high level of Japanese proficiency attend UGA. Most of them already have some form of financial support from their home departments. Attempts to recruit a new graduate student directly from Japan for studying Comparative Literature with a teaching assistantship have not been successful.

Another structural problem that besets the Japanese Language Program is the gradual, yet significant loss of enrollments through four years of course offerings from basic to the most advanced levels. Full, or almost full to the capacity as all the sections of JPNS 1001 are at the beginning, the program loses enrollments as students move up to take each successive course. While a natural process of attrition partly accounts for this shrinkage in size, the program sustains a great loss at some point because of an institutional requirement. Aligned with the emphasis that the state places on foreign language education, many departments at UGA require students to take foreign language courses for three semesters.[3] As a result, about a half of the students stop learning the Japanese language after completing the third course, JPNS 2001, in the fall of the second year. The attrition rate from JPNS 2001 in the fall of 2018 to JPNS 2002 in the spring of 2019, for instance, was 44.9%. Generally speaking, interest in Japanese popular culture, technology, and economy is high, but that interest alone is not sufficient to keep many students above the third course.

A very small presence of students with a Japanese familial background partly accounts for this enrollment decline. The situation reflects the low Japanese(-American) population

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[1] For this reason, unless otherwise noted, I refer to the fall of 2018 for the most recent data at UGA, such as enrollment numbers at the beginning of an academic year.

[2] I utilize the publication's fall 2016 statistics and disregard the summer 2016 data.

[3] For instance, see Franklin College Foreign Language Requirement (2017).

estimates with overall 770,546 mostly on the West Coast, and mere 9,622 in Georgia (USCB, 2019). Three of the Japanese language courses offered in the fall of 2018, including JPNS 1001, JPNS 2001, and JPNS 3010, had 6.1%, 6.0%, and 10.0% of their enrolled students with Japanese heritage respectively, and the most advanced JPNS 4110 had none (Figure 2).[4] As a result, no more than twenty students remain to take the most advanced JPNS 4110 in the end. The ratio of enrollments between first- and second-year Japanese language courses and third- and fourth-year courses at UGA was 5.9:1 (Figure 3), comparable, yet slightly inferior to the national ratio that stayed 5:1 from 2009 to 2016 (Looney & Lusin, 2018). A smaller ratio indicates a better retention rate in this case. As discussed below, the Japanese Language Programs makes sharp contrast to the Chinese and Korean counterparts in this respect.

The Chinese Language Program

Following the minor program initiated in 1991, the major program in Chinese Language and Literature came into existence in 2006. In the fall of 2018, the enrollments totaled 216 in ten classes from four levels of Chinese language courses taught by five teaching assistants and a faculty member. Another professor of Chinese did not teach a language course at that time. Although reasonably successful, the Chinese Language Program appears short of its full potential, especially compared with the Japanese Language Program (Figure 1), considering the growing presence of China on the world stage. In fact, the enrollment situation at the University of Georgia corresponds to a recent national tendency in which Chinese is the seventh largest among the fifteen most commonly taught foreign languages with 53,069 enrollments, compared with 68,810 for the fifth Japanese. And, in contrast to the Japanese enrollments that registered a 3.1% gain, the Chinese enrollments suffered negative growth by 13.1% in three years ending 2016, although the language increased enrollments by 1.03% in the ten-year period from 2006 to 2016 (Looney & Lusin, 2018).

Political circumstances aside, this less than ideal status of the Chinese Language Program at UGA is attributable to two factors, one internal to the language program, and the other originating in the very nature of the language. First, often not well coordinated and administered, the program supervision functioned not as expected and ill affected the program as a whole for decades despite of occasional attempts to redress the situation. This inherent problem, for instance, at least partially accounts for the delayed creation of the Chinese major by fourteen years after the Japanese major as well as for a consistently low number of graduates with Chinese majors.

Second, although the program uses the textbooks that adopt the Chinese mainland's simplified characters, the Chinese language, especially its writing system, still poses a great challenge to American students, necessitating more time on the learning process than with Western languages like Spanish and German. Consequently, when the first basic-level textbook was not completed in CHNS 1001 at the end of the first fall semester, the book's last few chapters were

left untaught, and the students were supposed to study those untaught chapters by themselves over the winter break before they took the next course of CHNS 1002 in the spring with a new textbook. The curriculum obviously caused an academically awkward and difficult situation both for the students and for the teachers.

The program has addressed the last issue in the 2018-2019 academic year, and the students now learn those few last lessons of the first textbook at the beginning of the second semester, although this adjustment means a slower pace of textbooks' completion through successive levels. Unlike the Japanese Language Program, there is no difficulty in finding a new teaching assistant in Chinese when several people apply to the department's graduate program from China and Taiwan every year. Emulating the successful example set by the Japanese Language Program, the Chinese Language Program offers for the very first time a class of CHNS 1001 in the spring semester of 2019, resulting in additional 22 enrollments.

Certain demographic phenomena exist. With the estimated population of 56,488 combining Chinese(-American) and Taiwanese(-American) residents in Georgia as well as approximately 4.4 millions nationwide (USCB, 2019), a large proportion of students in the Chinese language courses have a Chinese familial background. Three of the Chinese language courses in the fall of 2018, including CHNS 1001, CHNS 2001, and CHNS 3010, found 36.6%, 43.8%, and 50.0% of their students with some of the background respectively (Figure 2). Highly interested in their familial cultural heritage or possibly seeking less academic rigor, many of these students tend to stay motivated enough until they take advanced-level courses. In addition, because many of these students already possess varying degrees of Chinese proficiency, they tend to start with an intermediate or advanced course without having taken basic courses, which explains the ascending percentage through the three levels. The ratio of enrollments between first- and second-year courses and third- and fourth-year Chinese language courses at UGA was 2.66:1 in the fall of 2018 (Figure 3),[6] surpassing the 2016 national ratio of 3:1 although that national ratio itself was a proportional improvement from 4:1 in 2013 (Looney & Lusin, 2018). Thus, the presence of students with a Chinese familial background is an advantage that the Japanese Language Program does not share. From another perspective, however, less dependence on Chinese heritage students, like the Japanese case, will be desirable for the program's long-term success and expansion.

Meanwhile, with the recent, notable surge of students who are native speakers with high school diplomas from mainland China, some of them tried to take Chinese

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[4] The percentage of students with certain Asian heritage in a course is based on an estimate or estimates by the teacher(s) in charge of the class(es) of the course, and this might possibly leave a few students unaccounted for. A student with a certain Asian ethnic familial background or heritage in this case means that at least one of their parents is of that Asian ethnic descent.
[5] The textbooks are Yuehua Liu, et al. eds., *Integrated Chinese 1* (Boston: Cheng & Tsui, 2017), 4th ed. and its sequel, *Integrated Chinese 2* (Boston: Cheng & Tsui, 2018), 4th ed.
[6] Enrollments in CHNS 4110 (Advanced Chinese III) include native speakers with a high school diploma from China, who were allowed to take the fourth-year Chinese language course.

language courses, including CHNS 1001, simply in order to raise their Grade Point Averages. While they are allowed to take 4000-level language courses and thereby help those courses to maintain substantial enrollments, the presence of native students in the courses below the fourth-year level only has negative effects, such as demoralizing non-native students and taking seats from the American students who want to learn the Chinese language. To cope with the situation, the department has implemented a change with the course requirements, barring those native speakers from registering Chinese language courses below the fourth-year level.

The Korean Language Program

Korean language courses began to be offered in the mid-1990s before the minor program in Korean Language and Literature started in 2000. The Korean major had to wait until the existing Japanese and Chinese majors were consolidated to create the new major program in Asian Languages and Literature in 2017 due to the yearly number of graduates that, per language, had often failed to meet the minimal standard of 10 set by the state's Board of Regents. As part of this tripartite major program, the new major of Asian Languages and Literature with emphasis on Korean, along with its Japanese and Chinese counterparts, came into being. In the fall of 2018, three teaching assistants and one part-time instructor taught eight sections of KREN 1001, 2001, and 3001, with total enrollments of 223, including two directed studies (Figure 1). The two Korean faculty members were not available to teach language courses then. All the three KREN 1001 classes were full or more than full with enrollments of 30, 30, and 36 respectively.

This high interest in the Korean language mirrors a national trend. While the MLA report locates Korean at the eleventh with 13,936 enrollments among 15 most commonly taught foreign languages at colleges and universities, "only Japanese and Korean showed gains in enrollments" from 2013 to 2016 when overall "enrollments in languages other than English fell 9.2%" (Looney & Lusin, 2018), and its 13.7% increase was larger by more than 10% than with Japanese (Looney & Lusin, 2018). The Korean growth turns out "particularly impressive" in a longer temporal span, considering the fact that enrollments in Korean were 26 in 1958, signifying a 53,500% increase over fifty-eight years (Looney & Lusin, 2018). This remarkable increase is obviously thanks to large immigration from the Republic of Korea since the 1970s that spread across the nation, including Georgia that counts the Korean(-American) population of 61,307 with high concentration in suburban Atlanta (USCB, 2019).

Although the Korean Language Program thus shows even more momentum for expansion than Chinese or Japanese, two factors stand in the way for its further growth. First, the percentage of students with a Korean familial background in the Korean language courses is even higher than in the Chinese case on the second- and third-year levels, with 57.3% and 62.0% respectively in KREN 2001 and KREN 3001 in fall, 2018 (Figure 2). The situation has dual aspects. On the one hand, as in the case of Chinese, the presence of motivated students interested in their cultural heritage

ensures high enrollments in the language courses, especially at the upper levels, demonstrated by the 3.28: 1 ratio of enrollments between first- and second-year courses and third- and fourth-year Korean language courses (Figure 3). The ratio at UGA is far better than the 2016 national ratio of 5:1 (Looney & Lusin, 2018). The particular UGA ratio stands out because no fourth-year Korean language courses were offered in the fall, 2018.

On the other hand, a division inevitably existed in the same course above the basic level between students with a certain level of fluency and those short of it. As a result, on the second- and third-year levels, at least one section of the same course had to be tailored for one of the two groups, and the others for another group. To cope with this issue, the program has proposed new "Accelerated" courses for students with more proficiency, planning to offer them in the fall of 2019. In addition, while the current enrollment dependence on students with a Korean familial background does not necessarily guarantee the program's long-term foundation, their percentage of 21.9% in KREN 1001 is lower than CHNS 1001's 36.6%, and far less than half of KREN 2001 and KREN 3001 (Figure 2). The low percentage in KREN 1001 probably signals an increasing number of students with no Korean familial background learning the language thanks to the economic status of South Korea and especially the popularity that contemporary Korean culture enjoys in the international arena.

Second, there is chronic difficulty in finding a new qualified TA with native fluency for teaching the Korean language. With one of the two Korean professors newly arrived, further faculty acquisition is not a likely prospect in the foreseeable future. Many of the Korean students who come to UGA for graduate studies either do not have a sufficient English speaking TOEFL score required for teaching undergraduate courses or are unwilling to undergo certain requirements of the department and the graduate school. A few Korean graduate students who expressed their interest in getting a teaching assistantship in Korean did not succeed for these reasons in the fall of 2018. Although all of the teaching assistants in the Korean Language Program have been native speakers of the language until the spring of 2019, it will probably become necessary to hire a non-native graduate student who is relatively fluent in Korean to deal with the TA candidate scarcity as in the Japanese case.

The Vietnamese Language Program

Started in 2001 as the newest among the four Asian Language Programs at the University of Georgia, the Vietnamese Language Program has the greatest momentum for future growth, considering the fact that its overall fall semester enrollments have increased more than fourfold or by 437.5% in seven years from 24 in 2011 to 105 in 2018 (Figure 1). Two reasons account for the rapid expansion. First, starting in 2012, one instructor has taught all the Vietnamese language courses single-handedly with great enthusiasm, care and skills for the last seven years. Dependence "on a single instructor," if fact, is often the case with "less commonly taught languages," including Vietnamese (Looney & Lusin, 2018). Second, Georgia is the fifth largest state of the

Vietnamese(-American) population after California, Texas, Florida, and Washington in the United States, and its total population nationwide is larger than the Korean(-American) counterpart (USCB, 2019). In Georgia, the Vietnamese(-American) population counts 60,306, which is the third largest and closely behind the Korean population by 1,001 among Asian groups (USCB, 2019). A growing number of children from families of that group has been reaching the college age.

To better serve their need, I proposed the minor in Vietnamese Language and Literature in 2015, and the minor became effective in the spring of 2017. As one of the nation's only two minor programs in Vietnamese at the time of the proposal together with the one at California State University, Fullerton, it was also expected to attract motivated students not only from Georgia but also from the American southeast region and beyond. The program counts twenty declared minors in February, 2019. In the fall of 2018, the instructor taught four classes of VIET 1001, 2001, and 3001 with the total enrollments of 103 in addition to directed studies for two students. This enrollment number makes, for instance, 36.2% of 290 enrollments in Japanese at UGA, proving far superior to the nationwide statistics in which Vietnamese finds itself among "the sixteenth to twentieth most commonly taught languages" with 1,922 enrollments or 2.8% of 68,810 for the fifth Japanese in 2016 (Looney & Lusin, 2018).[7]

In spite of this success, the Vietnamese Language Program faces an awkward situation. Even more than the case with Chinese and Korean courses, students in the Vietnamese language courses are predominantly those with a Vietnamese familial background, with 90.5%, 93.6%, and 100% of enrollments respectively in the first-, second- and third-year courses (Figure 2). Nevertheless, the attrition is high after the third semester course, VIET 2001, similar to the Japanese case, and the ratio of enrollments between first- and second-year courses and third- and fourth-year courses records the worst among the four Asian language programs with 8.55:1 (Figure 3). Further encouragement to minor in Vietnamese and the eventual creation of a major program as well as promotional cultural activities for recruitment should be instrumental to improve the situation.

At the same time, the program can develop further only by hiring a teaching assistant (TA) for the first time because the current teacher already teaches the maximal load of courses as an instructor. In fact, a federal regulation requires her to teach less for her instructorship from the fall of 2020 on, necessitating her to find a good TA candidate and train him/her beforehand in order to maintain the quality of overall language teaching. The dominant presence of students with a Vietnamese familial background will likely undergo a gradual change over years, as has taken place or has been happening to the other three language programs, for an increasing number of non-Vietnamese American students are expected to show interest in Vietnamese along with Vietnam's growing international recognition. That change will contribute to the future expansion of the Vietnamese Language Program.

Recommendations

One problem shared by all the language programs except for Chinese is the difficulty to find qualified teachers, more specifically graduate teaching assistants who are native speakers of the target language. Native speakers are usually desirable as language teachers of primary choice, because they speak the language fluently. Their fluency, however, does not necessarily ensure that they can teach the language with competency unless they undergo certain pedagogical training in foreign language education. Non-native speakers of the language, on the other hand, are not very likely to speak the language with comparable fluency, but the lack of native fluency can actually turn them into good, potentially even better foreign language teachers precisely because they understand the students' specific difficulties in acquiring a new language after they have learned it in a pedagogically similar, if not identical setting, method, and process. Therefore, to have both native and non-native speakers in the teaching staff would be beneficial for a foreign language program not only to alleviate the scarcity of qualified native teachers but also for a synergetic effect between the two groups.

Another challenge that pertains to all the Asian language programs except for Japanese is a relatively small number of study abroad programs available, especially exchange programs at the undergraduate level. To provide willing students with an opportunity to study on a foreign soil, where native, local residents speak the language, for an extended period of time is essential for any foreign language program to enhance its function and appeal. The University of Georgia has an exchange agreement with eleven partner schools in Japan, including Daito Bunka, Kagoshima, Kobe, Kwansei Gakuin, Kyushu, Meiji, Osaka, Sophia, Waseda and Yokohama National Universities as well as Kyoto University of Foreign Studies. The University of Georgia sends a few students to each of those partner institutions in exchange for about the same number of Japanese students from them every year. In comparison, although there are fourteen Chinese-related study abroad programs, only four of them, including those with National Taiwan University, National University of Singapore, Tsinghua University, and University of Hong Kong, are exchange programs open for language-oriented students. Each of the other ten programs has a specific, exclusive purpose intended for the department/college that initiated it. For instance, associated with the Terry College of Business, the exchange program with Peking University accepts UGA application from "[b]usiness and intended business major" (OGE, 2019). There are only two Korean exchange programs with Sogang University and Yonsei University,[8] while none exists for Vietnamese.[9] In order to strengthen the foundation of these three language programs and enhance their future prospect, it will be only

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[7] For the total number of enrollments in Vietnamese language courses nationwide, see Language Enrollment Database, 1958-2016 (2019).

[8] A negotiation is underway to establish a new exchange program with Seoul National University.

[9] An attempt in the mid-2010s to establish a one-semester exchange program with Ho Chi Minh City University of Social Sciences and Humanities fell through.

beneficial to initiate new exchange programs and, if possible, expand the existing exchange programs.

Lastly, to broaden its enrollment base, each language program should better utilize a small fund available from the department for cultural activities. Although the Asian language programs are encouraged to make use of that fund appropriated for a recruitment purpose, the fund is not always fully exploited, and their cultural activities, such as film screenings, tend to cater mainly to the interest of current students already enrolled in their language courses. While maintaining the departmental funding, it will be necessary to advertise the cultural activities more effectively in order to appeal to non-enrolled students and motivate them toward learning the language and the culture.

Conclusion

As a whole, the four Asian language programs in the Comparative Literature Department have proven successful with 834 aggregated enrollments in the fall of 2018. As pointed out above, they all have some problems, some similar, and the others different, but each of them has robust potential for future growth. Far from being a mere speculation, the expectation has a solid foundation on the rise of the East Asian nations to the forefront of the world's politics, economy, and culture as well as on the steady demographic increase of the Asian-American ethnic groups in the United States. As a result, the situations, both external and internal, greatly affect states like Georgia that are geographically remote from East Asia, necessitating the further expansion of Asian language education at all levels, especially at colleges and universities. Implementing the measures for improvement recommended above, the four Asian language programs at the University of Georgia should be able to secure more funding from the university in the coming years.

