JSSE

Journal of Social Science Education

2021, Vol. 20(1) 30-64

Edited by:
Reinhold Hedtke

Article

Teaching Economics outside one's own subject area at lower secondary level in Austria – enriching or embarrassing?

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Keywords: teaching outside one's own subject area, Austria, empirical survey, Socio-economics education, social inequalities.

- Economics teachers teaching outside their own subject area differ from teachers with formal qualifications in Economics
- Economics is a significantly less popular subject among non-specialist teachers
- Many non-specialist teachers of Geography and Economics perceive Economics education as boring and even incomprehensible
- These teachers perceive themselves more often as general teachers or as educators
- Social inequalities are more likely to be reinforced by non-specialist teachers

Purpose: This paper will examine the extent to which Economics education within the integrated Austrian subject of Geography and Economics delivered by teachers outside their own subject area differs from teaching delivered by those with a formal qualification in the subject.

Design: Hypothesis testing was carried out using variance analyses, factor analyses and χ^2 independence tests; qualitative content analysis was used to evaluate responses to the open questions of a questionnaire (Mayring 2000, Kuckartz 2012).

Findings: The results show significant differences between the two teacher groups with regard to the popularity of Economics education, attitudes towards economics generally, and professional self-image.

Limitations and implications: For resource reasons, the study had to be limited to Vienna. A further broader investigation seems necessary.

Practical implications: In order to support teachers working outside their own subject area, two project networks have been launched which develop teaching materials for Socio-economics education.

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Suggested citation:
Fridrich, C. (2021): *Teaching Economics outside one's own subject area at lower secondary level in Austria – enriching or embarrasing?* . Journal of Social Science Education 20 (1). https://doi.org/10.11576/jsse-3737

Declaration of Conflicts of Interests: none

01 INTRODUCTION

The term "teaching outside one's own subject area" refers to delivering teaching in a subject for which the teacher does not possess a formal teaching qualification (Porsch 2016, p. 11). This teacher, however, is formally qualified for teaching in general, usually in two other subjects at secondary level (Bosse 2017, pp. 19-20). In Austria, the term "uncertificated" ("ungeprüft") is usually used for a teacher working outside their own subject area. This emphasizes that the teacher in question does not have a formal teaching qualification in a particular subject that she or he teaches. In this article, we will use "uncertificated" to refer to such teachers, and "certificated" to refer to ones who are in possession of a formal subject-specific qualification. In Austria, there are two different types of secondary school covering grades 5-8: the New Secondary School ("Neue Mittelschule") and the Academic Secondary School Lower Level ("Allgemeinbildende höhere Schule"). Non-specialist subject teaching is a phenomenon primarily in New Secondary Schools, on which this article therefore focuses; teachers at Academic Secondary Schools Lower Level generally only teach subjects for which they are formally qualified, as is the case in Germany at grammar schools (Törner and Törner 2010, p. 246; Porsch 2016b, p. 396). This is interesting because at the time of the survey, the teacher training for both New Secondary Schools and Academic Secondary Schools Lower Level usually concerned two subjects. With the implementation of the so-called "Teacher Training / New" in Austria, training for secondary school teachers has been available for the entire secondary level for several years. It is carried out jointly by teacher training colleges and universities. Depending on the needs of the employer, qualified teachers can then be employed in seven types of secondary schools, including New Secondary Schools and Academic Secondary Schools Lower Level.

For this case study of Economics education, the situation is as follows. The subject Geography and Economics, which figures throughout secondary general education in Austrian schools (5th to 12th grades), is by far the most important subject in Socio-economics education. At lower secondary level (5th to 8th grades), a double fragmentation can be observed. Firstly, two types of school exist in competition with each other from the 5th grade upwards: New Secondary School and the lower level of the Academic Secondary School. Secondly, two groups of teachers teach Geography and Economics in New Secondary Schools: "Certificated" teachers (i.e. with the appropriate subject-specific teaching qualifications), and "uncertificated" teachers (without a qualification in the subject itself) (see Figure 1). The proportion of uncertificated teachers of Geography and Economics is estimated by leading didactics experts in the subject to be around one third. There are no published or generally accessible statistics on this topic in Austria.

Although the lower secondary level (5th to 8th grades) is homogeneous in terms of the age of the students, the New Secondary School differs from the Academic Secondary School Lower Level in at least four ways: (1) students' socio-economic background; (2) teaching goals; (3) teachers' expectations; (4) geographical location of the school.

The following discussion must be seen in the light of schools' geographical locations, in a metropolitan area or in a more rural area. In Austrian metropolitan areas, lower percentages of

the respective year cohorts attend New Secondary School. In Vienna, slightly more than half of students attend New Secondary School (52.1 %), while in the rest of Austria more than two thirds of the student population attends New Secondary School (67.5 %) (author's calculations based on data from Statistik Austria 2020). In Austrian metropolitan areas, especially in Vienna, pupils with certain characteristics (e.g. speakers of a language other than German at home, a relatively low social status or migration background) are not evenly distributed among schools. Where students with such sociodemographic characteristics cluster in particular schools, these are referred to as "hotspot schools" (Mayrhofer at al. 2018, p. 112). Such social differences at lower secondary level are pronounced in 22 out of 23 Viennese districts (ibid, p. 115-116).

The curriculum is identical in wording for all school subjects for the two types of school mentioned, and thus also the teaching objectives, although in practice, in the Academic Secondary School Lower Level, there is often a broadening and deepening of the objectives. Thus, teachers' expectations of their students' performance in New Secondary School seem to be considerably lower in metropolitan areas and somewhat lower in rural areas than in Academic Secondary Schools Lower Level. However, the problem of self-fulfilling prophecies in this context is well known.

Figure 1: Teachers outside their own subject area versus teachers with specialized studies at New Secondary Schools and Academic Secondary Schools Lower Level in the field of Economics within Geography and Economics at lower secondary level in Austria

<table>
<tr><td colspan="3">school type</td></tr>
<tr><td colspan="2">New Secondary School</td><td>Academic Secondary School Lower Level</td></tr>
<tr><td>uncertificated teachers at New Secondary Schools</td><td>certificated teachers at New Secondary Schools</td><td>certificated teachers at Academic Secondary Schools Lower Level</td></tr>
<tr><td>teachers outside their own subject area: no formal qualification for Geography and Economics</td><td colspan="2">teachers with specialized studies: formal teaching qualification for the relevant subject</td></tr>
<tr><td colspan="3">formal qualification of teachers</td></tr>
</table>

Source: own presentation Ch. Fridrich

While in the USA the issue of teaching by specialists of other subjects has been discussed in school policy, research and public policy since the mid-1980s, this phenomenon has received little attention in Germany (Törner and Törner 2010, p. 244; Porsch 2016a, p. 9), and mostly only since 2015 (Bosse 2017, p. 19). In Austria, systematic empirical studies and a didactic and school policy discourse for Geography and Economics are still lacking. One published study on the persistence of traditional subject areas and paradigms, with regard to regional studies

(Fridrich 2013), shows that non-subject teaching also plays an important role in Geography and Economics.

For the author of this paper, such considerations led to a detailed evaluation of the data in a hitherto largely unpublished empirical study concerning Geography and Economics lessons delivered by teachers qualified in other subjects. The findings of this paper will be introduced into the didactic discourse of the subject, and used as a basis for future studies.

The article is structured as follows: in Section 2, empirical findings that uncertificated teachers do not represent a homogeneous group are discussed. The reasons for teaching outside one's own subject area are explained and the relationship between teachers' advanced training and professional activity is analysed. Finally, the problem areas of teaching other subjects and the consequences for students are presented. The methodology of the study is presented in Section 3. It is based on a written questionnaire survey with Viennese teachers of Geography and Economics (n = 527). In Section 4, "Results", the three hypotheses listed below (see Section 2) are empirically checked. Finally, Section 5 ("Discussion and Need for Action") discusses support for teachers teaching Economics outside their own subject area. It briefly presents two projects created specifically for this group of teachers and the initial results of these initiatives.

2 PROBLEM DEFINITION

The term "teachers teaching outside their own subject area" may give rise to the assumption that this is a homogeneous group. However, a differentiated examination allows the identification of subgroups and to some extent even suggests a genesis of the relationship between teacher and subject. This is because, in addition to a degree in the subject in question, formal qualifications can be obtained in sub-areas through continuous further training. Moreover, an intensively pursued hobby, for example in the field of music or art, can be considered a form of autodidactic further development and an informal qualification (Porsch 2016a, pp. 13-15). There are also a group of uncertificated teachers who reject, more or less strongly, the idea of teaching outside their subject area. This may be because they lack both formally and informally acquired qualifications and skills. An empirical study of Economics instruction in secondary schools in Germany shows that this group of teachers rely strongly on textbooks and that they find it difficult to obtain interesting teaching materials. However, many respondents from this group also state that they do not have any problems designing teaching materials for the subject that they teach as non-specialists. By contrast, those teachers who teach outside their own subject area and consider themselves competent in this subject see the success of their work as being based on personal interest and sufficient teaching experience. They also see themselves as significantly less dependent on teaching materials (Schufft 2012, pp. 263-266).