This study investigates into the current situation of the four Asian language programs at the University of Georgia, delineating similarities and differences among them. Although the scope is limited to a school in the United States, the narrative descriptions that explicate statistical data offer a useful sample for educators in other institutions to compare with situations of their Asian language programs. In this respect, the current study can make a preliminary basis for future research. While updating the data, it will be meaningful to place this UGA case side by side with multiple schools in a larger regional, national, or even international context, or to examine it in contrast to a targeted single school in another part of the country or in a different nation collaboratively or through publicly available information. That extended study will point out certain trends pertaining to Asian language education at colleges and universities on a national or global scale.

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Appendix
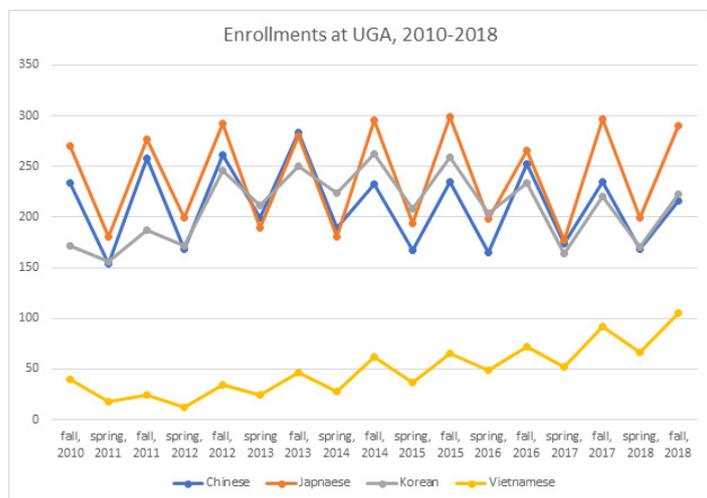
Figure 1: Enrollments at UGA from 2010-2018.
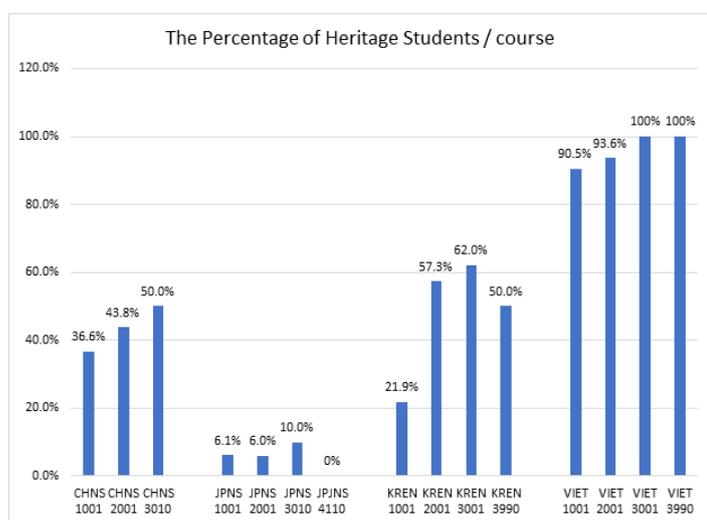
Figure 2: Percentage of Heritage students per course.

Note: CHNS 4110 is not included, because most of the students in the course were native speakers from China.
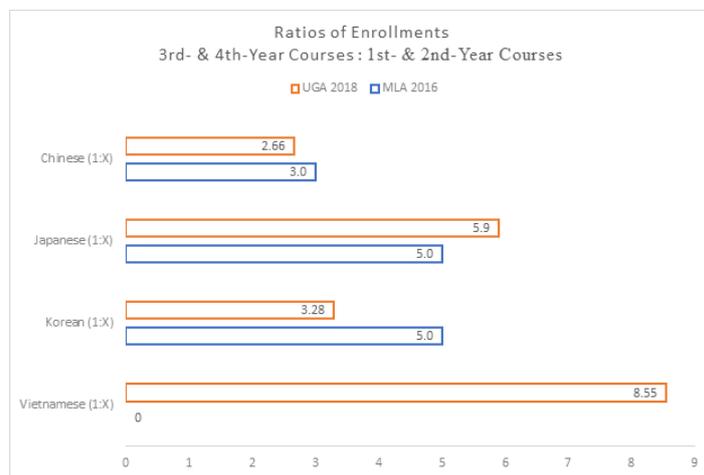
Figure 3: Ratios of Enrollments.

Notes: Directed studies (3990), if any, are included in the 3rd- & 4th-year course category. CHNS 4110 includes native speakers from China. No 4000-level Korean or Vietnamese language courses were offered in the fall of 2018. No MLA ratio is available for Vietnamese.

Developing reading in modern foreign languages: Case studies from the classroom

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Abstract

Reading in a modern foreign language is not an easy task. In the most recent programme of study (DfE, 2013), students at Key Stage 3 are required to develop – amongst many other skills – reading. Desired skills include comprehension of original passages, from a range of different sources, with the view to not only understand the ideas communicated but also be able to translate them in accurate English. Furthermore, literary texts are to be used to "stimulate ideas" and develop "creative expression" (DfE, 2013, p. 1) with the aim to "expand understanding of the language and culture". Within this context, the article aims to discuss the need that teachers face to develop reading in their classrooms and how it can be achieved. As with every other skill – listening, writing, speaking – it is important to nurture reading from a very early stage of learning. The case studies will demonstrate the possibility and accessibility of longer passages at an early stage of learning and will exemplify how to move the students away from rote learning and memorisation of vocabulary. Case studies will also show how reading can lead towards the development of other skills such as speaking, listening and writing.

Introduction

Reading in a foreign language is not an easy task. Within the context of the National Curriculum in England where this article is initially situated, the most recent programme of study for schools (DfE, 2013) requires students at Key Stage 3 (KS3) (11-13 years old) to develop – amongst many other skills – reading. Desired skills include comprehension of original passages, from a range of different sources, with the view to not only understand the ideas communicated but also be able to translate them in accurate English. Literary texts are to be used to "stimulate ideas" and develop "creative expression" (DfE, 2013, p. 1) with the aim to "expand understanding of the language and culture".

Teachers face the challenge to develop reading (amongst other skills) with the view to help the learners develop linguistically in their second language (L2). Researchers such as Wilson, Carroll and Werno (2014) have argued that "reading in a second or foreign language (L2) can be considered to be similar to reading in the first language (L1) except that L2 learners may be inhibited by a lack of linguistic knowledge" (Wilson et al., 2014, p. 5). This article argues that reading in a foreign language is far more complex than reading in L1 because it is difficult for the learners to draw from different types of knowledge: semantic, syntactic and graphophonic (Goodman, 1967). Semantic knowledge is our knowledge of the world which helps us make predictions of what we read, for instance, Goodman's example (1967): 'The sun rises in the east and sets in the ....' We know the answer is 'west' because our knowledge of the world helps us make that prediction. In a foreign language classroom and depending on age and knowledge, students can possibly draw from this type of knowledge that will aid them in deciphering what they are trying to read in a foreign language. However, it can be argued that it is not always certain that young learners will have this type of knowledge developed to the degree required to help them make the right predictions.

Syntactic knowledge is the knowledge we have of the structure of the language, similarly to Goodman's example: 'This flower is a volter. This is another volter. There are two............' – our knowledge of the structure of the language and in this case the plural form 's' will help complete the sentence 'there are two volters'. 'Volters' is a made up word and therefore we cannot use our knowledge of the world (the semantic knowledge) to resolve this. This example illustrates that students will eventually find the answer in L2 only by using this type of knowledge without necessarily demonstrating that they understand what is written.

Graphophonic knowledge is the knowledge of sound-letter relationships, for example: 'The flag is red, white and y.......' the graphophonic knowledge with the letter 'y' as a clue is guiding the reader here to predict the word 'yellow'. Similarly, this type of knowledge does not prove that the reader has understood what is written, the reader uses the graphophonic knowledge to predict the word.

All three types of knowledge illustrate that there is a way to decipher the words in each case and fulfil a reading task in a classroom as required, but it does not mean that learners can necessarily make sense of what is written. In order to make sense of what we read it is not enough to know only the words, as words themselves do not carry meaning, the meaning lies with the reader and what the reader brings to them. Essentially, we construct meaning by reference to what we already know and in a language classroom knowledge is generally transmitted or facilitated by the teacher. So students rely a lot on what knowledge they construct within the classroom, with their teacher. This can have its limitations, due to the frequency of exposure, pedagogical practices and stage in their schooling.

Attempting to compare reading processes between L1 and L2, all three types of knowledge discussed above are used simultaneously by readers in L1. What needs to be considered is that foreign language learners will not be able to use all these types of knowledge simultaneously and accurately in the classroom because it depends on what they are exposed to during the teaching process and how much they know about the topic taught. They rely effectively a lot on what the teacher brings into the classroom. Also, if students are unable or not ready to bring enough personal knowledge of a topic to a text, they are effectively robbed of the ability to make use of a key resource for reading: what they already know. This has considerable implications for foreign language learners who may not have any or very little cultural or world knowledge of the language they are studying. This leads us to one conclusion: we need to teach reading and develop reading strategies in order to facilitate learning and encourage students that reading in a foreign language is achievable and eventually enjoyable.

Theoretical and contextual framework

Cummins (2008), Luke and Freebody (1999) and Scarborough (2001) suggest three gradual processes that take place during reading: learners go through the steps of word recognition, leading up to language comprehension and eventually to text interpretation.

When first learning a foreign language what can be a great challenge is to move beyond the word level, phonological decoding and sight-reading (Hoover & Gough, 1990; Joshi & Aaron, 2000; McBridie-Chang & Kail, 2002; Ziegler & Goswami, 2005). From personal experience as an educator and observing numerous student teachers in secondary schools annually, I see a lot of teaching of vocabulary items in isolation. Most of the teaching time is spent developing a bank of lexis on different topics, where very rarely this is applied in context and as part of a paragraph or a longer passage. Teachers are hesitant to move the students on from topic-based vocabulary input to including those words or chunks of language within a paragraph or a longer text. The goal of a lesson is generally to understand one or more regurgitated sentences. Basic language comprehension therefore becomes the ultimate goal and the process of personal interpretation is interrupted, robbing the students of the possibility to move beyond the 'form'. "Form as in lexicon: 'lexical categories' and 'functional categories'. 'Lexical categories' mean words such as verbs, nouns and more 'functional categories' of those words such as tenses and auxiliaries" (Mitchel & Myles, 2004, p. 54). Essentially

robbing them of the possibility to engage more creatively with a text and make it their own.

In order to aid towards a successful comprehension of a text, a set of cognitive and essentially metacognitive reading strategies is required during the teaching process. Reading strategies are defined as 'controlled actions' by a reader and are directed towards a reading goal (Afflerbach, Pearson & Paris, 2008). 'Cognitive' strategies are defined as "a group of mental processes that includes attention, memory, producing and understanding language, solving problems, and making decisions" (CILT, 2004, p. 17) whereas 'metacognitive' strategies refer to "learners' automatic awareness of their own knowledge and their ability to understand, control, and manipulate their own cognitive processes" (CILT, 2004, p. 18). In practice, it means that teachers can instil certain techniques and specific actions to their learners in order to favour language comprehension (Scarcella & Oxford, 1992) and allow their learners to earn their autonomy in planning, evaluating and monitoring their own strategy use (Macaro & Erler, 2008). Bottom- up strategies that focus on the words on the page include, "sounding out words to discover the meaning, looking up for cognates" (Woore, 2014, p. 88), making vocabulary lists and colour coding words. Top-down strategies "draw upon the knowledge the reader brings to the text. E.g. making inferences using background knowledge" (Woore, 2014, p. 88). The latter is much more challenging for it to happen in the classroom as it depends on how much background knowledge the learners have been exposed to during teaching. This is often the stumbling point that does not allow students to go beyond the form. There is limited background knowledge that they can bring to a text and therefore make sense of it. A lot of emphasis is put on the decoding and graphophonic knowledge and students tend to focus on how they pronounce or decipher the words with little encouragement to go beyond what they do not know. Building the confidence around reading and tackling longer texts comes from the teaching of reading strategies on how to focus on the context and what the students already know. Equally, consistent exposure to texts from early on in their schooling, where they see the words taught in context, will allow them to gradually gain the confidence to read longer passages and not get overwhelmed, when they try to spot one word they might know within a longer passage. A comparative study organised by Macaro and Erler (2008) where they evaluated a programme of reading instruction with a sample of 116 learners from six secondary schools, found that the participants who benefited from reading instruction – in other words the group of participants who were taught on how to read in a foreign language through the use of reading strategies – became more likely to engage actively with the text, whereas the group of students who did not receive any reading instruction became less likely over time (Woore, 2014).

Case study

Based on the theoretical and contextual framework discussed above, I will attempt to illustrate how the three stages of word recognition, comprehension and eventually interpretation are addressed via the literature project, that runs on the course I am part of, the Post Graduate Certificate in Education (PGCE) languages course at the UCL Institute of Education, London UK. A postgraduate teacher education course and a qualification required to teach in the UK. The project was initiated back in 2014 as a response to the new programme of study for languages that was published at the time and with the view to respond creatively to the challenges the new programme i.e include literary texts from KS3. It has since become an annual project and an integral part of our course to this day. As a PGCE team, we submitted a bid to the British Academy at the time with the project 'London partnership launches literature' and we won one of the Awards for the innovative nature of the project, direct impact on our partnership schools and for its durability and sustainably. In practice, what the project means is that "student teachers work in collaboration with experienced teachers and mentors in school to develop innovative ways to respond to the challenges of the new curriculum and inspire creative responses from pupils" (Diamantidaki, 2016, p. 59). The aim is to work with literary texts and make them accessible to KS3 learners. Following on input from university lectures and workshops over a period of time, "student teachers develop resources and approaches for integrating literature into a topic-based approach to promote language skills and cultural understanding" (Diamantidaki, 2016, p. 59). The languages involved are French, Spanish, German, Russian, Italian and Mandarin.

The project consists of seven steps as follows:

- Identify an appropriate literary text for use with a KS3 class.
- Plan a sequence of engaging target language (TL) activities (no more than a sequence of two lessons) to accompany the text and meet the programme of study requirement. The text had to link to a topic in the scheme of work and could serve either as an introduction to the topic or as a springboard to more creative work.
- Produce a short-term plan, lessons plans and resources. Submit these to the mentor for discussion and possible development and improvement.
- Teach the lessons incorporating the literary texts, observed by the mentor and/or UCL IOE tutor. Meet with the mentor for feedback. Write up what worked well and outline areas for improvement (200 words).
- Upload their two-lesson sequence with the evaluations on Moodle (a virtual learning environment) before the end of their second school placement.
- Once at university, work in groups of three based on one element their work had in common: either the topic they taught or the type of literary text chosen for instance.
- In a workshop on literature and ICT, combine resources with other student teachers and create posters.

That last phase of the project allows for a creation of multicultural and multilingual posters since students across languages can group according to a common element. Every year some 25 posters in A1 format are printed and

presented at the annual literature poster conference held the end of the PGCE course; a celebratory moment of creativity where school mentors are invited and all the resources shared amongst the participants for future use in school. All students sign an ethics form prior to conducting the project in schools and a letter to give or not consent for their resources to be shared anonymously.

Student teachers have the opportunity to present their work to their peers, tutors and subject mentors and discuss the outcomes, allowing for an exchange of ideas and experiences. The event involves a debate between a panel of student teachers representing different languages and university lecturers in which participants share their opinions, reactions and the challenges they faced teaching language through literature. From the annual literary project I would like to illustrate three case studies on how the stages of word recognition, text comprehension and text interpretation have been addressed during the reading of a literary text. I shall discuss the pedagogical processes followed and how the literary text helped build the confidence of the students. This is based on the teaching resources and lesson evaluations that student- teachers submitted online, in our virtual learning environment called Moodle.

Case study 1

Word Cognition

'The year 8 second language students had already done the past tense with avoir and so had a foundation on which to build their understanding of the passé composé with être. The starter was a revision of what we had already done with avoir as a quick reminder. I handed out the poem and they played Ping Pong with it. I then asked them to find the passé composé and spot the difference between the avoir (highlighted in blue) and être (highlighted in green). We then made this rule explicit and started to translate. Each group of 2-3 had 2-3 lines to translate. Once this had been shared, we then performed the poem in the same groups. Acting the poem out made them realise that the être was used for movement, I then elicited this rule and played a translation morpion to finish.

Déjeuner du Matin was a very useful poem for teaching the past tense. The learners were encouraged to notice grammatical rules following Schmidt's theory of noticing. These rules were then made explicit. Acting out the poem was particularly useful as the kinaesthetic problem solving was what had prompted them to notice the movement rule. Overall it was a successful grammar lesson with very little TTT [test, teach, test]. If I were to repeat this lesson in the future, I might split it over two lessons to allow more time for performance as they really enjoyed this.'

The lesson evaluation above discusses how the literary text was used as a means for the students to notice the grammatical rules of the past tense in French. This is a class of students aged between 11-12 years old and it is their second year of learning French. Prior to giving the poem out, the teacher taught the words/structures and revised them as a starter. The poem was used pedagogically to promote repetition. Ping pong is a game where students read aloud to each other taking turns for each verse. The particular poem chosen has a lot of repetitive structures in the past French tense and each verse is very short making it easy for learners to read it. Spotting the structures of how the past tense is formed and colour coding those, allows the students to recognise the words/structures and initially engage with the 'form' within the poem. This is also an example of the deductive approach as explained by Vogel, Herron, Cole and York (2011) where the students notice the grammar in a text first followed by an explicit explanation of the rule. The students then attempt to translate the poem where they slowly move into the comprehension phase. What is important to notice during the teaching process is that the students eventually performed the poem – they acted it out - with an implicit teacher objective for the students to understand the concept of 'movement verbs' in French. This is an excellent example of students developing confidence tackling a literary text (a poem in this case) where they could see language and words they already know in a real authentic document that they can understand and make it their own.