Marc Bosse provides a systematic investigation of the diversity among teachers outside their own subject area. In an empirical study of Mathematics teachers, he defines six types of subject-related teacher identity: active-learning insider, experienced semi-professional, pragmatist with an affinity for the subject, non-subject teacher, passive-indifferent outsider,

and resigned-concerned outsider. These types differ in terms of the affective-motivational relationships with the subject taught, worldviews and perspectives, the teacher's subject-related professional identity, difficulties and needs, and dealing with uncertainty (Bosse 2017, pp. 263-285).

Although some problems of teaching outside one's own subject area have already become apparent in what has been said so far, such teaching is widespread at Austrian New Secondary Schools as well as at German Secondary Modern Schools ("Hauptschulen") and Comprehensive Schools ("Gesamtschulen") (Porsch 2016a, p. 16). Three reasons are given for this:

a) Class teacher: The principle of having as many lessons as possible taught to a class by a single teacher, resulting in uncertificated teaching of various subjects, is implemented mostly in primary schools (Hammel 2011, pp. 36-41), but is also found at lower secondary level. This principle is diametrically opposed to the subject-teacher principle, namely that subjects should be taught only by those with specialist training (Porsch 2016a, p. 16; Porsch 2016b, p. 395). However, the principle of having class teachers is seen as positive for the pupils, because they have just one (or only a few) reference person(s) whom they know well and with whom they can build up stronger relationships (Törner and Törner 2010, p. 245). Moreover, it is easier to coordinate teaching strategies in small teams at the same school level.

b) Avoiding class cancellations: In everyday school life, teachers are often absent due to maternity leave, approved leave, illness etc. In many cases, this means that teachers from other subjects have to step in to replace them (Porsch 2016b, p. 395).

c) Teacher shortages in individual subjects: This affects primary as well as secondary schools (Hammel 2011, p. 41), or soon the entire primary school sector in some German states (Finkenwirth 2019). At lower secondary level, Secondary Modern Schools and Comprehensive Schools in Germany, and New Secondary Schools in Austria are also affected. This failure to satisfy demand affects notably the MINT subjects in Germany (Porsch 2016b, p. 395) and Austria. In Austria's New Secondary Schools, Physics/Chemistry has also been affected. Depending on the region, subject and type of school, the severity of teacher shortages varies greatly, from insignificant to very pronounced. It also varies from year to year. In Vienna, for example, there was a projected shortage of teachers for Information Technology, Mathematics, Physics and Chemistry at Academic Secondary Schools Lower Education, and at vocational secondary schools for the 2019/20 school year (orf.at 2019). In Austria, in order to alleviate the shortage, special one-year contracts, which are renewed annually, are used to hire students who will soon finish their studies and career-changers. However, these contracts create greater social insecurity and are remunerated less well. For some years, university graduates in all subjects have been employed at New Secondary Schools and kindergartens, as career-changers, after a short training course within the non-

profit Austrian educational initiative "Teach for Austria", an initiative which is intended to improve equal opportunities in the education system.

Where teacher shortages in individual subjects are concerned, the critical question is how grammar schools and Academic Secondary Schools Lower Level succeed almost completely in avoiding teaching outside one's own subject. This is in clear contrast to the situation at Secondary Modern, Comprehensive and New Secondary Schools. After analysing instruction without formal qualifications in Politics and Politics/Economics at lower secondary level, which is particularly frequent in North Rhine-Westphalia (NRW), Gökbudak and Hedtke (2018, pp. 20-21) came to the following conclusion: "The systematic ministerial and administrative lack of interest in quality assurance of political instruction through the deployment of staff with relevant professional training has a fatal effect on the political education of children and young people in NRW." This leads directly to the question of the extent to which pupils' education can be impaired by non-specialist teaching.

Well-founded teacher training should enable professional teaching and promote the development of learners' competence (Porsch 2016a, p. 10; see the positive correlations of studies for Mathematics by Lipowsky 2006, pp. 50-52). While this is recognized in the scientific community (e.g. Lipowsky 2006; Helmke 2012), the question must be asked how the development of learners' competence can take place when they are being taught by uncertificated teachers in particular subjects, and what the quality of such teaching is. The following quotation summarizes both aspects: "In the (internationally accepted) expert paradigm, it is assumed that professional knowledge is to be regarded as a central component of the professional competence of teachers [...]. Conversely, it must be assumed that - to put it cautiously - teaching outside of one's own subject cannot easily fulfil these expectations" (Törner and Törner 2010, p. 244).

Andreas Helmke lists the following areas, characteristics and principles under the term "quality of teaching", which needs to be clarified: classroom management, clarity and structuring, consolidation, validation, activation, motivation, a climate conducive to learning, pupil orientation, competence orientation, dealing with heterogeneity and the diversity of offers (Helmke 2012, pp. 168-270). Appropriately, Frank Lipowsky, on the basis of longitudinal studies in the US on achievement growth, points to the important aspect of class (i.e. characteristics of the class, the teacher and the classroom), which has hitherto been considered relatively unimportant (Lipowsky 2006, p. 49). At the level of the teacher, the aim is the competent and coherent selection and preparation of teaching content, to be delivered with adequate teaching methods and suitably "orchestrated" (Oser and Baeriswyl 2001). What is meant by this is to achieve a complex coordination of these individual elements and to design a meaningful sequencing in teaching, taking into account the three basic dimensions of teaching quality: cognitive activation, classroom management and constructive support (Kunter and Voss 2011, p. 93).

This outline shows that, in addition to planning, implementation and evaluation of high-quality teaching, special technical as well as well-founded didactic and social skills are also required. This applies to every subject, including Economics, which is often embedded in the integrated subject of Geography and Economics and requires specialist knowledge due to its

specific principles, content, competences, concepts, etc. (see e.g. Engartner 2018, pp. 34-44; Hedtke 2018; pp. 46-94). As a first interim conclusion, we must ask to what extent teachers who teach outside their own subject area can, or even want to, meet these challenges without sound, long-term training in the subject and its didactics. It is therefore understandable when student teachers, before embarking on teaching outside their own area, express concerns about their lack of competence in the “untrained” subject, putting this fear far ahead of all others: "Insufficient subject-related knowledge / insufficient subject-related competences" (Porsch 2016b, p. 404).

A review of empirical studies suggests the following bundle of problems associated with teaching outside one's own subject area:

- Low self-belief: This is based on teachers’ perceived lack of expertise and its (negative) effects on teaching activities (Porsch 2016a, p. 27).
- Problems in class management and in implementing a diversity of methods: This results in the use of limited methods and forms of interaction with students. For example, teacher-centred teaching or teaching from the front of the classroom are more frequent (ibid.).
- Reduced learning effects: When asked about the effects of teacher training, Ewald Terhart answered that there is growing evidence that teachers who have not gone through the standard training for a particular subject or who are teaching outside their subject area “generally 'produce' fewer learning effects in their students" (Terhart 2014, p. 317). Also relevant to the assessment of different training models (see Section 4 below) is the following statement: "Varying lengths of training and thus also more learning opportunities lead to varying degrees of technical and didactic knowledge among graduates" (ibid.).
- Low levels of support for under-achieving pupils: empirical studies suggest that under-achieving pupils benefit from good teachers and good teaching, which is why these have a compensatory effect and contribute to reducing inequality of educational opportunities (Lipowsky 2006, p. 49). Conversely, according to some studies, teachers teaching outside their own subject areas are less likely to contribute to the promotion of under-achieving pupils (Porsch 2016a, p. 26).

Lipowsky’s and Porsch’s findings should set alarm bells ringing in view of the bundle of problems analysed in detail in the *National Education Report Austria 2018* (Breit et al. 2019) and for Germany in the collection of articles published as *Educational Research with Data from Official Statistics* (Fickermann and Weishaupt 2019).

First, the Austrian situation will be presented in detail. Theoretically, learners in classes and schools that have major challenges, such as high numbers of students with a migration background, or from economically and educationally disadvantaged families, should be taught by the best teachers. In practice, however, the situation is very different. Studies show that these schools often have an above-average number of unqualified teachers, teachers working outside their own subject area, and less experienced teachers. Several mechanisms explain this.

Higher staff turnover at such schools leads to more vacancies. It is possible that schools with numerous vacancies reduce their employment requirements, which is why more teachers are hired to teach outside the own subject area (Weber et al. 2019, p. 150). Teachers outside their own subjects increasingly perceive the performance of their classes as below average, although any causality is unclear. Does teaching outside the subject area reduce the performance level of the class, or are teachers outside their own subject area increasingly assigned to below-average classes? (ibid., p. 174). It is clear, however, that teachers working outside their own subject area are more frequently found in classes with a higher proportion of migrants and a lower achievement level (Eder et al. 2019, p. 526). This concentration of less experienced teachers and those teaching outside their own field in the most challenging classes triggers a negative, downwards, dynamic, which has a further adverse effect (ibid., p. 539).

The development at German schools is quite similar. At primary schools with higher proportions of learners from a migrant background and lower achievement levels, the proportion of teachers delivering classes outside their own subject is higher. Such schools are perceived as less attractive, attracting fewer applications for vacant teaching posts, thus limiting the choice of new recruits for school management (Ziegler et al. 2019, p. 125-126). Here, too, a negative cycle is set in motion. If school administrators have fewer choices, the range of teachers' specialist subjects will be limited, and these teachers will therefore have to teach more hours outside their own subjects.