Case study 2

Text comprehension

'I chose 'Little Red Riding Hood' to complete the literature project with a year 9 class as the students were studying their childhood in German that term and the use of a fairy tale fit in well with the unit of work. It was also a good opportunity to work on the imperfect tense as this was a grammar point the students had covered in their German lessons and one with which they continued to have difficulty.

The students engaged well with the text as it was familiar to them and they were able to understand most of what was happening because of that. They worked well with the imperfect tense and could correctly underline it in the text when asked to do so. They were also able to use their textual analysis skills to summarise each paragraph once we had read it together.'

One reading strategy that was used to develop understanding beyond the noticing and colour coding was to read the text together with the teacher and then allow them to work in groups to produce a summary. This allows for collaboration and differentiated approaches to produce the summary expected. Students discuss and negotiate the meaning and that brings immense confidence to be able to this with a text in the foreign language. Another added variable that aids comprehension is the prior knowledge of the fairy tale. That allows the students to put the semantic knowledge in motion and actively used it in this case to help them make those syntactic and graphophonic links which allow them eventually to make sense of the text.

Case study 3

Text interpretation

'For my literature project, I decided to use a song called "Bonito" by the band, "Jarabe de Palo" as I thought it would be an engaging and accessible way to explore a piece of literature

through lyrics and music. I created a two-part lesson plan, with a booklet that the students could use over the two lessons and PowerPoints to aid the lessons. I did it with a year 8 group who generally have a very high level and enjoy learning new vocabulary, expressions and phrases. It also linked in with these students learning how to use different tenses together.

The two lessons went well, and the students showed enthusiasm and interest in the song and the lyrics. They were guided through the text by first looking at the difference between 'bonito' and 'bonita', then moving on to learning key vocabulary, then exploring areas of grammar that the song includes and finally producing some of their own lyrics based on the original ones. The students enjoyed exploring literature which was distinct from what they usually do in classes and they began to be creative with the new elements of language that they were learning. The students will be performing the song as part of my Film Project and this may be another reason why they were motivated to learn and enjoy the song as they are excited about this.'

'The gradual approach to the text aroused curiosity in pupils. The fact that it was a song with an enticing rhythm and children chorus meant that pupils 'embraced' the difference fairly easily, and lent an interested ear. The various tasks I created around the song (predictions, research on El Salvador, word based research, listening, translation, singing) meant a gradual understanding and 'owning' of the song from pupils. The pupils particularly enjoyed the word hunt, fill in the blanks and singing. The quieter pupils enjoyed the translations and other written activity. The project helped me cater to a range of learning styles and also connect with the class at a different levels. It was interesting to see that the usually more disruptive boys enjoyed singing the most, showing less inhibitions than other pupils. This allowed me to reward and praise them. I also think the project enabled a slightly less formal way of teaching and learning which we all enjoyed.'

The creative expression of the students and the connection that is developed between student and teacher as illustrated via the examples above are the very encouraging part of the teaching process. When students are given the possibility and the gradual confidence to create their own versions – to act or adapt their interpretations according to their own learning style they start enjoying the learning and the emotional and motivational rewards are far more rewarding.

Conclusion

When students engage with texts - in this case with literary texts - they go beyond the educative linguistic process. The examples above demonstrate that once students are involved in creative outputs, it has a considerable impact on self-esteem in the target language and a catalyst for intrinsic motivation. The latter is illustrated above with the 'naughty boys' having been the more vocal ones. Heilbronn (2019, p. 21) argues that "through discussing events, ideas and characters'" actions and motivation, students enter a world of moral ambiguity that, paradoxically in a discussion about fiction, is actually a real-life experience of ambiguity. Literature matters and teaching it is important because only

with this sympathetic understanding can people develop the kinds of openness to others which are required in a democratic society. A foreign language classroom becomes then more than just another classroom where knowledge is transmitted and shared, it prepares students for tackling real-life problems where they would not have all the solutions in hand, where they would need to think, question and negotiate. Developing reading in the classroom becomes something more than just a skill, it becomes a necessity and an undeniable reality.

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A new funding solution for curriculum development: Positioning a new approach from the SaaS industry to drive more curriculum content

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Abstract

Purpose: This paper is extending the existing body of knowledge by adding a new conceptual framework around funding of curriculum development for education in the SaaS (Software as a Service) industry.

Design/methodology/approach: This paper is investigating a new crowdsourcing curriculum development approach that is currently rolled out by one large SaaS vendor (IBM) to understand their solution. Based on literature research, the key properties of 'crowds' will be identified. The literature review is, in addition, giving an overview on how the new approach fits to existing knowledge.

Findings: The current research will differentiate the new approach from existing solutions in the literature and provide a suggestion for categories helping companies to understand the differences or similarities to other approaches.

Originality/Value: This study is building the conceptual framework of a model outlining multiple approaches for funding for curriculum development with the help of a crowd.

Introduction

Background

The term 'crowd' is still showing increasing interest in Google (Google Trends: crowd, 2019). Google shows more than 16 million hits for the word 'crowdsourcing' in 2019. This is in line with Pisano (2015) who says companies need an innovation strategy, but many companies are still in the process of designing theirs. Looking into SaaS companies' data shows that, in general, they are driving innovation, but this does not mean every problem is already solved. IBM, as a large SaaS company, has been known for its innovation throughout its history (Chesbrough, 2007).

Curriculum Development and SaaS

Looking into the area of education, the digital transformation is still ongoing (Croft, 2018). People are focusing considerably on finding solutions for the talent gap (Leaser, 2015). However, there are other issues in the background of driving skills, especially in SaaS organisations: The innovation cycle, which is closer to six months in SaaS than three years, as in normal companies, is challenging education in SaaS: Curriculum Development needs to cope with the new rhythm.

The short innovation cycles are one of the root causes of increasing funding challenges in curriculum development. As users usually use the same release for 3-4 years compared to a release cycle of 6-12 months, this means one-third of the revenue and profit for each developed course. On the other hand, all software companies are facing more and more profit challenges. Last, but not least, there is the added consideration of ongoing consolidation (McKinsey & Co., 2008).

This paper

This research contributes to the existing body of knowledge in two ways. Its first focus is to provide basic and intermediate new knowledge that can be re-used later on. Furthermore it will describe a new approach around funding curriculum development not yet covered in literature and position it in relationship to the properties of crowdsourcing other authors describe in existing academic literature. The investment into the detailed exploratory experience will add a second value. Other SaaS companies will be able to either expand on the experience or copy the approach.

Outlook

A suggestion for further research could be to investigate similar approaches that are combining crowdsourcing and funding as incentive. As the current research is using a relatively small crowd, the thinking of Peisl, Selen and Raeside (2014) could also lead to an additional research question to investigate whether increasing the crowd in this case could lead to better results.

Literature Review

Crowdsourcing, Curriculum Development, Funding

Running a library search for the word 'crowdsourcing' in the title resulted in more than 6,900 articles. Similarly, the word 'curriculum development' also obtained more than 6,100 hits. However, a combination of the two concepts to 'crowdsourcing curriculum', only resulted in four hits. There is no need to add the 'funding'. In detail, there are two results from peer reviewed journals (Paulin & Haythornthwaite, 2016; White-Farnham & Gardner, 2014), a conference paper (Zheng & Dawson, 2017) and a general article (Lamb, 2016). Running a search in Google for 'crowdsourcing curriculum' results in more than 600,000 hits. The first statement suggests that the topic is a niche area. Combined with the high number of Google hits, this suggests that there has been much ongoing interest in this area during the last three years and an increase of the number of academic articles can be expected in the future.

The results from White-Farnham and Gardner (2014) and Paulin and Haythornthwaite (2016) suggest that curriculum created by 'crowds' is not only contributing to knowledge in general, but is also appreciated from a quality point of view (Paulin & Haythornthwaite, 2016). There is also further research that highlights that there will be more usage of the crowd in the future (White-Farnham & Gardner, 2014). Both also discuss the challenges around the motivation to attract the crowd.

All existing literature around curriculum and crowd has in common that the motivation is mentioned, but not discussed, as the used crowd is attracted based on self-motivation.

This also means there is no discussion around funding to motivate the crowd in existing literature.

Properties of crowds: Size & Motivation / Funding

Using the existing literature around crowd but not talking about curriculum development gives the opportunity to investigate what is typical for a crowd. The key properties of a crowd are summarised below in Table 1.

Key properties of 'Crowds'

Property of crowd	Possible Values
Size	Small, medium, large, 'relevant'
Motivation	Enjoyment, fun, self-motivation, monetary rewards

Table 1: Key properties of 'Crowds' (Kozinets, Hemetsberger, & Schau, 2008; Haag, Frey & Lüthje, 2011).

In talking about the size, multiple authors mention large and organised groups as important. Which is interesting, as there is more research suggesting to use large and heterogenic crowds, for example, Rosenkopf and Nerkar (2001), and Lang, Bharadwaj, and Di (2016). But, on the other hand, there is the empirical research from Haag et al. (2011) who found only marginal evidence around the influence of heterogeneity or the size of the crowd around the outcome.

Thus, this is questioning Kozinets et al. (2008) who mention size as a property in their crowd definition. It seems to be important to consider the finding of van Delden (2014), who stresses that you need to tap into the relevant crowd. Based on this, the current research is using a crowd that seems relevant in the context.

In terms of motivation, it is important to highlight that described monetary rewards are a one-time reward for a certain contribution. In all reviewed literature, the focus of the usage of the crowd is on innovation, thus, a onetime monetary reward is well-invested from an organisational point of view: the payment is made for an innovation that could have probably not been created inside the company.

Crowdsourcing development and funding

Moving down from strategy to process level, West and Gallagher (2006) look in general into how the crowd can help in the process side. Their work is scaffolded on open source development and, in the absence of literature around curriculum development together with the crowd, it seems to be a good fit to build on their experience, as shown in Table 2.

Development Strategy	Maximising returns of internal innovation	Role of external innovation	Motivation external innovation
Pooled R&D product development	Participants jointly contribute to shared effort	Pooled contributions available to all	Ongoing institutions establish legitimacy and continuity
Spinouts	Seed non-commercial technology to support other goals	Supplants internal innovation as basis of ongoing innovation	Free access to valuable technology
Selling complements	Target highest value part of whole product solution	External components provide basis for internal development	Firms coordinate ongoing supply of components
Donated complements	Provide an extensible platform for external contributors	Adding variety and novelty to established products	Recognition and other non-monetary rewards

Table 2: Open source strategies as solutions to open innovation challenges (West & Gallagher, 2006).

It is important to highlight that West and Gallagher (2006) also explore the same question as the currently discussed research — how to motivate individuals and organisations to contribute to the crowd. They state that, without any incentive, neither organisations nor individuals will contribute in the long run.

They suggest the topic of this research paper as one of their open questions: What other options exist between 'relying on free spillovers and coordinating a complex production ecosystem.'

Research Methodology

Overview

As the literature review pointed out, there is not a lot of literature overall on the topic of crowd and curriculum development, and none bringing this together with the topic of funding addressed in this research.

However, there are some sources talking about the categorisation of certain crowdsourcing properties, for example, West and Gallagher (2006).

Our methodology relies on the research by Christensen and Carlile (2009) who describe how theory building occurs in three stages. Yin (2009) states that the use of case studies can help when researchers want to look for answers to how or why things work in real life.

Therefore, theory generated from a specific case of a specific company may help future researchers to not only build upon phase three, as outlined by Christensen and Carlile (2009), but also help companies to build new ideas.

The author obtained access to the data based on his own professional role around business development in IBM. As a side challenge to his general work, he was tasked with finding a solution to source curriculum development taking into consideration the focus on SaaS in IBM and the very short product life cycles. As IBM is a part of TSIA (2019) the author received from TSIA the confirmation that software vendors today are either using non-controlled crowdsourcing or subcontracting. As neither approach fits the requirements, a new approach was, therefore, needed.

From an ethical point of view, the new approach may sound as if organisations are expanding more and more in using external resources instead of recruiting new workforce. However, it needs to be kept in mind that there are results from Huizingh (2011) which outline that, by expanding the workforce beyond the organisation's boundaries, the potential of innovation is increased.

Overview of the new approach

To solve the challenges of finding new ways to fund curriculum development, the author initiated a new approach in IBM to develop course materials for technical training for their products. Multiple conditions were the foundation of the decision.

The first is that the IP must stay inside the company. The reason is that there are many existing contracts that it would have been complex or impossible to retain if course materials were to fully or partly belong to third parties. The second constraint was that no payment is possible for the development of the materials. Furthermore, it was clear that, based on the unclear volume expectations, in many cases attracting a crowd to invest in the development is not easy. Discussions with potential participants in a crowd made clear that none of the motivations outlined in Table 1 would work. Naturally, it was mentioned that a monetary reward covering the development costs would be an option, but this would have conflicted with the condition that there is no upfront money planned.

The outcome is a variation of existing sourcing ideas which solves the above topics: a need for development

is announced amongst a group of key partners (a group of five) as well as, in certain cases, to additional specialty partners with the right skills. One partner is chosen based on their expertise and details of their offer to develop. The partner will develop the content based on the needs of IBM curriculum development. In general, IBM retains the responsibility for the architecture of the to-be-developed materials, but this fact can be adapted if required. Once the project is completed, the IP is transferred to IBM. Each time the materials are used, the developing partner receives a so-called 'content fee' which is negotiated upfront. During the time of the contract, the partner is responsible for the support of the course materials.

Discussion and Conclusion

Categorisation

Taking the small amount of literature into consideration (3.1) and the fact that curriculum development is, in some organisations, closely linked to development, the categorisations shown in Table 2 are a good starting point and better than designing categories from scratch.

The key difference of their work to that of IBM is straightforward: none of the four categories introduced includes a continuous payment as done by IBM. Furthermore, the motivational aspect is a key criterion that differentiates the four approaches and plays a significant overall role in their whole work.

Summarising the findings, it can be stated that the currently researched approach adds a new idea to solve the question of how to fund the contribution in a crowd. It enhances the ideas that were introduced by West and Gallagher (2006). Table 3 enhances Table 2 by adding a row with the new approach from IBM.

Development Strategy	Maximising returns of internal innovation	Role of external innovation	Motivation external innovation
Pooled R&D product development	Participants jointly contribute to shared effort	Pooled contributions available to all	Ongoing institutions establish legitimacy and continuity
Spinouts	Seed non-commercial technology to support other goals	Supplants internal innovation as basis of ongoing innovation	Free access to valuable technology
Selling complements	Target highest value part of whole product solution	External components provide basis for internal development	Firms coordinate ongoing supply of components
Donated complements	Provide an extensible platform for external contributors	Adding variety and novelty to established products	Recognition and other non-monetary rewards
Crowdsourcing with payment	Keep architecture in general in-house	Contributing product and curriculum development experience and innovation	Pay-per-use back to developing organisation

Table 3: Open source curriculum development strategies as solutions to open innovation challenges (West & Gallagher, 2006).

Challenges

The biggest challenge is the needed prediction of volumes.

The SaaS vendor needs to be able to predict the expected volume. From a high-level point of view, this seems to be a simple and straightforward step, but, during the first usages in IBM, this was difficult. In general, this should not be an issue, as product forecast should automatically influence the education forecast.

Internally, the forecast could still create additional challenges. On the one hand, a too low forecast will create the challenge of the crowdsourcing project not being accepted by the developing partners. On the other hand, the forecast cannot get artificially increased. The only other solution would be to use another funding approach, for example, a direct investment into those projects where the forecast is not high enough.

This leads to an interesting suggestion for general crowdsourcing in curriculum development. There are, in general, two different projects where the crowdsourced curriculum development can work. Either there is a high enough volume expectation, or, alternatively, a developing company is sufficiently interested to accept the risk of a possible loss.

We return to the recommendations from Haag et al. (2011) and van Delden (2014) to go with a small number of developing partners who are knowledgeable in the area of development. The more projects each partner gets, the greater is also the probability of investment into those projects that have a risk of not being profitable. Thus, a smaller group should be more viable in the long term. But this statement also needs further research.

Further Research

Additional basic research is needed similar to this work in investigating and categorising new approaches from the industry. The result could be a foundational collection of ideas enhancing Table 3, making it easier for organisations to re-use and build on the existing experience instead of investing in the same experience already undertaken by others.

A second field of future research could be studies moving towards the next level in the Christensen and Carlile (2009) model by using, for example, interviews after a certain experience was designed with the current approach. This could result in more details around the advantages or disadvantages and move the study into a real model.

Quantitative research around the current study could also be interesting, likely resulting in data to judge on profitability and additional key performance indicators in comparison to other existing outsourcing options.

Last, but not least, more work around the transitioning of the first four rows from the West and Gallagher (2006) Table into curriculum development needs to be done. Interviews in curriculum development organisations could be a powerful means to verify that the transition makes sense and, potentially, even add additional categories.

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Exploring the relationship between students' interaction in smart learning environments and various variables through the structural equation model

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Keywords

Article Info

Abstract

For the functions of enhancing students' learning performance by integrating advanced technologies and equipment, the smart classroom has become a worldwide research issue recently. This study aims to produce a model to determine what variables affect students' interaction in a smart learning environment. Participants consist of 254 undergraduate students and master students who have experience of learning in a smart classroom for more than one semester. Two scales were adopted in this study as a data instrument. The first one is the "Smart Classroom Inventory". The second one is "Interaction and Student Satisfaction Scales". The Structural Equation Model (SEM) was used in this study for data analysis. A model is built to explain the relations between students' interaction and variables related to the smart classroom. According to the research results, we find that students' interaction can be positively affected by variables of Spatial physical design, Learning data, Differentiation, and Cooperation related to the smart classroom.

1. Introduction

The rapid development of technology has provided more possibilities to establish more social, interactive, flexible, and student-centered learning environments and the smart classroom is one of these learning environments (Macleod, Yang, Zhu, & Li, 2018). According to previous researches, the smart classroom is a technology-enhanced classroom, which intelligently monitors and manages students' learning (Huang, Yongbin, Yang, & Xiao, 2012; Macleod et al., 2018; Shen, Wu, & Lee, 2014). Thus, instructional designers and educators have unique opportunities to foster interaction and collaboration among students, when they study in a smart learning environment (Beldarrain, 2006).

Interaction is considered a necessary ingredient for a successful learning experience, especially in a smart learning environment (Moore, 1989; Beldarrain, 2006). Compared with the traditional classroom, a smart classroom supports richer forms of interaction (Bao, Kong, & Chen, 2015; Huang et al., 2012; Zhang, Zhang, & Han, 2014). Some of the technical tools are frequently used in a smart classroom, such as wiki and whiteboards. Some researches have proven the function of these tools to promote students' interaction. The instant interaction happening in the smart classroom has caught the attention of some researchers. Hwang et al. (2012) proposed the "SMART" model to characterize the smart classroom, where "R" represents "Real-time interaction". Similarly, Li et al. (2014) divided the smart learning environment into six parts, one of which is the user interaction, including five kinds of interaction activities, which are 'interaction with intelligent learning system', 'peer interaction', 'interaction with teacher', 'interaction with virtual role' and 'social interaction'. In other researches, more technical equipment such as interactive demonstration systems of distance education (Chen, Zhao, & Xu, 2008) was developed and used to construct a more flexible environment and support the interaction in class. Although the motivational power of smart classrooms has been well demonstrated (Tibúrcio & Finch, 2005; Wang, Hwang, Wang, & Lu, 2016), research into elements of the smart classroom that lead to effective interaction is not as extensive. To better construct an intelligent learning environment, it is important to understand how a smart classroom promotes students' interactive behaviors. Following the aforementioned literature, this research is aimed to determine what variables affect students' interaction in a smart learning environment.

2 Literature Review

2.1 Smart classroom

Coined by Rescigno (1988), the term 'smart classroom' was defined as a teaching site embedded with personal computers, interactive CD-ROMs, video programs, closed-circuit television, VHS programs, satellite links, local area networks, and telephone modems on the basis of the traditional classroom. In recent years, the U.S. 'Daily Forum' pointed out that the smart classroom is a learning environment that uses innovative educational activities to improve the use of technology from classroom management to teaching, making educators and learners part of a superior learning environment (Molnar, 2007). According to Hwang et al. (2012), a smart classroom is a multimedia-enhanced classroom, which provides learning support for students by perceiving their emotions and behaviors. Chen, Ye, and Xu (2012) defined the smart classroom as an environment embedded with audio, lights, and electric equipment such as computers, projectors, and interactive whiteboards, which offers teachers and students access to resources and make them engage in various learning activities, including distance learning. Zhang et al. (2014) referred to the concept of the smart classroom as a smart learning space that is built using ubiquitous computing, IoT technology, cloud computing technology and intelligent technology to promote students' knowledge building. In summary, the smart classroom has the following functions: integrating emerging technologies with traditional teaching environments through advanced technical equipment, effectively monitoring and managing the classroom, and providing technical assistance.

2.2 Interaction

There are many types of interaction defined according to different perspectives. Contreras-Castillo, Favela, Perez-Fragoso, and Santamaria-Del-Angel (2004) divided courses into two categories: formal/structured interaction and informal interaction. When scholars use 'formal' interaction or 'structured' interaction, they mean that students have to follow a protocol defined by teachers, while 'informal interaction' means that the events are not planned. Moore (1989) mentioned that there are three types of interaction according to the interaction objects: learner-learner interaction, learner-instructor interaction and learner-content interaction. Learner-learner interaction is an interaction between one learner and other learners. Learner-instructor interaction is an interaction between the learner and the expert who conducts a class. Learner-content interaction is an interaction between the learner and the content or subject of study. Hillman, Willis, and Gunawardena (1994) considered the interaction occurs between learners and technologies that are used to deliver instruction and presented the concept of learner-interface interaction. To distinguish the interaction occurring in teaching from the interaction occurring outside teaching, the concept of teaching interaction is presented, which include learner-learner interaction, learner-instructor interaction and leaner-content interaction (Gilbert & Moore, 1998; Chen, 2004). Based on previous researches, we regard interaction in a class as all actions of exchanging information among different subjects.

2.3 Interaction in smart classroom

Several studies found that a smart classroom improves learners' interactive behavior more effectively, compared with the normal learning environment (Tibúrcio & Finch, 2005). Yu, You, and Tsai (2012) conducted a comparative study and the study result shows that the social feedback system in a smart classroom can promote interactive feedback and students' learning satisfaction. Wang, Jiang,

and Huang (2015) developed the classroom interaction observation tool (CIOSM) and used it to observe 54 lectures of 18 smart classrooms in 12 primary and middle schools in Hong Kong, Beijing, and Shenzhen. The study results indicated that the smart classroom environment with rich technology can effectively support the development of classroom interaction (Wang et al., 2016).

Moreover, some researchers focus on the factors that may have an influence on students' interactions in the smart learning space. Li et al. (2014) assessed the characteristics of the smart classroom and construct the Smart Classroom Scale which focused on the physical appearance, teaching and learning activities, and ecology of the smart classroom. The physical appearance of the smart classroom was categorized into four dimensions (Spatial design, Flexibility, Technology usage, and Learning data), as shown in Table 1. The teaching and learning activities of the smart classroom include different strategies teachers use in class, such as Differentiation and Cooperation (see Table1). Several studies provide clues to reveal the effects of these characteristics on student interaction. According to Li (2015), a flexible designed physical environment will affect the interaction between teachers and students. In addition, the technology application of the smart classroom and data management can promote the level of feedback between teachers and students. Ting (2013) pointed out that mobile technologies coordinate and synchronize three types of learning interactions (learner-learner, learner-instructor, and learner-content interaction) to achieve better and more effective learning. With the help of technology, students participate in explorative learning and synchronize their social interactions around their physical world with the instructional illustration of the subject content. Based on the above studies, we can put forward the hypothesis that the physical appearance of the smart classroom will directly affect student interaction and indirectly affect student interaction through teaching and learning activities. Because the effects of smart classroom vary according to the type of interactions, this study categorizes the students' interaction into three dimensions (Online interaction with others, Offline interaction with others, and Learner-content interaction), as shown in Table 2.

3 Method

3.1 Research model and hypotheses

The research model is created based on the research hypothesis in accordance with the literature. This study uses six variables to describe the physical appearance and instructional activities of the smart classroom, and three variables to describe students' interactions. The descriptions of these variables are shown in Table 1 and Table 2. The model is shown in Figure 1, and every research hypothesis is represented by a single arrow between two variables.
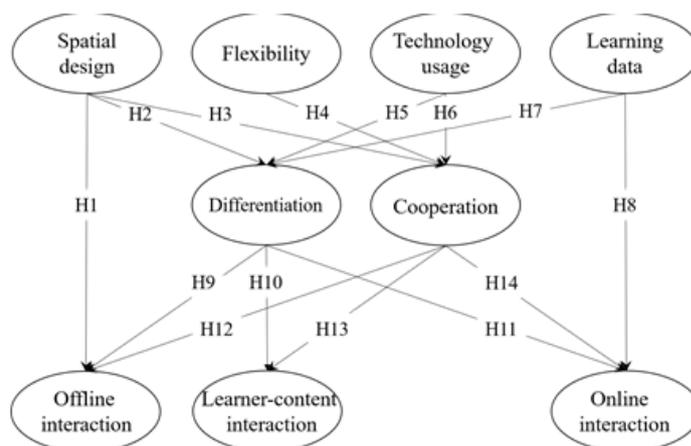
Figure 1: Research Model.

The research hypotheses are as follows:

H1 Spatial design of the smart classroom has a positive effect on students' online interaction with others.
H2 Spatial design of the smart classroom has a positive effect on Differentiation.
H3 Spatial design of the smart classroom has a positive effect on Cooperation.
H4 Flexibility of the smart classroom has a positive effect on Cooperation.
H5 Technology usage of the smart classroom has a positive effect on Differentiation.
H6 Technology usage of the smart classroom has a positive effect on Cooperation.
H7 Learning data of the smart classroom has a positive effect on Differentiation.
H8 Learning data of the smart classroom has a positive effect on students' online interaction with others.
H9 Differentiation has a positive effect on students' offline interaction with others.
H10 Differentiation has a positive effect on learner-content interaction.
H11 Differentiation has a positive effect on students' online interaction with others.
H12 Cooperation has a positive effect on students' offline interaction with others.
H13 Cooperation has a positive effect on learner-content.
H14 Cooperation has a positive effect on students' online interaction with others.

Variables	Description
Spatial design	The extent to which the spatial area, furniture equipment, and information technology infrastructure of smart classrooms.
Flexibility	The extent to which the flexible support for users by classroom environment
Technology usage	The extent to which learners use information technology as a tool to learn and to access information.
Learning data	The extent to which the information technology was used to acquire and compute the learn data of the users.
Differentiation	The extent to which teachers cater for learners differently based on ability, rates of learning and interests.
Cooperation	The extent to which learners cooperate on learning tasks.

Table 1: Description of the physical appearance and instructional activities of smart classroom (Li et al., 2014).

Variables	Description
Online interaction with others	The extent to which learners communicated with peers and teachers through online learning platform.
Offline interaction with others	The extent to which learners communicated face to face with peers and teachers in classroom.
Learner-content interaction	The extent to which students acquire learning content, including the time they took and the difficulty of learning materials.

Table 2: Description of the students' interaction (Kuo et al., 2014).

3.2 Participants

Participants of the research consist of 254 undergraduate students and master students in a university in Beijing. All these students aged from 18 to 24 have experience of learning in the smart classroom for more than one semester. The questionnaire uses a 5-point Likert-type scale with anchors from strongly disagree (scored as 1) to strongly agree (scored as 5). Students who filled out the questionnaire came from various majors.

3.3 Data collection instrument

Two different scales are adopted in this research as data instruments. The first one is the "Smart Classroom Inventory". This scale is developed by Li et al. (2014). The original form of this scale aims at describing the features of a smart classroom and consists of 36 items and 10 factors. In this adapted scale, the factors are reduced to 6: Spatial design, Flexibility, Technology usage, Learning data, Differentiation, and Cooperation. The second scale is "Interaction and Student Satisfaction Scales". This scale is developed by Kuo, Belland, Schroder, and Walker (2014). The original form of this scale aims at measuring interaction and student satisfaction in a blended learning environment and consists of 32 items and 4 factors. In this study, the factors are reduced to 3: Online interaction with others, Offline interaction with others, Learner-content interaction.

The instrument of this research consists of 9 factors and 31 items. "Spatial design" sub-dimension consists of 4 items, "Flexibility" sub-dimension consists of 2 items, "Technology usage" sub-dimension consists of 2 items, "Learning data" sub-dimension consists of 3 items, "Differentiation" sub-dimension consists of 2 items, "Cooperation" sub-dimension consists of 3 items, "Online interaction with others" sub-dimension consists of 7 items, "Offline interaction with others" sub-dimension consists of 5 items, "Learner-content interaction" sub-dimension consists of 3 items. Cronbach alpha consistency coefficient calculated in this research is 0.924.

3.4 Data collection

The data collection instrument was applied to the study group employing the online and paper questionnaire published in the school. Participants who volunteered in the study were not asked to provide any personal information such as name, student ID, etc. A total of 300 questionnaires were distributed and 282 questionnaires were collected, with a recovery rate of 94%. 28 invalid questionnaires were removed, and 254 valid questionnaires were left.

4 Results

The Structural Equation Model (SEM) is used in this study for data analysis to explain the relations between the characteristics of the smart classroom and students' interaction. A model is created using the AMOS 22.0 Graphic

program. The compatibility level of relation patterns in the recommended model is determined by several fit indexes (Durak & Saritepeci, 2018). 1) χ^2 (chi-square value), RMSEA (root-mean-square error of approximation), GFI (goodness-of-fit-index), CFI (comparative fit index), AGFI (adjusted goodness-of-fit index).

The model in this research is verified by data after several modifications. Table 3 displays the fit ranges of the goodness of fit criteria and the test result of the fit indexes.

Fit Values	Acceptable Fit Values	Values Reached
χ^2	P>0.05	303.378 P=0.000
χ^2/df	<3	1.744
RMSEA	<0.08	0.054
GFI	>0.9	0.901
CFI	>0.9	0.954
AGFI	>0.9	0.869

Table 3: Values of Goodness of Fit Index in Structural Equation Model.

According to Table 3, the χ^2 (chi-square value) of the model is 303.378. The P-value is 0.000, but this value can be ignored because of the large sample size of this research. The GFI value (.901), CFI value (.954) and RMSEA value (.054) fall in the fit ranges. The AGFI value (.869) is less than, but close to, the ideal value (0.9), so it is acceptable. The covariance matrix of the conceptual model is close to the covariance matrix obtained from the data, which indicates that the conceptual model is more consistent with the actual data. On the whole, the modified structural model fits well.

Table 4 shows the Hypothesis Acceptance table after model modifications. According to table 3, 10 hypotheses (H1, H2, H3, H7, H8, H9, H10, H11, H12, H13) are accepted (β-coefficient=0.381; p<0.05).

	β- coefficient	P	Acceptance/Rejection
Spatial design - Offline interaction with others	.539	0.000	Acceptance
Spatial design- Differentiation	.196	0.001	Acceptance
Spatial design -Cooperation	.633	0.000	Acceptance
Technology usage –Differentiation	.748	0.000	Acceptance
Technology usage - Online interaction with others	.246	0.009	Acceptance
Differentiation - Offline interaction with others	.181	0.000	Acceptance
Differentiation - Learner-content interaction	.616	0.000	Acceptance
Differentiation - Online interaction with others	.566	0.000	Acceptance
Cooperation - Offline interaction with others	.483	0.000	Acceptance
Cooperation - Learner-content interaction	.336	0.000	Acceptance

Table 4: Hypothesis Acceptance/Rejection Table.

Figure 2 displays coefficients of the modified structural equation model and Table 5 displays the direct effect, indirect effect and overall effect among each variable. The coefficient represents the strength of the relationship between variables. The direct effect refers to the direct influence of causal variables on outcome variables, the indirect effect refers to the indirect influence of causal variables on outcome variables through one or more mediators, and the total effect is the sum of direct effect and indirect effect.

5 Conclusions

In this research, we produce a model and determine that students' interaction can be positively affected by variables

of Spatial design, Learning data, Differentiation, and Cooperation related to the smart classroom.
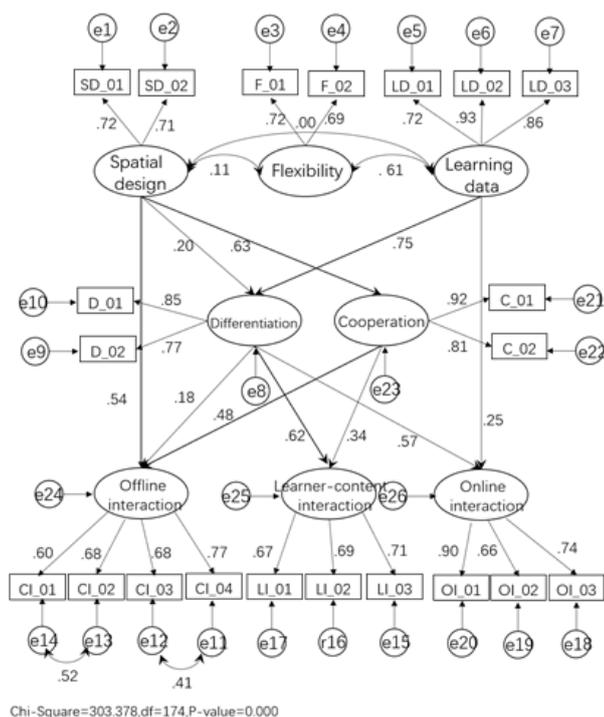

Figure 2: Modified structural equation model diagram.

		Spatial design	Learning data	Differentiation	Cooperation
Differentiation	Total effect	.196	.748		
	Direct effect	.196	.748		
	Indirect effect				
Cooperation	Total effect	.633			
	Direct effect	.633			
	Indirect effect				
Offline interaction with others	Total effect	.881	.136	.181	.483
	Direct effect	.539		.181	.483
	Indirect effect	.341	.136		
Learner-content interaction	Total effect	.334	.461	.616	.336
	Direct effect			.616	.336
	Indirect effect	.334	.461		
Online interaction with others	Total effect	.111	.669	.566	
	Direct effect		.246	.566	
	Indirect effect	.111	.424		

Table 5: The direct effect, indirect effect and overall effect.

Four main conclusions of this research are drawn. The first conclusion is that the spatial design of the smart classroom affects students' offline interaction with others directly and positively (0.54).

This finding is consistent with the viewpoint of Wang et al. (2016) that learning environments with technology equipment such as interactive learning desktop could enhance the frequency of interaction between students in a class. The second conclusion indicates that learning data management of the smart classroom affects students' online interaction with others directly and positively (0.25), which means that an intelligent learning space can promote the interaction in distance education. This finding may prove the point of Dekdouk (2012) that reliable data storage and management are part of the assessment of smart classroom learning. The third conclusion is that spatial design (0.2) and learning data (0.75) of the smart classroom have a direct effect on differentiation. Moreover, differentiation affects students' offline interaction with others (0.18), online interaction with others (0.57), and learner-content interaction (0.62), which means that spatial design and learning data management of smart classrooms can help teachers to better satisfy students' personalized learning requirements so as to promote

students' learning efficiency. The fourth conclusion is that the spatial design of the smart classroom has a direct and positive effect on cooperation (0.63). Moreover, cooperation affects students' offline interaction with others (0.48) and learner-content interaction (0.34). These two findings are consistent with the research result of Wang et al. (2016) that classroom types and teaching activities have a significant cross-effect on the quality of classroom interaction.

The shortcoming of the study is that although the participants have the experience of learning in the smart classroom, their learning processes were not very 'smart' because teachers may not be able to make good use of the potential of a smart classroom. As a result, the quality of the data may not be good. For future researches, we will consider the learning experience of participants more carefully. For future construction of a smart learning environment, we suggest that teachers use appropriate facilities to organize learning activities.