However, there are also other perspectives on the issue of teaching outside one's own subject area, which will be discussed here. In a study comparing career-changers (as defined in Section 2 above) with other graduates in terms of teaching skills and expertise (among other things), the career-changers scored better (Abs et al. 2019, pp. VIII-XIII). Moreover, the conclusions to be drawn from empirical findings is not clear. For example, there are studies that document no correlation teachers with higher educational levels and better school performance of their students. For primary schools, there is no discernible effect on students' general competences in reading, spelling, mathematics or motivation of having a subject-specific teacher (Tiedemann and Billmann-Mahecha 2007, pp. 64-67). For lower secondary school, too, authors conclude that there is no correlation between instruction outside one's subject area and the performance level of students (Helmke et al. 2002, p. 438). In general, Ewald Terhart states: "The international research to date on the influence of teacher education on the later professional skills of teachers (measured in part by the learning progress of the pupils of these teachers) has so far been unable to demonstrate any really convincing, strong correlations on a broad scale, although it must be taken into account that such studies oriented towards influences and effects entail considerable methodological and practical problems" (Terhart 2014, p. 317).

Finally, there is a danger that teachers with a solid subject knowledge will fall back into a kind of "back-to-basics" approach or grammar school tradition, criticized for good reason by Michael Young and Johan Muller. In the context of an analysis of the sociology of knowledge, Young and Muller consider "the role of boundaries and the social differentiation of knowledge" as key principles for identifying possible "futures". In the "Future 1" option, boundaries and the social differentiation of knowledge are formed and maintained, in a scenario dominated by a

naturalized concept of knowledge that is associated with a reproduction of increased social inequality and conflict. In contrast, "Future 3" aims at maintaining boundaries while at the same time transgressing them in order to achieve "powerful knowledge" and “knowledge of the powerful” (Young & Muller 2010, pp. 16-20).

In the discussion of Economics education, increasingly creative and dynamic forms of education are being developed beyond the "pure" transfer of knowledge. One challenge could therefore be how to inspire uncertificated teachers to "play" with socio-economic-political issues and topics with their students. That is, to inspire and encourage their students to wonder about economics, to ask questions, to explore aspects of empowerment, and to discuss different perspectives. It is obvious that this requires both economics-related subject competences and pedagogical competences on the part of the teachers.

On the basis of all these considerations, the following research question is formulated, which refers to the teaching, outside one’s own subject area, of Economics in the Austrian subject Geography and Economics, at secondary level I in particular.

> To what extent do the popularity of Economics or Economics education, attitudes towards the economy generally, and the self-image of teachers teaching outside their own subject area differ from the attitudes and perceptions of teachers with a teaching qualification for this subject?

Based on this research question, three hypotheses were formulated:

Hypothesis 1: The field of economics is less popular among teachers working outside their own subject area than among teachers with relevant teaching qualifications.

Hypothesis 2: Teachers of Economics teaching outside their own subject area have different attitudes towards the economy generally compared to teachers with formal qualifications in Economics.

Hypothesis 3: Teachers of Economics who are working outside their own subject area perceive themselves more often as general teachers or educators, and less often as teachers of Economics or as teachers of Geography and Economics.

Each hypothesis is discussed in detail below (see Section 4.1).

3 DESIGN AND METHODOLOGY OF THE STUDY

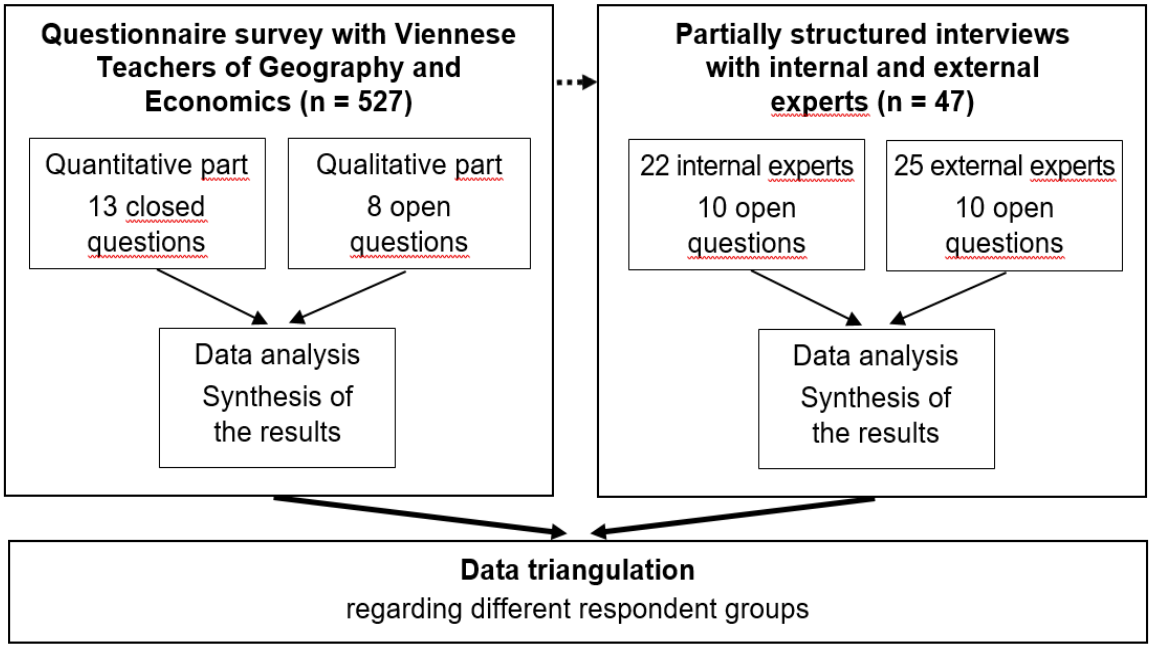
Selected data from a study carried out by the author in Vienna in 2011, which has so far not been published in its entirety, were analysed according to the questions guiding the research in this article. For this study at lower secondary level, teachers with relevant teacher training in Geography and Economics were surveyed. This was the first study of its type also to include uncertificated teachers in Geography and Economics (see also Fridrich 2018, pp. 94-95 for further information on methodology).

The overall design of the research was in two parts (see Figure 2) – a quantitative study based on a "Questionnaire survey with Viennese teachers of Geography and Economics" in which open questions were embedded, and "Semi-structured expert interviews", in which specialist didacticians of Geography and Economics had their say, as did external experts or stakeholders (leading people in interest groups, high-ranking officials in relevant ministries,

etc.). After data analysis and a systematic synthesis of the results, the results were subjected to data triangulation with regard to different respondent groups (Flick 1995, p. 432) in order to identify common positions and perspectives on the one hand, and different views and opinions on the other.

This paper presents selected aspects from the quantitative part of the study which are thematically appropriate to the research question, supplemented by analysis of one of the open questions.

Figure 2: Structure of the empirical study



Source: own representation Ch. Fridrich

The sample for the first part of the study consisted of teachers in Vienna at Academic Secondary Schools Lower Level, at New Secondary Schools and their predecessors known as Secondary Modern Schools („Hauptschulen“), and at Co-operative Secondary Schools („Kooperative Mittelschulen“). Since teachers who teach outside their own subject area also contribute to the implementation of Economics education, it was logical to include them in the study.

In the first step, the managements of all eligible schools in Vienna were asked for permission to carry out the project in their establishments, including with the Geography and Economics teachers there. Restricting the focus to Vienna was necessary due to the limited available resources, especially since the evaluation was a complex undertaking because of the inclusion of both open and closed questions. Out of 211 requests to participate, 130 (62.3 %) were answered positively. The remainder were rejected for the following three reasons: general overload of teachers with other school tasks; a generally excessive number of surveys of all kinds at the schools concerned; the timing of the survey within the school year.

Following pre-tests and the resulting modifications to the questionnaire, the survey was conducted from February to April 2011. First, the date and time for distributing the questionnaire were agreed with the teachers at each school and handed over personally, when any questions on the procedure, implementation and objectives of the survey phase were answered. In the second step, the completed questionnaires were collected from the schools, generally on the same day, but in some cases on the following day or a few days later. Thanks to the chosen procedure, the response rate was very high. 802 questionnaires were handed out to Geography and Economics teachers, and 527 of those returned were usable, which corresponds to a return rate of 65.7 %. The composition of the valid sample in terms of gender, age, type of school, and lessons in Geography and Economics per week is shown in Table 1.