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Managing rapport in the context of classroom talk: A case study of a London secondary school

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Abstract

Recently, the research on classroom conflict talk has attracted much attention from applied linguistics scholars. However, how the teacher uses language to effectively resolve conflict while striking a balance between achieving their own and their students' objectives, has not been fully researched to date. Acknowledging this gap, this paper investigates a conflict classroom talk between a teacher and a group of students in a Mandarin lesson at a secondary school in London. Its analysis drew on the framework of rapport management to explore how the teacher and students negotiated and achieved their respective goals and tasks while maintaining the teacher-student relationship within this particular institutional setting. For the purpose of this study, Conversation Analysis, as a very fine tool, was employed to present diverse features and in-depth details, such as redirection and minimal acknowledgment. It found that although a perceived unbalance of power exists between teachers and students, students in this study broke the asymmetry and made themselves heard, which in turn became what the teacher valued highly in the class.

1. Introduction

Several studies have investigated classroom talk in terms of the teacher's exercise of control over topics and speaking rights in class (Cazden, 1988; Edwards & Mercer, 1987; Lemke, 1990; McHoul, 1978; Mehan, 1979; Nystrand, 1997). More recently, conflict within classroom talk has prompted much interest among applied linguistics scholars (Emanuelsson & Sahlstrom, 2008). That said, how the teacher uses language to effectively resolve conflict, while striking a balance between achieving their own and their students' objectives, has not been fully researched to date (Waring, 2015). This paper seeks to address this knowledge gap by analysing conflict dynamics typically found in classroom talk.

In the process, the paper draws on rapport management as a relevant theoretical framework (Spencer-Oatey, 2008) for any investigation into this field. By applying this framework, the paper will answer the main research question about how the teacher and students negotiate the achievement of their respective goals and tasks, while managing rapport within this particular institutional setting. In order to achieve this, a case study of a Mandarin class in a London secondary school is presented. Teacher-student interaction is also examined by employing conversational analysis (CA), which highlights the linguistic features of spontaneously and naturally occurring conversation in great detail (Liddicoat, 2007; Sidnell, 2010), while revealing strategies that speakers use to manage rapport during talk (Spencer-Oatey, 2002, 2005, 2008).

2. Literature Review

Classroom talk is usually understood as a type of institutional[1] talk, which is distinguished from ordinary conversation (Markee & Kasper, 2004). Conversations between the teacher and students are asymmetrical as they are constrained by institutionally oriented factors, such as goals, roles and norms (Drew & Heritage, 1992).

Teachers are traditionally viewed as facilitators who exercise control over the whole class, for example, by providing feedback, asking questions and initiating discussion. That said, some research into classroom discourse has found that students pose several challenges to teachers, including in term of maintaining face or promoting understandings (Edwards & Mercer, 1987; Lemke, 1990; Mehan, 1979). Recently, analytic researchers have focused their attention on the unexpectedly chaotic or disorderly nature of self-selection in the context of classroom talk.

Li's study (2013) explains how a teacher, who is teaching a class for Chinese as a second language, tries to maintain her authority, while coping with a learner's challenging responses, but fails in achieving some pedagogical goals. Fagan (2012, 2013), meanwhile, compared a novice teacher and an experienced teacher in how they confronted students' vigorous engagement and difficult questions by closely analysing turn-taking. Waring (2013b) explains how a teacher tries to manage the chaos of the self-selected 'voice', while pursuing a specific educational goal. By focusing on students' turn-taking in various situations, Waring (2013a)

also identified some general linguistic formulas applied in the conversation between a teacher and students, such as 'minimal acknowledgement + redirection', where the teacher minimally acknowledges students' responses without focusing too much attention onto them, followed by redirecting their attention onto other matters.

Analysing turn-taking in conversation, therefore, can meticulously describe the dynamic process in which the teacher's management of this phenomenon and students' respondent behaviour are addressed. In other words, classroom talk is an example of how language is used to transfer information and maintain social relationships in an institutional setting.

For Brown and Yule (1983), maintaining social relationships plays a more important role in all communicative situations. Numerous theoretical explanations have given for how language is used to manage social relationships: Leech (1983) identified six politeness maxims based on Grice's (1975) cooperative principle; Lakoff (1973) proposed a 'politeness principle', which governs conversations; Fraser (1990) discussed conversational contracts; Culpeper (1996, 2005) explored impoliteness, in terms of how language causes offence. Among all the theoretical contributions in this field, the politeness model by Brown and Levinson (1978, 1987) has received significant attentions. According to this model, everyone has a sense of 'positive face' (i.e., a desire to be approved, liked, understood) and 'negative face' (i.e., a desire to be unimpeded). Any speech act that affects a person's dual 'face' is regarded as a face-threatening act (FTA). Alongside this theory, Brown and Levinson (1987) proposed universal politeness strategies: bald on-record (e.g., saying 'Get out!'); positive politeness (e.g., minimizing the threat); negative politeness (e.g., attempting to avoid imposition); off-record (e.g., using hints or hedges); not doing the FTA. However, this model's weaknesses have been highlighted in recent decades, such as the overgeneralization of indirect utterances (Spencer-Oatey & Jiang, 2003), the dichotomization of politeness and impoliteness (Locher & Watts, 2005), and the failure to address impoliteness strategies (Culpeper, 1996).

Considering these arguments, Spencer-Oatey (2008) proposed a modified framework, known as rapport management, involving the management of harmony and disharmony among people (Spencer-Oatey, 2008). It is based on three interrelational components: *face sensitivities, interactional goals, sociality rights and obligations* (see Figure 1).

Face is understood as "the positive value (e.g., dignity, honor, reputation) a person effectively claims for himself" (Spencer-Oatey, 2008, p. 13). This value reflects personal traits and is closely connected to one's sense of identity (including individual, group/collective and relational identities). Any speech act threatening this sense of identity could

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[1] The term institution refers to a large entity with professionals working within it (Sarangi & Roberts, 1999). Institutional talk is closely associated with the goals and constraints of professionals, as well as the roles and rules they must comply with (Drew and Heritage, 1992). Gunnarsson et al. (1997) describe institutional talk as "talk between an expert representing some authority and a layman" (p. 7).

Figure 1: The basis of rapport.

be regarded as face-sensitive. *Interactional goals* usually comprise a relational goal and a task-focused goal, with the failure to achieve these goals also posing a threat to rapport. *Sociality rights and obligations* usually refer to social expectations, specifically, others' concerns about 'fairness, consideration and behavioral appropriateness' (Spencer-Oatey, 2008, pp. 13-14), whereby interpersonal rapport may be affected if these rights and obligations are unfulfilled.

The rapport management framework is used in this study to facilitate a comprehensive account of the data in order to understand language transfer and social relationship management in a classroom. Rapport management covers both speech acts (e.g., orders and requests, apologies, compliments) that are primarily regarded as FTAs, and features of speech acts that play a vital role in maintaining social relationships through communication (Spencer-Oatey & Xing 1998, 2004, 2008). Overall, these speech acts are categorized into five domains, as shown in Table 1 below.

Domains (main elements)	Strategies (related research)	Research status
Illocutionary domain (e.g., orders and requests, apologies, compliments)	**Main semantic components or formulas**	Systematically researched
	Degree of directness and indirectness when making requests	
	Downgraders/upgraders associated with requests and apologies	
Discourse domain (discourse content and structure: topic choice, topic management, the organization and sequencing of information)	Phatic talk (Pavlidou, 1994)	Less systematically researched
Participation domain (turn-taking, including/excluding people, use/non-use of listener responses)	Turn-taking (Wieland, 1991)	
Stylistic domain (tone, genre-appropriate lexis and syntax, terms of address)	Spencer and Xing (1998)	
Non-verbal domain (gestures, other body movements, eye contact, proxemics)	Spencer and Xing (2004)	

Table 1: Five domains of speech acts.

According to the above table, attention is mainly given to illocutionary domain. Three important features in this domain (main semantic components/formulas; degree of directness and indirectness when making requests, and the downgraders and upgraders associated with request and apologies) are discussed below.

1) *Main semantic components/formulas.*

According to Olshtain and Cohen (1983), people usually select either one or a few semantic components found in communication from a range of semantic components. For example, in expressions of gratitude: 'Thanks ever so much for lending me your car (1)'; 'It was really extremely kind of you' (2); 'I very much appreciate it' (3); 'If I can ever help you out like that, be sure to let me know' (4). The main components in these expressions are, respectively, the head act (1), complimenting the other person (2), the expression of appreciation (3), and the promise of repayment/reciprocation (4).

2) *Degree of directness and indirectness*

Request-making has been broadly investigated in research on speech acts. According to Blum-Kulka, House and Kasper (1989), request-making can be categorized by the extent of directness. Directness strategies include: mood derivables (e.g., 'Stop talking'); performatives (e.g., I'm asking you to rewrite that paragraph'); hedged performatives (e.g., 'I would like you to give a talk'); obligation statements (e.g., 'You'll have to meet him); want statements (e.g., 'I really wish you'd stop chatting'). Indirect strategies are further categorized as conventional or non-conventional. Conventionally indirect strategies include suggestory formulas (e.g., 'How about singing a song?') and query preparatory modals (e.g., 'Could you stop talking, please?'). Non-conventionally indirect strategies include strong hints (e.g., 'You've made a lot of mistakes in that paragraph') and mind hints (e.g., 'I get a headache when other people are talking loudly').

3) *Downgraders and upgraders usually associated with request and apologies*

According to Blum-Kulka, House, and Kasper (1989), for requests and apologies, downgraders decrease/weaken the force of a statement, while upgraders increase/strengthen the impact. Upgraders and downgraders are embodied in syntactic and lexical or phrasal situations. For example, in the request, 'Can you tidy up your desk a bit?', a 'bit' is used as a lexical downgrader to mitigate the force of the request.

The use of these linguistic strategies in communication is consciously or unconsciously affected by rapport orientation, contextual variables, pragmatic principles and conventions (see Table 2). It is also noteworthy that the power, distance and participants in contextual variables are considered as the main elements mediating the use of strategies.

Having reviewed the relevant literature and identified the key terms and concepts appropriate to this study, the next section sets out the methodology used to obtain the data on the case study.

Factors	Specified types	Further illustration
Rapport Orientation	Rapport enhancement orientation	
	Rapport maintenance orientation	
	Rapport neglect orientation	
	Rapport challenge orientation	
Contextual variables	Participants and their relations	Power; distance; interrelationship between power and distance; participants
	Message content: cost-benefit consideration	
	Social/interactional roles	
	Activity types	
	Overall assessment of context	
Pragmatic principles and conventions		

Table 2: Factors influencing strategy use.

3. Methodology and Data

The data for this study were gathered during two three-hour audio recordings of a Mandarin class in a secondary school in London.

Before I started to collect the data, I obtained permission from the school authorities, explaining to them the aim of the audio recordings. Consent forms (see Appendix) were collected from students and teachers, as well as parents if students were under 13 years of age. Information sheets (see Appendix) were also provided. All participants in this study are referred to by pseudonymous. The language used for communication in this class was English. The data were recorded using my iPhone, with the aid of voice recording apps. As the iPhone was located on the teacher's desk at the front of the classroom, the voice of some students on the recordings is not as clear as the teacher's. However, this did not significantly affect the quality of the data.

During the recordings, 28 students were working on a group presentation about a Chinese city. There were about five students in each group. The tasks for each group were to select a project manager and identify a Chinese city for their project.

The conversation data were transcribed and analysed by the system developed by Paul ten Have (2007). The goal was to cover all the dynamic elements in the recorded conversations, such as tones, pitches and turn-takings. By analysing linguistics features, this study is able to further reveal the strategies used by participants in rapport management. The main question concerns how the teacher and students negotiate their goals and realize a specific task while managing rapport in their institutional settings.

4. Analysis

The data below were selected from the recordings. It covers an entire conversation between the teacher and 'Group 5'. The whole process is divided into five extracts. Extracts 1-3 are concerned with the first task, i.e., choosing a project manager for the group. Extracts 4-5 refers to the second task, i.e., deciding which city to examine. Each extract contains

a repeated enquiry raised by the teacher, which is marked by an arrow in the data and underscored in the analysis. Moreover, each extract will be analysed with Conversational Analysis (CA) and the rapport management framework.

Before this extract, all students were informed that the project managers should report back on decisions.

(T=teacher, Group 5 members: R=Rita, S1, S2, S3, S4; other students: SS).

Extract 1

```
1 T: Right (0.8) um: >we are going to group< um: (2.3) five ↑
2 S1: Um: So Basically um: we chose the (syl syl syl) (0.3)

3      >because Rita (° doesn't want to do it ° ) <

4      and Tylor found (syl syl syl syl° they are not allowed° )

5      and then ( 0.3 )   I've got selected

6      and then ( 0.3 ) >we looked up the province<-

7 T:   But wha-: wha-:
8      how did the situation ari:se=
9 →    why the team found it very DIFFICULT to find [one person]?
10 R:                                               [We didn't]
11     >We didn't find the person<(0.2)
12     so we just both want to do it [together QUICKLY]
13 S3:                               [ Yeah ]
```

By saying 'we' (Line 1) rather than 'I am', the teacher is trying to narrow down the social gap between himself and the students, which is beneficial for building teacher-student rapport. As S1 picks up the turn-taking (Line 2), this indicates that she is the project manager, which is further confirmed by her subsequent responses (Line 5). Her voice is very slight, such that it is sometimes rather difficult to hear what she is saying (Lines 2 and 4). This poses a striking contrast between S1 and Rita, who is a member of Group 5. Rita's talk (Lines 10-12) has a great deal of strength and high pitch. The reason why they are so different may be because Rita is always the most outstanding student in the whole class, meaning that she often seems to have a priority status compared to the others.

Returning to S1's feedback: S1 uses 'we' first (Line 2) in order to claim in-group membership, while precisely keeping to the point of the teacher's enquiries. Then, she gives details on how the decision was made by referring to the name of other members in the group (Lines 3-4). Again, she confirms that she is the 'project manager' by using the first-person pronoun (Line 5). Moving onto the selection of a Chinese city, which is the second task in this activity, she uses 'we' (Line 6). The pronouns 'we' (group) and 'I' (individual) shift from time to time (Lines 2-6).

Schnurr (2012) pointed out that speakers usually have to "find and negotiate ways of portraying themselves as members of a large group while at the same time emphasizing their uniqueness" (p. 114). In S1's talk, she uses the group pronoun when she refers to the group's decisions,

but uses the individual pronoun to portray and foreground herself as the project manager. In terms of relationship management, the use of pronouns, as a large number of studies has maintained, is affected by power and solidary in participants relations (e.g., Brown & Gilman, 1960; Brown & Levinson, 1987). In this situation, S1, as the project manager, maintains the power endowed by the group to lead this project while representing the team as a solidary image. As this leadership is not likely to change once reported, confirming her leadership identity is a critical first step.

To gain further insight into how the project manager was chosen, the teacher challenges S1 by interrupting her talk (Line 7), as the teacher previously noticed that some problems arose during the decision-making process in that group (Lines 8-9). However, rather than referring to S1's name directly, the uses of 'one person' obscures the referee. Within the rapport management framework, this strong hint is an indirect strategy used by a speaker to mitigate his/her request.

However, Rita immediately denies S1's feedback on the leadership issue and confirms that there was a problem: '[We didn't] >We didn't find the person<(0.2)' (Lines 10-11). The overlapping in Line 10 strengthens the contradiction within the group. By using the collective pronoun and in-group marker 'we' (Lines 10-11), Rita gives the impression that she is expressing disapproval on behalf of her group, rather than her own opinion. Conversely, in Line 12, Rita states that she was expressing her and S1's wish (both); 'just' is used here as a downgrader to mitigate the force of her statement.

As this is task-focused interaction, the students are trying to achieve the goal of the tasks, specifically, the decision on a project manager and the choice of Chinese city. By denying S1's feedback and thus denying the achievement of the institutional goal, Rita poses a threat to the basis of rapport between the teacher and students; as Spencer-Oatey (2008) points out, any failure in this regard could cause frustration and annoyance (p. 17). Rita's negative feedback indicates that S1 is not the leader, which prompts the teacher to make further enquiries. In other words, a negotiation between the teacher and his students begins.

Extract 2
13 S3:   [Yeah]
14 T: Okay>bu- bu-but the guideline on the project< is [very CLEAR]
15 R: [we selected]
16 T: we [have ONE] project ma::[nager]
17 S2:   [we decided]
18 S3:   [Sir:]
19 T: what is the-
20   I UNDERSTAND
21→ but wha- was >what did the group find it< so:: DIFFICULT to accept about the RULE?
22 S4: because we found out >it would be a more equal society< and then (bla bla bla).
23 T: So this is not a project for you then
24 R: >We already have <(0.3) we selected the person so-

The interpersonal rapport is affected because Rita holds a different view (Lines 10-12). On Line 14, with the minimal acknowledgement of 'Okay', the teacher responds to Rita but without any substantial recipiency (e.g., reformulating, analogizing, exemplifying) (Waring, 2002). This is preceded by speech perturbation ('bu- bu-but'), which may suggest that the teacher's attention is deliberately moving away from Rita (Waring, 2013), with the teacher redirecting his focus on

the project instructions (Line 14) (minimal acknowledgement + redirection). Meanwhile, 'very' plays the role of a lexical upgrader to strengthen the force of enquiry (Spencer-Oatey, 2008). Then, the students randomly respond to his enquiry with a process of self-selection (Lines 15 and 17), and the situation falls into chaos (Lines 17-18). Again, the teacher displays minimal acknowledgement ('I UNDERSTAND'), before reiterating his initial question (Line 21). The lexical upgrader 'so::' and the emphatic stress of 'DIFFICULT' strengthen the impact of his request. Student S4 answers this challenge by employing the syntactic downgrader 'would be' in order to mitigate the force of her different opinion (Line 22). Compared with the teacher's strong enquiry and S4's mitigated statement, the contrast between linguistic features is striking. This reflects the typically operationalized power in teacher-students relations. As Brown and Gilman (1960, 1972) states, "one person has power over another in the degree that he is able to control the behaviour of the other" (p. 225). The teacher controls the topic of this negotiation, with the students in an inferior position.