Table 1: Selected characteristics of the valid sample

		Share	Number of cases
Gender	female	70.7 %	357
	male	29.3 %	148
	total	100.0 %	505
Age	20 to 29 years	9.6 %	46
	30 to 39 years	19.3 %	92
	40 to 49 years	26.0 %	124
	from 50 years	45.1 %	215
	total	100.0 %	477
	average	45.6 years	
Type of school	„uncertificated“ teachers at New Secondary Schools	32.3 %	161
	„certificated“ teachers at New Secondary Schools	27.3 %	136
	„certificated“ teachers at Academic Secondary Schools Lower Level	40.5 %	202
	total	100.0 %	499
Lessons in Geography and Economics per week	up to 2 hours	39.7 %	195
	>2 to 5 hours	27.7 %	136
	>5 to 10 hours	19.1 %	94
	more than 10 hours	13.4 %	66
	total	100.0 %	491
	average	5.3 hours	

Source: own presentation Ch. Fridrich and G. Paulinger

In order to ensure the highest possible research yield together with a high willingness of the teachers to fill in the questionnaire, the questionnaire ran to four A4 pages, which the pre-tests

suggested was the optimum length. Despite its length, the teachers were very willing to complete the questionnaire, and sufficient material was obtained for the study as a whole. The questionnaire comprised 21 items (13 closed and 8 open questions). The questionnaire was implicitly divided into seven thematic parts according to the guiding research questions developed. The actual sequence of the individual parts, however, was optimized after pre-tests to ensure fluent written responses to the questions by the teachers. Attention was paid to a logical sequence as well as to easier-to-answer introductory questions and a clear bundling of open questions on only one page. The seven thematic sections of the questionnaire covered: individual attitude to Geography and Economics; perceived importance of Economics education in the context of one's own teaching of Geography and Economics; interconnectedness of Geography and Economics; teacher's own implementation of Economics education within the subject of Geography and Economics; topics perceived as important for Economics-oriented Geography and Economics teaching as well as the favouring of one of the two basic paradigms of Economics education (Socio-economic education vs. Economistic education); importance of information sources and teaching aids for Economics education; teacher's own needs for further training and professional development in Economics education.

After data entry and data cleansing of all the responses gathered for the entire study (which comprised 30 hypotheses), the closed questions were then hypothesis-tested for our three hypotheses relevant to uncertificated teaching (as listed at the end of Section 2) using variance analyses, factor analyses, and χ^2 independence tests.

The open questions of the overall study were evaluated using structuring qualitative content analysis (Mayring 2000) by inductive or deductive category formation (Kuckartz 2012, p. 69). The answers to question 9 ("The focus(es) of Geography and Economics lessons is / are …") for testing hypothesis 1 were analysed using inductive categorization. The following procedure was used. First, the level of abstraction was defined in order to formulate the categories and subcategories in a consistent manner. Thanks to a selection criterion that was defined subsequently, responses that were not relevant in terms of content were eliminated. After the analysis of about one tenth of the text material and the generation of categories and subcategories, the preliminary categories were checked for consistency and freedom from overlap. Clearly defined examples were used for an unambiguous allocation to individual categories and subcategories, even in cases of doubt. The category system could now be applied to all responses, which could be clearly classified.

4 RESULTS

For greatest clarity, in this section we present the hypothesis tests in detail, with each hypothesis being restated verbatim, the statistical methods used, and finally the results together with relevant tables and figures.

In the descriptions of the results, reference is made to three groups of respondents:

a) *Teachers who teach outside their own subject area* (uncertificated teachers) at Austrian New Secondary Schools or these schools' predecessors (Co-operative Secondary Schools) or Secondary Modern Schools. These teachers have the

lowest level of formal qualification, with neither a relevant formal specialization nor a degree in Geography and Economics. They usually have such formal qualifications in other subjects. At the time of the survey in 2011, all three school types listed above existed side by side, though later all Co-operative Secondary Schools and Secondary Modern Schools became New Secondary Schools.

b) *Certificated Geography and Economics teachers* at New Secondary Schools are teachers who have successfully completed a six-semester course at the Teacher College of Education or its predecessor institution, the Pedagogical Academy.

c) *Teachers at Academic Secondary Schools* who also teach Geography and Economics at lower secondary level (5^{th} to 8^{th} grades). They have undergone teacher training at university, which at the time of the survey meant a minimum of nine semesters and thus a much higher number of ECTS.

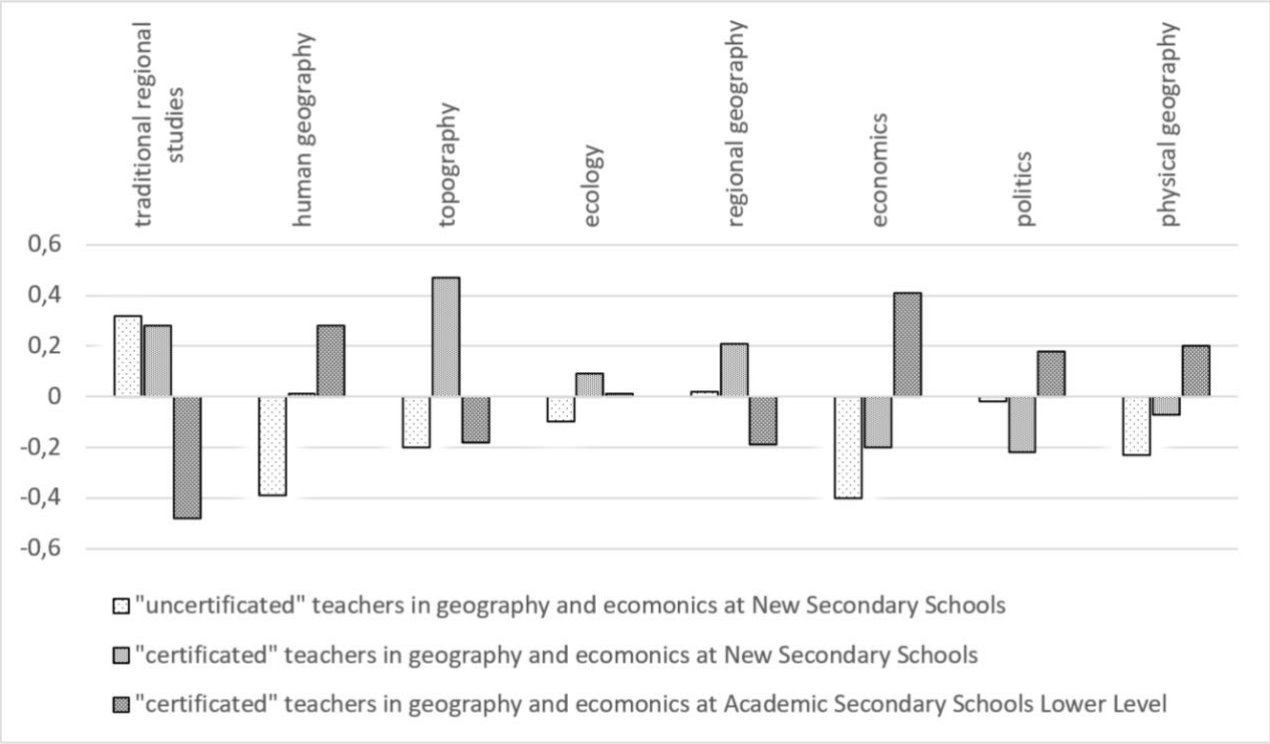
4.1 Popularity of Economics education among teachers who teach outside their own subject area

Hypothesis 1: The field of economics is less popular among teachers working outside their own subject area than among teachers with relevant teaching qualifications.

Before the results are presented, the areas covered by Geography and Economics are explained to increase comprehensibility. Since the curriculum reform of 1985/86 for lower secondary schools, this subject has been understood as a "double-poled subject" in which political literacy plays an important role (W. Sitte 2001, p. 162), because the two "fields of action" of space and economics as well as those of society and politics are closely interlinked by human actions. For a detailed conception of Geography and Economics up to the current integrated subject, see C. Sitte 1989; C. Sitte 2001; W. Sitte 2001; Fridrich 2018, pp. 83-89). This makes it clear that the subject "places the socially embedded human being acting spatially and economically at [its] centre" (W. Sitte 2001, p. 164; emphasis of original omitted). This central position, which has more or less been enshrined in teaching, is confirmed and deepened in the advanced draft of the new Geography and Economics curriculum 2023 for lower secondary schools (4^{th} to 8^{th} grades). In the competence model, didactic principles and competence descriptions, the importance of the "Society - Economy - Politics - Environment" framework is pointed out, objectives and content to be worked on are defined, and the competences to be promoted are identified (Chreiska-Höbinger et al. 2019). Karin Götz, in her own empirical study, derived basic content elements of Geography and Economics, allowing the following sub-areas to be identified: human geography, physical geography, regional geography, economics, politics and ecology. Since the curriculum requires the spatial classification of content, topography is also relevant. In order to investigate the relevance of traditional regional studies (i.e. studies of other regions or countries of the world), which was removed from the Geography and Economics curriculum 1985/86 and by the paradigm shift which it introduced, traditional regional studies was reintroduced within various other sub-areas of Geography and Economics (Götz 1995, p. 56).

Analyses of variance show that the differences in the average popularity of the subject Geography and Economics between the three groups of respondents defined above are statistically significant for all sub-areas except ecology ($p < 0.05$). Figure 3 shows the sub-areas covered by the questionnaire ranked according to average popularity. The differences between the group averages and the overall average are plotted in units of scale. Positive values mean above-average popularity; negative values correspond to below-average popularity.

Figure 3: Popularity of areas of Geography and Economics according to the formal qualification of the teacher –deviations from the mean in scale units



Source: modified after Fridrich 2013, p. 25

Statistically significant differences within the group of teachers at New Secondary Schools, namely in the comparison between certificated and uncertificated teachers, exist in the areas of topography ($p < 0.01$) and human geography ($p < 0.05$). There are also statistically significant differences between uncertificated teachers at New Secondary Schools and certificated teachers at Academic Secondary Schools Lower Level in the areas of traditional regional studies, economics, human geography and physical geography (all: $p < 0.01$). There are statistically significant differences between certificated teachers at New Secondary Schools and certificated teachers at Academic Secondary Schools Lower Level in the areas of traditional regional studies, economics, regional geography and topography (all: $p < 0.01$), as well as politics and human geography (both: $p < 0.05$) (see Table 2).

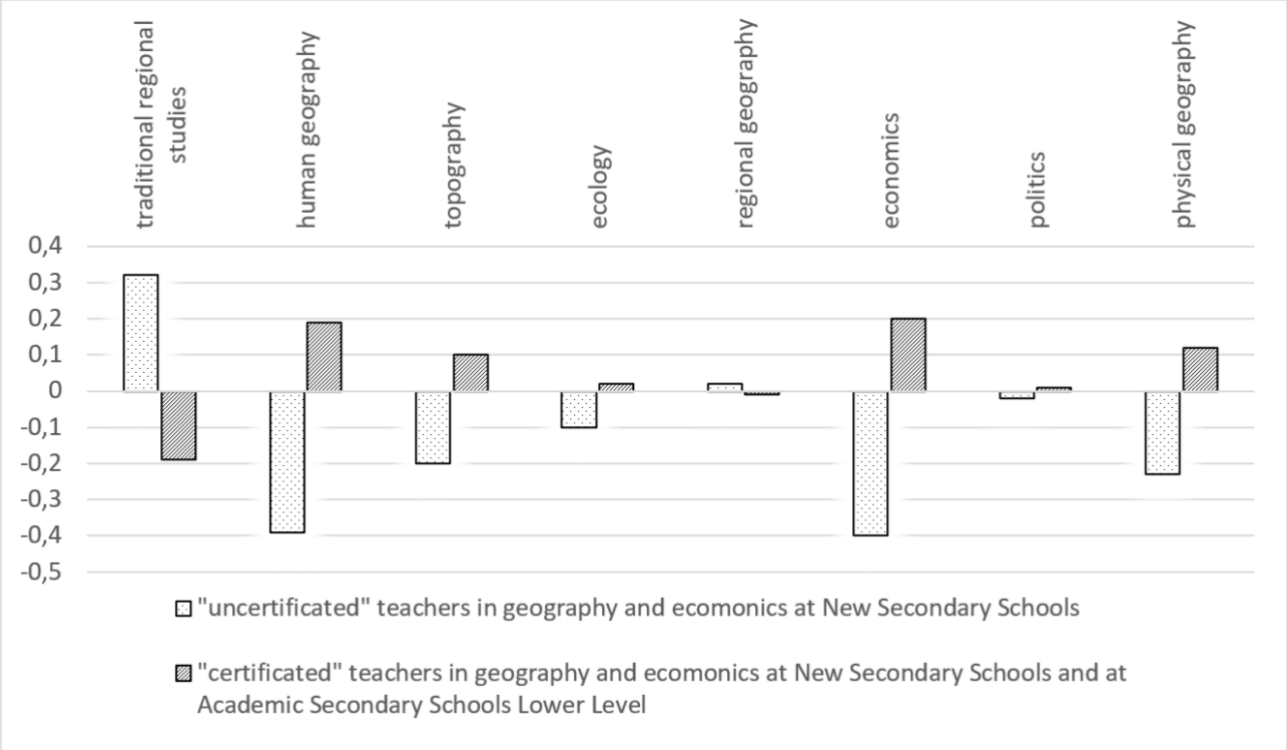
Table 2: Analyses of variance in the popularity of fields of Geography and Economics by formal qualification of the teacher

					Group comparison by post hoc test (Games-Howell)		
	Welch F	df1	df2	Sig.	New Secondary Schools: certificated vs. uncertificated teachers	uncertificated teachers at New Secondary Schools vs. certificated teachers at Academic Secondary Schools	certificated teachers at New Secondary Schools vs. certificated teachers at Academic Secondary Schools
traditional regional studies	32.59	2	321.0	0.00**		**	**
ecology	0.92	2	308.9	0.40			
economics	29.80	2	292.6	0.00**		**	**
politics	3.57	2	303.5	0.03*			*
regional geography	6.52	2	309.3	0.00**			**
topography	24.52	2	320.8	0.00**	**		**
human geography	16.10	2	277.1	0.00**	*	**	*
physical geography	5.34	2	300.8	0.01**		**	
* p < 0.05 / ** p < 0.01							

Source: own presentation Ch. Fridrich and G. Paulinger

Figure 4 shows a ranking of the areas according to average popularity. The differences between the group averages and the total average are shown in scale units. In order to create an even stronger differentiation, the two groups are now composed as follows: Group 1 comprises uncertificated teachers of Geography and Economics at New Secondary Schools who teach outside their own subject. Group 2 consists of certificated teachers, with formal qualifications in the form of a relevant degree, both at New Secondary Schools and at the lower level of the Academic Secondary Schools. Positive values mean above-average popularity, negative values below-average popularity. In combination with Table 1, this means that traditional regional studies is statistically significantly more popular among teachers without a lower secondary school teacher's certificate at New Secondary Schools than among teachers with a lower secondary school teacher's certificate at New Secondary Schools. Conversely, the popularity of the subject areas of human geography, topography, economics and physical geography is significantly higher among certificated teachers for the subject Geography and Economics than among teachers who are uncertificated in this subject area.

Figure 4: Popularity of sub-areas by type of teacher qualification (uncertificated in Geography and Economics versus certificated) – deviations from the mean in scale units



Source: own presentation Ch. Fridrich and G. Paulinger

The strongest statistically significant differences can be seen in analyses of variance with regard to the type of training of teachers outside their own subject area at New Secondary Schools on the one hand (i.e. uncertificated teachers), and teachers certificated for geography at New Secondary Schools and Academic Secondary Schools Lower Education on the other. There are statistically significant differences in the average popularity of sub-areas between certificated and uncertificated teachers: traditional regional studies, economics, human geography and physical geography (all: $p < 0.01$); topography ($p < 0.05$) (see Table 3).

The results of the variance analyses show that the average popularity of economics correlates (1) with the type of school: it is significantly higher among teachers at Academic Secondary Schools Lower Level than at New Secondary Schools ($p < 0.05$); (2) with the teachers' education, i.e. certificated or not: the higher the teacher's educational level (certificated in Geography and Economics at New Secondary Schools, uncertificated in this subject at New Secondary Schools and at Academic Secondary Schools Lower Level), the higher the average popularity of Economics ($p < 0.01$). The null hypothesis ("the average popularity of the field of economics is equal among the groups of teachers") is therefore rejected. This means that Economics is less popular among teachers working outside their own subject area compared to teachers with relevant teaching qualifications.

Table 3: Analyses of variance in the popularity of sub-areas of Geography and Economics according to the type of qualification: without teacher's certificate in this subject vs with teacher's certificate

	Welch F	df1	df2	Sig.
traditional regional studies	35.84	1	459.5	0.00**
ecology	1.46	1	290.5	0.23
economics	27.69	1	325.2	0.00**
politics	0.20	1	317.9	0.66
regional geography	0.18	1	301.3	0.68
topography	5.93	1	273.2	0.02*
human geography	22.75	1	236.5	0.00**
physical geography	6.92	1	319.9	0.01**
* $p < 0.05$ / ** $p < 0.01$				

Source: own presentation Ch. Fridrich and G. Paulinger

In this context, the following detail is both interesting and relevant to the need for action (see Section 5). Among those teachers who teach only two hours or less of Geography and Economics, New Secondary School teachers uncertificated in the subject are very strongly represented, with 71.2 %. In New Secondary School, 43.7 % of certificated teachers teach two hours or less, while only 13.4 % of teachers at Academic Secondary Schools Lower Level teach only two hours or less of Geography and Economics.

The results documented in Table 2 and Figure 4 show that in the three very important sub-areas of economics, human geography and physical geography, the average popularity with teachers teaching outside their own subject area is highly significantly lower than it is for teachers with formal qualifications. Conversely, traditional regional studies is highly significantly more popular among the uncertificated group. This poses a major problem in that the curriculum for Geography and Economics for the lower secondary level in 1985/86 brought about a paradigm shift away from traditional regional studies and towards subject-, topic- and goal-oriented Geography and Economics. In Geography and Economics, the focus is no longer on spatial units such as states, but on people acting in spatial, social and economic contexts (BMUKK 2000, p. 74; Fridrich 2013, pp. 23-26; Fridrich 2018, pp. 84-89).

Analyses of question 9 of the questionnaire support these results. The respondents were asked to complete the following sentence: "The focus(es) of Geography and Economics lessons is/are ...". 25 years after the paradigm shift, a small group of respondents still puts traditional regional studies at the centre of their lessons. Some cited traditional regional studies alone as the focus of Geography and Economics lessons, while others gave it as one of several areas, exemplified by the following answer: "Traditional regional studies - ethnology". Others also referred to traditional regional studies but using other forms of words, such as "Getting to know countries", "Traditional regional studies (focus on Austria)", "Getting to know foreign countries".