Extract 3
24 R: >We already have <(0.3) we selected the person so-
25 T: Yeah
26   I know
27   But EVE::NTUALLY
28   but (∘ are there∘) big name
29   but did you think (0.2) > this is something your team couldn't work on<(0.4)
30   >Would you rather prepare to come another project<? (0.7)
31 R: So Sir We just want to work as one group
32 T: Well all >everybody is working as a group<
33   >We are TRYing to work on<
34→ wha:t keep you so:: lo::ng (0.3)>to come up with the decision<
35   to >find one project manager<?
36   What was the problem between two people?
37 R: >It wasn't a problem<
38   >that was the whole point<
39   >we didn't wor-<
40   >there wasn't a problem that-<.
41 SS: $[OH DEAR dear]$
42 SS: $ [((laughter))] $
43 T: Okay (0.4) OKay >so we won't call it a problem<
44   but there was some difficult [did you have]
45 R: [there wasn't a difficult]
46 T: So um::m (0.2) so just remind of us how yo:: how you got voted?

While some students stress their desire to work as a group (Lines 12 and 22), the teacher tries to figure out why they are violating the guideline for this project, which is that every group must select a project manager (Lines 14 and 21). Continuing with this theme, Extract 3 concerns the negotiation between the teacher and the student Rita. Answering with minimal acknowledgement - 'Yeah' (Line 25), 'I know' (Line 26) - the teacher tries to guide the students towards focusing on his questions (minimal acknowledgement + redirection). Prefaced with the alerter 'But' (Lines 27-29), the teacher raises his request (Lines 29-30). The suggest 'did you think' (Line 29) and the query modal '>Would you rather' (Line 30) are conventionally indirect strategies, as previously mentioned, which are used to mitigate the directness of the requests made to Rita. In turn, Rita immediately claims the in-group membership by stating 'We' (Line 31) and also expresses the group's point of view ('just want to work as one group'). Starting with 'Well', which is the teacher's minimal acknowledgement that

also functions as a dispreferred marker in relation to Rita (Pomeranz, 1984), the teacher stresses his viewpoint that '>everybody is working as a group<' (Line 32) and restates his initial question (Line 34). <u>This is the third time that the teacher tries to clarify the same question.</u> The 'problem' reaches a tense crescendo as a resulting of the shifting referential nomination from the collective pronouns 'everybody' and 'we' to sigular pronoun 'you', 'one project manager' and then 'two people' (Line 32-36). This prompts the next turn-taker Rita to explain the 'problem' at an increased speed without stopping (Lines 37-40). The unfinished utterance (Line 39), which is brought to a stop by the speaker herself, further indicates that she is quite nervous and struggling with her explanation of the 'problem'. The intensive moment and unique atmosphere are confirmed by the background voices, which are infused with a sense of chaos and laughter (Lines 41 and 42). Realizing this, the teacher responds with stressed acknowledgement - 'Okay (0.4) Okay' (Line 43) - and deploys the syntactic downgraders - 'won't' to mitigate the intensiveness. Although another interaction touches on 'some difficult' (Lines 44-45), the disagreement is no longer important, as the teacher changes the topic to 'how you got voted'. This seems a decisive turning point.

Based on the research conducted by Spencer-Oatey and Xing (1998, 2004), topic change and management in language use play important roles in interactions and hence rapport management. In this situation, the teacher changes the topic and guides the students towards the next attention, which makes the intensiveness decreased to a significant extent, as highlighted in Extract 4.

Extract 4

47 S4: · We didn't got· -

48 T: Oh you didn't get voted (.) so what happen?

49 S4: · we compromised· -

50 T: A COMPROMISE

51   · okay·

52   >so you had a COMpromise<
53 S4: Yeah, we did that [an-]
54 SS: [((hush))]
55 S1 :   [We chose] Guangdong province because we found it INTERSTING
56   and then we looked at -
57 T: SO SOMEONE in your team (0.2)
58   told you A:LL that this is interesti::ng
59   because the others are bo::ring (0.7)
60   so [your DECISION on province] based on-
61 SS: [Oh sir]
62 R: [SIR WE DON'T-]
63 SS: [(we bla bla bla)]
64 T: So you found the problem INTERESTING
65   Uh:: >because interesting means something was bo::ring<
66   >I am just questioning them (0.2) how they found them< ?
67 R: we would like to (.) [I never thought (bla bla)]
68 S2:   [we (bla bla)]
69 S3:   [we (bla bla)]
70 T: OKAY OKAY >I am not really sure who I am talking to< (0.2)
71   → whether it's the team or the project manager
72 SS: [Oh::]
73 SS: [Sir::]

In this extract, the teacher guides the students' attention back to the main point of the activity, which is how the group 'votes' for the project manager (Line 46). Another student takes a turn using a slight voice (Line 47); however, as it is not clear whether he wants to say that the group has not voted or that it has not selected a project manager, the teacher cuts off his talk (Line 48). Being directed by the teacher's question, this student answers quietly that 'we compromised-'. On hearing the keyword 'compromise', the teacher restates it with emphasis at a high volume (Line 50). In lines 50 to 52, the shifting of the tone, from a raised volume ('A COMPROMISE') to a calmer voice ('okay'), then to half-raised tone ('COMpromise'), suggests that the teacher accepts the student's answer and is stressing the main point in this dialogue. Although this student wants to explain in more detail (Line 53), he is encouraged to keep quiet by the other students. The non-verbal hint in Line 54 shows that they are all concentrating on the primary issue that the teacher is interested in. It may also suggest that they want to end this enquiry, as S1 picks up the turn and changes the topic to the second task, which is about their choice of Chinese city. When the teacher notices the students' stress on 'INTERESTING', he further enquiries as to how they find choosing a city to be interesting. That said, rather than asking 'what' or 'how' questions, the teacher raises a 'yes or no' question (Line 60) by imaging the deciding process (Lines 57-59), with emphatic stress on 'SOMEONE' and 'A:LL'. The exclusive nature of 'someone', compared with 'all', threatens the teacher-student rapport (Oatey, 2008). Students notice it and immediately refute this (Lines 61-62) in a display of self-selected chaos (Line 63). Listening to their unclear statement, the teacher reiterates his points again (Lines 64-66) at an increased speed. The syntactic downgrader 'just' (Line 66) mitigates the requests made to the students. As they take a turn randomly, it is hard to hear what they are saying (Lines 67-69). Facing with this situation, the teacher tries to regain their attention by using the acknowledgement 'OKAY OKAY' in a raised volume. The mild hints '>I am not really sure who I am talking to<', a non-conventional indirect strategy, mitigates the force of the teacher's request (Lines 70-71). <u>This is the fourth time that the teacher requests a project manager to be chosen.</u> But, soon after, the students devolve into chaos (Lines 72-73).

Extract 5
74 T: RIGHT
75   OKAY
76   but THANK YOU
77   because >this is what all is about<
78   this is EXACTLY what a::ll is about
79   and I VALUE all the DYNAMICS
80   Right
81 → >Does the project manager< on the team want to say anything else?
82   (3.5)
83 S: [((noise))]
84 SS: [ushi]
85 T: HELLO
86   NO
87   OK
88   Right
89   So we are going to now go to um:: the another team which is um::
90   (2.1)
91 S: GROUP ONE
92 T: Oh
93   Yeah
94   Group one

This extract comes at the end of the conversation between the teacher and Group 5, as Lines 74-79 indicate. Note that the teacher again exercises the 'minimal acknowledgement + redirection' formula. After the brief 'Right' (minimal acknowledgement), the teacher deliberately withholds any acceptance of different opinions/utterances by saying 'OKAY', which is a complete marker in this case. Then, the teacher redirects the students' attention onto the next topic. Lines 76-79 cover the main point of the teacher's enquiry and the feedback on the group's work. It also highlights the main semantic components of the speech acts of 'gratitude'. Specifically, the teacher firstly expresses an explicit 'THANK YOU' (Line 76), followed by explaining why he is making such a complimentary statement (Line 77), after which he reiterates and reinforces his reasoning (Line 78). Line 79 shows a re-appreciation of the reasoning, while 'Right' on Line 80 marks the end of the complimentary talk. This is the last time the teacher tries to identify the project manager of Group 5 (Line 81). After waiting for a while (Line 82) until nobody answers (Lines 83-86), the teacher turns to the next group (Line 89).

5. Discussion

By analysing the conversation between a teacher and a group of students, this paper explains how they negotiated with each other to achieve the goals they were tasked with: to identify a project manager and select a Chinese city for a project. Applying CA to examine the data has revealed the presence of some language features, such as minimal acknowledgement and redirection. These features further show how the teacher and students managed their rapport across all extracts, especially in the situation where the student Rita posed a threat to rapport management and the teacher's capacity to make enquiries by raising some challenging questions. The rapport between the teacher and students gradually became intensive; when the intensiveness had reached a crescendo, it was deliberately controlled and mitigated by the teacher. Towards the end, the teacher indicated that he had highly valued the dynamic discussion with the students, which made the rapport between them more positive.

However, there were some limitations to this study, which could be addressed in future research. Firstly, as this study involved audio recordings, no gestures or facial expressions were recorded. If possible, it would be better to analyse gestures and facial expressions as well. Secondly, due to the space constraints, only one group's discussion with the teacher was analysed. By analysing other groups' interaction with the teacher, we could have identified more linguistic features and in turn the general strategies used by the teacher in managing rapport.

6. Conclusion

The whole interaction from the case study highlighted the beginning of a negotiation, followed by a peak of intensiveness and ending with the finalized negotiation. The entire process was divided into five extracts, with each one indicating the teacher's enquiry about the selection of a project manager (as underscored in the analysis and prefaced by an arrow in the data). The first extract introduced the group tasks, which were to choose a project manager and a Chinese city for the purpose of a group presentation. This prompted disagreement about the project manager's selection from Rita. The way in which the problem in this group was raised threatened the rapport between the teacher and his students. The second extract involved a process of further enquiry about choosing a project manager. Based on Rita's intervention, the teacher challenged the students on the project manager issue. The third extract presented a conversation between the teacher and another student (Rita) about negotiating the 'problem' in Group 5. This was also the third time that the teacher has made enquiries in this regard. The intensiveness between the teacher and the students then reaches its apex. To mitigate the intensiveness, the teacher changed the topic of discussion to the second task, which involved selecting a Chinese city for the purpose of a group presentation. Extract 4 was concerned with the Group 5's selection of a Chinese city, while Extract 6 came at the end of this conversation, in which the teacher provided positive feedback and attributed value to this dynamic interaction.

For these kinds of data, CA is a productive approach for presenting certain details about language. It was also beneficial in the context of this paper's case study in highlighting rapport management during the interaction between the teacher and his students, specifically in terms of how the teacher challenged the students and mitigated the intensiveness, as well as how the students threatened their rapport with the teacher.

Furthermore, this paper represents a small, but important, step in expanding the knowledge on chaotic and disorderly talk and relationship management in the classroom. Although the power between a teacher and students is asymmetrical, students can challenge this asymmetry and become what the teacher most values. By posing difficult questions, the teacher can encourage students to critically think and verbally express themselves, which presents the larger pedagogical goal that the teacher wants to achieve.

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Appendix: CA transcription notations

Notation	Meaning
(.)	a tiny 'gap' within or between utterances.
(0.0)	elapsed time in silence by tenth of seconds.
underline	stress.
CAPS	very emphatic stress.
.	sentence-final falling intonation.
?	yes/no question rising intonation.
,	phrase-final intonation (more to come).
-	a glottal stop, or abrupt cutting-off of sound.
:	lengthened vowel sound (extra colons indicate greater lengthening).
° words°	relatively quieter than the surrounding talk
[ ]	overlapped talk.
> <	increased speed.
(words)	uncertain transcription.
(bla bla)	unclear utterances.
(syl syl)	number of syllables in unclear transcription.
$words$	spoken in a smiley voice.
((words/laughter))	comments on background, skipped talk or non-verbal behaviour.

Comparing the education systems of Central-Eastern European countries – policies and curricula

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Abstract

My study compares education systems in the East-Central European region from the aspect of regulation and curriculum. Curriculum regulation is one of the main tools of education management. Each country has its own legislation in public education, having centrally developed curricula or standards. In my research, I am looking for the common features of these countries (Hungary, Romania, Serbia, Croatia, Slovenia, Austria, Slovakia, Czech Republic, Poland), which unify the region and assume similar functioning. My main question is: can we talk about unity in the regulation of education and curricula?

I compared these countries via the following aspects: Types of regulation and curriculum; Content of mathematics curricula; Evaluation system and exams. My research is based on document analysis. I rely on primary sources (educational laws, national curricula, regulations) and secondary sources (country reports, OECD publications).

In my comparison, I identified the consistent aspects of the region, such as the strong central regulation through legislation, although the implementation of the laws is at a lower level leading to a different centralization in enforcement and control. Moreover, each country has a national core curriculum and local/school curricula providing the freedom of institutions, but its scale is different. In the second part of my study, I compare the mathematics curricula of the countries, since that subject is part of the international assessments (PISA, TIMSS). I point out the differences that may cause different results in international studies; the number of math lessons in primary school (Austria has 150 hours of mathematics a year, Hungary has only 81, and other countries have around 105 hours), and the different contents of 8th grade mathematics education (for example, in Romania, the topic of probability calculation does not appear in this grade).

The results of my research help to illustrate the functioning and differences of the educational systems of the region and point out what makes them still unified, even though they have progressed in different ways.

1. Introduction

I have decided to apply a specific set of criteria in the designation of what this paper means by the Central-Eastern European region. I have considered it essential for the countries selected to be neighboring Hungary or be in close proximity. Other criteria were membership in the European Union and participation in international education attainment surveys, as well as having a similar historical, political and economic background as Hungary. Based on these, the countries examined in the present paper are Hungary, Romania, Serbia, Croatia, Slovenia, Austria, Slovakia, Czech Republic, and Poland (Barber & Moirshed, 2007; Jakubowski, 2015; Kelemen, 2010; Kozma, 2006; Lannert, 2004; Valuch, 2009).

My paper is a comparative study based on the analysis of documents, examining the differences and similarities in the education systems of the area under scrutiny. The specific question the paper seeks to answer is the assumed presence of common elements in these systems that unify the region and presuppose some sort of a similar mechanism. In academic literature on the subject, it is commonplace to say that the CEE region is can be differentiated from the rest of Europe based on its common past and similar development, but can we speak of unity when it comes to education directives and curricula?

Former studies have concerned themselves with the analysis of a given country's education system (Barber, & Mourshed, 2007; Báthory, 2000; Birzea, 1994, 1995; Cankaya, Kutlu, & Cebeci, 2015; Creese, Gonzalez, & Isaacs, 2016; Dolence, 2003; Horváth & Környei, 2003; Leung, 1992; Réti, 2015; Smith, 2000; Tajalli & Polzer; 2004; Tomiak, 1995), but a study on this scale, examining the whole region based on my specific set of criteria has never been conducted before, which is why it is important to carry it out in order to gain a better understanding of the region's education systems. My purpose was to comparatively examine the current documents, regulations and system structures pertaining to elementary schools. After a general review, I have narrowed down the scope of the examination to 8th graders, because the 14-15-year-old pupils already participate in international surveys, which provides an opportunity to compare their educational attainment, as well. Further analysis is concerned with the subject of Mathematics, which is also subject to international surveys (PISA, TIMSS).

Historical connections

Countries of the region in question have been affected in various ways throughout history, and the influence of the Austro-Hungarian Empire, Russia and the Baltic states is also apparent. Politics, institutions and ideas were different in each country, but the region can be regarded as an entity in certain aspects. In my study I arrange these countries into three groups to depict these intertwinings. My analysis starts from the mid 1800's and lasts until the EU accession.

Austria – Hungary – Romania

There are several similarities in the histories of Hungary and its western and eastern neighbors. After the revolution and war of independence in 1848-49, Hungary followed the politics of Vienna. One of the main aims of the Habsburg Empire was the restoration of unity and centralization, which meant the end of Hungary's relative independence and the introduction of German-speaking administration (Jelavich, 1987; Horváth, 1993; Csihák, 2002; Evans, 2006; Balog, 2008). The country's name was changed to Austro-Hungarian Empire in 1867 which gained Hungary a great deal of autonomy. In Romania education legislation introduced compulsory and free elementary education before the Compromise, and before 1900 public education was established in its present form.

The powers of the state and church were separated in Austria in 1868, and compulsory schooling regardless of gender was introduced according to the imperial school law or Reichsvolksschulgesetz in 1869. The Austro-Hungarian Empire collapsed in 1918, and the intention to completely restructure the Hungarian education policy and curriculum was announced afterwards. The compulsory school age was raised to 14, and in Austrian primary schools, a new curriculum and new textbooks were introduced (Bundesministerium für Bildung, 2016). In 1919, the Hungarian Soviet Republic was formed following the Soviet model which stayed in power for almost six months and declared a complete separation of state and church. Under the Trianon Peace Treaty, the Kingdom of Hungary lost almost two-thirds of its territory and one-third of the Hungarian population was annexed by the surrounding countries. In 1945, the first independent republic of Austria was proclaimed (Jelavich, 1987; Zsirosné, 2002; Vocelka, 2006; Evans, 2006; Rathkolb, 2010). Meanwhile in Hungary, several years of multi-party parliamentary democracy were followed by a one-party communist regime based on the Soviet model. During the years between 1938 and 1945 in Austria, under the nazi regime sexes in education were strictly segregated (Uni Wien Geschichte Online, é.n.; Bundesministerium für Bildung, 2016).