This raised an interesting question: whether there is a statistically significant connection between the subcategory "traditional regional studies" and the three groups of Geography and Economics teachers (1) uncertificated Geography and Economics teachers at New Secondary School; (2) certificated teachers of Geography and Economics at New Secondary School; (3) certificated teachers of Geography and Economics at Academic Secondary Schools Lower Level. The test shows a statistically significant correlation between the naming of traditional regional studies and these three groups (χ^2 (2, N=499) = 32.897; $p < 0.001$). Traditional regional studies is perceived as the focus of Geography and Economics teaching by 16.1 % of uncertificated Geography and Economics teachers at New Secondary Schools, but by only 6.6 % of certificated Geography and Economics teachers at the same type of school and only 0.5 % of those at Academic Secondary Schools Lower Level. There is no statistically significant connection between age and the naming of traditional regional studies (χ^2 (3, N=479) = 2.236; $p = 0.525$).

4.2 Attitudes towards economics generally of teachers who teach outside their own subject area

Hypothesis 2: Teachers of Economics teaching outside their own subject area have different attitudes towards the economy generally compared to teachers with formal qualifications in Economics.

A semantic differential for their personal attitude towards the economy generally was used to divide the Geography and Economics teachers surveyed into two groups, namely a group with "a positive attitude towards the economy generally" group (E+), and a group with "a negative attitude to towards the economy generally" (E-). The latter were more critical towards the economy generally. In order to determine the E+ and E- groups, seven items in the questionnaire were subjected to an exploratory content analysis. Two factors were extracted for highly charged pairs of opposites. The two factors related to (1) personal understanding of the economy generally: (i) "strange - familiar", (ii) "incomprehensible - understandable", (iii) "boring - exciting" and (iv) "negative - positive", and (2) the perceived conflict potential of the economy generally: (v) "threatening - peaceful", (vi) "environmentally destructive - environmentally preserving" and (vii) "conflict-loaded - conflict-free" (see Table 4). The pair of opposites "simple - complex" loaded only very weakly, could not be clearly assigned to either of the two factors, and was therefore removed from the factor analysis. Teachers with little interest in the economy generally may consider the economy to be complex (for example, because of their lack of knowledge), while other teachers may also perceive it as complex precisely because of their in-depth knowledge of the subject.

Table 4: Factors of attitude towards the economy generally

	factor	
	1 „personal understanding of the economy generally “	2 „perceived conflict potential of the economy generally “
strange - familiar	0.83	
incomprehensible - understandable	0.77	
boring - exciting	0.76	
negative - positive	0.67	
threatening - peaceful		0.73
environmentally destructive - environmentally preserving		0.71
conflict-loaded - conflict-free		0.70
explained variance	33.7 %	22.4 %

Note: Principal axis analysis; KMO = 0.74; Kaiser criterion (eigenvalue > 1); explained variance = 56.1 %; Varimax rotation (orthogonal); factor charges > 0.3 are shown

Source: own presentation Ch. Fridrich and G. Paulinger

The division of the Geography and Economics teachers into E+ and E- groups was done using the first factor (personal understanding of the economy generally), and the further factor values calculated from this for each individual case. High factor values mean a positive attitude of the economy generally; low factor values mean a more negative attitude. The mean of the factor values (0) was used as a separation value for category formation, whereby cases with values up to 0 were assigned to group E-, and cases with a factor value of more than 0 were assigned to group E+. Table 5 shows the frequency distribution of the factor values and the two groups formed. According to this definition, 45.4 % of the teachers have a predominantly critical attitude and 54.6 % an above-average, positive attitude to the economy generally. In addition, it should be emphasized that in E+ and E- ranges, around three quarters of respondents (74.4 %) fall between the factor values of +1 and -1 and only around a quarter (25.6 %) fall beyond these limits.

Table 5: Distribution of factor values for attitudes towards the economy

Type	Factor value	Share	Share E- / E+
E+	> 2	0.0 %	54.6 %
	> 1 to 2	11.4 %	
	> 0 to 1	43.2 %	
E-	0 to -1	31.2 %	45.4 %
	< -1 to -2	10.0 %	
	< -2	4.1 %	
Total		100.0 %	100.0 % (n = 458)

Source: own presentation Ch. Fridrich and G. Paulinger

The E+ and E- groups are further compared below. By definition, they differ greatly in the four variables used to calculate the factor value that determines group membership: "negative – positive", "incomprehensible – understandable", "strange – familiar", "boring – exciting". There are also differences in the questionnaire's items which were not used for type-formation: members of the E- group perceive the economy generally as comparatively "more threatening" and "environmentally destructive"; members of the E+ group classify the economy generally on average as "more complex" than those of E-.

To illustrate educational differences, the Geography and Economics teachers in the three groups were compared for their average answers to the questions on personal understanding of the economy generally. The three groups were (compare Figure 1):

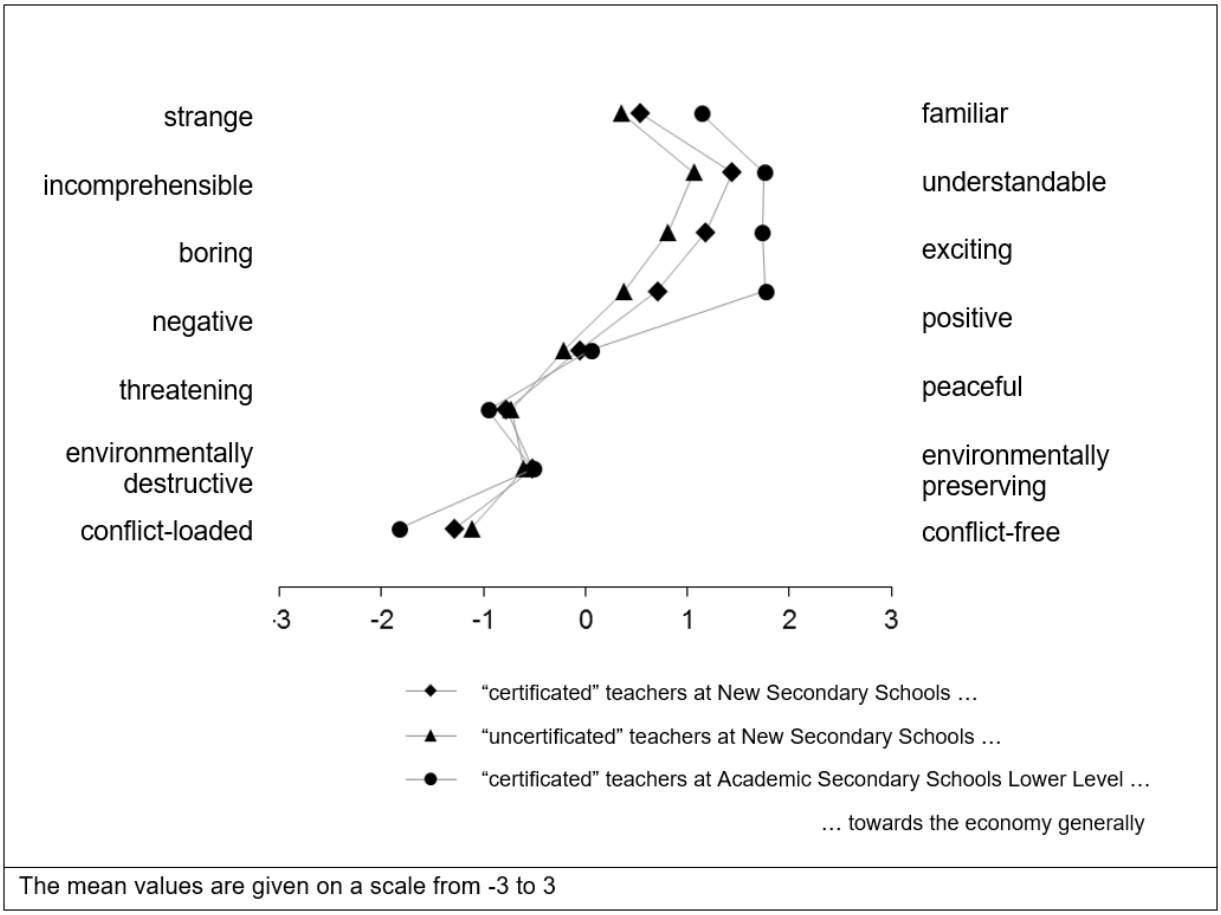
1. New Secondary School teachers who teach outside their own subject
2. New Secondary School teachers with a degree in Geography and Economics
3. Academic Secondary School Lower Level teachers with a degree in Geography and Economics.

The comparison revealed that teachers in group (3) have a more positive personal attitude towards the economy generally than their colleagues in groups (1) and (2). This can be seen in the pairs of opposites "boring – exciting", "strange – familiar", "negative – positive" and "incomprehensible – understandable". In addition, teachers of Geography and Economics with formal qualifications (groups (2) and (3)) have a more positive personal attitude towards the economy generally than those who are teaching outside their own subject (group 1). With regard to the perceived conflict potential of the economy generally, no clear differences can be detected. It seems plausible that teachers who teach outside their own subject area perceive the economy generally, on the basis of their own general observations, as hardly threatening, but - to a small extent - as conflict-loaded and environmentally destructive, while certificated teachers express similar assessments on the basis of their richer knowledge and more intensive study of these topics.

Figure 5 shows the polarity profiles of teachers with different levels of education with respect to their attitudes towards the economy generally. Clear agreement can be seen in the pairs of opposites "threatening – peaceful", "conflict-loaded – conflict-free" and

"environmentally destructive – preserving the environment". This seems to be due to the fact that teachers, regardless of their formal qualifications, are generally more critical citizens; they often follow media reports and analyses of social issues with interest and, as a result, form an opinion on the broad subject area of the economy and thus on the impacts of economic activity in general. Large differences exist, as already explained, in personal understanding of the economy generally. For example, teachers at Academic Secondary School Lower Level find the economy generally positive and exciting, while their colleagues at New Secondary Schools teaching outside their own subject area find the economy generally the most negative and least exciting. The same applies to familiarity and comprehensibility.

Figure 5: Polarity profile of attitudes to the economy generally by school type



The mean values are given on a scale from -3 to 3

Source: own presentation Ch. Fridrich and G. Paulinger

In order to refine the above E+ / E- typology with regard to attitudes towards the economy generally, the teachers interviewed were also asked about their attitudes towards economics education within Geography and Economics lessons. They fell into two groups: T+ (teachers with a positive attitude to teaching Economics), and T-, for teachers with a negative attitude to teaching Economics.

First of all, an index value was determined from the following information provided by the teachers on their Economics lessons: teachers’ liking for the subject of Economics; amount of

time spent on Economics content in Geography and Economics classes; importance of Economics topics in the Geography and Economics curriculum; attitude towards the relationship between Geography and Economics[1]. For each statement that indicated an above-average liking for teaching Economics, that above-average time was spent on Economics content, that the combination of Geography and Economics makes sense in numerous areas or topics, or that Economics is an integral part of Geography, the index value was increased by 1. It was not increased when responses suggested a below-average liking for economics or below-average importance given to the subject. The possible index values were 0 to 4 (see Table 6). The index value was generated only when at least three of the four questions had been answered in a valid manner.

Table 6: Creation of an index of attitudes towards Economics education

	Teaching Economics + (T+)	Teaching Economics – (T-)
Popularity of Economics topics in Geography and Economics	> median (1 pt)	≤ median (0 pts)
Time spent on Economics content (and the conscious integration of Geography and Economics content)[1)]	> median (1 pt)	≤ median (0 pts)
Importance of Economics content of Geography and Economics – curriculum[2)]	> median (1 pt)	≤ median (0 pts)
Opinion on the relationship between Geography and Economics	The connection between Geography and Economics in numerous areas or topics makes sense: Economics is an integral part of Geography (1 pt)	Economics was "grafted" onto Geography: combining Economics and Geography makes sense in some areas (0 pts)

[1)] Average value of the time spent on Economics content, including half of the time spent on consciously integrating Geography and Economics content, across all four school levels.

[2)] The individual subjects of the Geography and Economics curriculum were to be ranked in the survey for each year grade according to their importance as perceived by teachers. The average ranking of the purely Economics content of two curriculum subjects for 3rd grade, "Economy in private households" and "Economic connections: Austria – Europe", was used as a criterion.

Source: own presentation Ch. Fridrich and G. Paulinger

Finally, the index was divided by the number of entries in order to obtain the average, which could assume values from 0 to 1. This value was then used to divide the respondents into two groups. The first group, which attaches above-average importance to Economics education in Geography and Economics lessons, was formed from index values > 0.5 and designated "positive attitude to teaching Economics" (T+). The second group, for whom Economics education is of below-average importance, was identified using index values ≤ 0.5 and was named "negative attitude to teaching Economics" (T-).

The two groupings made according to personal attitude to teaching Economics (T+ / T-) and understanding of the economy generally (E+ / E-) were finally merged to create the so-called TE typology (see Table 7).

Table 7: TE typology according to personal attitude to teaching Economics and understanding of economics generally

		Attitude of teachers of Geography and Economics towards the economy generally	
		E+	E-
Attitude of teachers of Geography and Economics to Teach Economics content in the classroom in particular	T+	T+E+ Positive attitude to *teaching* Economics and towards the *economy* generally	T+E- Positive attitude to *teaching* Economics but negative towards the *economy* generally
	T-	T-E+ Negative attitude to *teaching* Economics but positive towards the *economy* generally	T-E- Negative attitude to *teaching* Economics and towards the *economy* generally

Modified according to Fridrich 2019, p. 394

The null hypothesis that the two characteristics *TE type* and *educational level of Geography and Economics teachers* are independent is rejected: χ^2 (df = 6) = 67.6; Cramérs V = 0.28; $p < 0.01$. Teachers of Economics teaching outside their own subject area have different attitudes towards the economy in general compared to teachers with formal qualifications (Table 7).

There is a statistically significant correlation between the TE type and Geography and Economics teachers' educational level: in individual two-group comparisons, the differences between T+E+ and T-E- turn out to be statistically significant ($p < 0.0083$ significance level after carrying out multiple tests, Bonferroni-corrected).

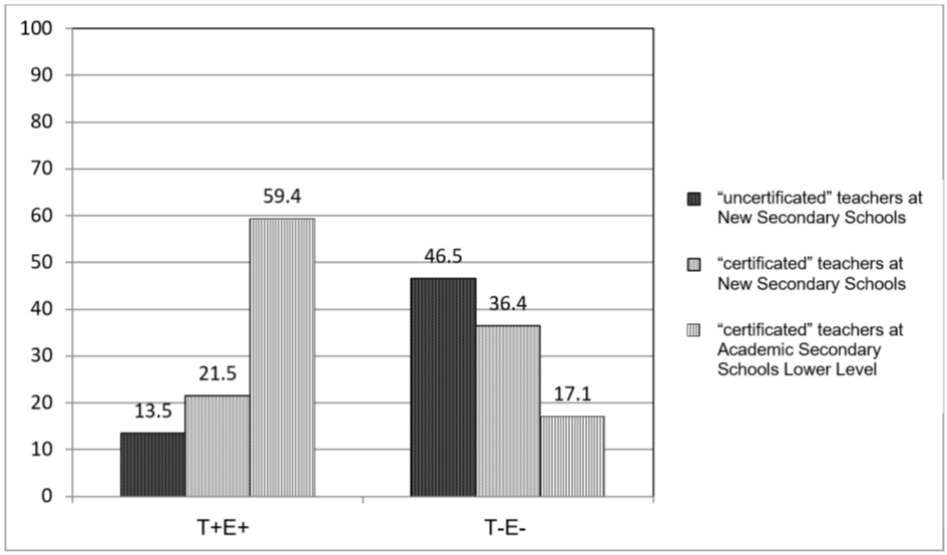
Table 8: Relationship between Geography and Economics teachers' level of education and TE type

	T+E+	T+E-	T-E+	T-E-	Total
uncertificated teachers at New Secondary Schools	13.5 %	39.4 %	44.9 %	46.5 %	33.3 %
certificated teachers at New Secondary Schools	27.1 %	23.9 %	19.2 %	36.4 %	27.9 %
certificated teachers at Academic Secondary Schools	59.4 %	36.6 %	35.9 %	17.1 %	38.8 %
Total	100 %	100 %	100 %	100 %	100 %

Source: Fridrich 2019, p. 395

The most remarkable results in Table 8 are visualized in Figure 6. The group with a positive attitude to Geography and Economics education and towards the economy generally (T+E+) is made up largely of Academic Secondary School Lower Level teachers, followed (by a wide margin) by the group of teachers at New Secondary Schools certificated in Geography and Economics, and finally by the uncertificated group. Conversely, the group with a negative attitude both to teaching Geography and Economics and towards the economy generally (T-E-) is largely made up of teachers at New Secondary Schools uncertificated in Geography and Economics, followed by teachers at New Secondary Schools certificated in Geography and Economics. Finally, Geography and Economics teachers' education level also has a clearly discernible effect on their TE type (see Figure 6). Accordingly, teachers from other subjects are less frequently represented in the T+E+ group, while their share in the T-E- group is above average.

Figure 6: Relationship between Geography and Economics teachers' education level and TE type, with figures as percentages



Source: own presentation Ch. Fridrich and G. Paulinger

4.3 Professional self-image of teachers who teach outside their own subject area

Hypothesis 3: Teachers of Economics who are working outside their own subject area perceive themselves more often as general teachers or educators, and less often as teachers of Economics or as teachers of Geography and Economics.

Associated questionnaire question (question 4): "When asked about my profession, I like to say that I am ... an educator, teacher, geographer, economist, Geography and Economics teacher, geography teacher, economics teacher". Multiple answers to this question were possible. There was also the option of giving additional subject names.

Exactly three quarters of the respondents see themselves as teachers (75.0 %), followed (by a very large margin) by geography teachers (16.0 %) and educators (14.1 %). Only then do other classifications follow: Geography and Economics teachers (10.9 %), other titles (7.5 %), geographers (5.8 %), economics teachers (2.8 %), and economics teacher (0.9 %).

A further question sought to answer whether different emphases can be identified in the designations according to the characteristics of the teacher. There are significant correlations with their level of education. Both certificated and uncertificated teachers at New Secondary Schools perceive themselves to a significantly higher degree as teachers or educators than their colleagues at Academic Secondary Schools Lower Level.