In Hungary, the system of folk schools and grammar schools was reorganized on the basis of the biggest school structure reform of the 20th century. Only the principle of a state-run "united school, united education" was accepted which sought to introduce a Soviet-style radical school reform (Horváth, 1993; Zsirosné, 2002). In 1961, the Hungarian parliament decided to implement compulsory education until the age of 16. The comprehensive education legislation introduced in Austria in 1962 extended compulsory schooling to nine years and made education free of charge in all public schools (Bundesministerium für Bildung, 2016). As the most important act of the 1989 Regime Change, the Hungarian Republic was proclaimed (Balog, 2008; Csihák, 2002; Gyarmati, 2012).

Public education in Romania was one of the most centralized of the countries, but attempts for decentralization appeared during the reforms. Before the reforms of 1993, Romania's education was strict and outdated, but over time improvements reached the whole country (Ministry of Education and Research, 2001). In 1995 Austria, in 2004

Hungary and in 2007 Romania joined the EU (European Union, 2017).

Slovakia – Czech Republic – Poland

Heading north from Hungary, I examined the territories of Slovakia, the Czech Republic and Poland. Not only is the history of the three countries intertwined, but they are also in close connection with Hungary, Austria and Romania. Slovakia, the Czech Republic and Poland also have a continental-type education system with cultural and historical roots similar to the Hungarian. This system is largely determined by the Soviet model (Jakubowski, 2015). The democratic Czechoslovak Republic was formed in 1918, in the same year after 123 years of fragmentation, an independent Poland was re-established in the form of a republic.

In Poland, the first education reform was introduced in 1934. Czechoslovakia, a successor state of the Austro-Hungarian Empire, had a well-developed industry, but turmoils concerning questions on nationality caused some troubles in its domestic and foreign policy. To prevent these nationalistic upheavals, the Czechoslovak-Romanian-Yugoslav Alliance was formed in 1921 and operated until 1938 (Kováč, 2001; Heimann, 2009; Bencsik, 2016; Oktatási Hivatal, 2014; Jakubowski, 2015). During WWII, Czechoslovakia ceased to exist, it was under German occupation until 1944. In 1944, the provisional Czechoslovak government was created and the country regained the territories it had prior to the 1938 agreements. In 1944, the Slovak National Council issued a decree on the nationalization of education, so all educational institutions in the country became state-owned.

The Republic of Poland was established and operated from 1945 to 1989. In 1948 in Poland, the duration of elementary school education was increased to seven, followed by four years of secondary school education (Velkey, 2015; Davies, 2006; Mitrovits, 2009). In 1948, the Czechoslovak Republic was transformed into the Czechoslovak Socialist Republic, and it adopted a policy of Soviet-type socialism. The Czechoslovak Education Act of 1948 stated that education should be conducted in the state language but guaranteed the rights of minorities living in the country (Kováč, 2001; Davies, 2006; Mitrovits, 2009; Oktatási Hivatal, 2014). From 1950 to 1989, Czechoslovakia's education was characterized by strong centralization. The Education Act of 1984, passed by the Czechoslovak Parliament, specified that compulsory education should be 10 years. The Slovak education system has nine grades in elementary shools (4+5), compulsory education is 10 years (Szűcs, 2014). At the end of December 1989, Czechoslovakia became a democratic republic. In 1990, the Constitutional Law on Primary and Secondary Education was amended and the compulsory education was reduced from ten to nine years. This education legislation launched a decentralization process and introduced normative financing of primary and secondary schools (Lannert, 1998). On the 1st of January 1993, Czechoslovakia dissolved into two separate and independent states, the Czech Republic and the Slovak Republic (Kováč, 2001; Szűcs, 2014; Davies, 2006; Mitrovits, 2009). Slovakia, the Czech Republic and Poland joined the EU in 2004 (European Union, 2017).

Serbia – Croatia– Slovenia

Concerning the southern and southwestern countries, northern Serbia, Croatia and Slovenia were also part of the Habsburg Empire. For a while, Serbia's territory had been divided, one part belonged to the Habsburg Empire and the other was under Turkish influence (Bíró, Ress, & Sokcsevits, 2011; Harmat, 2015). The country's policy was increasingly determined by Russian influence, which led to the formation of the Balkan Alliance (Jelavich, 1996; Du Nay, 2006; Isaszegi, 2012). In 1918, the Kingdom of Serbia-Croatia-Slovenia was proclaimed, in 1929 it was renamed the Kingdom of Yugoslavia. In the newly formed state there were large differences concerning elementary education, it had five different education legislations at the same time. In 1919, the compulsory education was 4 years in Serbia, 5 in Croatia, 6 in Vojvodina and 8 in Slovenia (Székely, 1998; Bíró, 2003). A well-functioning unified education system could have reduced differences between countries and a more uniform curriculum could have brought its peoples closer to each other. In 1929, the first legislation concerning elementary and secondary schools had been adopted in Yugoslavia, during the years of dictatorship. The basic education legislations were conceived in the spirit of Yugoslavism that established the rights to basic, free and compulsory education for all (Bíró, 2003). Yugoslavia capitulated during World War II (Bács, 1983; Bence, 1994; Szilágyi, n.d.; Gulyás, 2009). In 1939, they regulated education in lyceums and in regions where minorities were in the majority, they allowed classes for the minorities in the institutions (Székely, 1998).

In 1974, Croatian high school education in the then current form was discontinued, and the entrance examination in secondary education was abolished, this way 94% of students continued their studies (Sokcsevits, 2004; Császár, 2006). In Slovenia, a legislation on the organization and financing of education had been passed in 1991 (Ministry of Education, Science and Sport, 2003; Plut-Pregelj, 2011). After Croatia became independent, it wanted to change its education system, but due to war conditions, it was only possible to make structural changes, so it was not until the late nineties that planning could be started and the changes were actually implemented in the academic year starting in 2005. In the year 2000, a new government had been elected in Croatia which decided upon new priorities within the field of education, such as decentralization and more curriculum options. In 2006, Montenegro proclaimed its independence, thus Yugoslavia ceased to exist, the northern part was named Serbian Republic (Jelavich, 1996; Cox, 2002; Isaszegi, 2012). In Serbia the legislation about the fundamentals of the education and school system has not changed since 2009. Slovenia joined the EU in 2004, Croatia in 2013, and Serbia is currently one of the candidate countries for membership of the European Union (European Comission, 2016; European Union, 2017).

2. Former Studies

Many former studies were structured (Dolence, 2003, Réti, 2015; Smith, 2000) in a way that divided factors of analysis into main groups, and examined these factors to highlight the

possible differences and similarities. Ince and Yildrim (2018) have compared Turkish and Canadian science curricula for 5th graders. The aspects analyzed were the following: (1) the philosophy of education, (2) main goals, (3) fields of study, and (4) assessment. The results have clearly shown that there are similarities between the two materials examined in their philosophy of education and main goals, since both systems stress the importance of conveying conscious, scientific thinking to students. The study has found five fields of study in Turkey and four in Canada, which cover the same material, more or less. The major difference was in assessment, since in the Turkish system, the objectively oriented tools of assessment and self-assessment were used, whereas the Canadians stressed measurement based on quantitative output (Ince & Yildirim, 2018).

Creese, Gonzalez and Isaacs (2016, pp. 6-7) have designated nine aspects to be considered when comparing different national curricula and education systems. The areas were the following:

> *(1) The goals or aims of the education system and how these are embodied in the curriculum; (2) How centralised or decentralised management of the instructional system is; (3) Principles and methods of accountability and their link to instructional systems; (4) What compulsory and optional subjects are included in the programme of study in primary and secondary school levels; (5) To what degree curriculum is organised by discipline or integrated across disciplines; (6) How twenty-first century skills are embedded in the curriculum; (7) The clarity and content of curriculum for secondary vocational pathways; (8) Whether curriculum is common or differentiated; (9) How assessments are created and what stakes they have and for whom.*

The study examined the education systems and target areas of six 'high output' countries: Australia (New South Wales and Queensland), Canada (Alberta and Ontario), China (Hong Kong and Shanghai), Finland, Japan and Singapore, and two U.S. states (Massachusetts and Florida). They have concluded that all systems examined offer an all-encompassing education directive on a national level, but local aspects aiding the acquiring of skills relevant in the 21st century are also included. They found differences in the general patterns, too, such as scheduling and division of time between topics. These countries have different systems of self-assessment, some countries rely on internal assessment, while others place importance on international surveys. For instance, Japan does not participate in international audits, but relies on surveys conducted among students, whereas China has a strict internal system of planning, validation and regular assessment of their education system (Creese et al., 2016).

3. Methodology

I have designated the four main topics based on former studies (Creese et al., 2016; Ince & Yildirim, 2018; Réti, 2015). These are the following: (1) the main goals of the education system; (2) the directions of education (regulations and types of curricula); (3) the content of mathematic curricula; (4) the system of assessment. My inquiry is based on analysis of documents, relying on primary sources (legislation regarding education, national education directives, decrees) and secondary sources (national reports, OECD reports, academic literature). Regarding the first topic, I have examined current legislation and highlighted the main similarities, which are somewhat similar in all nine countries. While examining the second aspect, I have examined the levels on which decision-making happens and how centralized the given system is, as well as examining the level of autonomy of the local schools in the adherence to the national directives. Thereafter, I compared the way these given systems are structured, the number of compulsory classes, and the content of mathematics curricula (3). Both PISA and TIMSS include the subject in their survey, and each country examined showcases great appreciation for the subject, it has not really been affected by the education reforms of the past decades, and it is compulsory in all grades in elementary school. In the fourth topic, I have compared the assessment system of each country. This way, the study goes from the general to the specific, while narrowing its scope until it arrives at examining 8th grade mathematics education. In order to make my argument more understandable, the relevant academic literature is included in the given sub-chapters.

4. Comparison

(1) Main goals of the education systems

All nine countries have set similar goals, which almost completely correlate with each other. The fundamental goal of elementary education in these countries is to support and enhance the general development of pupils. They devote attention to the intellectual, emotional, physical, social, and moral safety of the children. The goal of education is defined as supporting the children in acquiring a high level of knowledge, skills, and right attitudes, including the linguistic, mathematical, cultural, technical and IT competences necessary for modern life. Another similarity is that all nine systems consider it fundamental to develop key interpersonal competences and synchronize these with the recent results of research in technology and science, as well as highlighting the importance of retaining these competences, and developing them through life-long learning (Chlon-Dominczak, 2017; Eurydice, n.d.; IBE, 2011; Mullis et al., 2016; OECD, 2017a, b; Republic of Croatia Ministry of Science, Education and Sports, 2010; Rica, Popa, & Bucur, 2016).

The main goals of these systems are in accordance with the directives of the European Council, that is to enhance the skills of students by 15 years of age in the fields of reading and writing, mathematics, and science (European Commission 2018; Eurydice, n.d.). Additionally, the Ministries of Education have set the goal of ensuring and enhancing the quality of education, their accessibility, relevance and effectiveness, and to create an effective network of educational institutions. Therefore, all countries examined strive for synchronizing economic and social policy with their systems of education.

The values and goals of education are seen as compulsory for all teaching and other staff at educational institutions, in each cycle and for all levels. In order for schools to contribute to achieving policy goals, they are encouraged to cooperate with the ministries, families and local city councils (Creese, Gonzalez, & Isaacs, 2016; Czech Eurydice Unit, 2017; Eurydice, 2015b; OECD, 2016, 2017b, c; Velkey, 2015). Based on these, we can distinguish and discuss separate fields within the general goals of education systems.

(2) Education directives

Regulation

Most systems of education require centrally-set minimum requirements in order to unify the conveyed body of knowledge within the system, so that students can expect the same level of attainment on different levels and mobility becomes possible, and requirements are in accordance with learning materials (Bárdossy, 2006; Réti, 2015). Setting education policy is achieved by the creation of national curricula. Each country has its national laws concerned with public education, which are supplemented by lower-level regulations and decrees, that create a general framework of regulations (Molnár, 2013). Among the tools of central regulation of content, we can find curriculum competences, study elements, study programs, textbooks and other supplement materials, as well as exams and other forms of assessment. Content regulation designates the nature and extent of knowledge conveyed by public education, encompassing both input (curricula, tools) and output (exams, assessment) elements, and their systems of implementation (Báthory, 2000; Molnár, 2013; Réti, 2015).

Country	Regulation
Hungary	central legislation, heavily centralized education system
Romania	central legislation, centralized and centrally assessed system
Serbia	central legislation, centralized system with elements of free choice
Croatia	central legislation, lightly centralized systems
Slovenia	central legislation, presence of more independent local systems
Austria	central legislation, municipal execution, regional differences
Slovakia	central legislation, municipal regulation on the elementary level
Czech Republic	central legislation, regional and municipal decentralization
Poland	central legislation, locally decentralized system

Table 1: Regulation of elementary education in the countries examined.

In Hungary, the central government is responsible for the directives of the education systems (Ministry of Human Resources). The maintenance of the system is more centralized and legislation makes the large-scale centralization of funding and content regulation possible (Eurydice, n.d., 2018c, d; OECD, 2015a, b). The Romanian system designates three separate levels: national level (Ministry of Education), central level (ministerial cooperation), and local level (school districts). The Ministry is responsible for the local implementation of central education goals through county-level school districts (Eurydice, n.d., 2018c; Mullis et al., 2016; OECD, 2017c). The Serbia education system is heavily centralized, especially when it comes to funding, but elementary educational institutions have a level of great independence (Eurydice, n.d., 2018c, d).

In Croatia, there is a national curriculum, but legislation has made possible the decentralization of funding and management, providing a high level of independence for local municipalities (Eurydice, n.d.; IBE, 2011; Kovačević,

2018). In Slovenia, the management of education is divided between the national government and local institutions. The central, national legislation designates the goals of education, but these are implemented and self-assessed on a local level (European Comission, 2014; OECD, 2016). In Austria, decision-making is divided between the central government, the constituent states, and the schools themselves. Institution managers are responsible for developing the education goals of institutions and the finances of the institutions (Eurydice, 2018d; OECD, 2017, a,b). In Slovakia, there are three levels of the centralized system, the national, the regional and the local level. Central authorities provide the framework for education, regional authorities manage high schools directly, while elementary and other institutions are managed and developed by local governments (Eurydice, 2009, 2018d; Shewbridge et al., 2014; Statistical Office of the Slovak Republic, 2011).

In the Czech Republic, there are two levels of their decentralized education system, the municipal and the regional level, which are considered of higher authority. The administrative responsibilities fall on the regional level, who have a great level of autonomy, and the municipal level is responsible for ensuring the conditions of regular attendance (Czech Eurydice Unit, 2017; Eurydice, 2010b, 2011; IBE, 2011; The Ministry of Education, Youth and Sport of the Czech Republic, 2012). In Poland, the education system is maintained by two government bodies. The decrees and regulations pertaining to education are set centrally, but their implementation and management of institutions is the responsibility of the local level (Chlon-Dominczak, 2017; Eurydice, 2010a; Ministry of National Education, 2008a; Mullis et al., 2016; Velkey, 2015). Thus, it is clear that all the countries examined have local legislation, but the structure and constituent bodies on the lower levels are different. As a result, we may speak of similarity or unity only on the legislative level, there is no unity regarding the level of centralization.

Curricula

The curriculum is a document that regulates the content of education and as such, it is a content-based tool of management. The paper relies on Molnár's definition (2013) of the curriculum: "*it is a document that designates the fundamental goals of education; these are detailed and differentiated in the forms of tasks and requirements; there are intellectual and other learning materials assigned to these; and these are organized in a teachable and learnable form.*" (Ballér, 2003; Báthory, 2000; Molnár, 2013; Mullis et al., 2016).

An important element of the twofold regulation is the national curriculum, a document upon which input and output requirements are structured, which are being continuously overviewed and developed. The national curriculum designates the basic features and general goals of a country's education system, the fundamental values and requirements, the main intellectual fields, the sequencing of public education, and the goals of development in the given sequences (Perjés & Vass, 2008; Réti, 2016; Szebenyi, 2001). The countries that have such national curricula or similar sets of programs are at the second level of central

regulation. They produce more differentiated curricula that apply the principles of the national curriculum, as well as its pedagogical values, designated key competences, and intellectual fields of study.

These curricula are different at different levels of education, but in all cases aid the local planning and the day-to-day, practical implementation of the national curriculum (Gönczöl & Vass, 2004; Molnár, 2013; Perjés & Vass, 2008). The local school curricula provide a fit for the opportunities of the given institutions, and are always based on the national curriculum. They may be the local version of the second-level curriculum, or individually designed. It is required to contain the teaching and learning goals of the institution, the subject curricula, the lesson plans, the detailed syllabus for given subjects, the end-term requirements, the utilized educational tools, and the institution's system of assessment (Ballér, 1997; Perjés & Vass, 2008).

	National curricula	Education program	Local curricula
Hungary	X	X	X
Romania	X	X	X
Serbia	X	-	X
Croatia	X	X	X
Slovenia	X	-	X
Austria	X	-	X
Slovakia	X	X	X
Czech Republic	X	X	X
Poland	X	-	X

Table 2: The level of curricula in the countries examined.

As shown in Table 2, all countries in the examined region have a core national curriculum, all other curricula are based upon this. Based on this, we may speak of commonalities and a regional unity. On the second-level framework, we can see that it is present only in 5 countries, only these five have a set of differentiated education programs. In these, the detailed syllabus is presented, as well as the educational tools and the system of assessment, the electable subjects, the minimum and maximum number of pupils attending classes, and recommendations regarding local/institutional curricula (Báthory, 2000; Czech Eurydice Unit, 2017; Eurydice, 2009, 2011; Falus, 2009; IBE, 2011; Kaposi, 2012; Kovacevic, 2018; Molnár, 2013; Mullis et al., 2016; Rica Popa & Bucur, 2016; Republic of Croatia Ministry of Science, Education and Sports 2015a, b).

In Hungary, the lowest level of curricula is the local level in which the institutions designate the number of lessons and the syllabus in strict adherence to the Hungarian National curricula and the second-level framework. In Romania, the local curriculum is created with the contribution of parents, students and other stakeholders, which is ratified by the Council of Education, and contains recommendations for all local institutions. In Serbia, teachers have a certain amount of flexibility when it comes to the implementation of the local curriculum, e.g. in some subjects, there is a preset number of compulsory classes, whereas in the case of other subjects, this can be decided by the teachers. In the case of Croatia, the school curricula are crafted with considering contributions from the staff, parents, students, and the local community. The school curricula include non-compulsory subjects, modules and other educational programs, as well. In Slovenia, institutions have the autonomy to choose the

methodology of education they deem most suitable, and designate the actual content of their curricula on their own, with contributions from the teaching staff.

In Austria, the national curriculum is supplemented by decisions of the local schools, the local options (one-third of the whole curriculum) make it possible for schools to address local differences and to increase the autonomy of their institutions. In Slovakia, the implementation of the local curriculum is done in such a way that considers the general goals set by the national curriculum, as well as the specific regional and institutional realities. In the Czech Republic, teachers can elect their own methods within the framework of the national educational programs and recommendations, which is suitable for the general policies of the institution. In Poland, the local curriculum defines the subjects and material to be acquired by students, as well as the ways to fulfill nationally designated goals and the assessment of students. Teachers can implement their individually developed curricula if they wish to do so, as long as these are in accordance with the national curriculum, similarly to other countries (Báthory, 2000; Bazic, 2011; Chlon-Dominczak, 2017; Czech Eurydice Unit, 2017; Eurydice, 2009, 2011; Falus, 2009; IBE, 2011; Kaposi, 2012; Kovacevic, 2018; Molnár, 2013; Mullis et al., 2016; OECD, 2016, 2017a, b; Rica Popa & Bucur, 2016; Republic of Croatia Ministry of Science, Education and Sports, 2010).

The structures of the systems of education

I have also examined the compulsory age of attendance and the minimum numbers of lessons, the results of which do not show commonalities.

	Beginning of compulsory education (age)	Ending of compulsory education (age)
Hungary	6	16
Romania	6	17
Serbia	6,5	14,5
Croatia	7	15
Slovenia	6	15
Austria	6	15
Slovakia	6	16
Czech Republic	6	15
Poland	7	15

Table 3: Compulsory education in the countries examined, based on the Eurydice (2018c, d) database.

Regarding similarities and differences, we may speak of three separate groups within the region (Table 3). To the first group belongs Hungary, Romania, Slovenia, Austria, Slovakia, and the Czech Republic, where the compulsory age of attendance is 6 years of age. The second group is constituted by Croatia and Poland, where the beginning of compulsory education starts at the age of 7, and the third group is Serbia, where this value is 6.5. There are four groups with regard to the end of compulsory schooling: Croatia, Slovenia, Austria, the Czech Republic and Poland constitutes the first group, where this is 15 years of age. The second group is Hungary and Slovakia, where students are required to attend school until 16 years of age. The third and fourth group are constituted by one country each, Serbia with the lowest (14.5 years of age) and Romania with the highest (17 years of age) age of compulsory school attendance.

There is also a discrepancy in the structure of elementary schools, as presented in Table 4.

	Structure of elementary school	Period of elementary school	Length of compulsory education (year)
Hungary	4+4	8	10
Romania	4+4	8	11
Serbia	4+4	8	8
Croatia	4+4	8	8
Slovenia	3+3+3	9	9
Austria	4+4	8	9
Slovakia	4+5	9	10
Czech Republic	5+4	9	9
Poland	6+3 (3+3+3)	9	9

Table 4: The structure of elementary schools and the length of compulsory attendance in the countries examined.

In the structure of elementary schools, the 8-year-long (4+4 years) is the most common in the countries examined. Besides, the 9-year-long structure is also present, depending on what particularities are more stressed in a given system. In Slovenia and Poland, elementary education is carried out in a 3+3+3 system, while in Slovakia, elementary education is carried out in a 4+5 form, whereas in the Czech Republic, it is carried out in a 5+4 system (Eurydice, 2018 a, b, c).

As we can see in the last column of Table 4, the length of compulsory education differs in the countries examined. Besides Hungary, compulsory education is longer in Romania, Austria, and Slovakia. These countries wish to reach students not only on ISCED 2 level (upper elementary education), but also to encourage them to begin and attain ISCED 3 level education (lower high school level) (Eurydice, 2018 a, b, c; Forgács, 2009).

Number of classes

The curricula of each country examined designates the compulsory number of classes, but there is a difference in the actual numbers. Table 5 shows the number of classes in a 60-minute form in the given education systems, pertaining to 8th grade classes.

	Compulsory hour of classes in the 8th grad (1 hour = 60 minutes)	Compulsory hour in the 8th grade – mathematics (1 hour = 60 minutes)	Mathematics classes percentage distribution
Hungary	837	81	9,68%
Romania	835	111	13,29%
Serbia	816	102	12,50%
Croatia	683	105	15,37%
Slovenia	791	105	13,27%
Austria	960	150	15,63%
Slovakia	846	113	13,36%
Czech Republic	897*	110**	-
Poland	810	96	11,85%

Table 5: The preset compulsory number of classes in the 8th grade in general and for mathematics classes in particular, and their percentage distribution (Eurydice, 2018 a, b).

*In the Czech Republic, 162 hours are required in all age groups, but schools can decide how to divide the altogether 2940 hours between the 5th and the 8th grade, therefore arriving at an average number.

**In the Czech Republic, the number of lessons (441) is divided between 5th and 8th grade.

As seen in Table 5, the countries have a similar number of compulsory hours. This number is the lowest in Croatia (683), and the highest in Austria (960) – it is important to highlight that both countries operate with a 4+4 model at the level of elementary schools. Mathematics is the second most important subject from the perspectives of curricula and compulsory number of classes. A study carried out by Eurydice (2018a) has found that the importance and length of mathematical education is especially high in Europe. We can see the dynamic of the number of lessons in the countries examined in the second column of Table 5. The number of mathematics lessons varies between 100-113 in most cases. Austria has the highest number (150), whereas Hungary has the lowest (81). In Hungary, less than 15% of all the time spent in education is concerned with mathematics, whereas in Austria, this number is 15%, and in other countries, 12-13%. In some cases, the length of time devoted to specific subjects is not designated on a central level, in these cases, this responsibility falls to the given institutions. A good example for that is the case of the Czech Republic, where the number of lessons is individually divided between the different grades and age groups.

If we look at the subject from the perspective of 45-minutes-long classes, we find the following proportions:

	45-minutes-long classes per week	45-minutes-long mathematics classes per week
Hungary	31	3
Romania	30	4
Serbia	28-32	4
Croatia	30	4
Slovenia	28,5	4
Austria	32	4
Slovakia	30	4
Czech Republic	30	4
Poland	31	4

Table 6: The total number of 45-minutes-long classes and the number of mathematics classes per week among 8th graders in the countries examined (IBE, 2011; Mullis et al., 2016).

It is evident from Table 6 that there is no significant difference in the weekly number of classes among the countries examined. In all cases, the number of weekly classes were close to 30. In the case of mathematics, only Hungary has three classes per week, all the other countries have four per week. One could have presupposed this lower number from the previous date, which showed the lower overall hours devoted to mathematics in Hungary. Interestingly enough, the number of classes in Austria is not greater than in the rest of the countries examined. These numbers show the time devoted to acquiring the preset skills and knowledge that the students have to fully acquire in order to participate successfully in the assessment process.

(3) The content of mathematics curricula

Mathematics is not simply the study of numbers and their connections, but a creative field founded upon logical and innovative thinking. Due to its unresolved problems, mathematics is a multifaceted branch of science. While solving a task, children solve not only mathematical examples, but study the algorithm itself used for solving the given problem (Eurydice, n.d.). In the countries examined, the purpose of mathematics education is similar, among the top priorities is the enhancing of the ability of students to identify and properly contextualize mathematical data and connections; to apply basic algorithms and concepts in a given practical situation; and to analyze and correctly interpret the mathematical aspects of problematic situations, and to apply the acquired knowledge in other fields as well

(Comenius Institue, 2013; Eurydice, 2015a, b; Gasic-Pavisic, & Kartal, 2012; Ministry of Education, Science and Sport, 2015a, b; Ministerul Educației Naționale, 2017; Ministarstvo Znanosti I Obrazovanja, 2017; Mullis et al., 2016; National Institute for Education, 2010).

In my analysis, I have examined the 8th grade mathematics curricula in the countries under scrutiny. 8th grade is the age group closest to international surveys (PISA, TIMSS), students are 14-15-year-olds at this point in each of the countries, and TIMSS survey is also carried out in this grade. It can be concluded that the curricula analyzed were all content-oriented and placed importance on the more traditional fields of mathematics.

In my analysis, I relied on a former study "What can we learn from the English, mathematics and science curricula of highperforming jurisdictions?" (Department for Education, 2011), in which mathematics curricula were analyzed in a comparative fashion, in order to gain insight into their commonalities and differences which may be utilized in the methodological development of English language teaching. The study designates five specific fields to be examined (Department for Education, 2011). Of these, I have used four to be examined in 8th grade mathematics curricula.

	Arithmetic and algebra	Series, connections, and functions	Geometry	Statistics and distribution
Hungary	X	X	X	X
Romania	X	X	X	-
Serbia	X	X	X	X
Croatia	X	X	X	X
Slovenia	X	X	X	X
Austria	X	X	X	X
Slovakia	X	X	X	X
Czech Republic	X	X	X	X
Poland	X	X	X	X

Table 7: Contents in 8th grade mathematics curricula in the countries examined (Comenius Institute, 2013; Eurydice, 2011; 2015a, b; Gasic-Pavisic & Kartal, 2012; Ministry of Education, Science and Sport, 2015a, b; Ministerul Educației Naționale, 2017; Ministarstvo Znanosti I Obrazovanja, 2017; Mullis et al., 2016; National Institute for Education, 2010).

In Table 7, we can see that all fields are present in the curricula of the countries examined, there are no significant differences. The content is largely the same, there are differences in the details, but the main features are the same. In the fields of arithmetic and algebra, it is deemed important for students to be able to apply the basic operations without any difficulty. They must be aware of fractions, quantities, and proportions, and they must be able to calculate with negative numbers and to calculate percentages. In certain countries such as Poland and Croatia, even the basics of root calculation are introduced by this point. A further requirement in to be familiar with series, connections, and functions, to be able to analyze linear equations and interpret and visualize functions. Students must also be able to analyze and interpret diagrams and graphics. When it comes to geometry, students are expected to be familiar with geometric shapes, to be able to calculate area, perimeter, surface and volume, to measure angles in degrees and to be familiar with the Pythagorean theorem. In most countries, statistics and probability is less emphasized, although basic statistics and distribution is present in the curricula of each country. The only country where the fields of statistics and probability are excluded from the 8th grade curriculum is Romania (Comenius Institue, 2013; Eurydice,

2011; 2015a, b; Gasic-Pavisic, & Kartal, 2012; Ministry of Education, Science and Sport, 2015a, b; Ministerul Educației Naționale, 2017; Ministarstvo Znanosti I Obrazovanja, 2017; Mullis et al., 2016; National Institute for Education, 2010).

The analysis yields that greater attention is devoted to the fields of algebra and geometrics, while probability is only a minor part of the average curriculum. The content of the different curricula does not differ greatly, the only real difference, as we have mentioned above, is the time devoted to mathematics as a field and to the respective subfields. Otherwise, our analysis shows unity and commonality in mathematics curricula in the countries examined.

(4) System of assessment (mathematics)

The designation of effective assessment strategies is important in order to enhance the attainment of students and in the creation of a better, more just system of education. Each country strives for participation in international surveys, where mathematics is one of the main fields measured. Each country has their own internal system of assessment, and all of them participate in international surveys. The periodicity and reliability of these surveys is a significant priority for these countries, for these surveys provide stakeholders in education policy with a realistic image of the ability and attainment of the given age group who are about to finish elementary education, as well as a realistic image of the effectiveness of education policy and institutions (Eurydice, n.d.; IBE, 2011; Mullis et al., 2016).

PISA							
Hungary	2000	2003	2006	2009	2012	2015	2018
Romania			2006	2009	2012	2015	2018
Serbia		2003	2006	2009	2012		2018
Croatia			2006	2009	2012	2015	2018
Slovenia			2006	2009	2012	2015	2018
Austria	2000	2003	2006	2009	2012	2015	2018
Slovakia		2003	2006	2009	2012	2015	2018
Czech Republic	2000	2003	2006	2009	2012	2015	2018
Poland	2000	2003	2006	2009	2012	2015	2018

Table 8: Countries participating in PISA assessments in the given years.

TIMSS – 8th grade						
Hungary	1995	1999	2003	2007	2011	2015
Romania	1995	1999	2003	2007	2011	
Serbia			2003	2007		
Croatia						
Slovenia	1995	n.d.	2003	2007	2011	2015
Austria	1995					
Slovakia	1995	1999	2003			
Czech Republic	1995	1999		2007		
Poland						

Table 9: Countries participating in TIMSS assessments in the given years.

As shown in Tables 8 and 9, the countries examined have continuously been participating in PISA surveys since 2006 (with the exception of Serbia in 2015), and to a lesser extent, in TIMMS surveys (Eurydice, n.d.; Mullis et al., 2016; Oktatási Hivatal, 2016; Vári, 2003). These surveys allow us to trace the levels of attainment in mathematics, which can be compared to other countries this way.

Reviewing international results, Hungary has a national test to measure the mathematical and reading skills of students

in the 6th, 8th, and 10th grades. This test does not assess textbook knowledge, but focuses on the application of students' skills and knowledge in real-life situations. In Romania, there is a compulsory exam in mathematics in the 8th and 12th grades, which greatly affects the education of the subject. Schools in the country use the diagnostic insights only to a limited extent, which reflects the limits of national support and local capacity.

Since the 2013-14 school year, students in Serbia are expected to sit a final exam in mathematics, among other subjects, which is a valuable tool in measuring student skills on different levels. In Croatia, there is a National Center for the External Assessment of Education, which is responsible for conducting national education assessments. Students are required to participate in a mathematics exam in the 8th grade, the results of which a distributed back to the schools, encouraging them to self-assess. In Slovenia, 6th and 9th grade students are assessed in three distinct fields at the end of the school year. These are prepared by the National Exam Center, and are aimed at examining student attainment relative to the minimum requirements designated by the national curriculum, but the results do not affect the marks of students. In Austria, students participate in national tests at the end of lower high school terms (8th level) in a number of topics, including mathematics.

Since 2005, students in Slovakia are required to participate in tests at the end of their participation in elementary education, which measures their attainment in various fields, including mathematics. In the Czech Republic, students do not participate in regular national or regional assessments. Schools are not expected to participate in standardized testing, but the majority of them do so. Czech authorities have created a digital system of assessment, which provides an opportunity for assessing certain fields, which vary year by year. In Poland, students participate in an external exam at the end of their elementary education (9th grade, 16 years of age), including mathematics, but these results do not directly affect their institutional choice for further studies, but might be considered in the case of over-application or setting gradation among students in a given institution. External assessment (national, international) is aided in every country examined by internal assessment, therefore tracing the development and attainment of students, and concluding those results in a conclusive and formative manner (Blagdanic, Pesic, & Kartal, 2009; Central Statistical Office, 2011; Czech Eurydice Unit, 2017; Eurydice, n.d., 2015a, b, c; Gasic-Pavisic & Kartal, 2012; Government of the Republic of Croatia, 2016; Kitchen et al., 2017; Ministry of Education, Science and Sport, 2015a, b; Mullis et al., 2016; National Institute for Education, 2009, 2010; OECD 2015a, 2017a, c; Oktatási Hivatal, 2012; Specht & Sobanski, 2012; Statistical Office of the Republic of Slovenia, 2015; World Bank, 2011).

5. Discussion and conclusion

The education systems of the region show unity and a great number of commonalities in certain fields, whereas differences are present in other fields. In each country,

there is a heavily centralized system of education achieved through national legislation, but this is further divided and differentiated to lower levels of execution and assessment. It is clear that despite the centralized nature of these systems (Hungary, Romania), there are more decentralized structures at the lower levels, where municipalities and local managers can make individual choices in accordance with national directives. Based on these peculiarities, we may speak of only a partially unified region in this sense, since the lower levels are different to certain extents.

The countries examined are unified in the sense that each country has a national curriculum, which is centrally designated and all public institutions of elementary education are required to adhere to the values and goals of these. Besides, there are second-level programs/curricula, which define the further details of the structure of education, such as the list of compulsory subjects taught, etc. In the majority of cases, this is included in the national curricula of the countries examined, but as a result, we may only speak of unity in the case of five countries. Every country has local/institutional curricula, which aid the autonomy and free choice of institutions, but the extent of these vary greatly in the region.

There is a great variety in the ways the education systems are structured in the region. There are minor differences in the compulsory number of classes in mathematics, but the weekly allocation is the lowest in Hungary, which might explain the lower attainment results, since there is less overall time for conveying and acquiring the skills and knowledge largely similar to other countries.

The mathematics curricula are largely similar in each of these countries. The only minor difference is in Romania, where one field is completely absent from elementary education, which might explain why examples of these kind are harder for Romanian students in an international assessment without prior exercises and practice. Overall, there is a high level of commonality in the topics included in the mathematics curricula of the region.

Another commonality in the countries examined is that they participate in international surveys such as PISA and TIMMS, but the further breakdown (which grade, which topics, which age group) shows differences. The periodicity and reliability of such assessments are important for all countries examined. Each of the countries has a national exam for assessment, though participation is not compulsory everywhere (e.g. Slovakia). However, all the countries have some sort of an internal system for assessment, the result of which is that there is a certain level of regional commonality regarding this field as well.

My paper presents and compares the current situation, but this might change in the near future due to a number of factors, e.g. the introduction of the new national curriculum in Hungary. After the introduction of reforms, countries mostly followed their own path to achieve their preset goals, to enhance the quality of their systems and their attainment results. Can we speak of a unity and high level of commonality in the present situation? Yes, to a certain extent, but we must also highlight that there are a number

of differences, which might very well explain the different results of the countries in international assessments and the varying effectiveness of these education systems.

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