The most extreme differences with regard to self-perception are found between *teachers who teach outside their own subject area* and teachers with formal qualifications:

a) The uncertificated teachers perceive themselves more often as teachers or educators in general. 85.1 % of uncertificated teachers see themselves as *teachers* generally, compared to 81.6 % resp. 63.4 % of the certificated colleagues. And 21.1 % of uncertificated teachers see themselves as *educators* generally, compared to 15.4 % resp. 5.4 % of the certificated colleagues.

b) Conversely the uncertificated teachers are least likely to see themselves as Geography or Geography and Economics teachers. Only 5.0 % of the uncertificated teachers see themselves as *Geography teachers*, whereas 17.6 % resp. 23.8 % of certificated teachers do so. And only 4.3 % of the uncertificated teachers see themselves as *Geography and Economics teachers*, whereas 13.2 % resp. 14.4 % of certificated teachers do so.

The group of teachers with a Geography and Economics teacher's certificate at New Secondary Schools and at Academic Secondary Schools Lower Level more often describe themselves as Geography or Geography and Economics teachers. A significant percentage of Geography and Economics teachers at Academic Secondary Schools Lower Level perceive themselves as Geography or Economics teachers (see Table 9).

The highest correlations are consistently significant ($p < 0.05$), and the comparison of the individual categories of professional self-image according to the teacher's level of education shows with regard to hypothesis 3 that teachers who are teaching outside their subject area perceive themselves more often as teachers or as educators in general, but less often as Geography teachers, as Geography and Economics teachers, or as geographers.

Table 9: Professional self-image according to the teacher's level of education

		teacher	Geography teacher	educator	Geography and Economics teacher	geographer	Economics teacher	economist	other
Eductional level	uncertificated teachers at New Secondary Schools	*85.1*	*5.0*	*21.1*	*4.3*	*0.6*	1.2	1.2	8.1
	certificated teachers at New Secondary Schools	*81.6*	*17.6*	*15.4*	*13.2*	*0.7*	0.7	0.0	5.9
	certificated teachers at Academic Secondary Schools	*63.4*	*23.8*	*5.4*	*14.4*	*13.4*	5.0	0.5	7.4

The percentage of positive nominations for each category is indicated.
Multiple answers were possible for this question.
Statistically significant correlations ($p < 0.05$) are marked in *italics*.

Source: own presentation Ch. Fridrich and G. Paulinger

5 DISCUSSION AND NEED FOR ACTION

In this section, the results of the statistical analyses are discussed against the background of the research question "To what extent do the popularity of Economics or Economics education, attitudes towards economics generally, and the self-image of teachers teaching outside their own subject area differ from those of teachers with a teaching qualification for this subject?" The analyses provide clear results, and in all cases the null hypothesis had to be rejected.

With regard to an interest in Economics education among Geography and Economics teachers, the following significant correlation can be observed: When teachers' formal qualification level in the subject is higher, the proportion of teachers who indicate a liking for Economics education within Geography and Economics increases. The strongest statistically significant differences can be seen in analyses of variance between teachers uncertificated in Geography and Economics (teachers who teach outside their own subject area) and teachers who are formally qualified in the subject. This result is not surprising. Students in teacher training usually choose their two subjects according to their own preferences, which is why Economics is considerably less popular with those who have to teach it outside their own subject area. Furthermore, Terhart's statement that longer training periods for teachers lead to more frequent learning opportunities and thus to greater subject and didactic knowledge among graduates in the subject (Terhart 2014, p. 317) corresponds with the results of this study: Longer training periods evidently also favour liking of one's own subject. This can favour the important commitment of teachers, which is relevant to teaching (Helmke 2012, p. 114). A teacher's liking for and a commitment to their subject can result in enthusiasm in the

classroom, which in turn motivates learners and forms part of teaching competence (Hoferichter and Raufelder 2014, p. 13). Another source points out the great importance of the popularity of one's own subject among other teachers in the field of Economics: "77.3 % of teachers who are very happy to teach Economics content attribute a correspondingly high or very high level of interest to their students. If, however, teachers are less or not at all happy to teach Economics topics, the estimated interest of their students in economics is significantly lower. 0.0 % of the students then have a very great interest in economics topics according to their teachers' assessment, and only 11.5 % have a fairly great interest. These relationships are statistically significant (Tau-b = 0.48; $p < 0.01$)" (Fridrich 2018, p. 100; see also Fridrich 2012, p. 29).

Similarly, the attitude towards economics generally of teachers who teach outside their own subject area differs significantly from the attitude of their formally qualified colleagues. In an explorative factor analysis, two factors were extracted. The first, a personal attitude to economics, showed lower values among teachers who teach outside their own subject area. This group of Geography and Economics teachers perceives economics as more boring, strange, incomprehensible and negative than teachers with formal qualifications. In combination with uncertificated teachers' lower subject knowledge and subject-specific didactic competences as well as a lower affinity for economics within Geography and Economics, economics-related lessons could follow an arbitrary rather than a practical or critical-pragmatic teaching approach (Vielhaber 1999, pp. 17-20) – that is, be more textbook-oriented than student-oriented, and less appealing or stimulating in terms of method and content. The "National Report on Education in Austria 2018" (Breit et al. 2019) shows that teachers who teach outside their own subject area are more likely to be employed in classes with a higher proportion of migrants and a lower performance level (Eder et al. 2019, p. 526), i.e. predominantly in New Secondary Schools in conurbations. This reduces the compensatory effect of teaching and hardly contributes to reducing unequal educational opportunities, but rather to increasing disparities. Here is an example: If children from educationally disadvantaged families with low interest levels in economics issues and high levels of consumerism (Griese 2008, p. 56) have experienced rather uninspiring and unreflective lessons in Economics education in lifeworld-related areas of private households, consumption, work and money, they can hardly develop relevant orientation, judgement and above all action skills (Haarmann 2014, p. 208-209) in economically-influenced everyday situations. These abilities not only distinguish a mature person, but can and should also enable that person to shape and cope with his or her own situation in life (emancipation) and to participate in and help shape social and economic processes (participation). This requires the best possible trained teachers to teach subjects that they have actually studied. Otherwise there is a danger that young people who are socially and economically disadvantaged, unable to make informed judgements or take informed action, could become further disadvantaged, e.g. through debt. Such deficits can also be problematic from the perspective of society as a whole.

The findings on the professional self-image of teachers who teach outside their own subject show statistically significant correlations. Members of this group see themselves more often as teachers or educators, and less often as Geography and Economics teachers or teachers of

Economics. Professional self-image depends on many factors and in turn has an effect on numerous areas of action. Professionals should have sound specialist knowledge of content and subject-specific didactics if they are to be considered true professionals. A lack of specialist knowledge is associated with a low level of identification with the subject and low professional self-esteem (Porsch 2016a, p. 27). This can have a negative influence on teaching activities (see the extensive documentation in Reusser and Pauli 2014, pp. 643-649).

At this point, it should be emphasized that the results and the discussion based on them refer to all uncertificated teaching of Geography and Economics at lower secondary level, in Vienna. As Marc Bosse has empirically demonstrated for mathematics teachers who teach outside their own subject area, this heterogeneous group also include teachers engaged in active, experienced semi-professional teachers, and teachers with an affinity for the subject. In addition, there are non-specialist teachers of subjects, teachers who are indifferent to the subject and resigned teachers (see Section 2). The empirical findings presented here suggest that there are major challenges.

In order to defuse the generally problematic situation of uncertificated teaching in Economics education, concepts have been developed at four levels and partly implemented.

First, school administrators and school management are called upon to ensure that the proportion of teachers teaching outside their own subject area, who are found almost exclusively in New Secondary Schools, is reduced. Although it could be argued that having a smaller number of teachers per class teaching more subjects each makes it is easier for colleagues to collaborate and relationships between teachers and students to develop, there are serious disadvantages for students of uncertificated teachers - at least, as has been shown here, for Economics education within Geography and Economics. From this perspective, school administrators as employers and school management as executors of the assignment of teachers face particularly difficult challenges. At the time of the survey, uncertificated teachers accounted for about one third (32.3 %) of the teachers of Geography and Economics at New Secondary Schools in Vienna (see Table 1). This proportion is likely to be similarly high in Austria as a whole and in other subjects. Although exact figures are not available, unofficial estimates by subject didacticians suggest that this has been the case for the last 20 years and remains more or less stable. For the subject of Geography and Economics in Austria, there are no more recent empirical findings than those presented here.

Second, subject-specific didacticians together with experienced teachers are called upon to work together to design courses and materials and to make them available to less experienced colleagues. Following the raw results of the present study, such a collaboration was launched in 2017 in the form of an Austria-wide network cooperating with a German university. Teaching/learning courses and materials for the areas of private household management, consumption, the world of work, and social economics are developed, tested and published by INSERT (International Research Network for Socio-Economic Education and Reflection), on the highly frequented, open-access website insert.schule.at (for details, see Stieger und Fridrich 2018). This network was established because of awareness that for Geography and Economics at lower secondary level there were few teaching/learning courses and materials oriented towards socio-economic education. The specially created materials available through INSERT

are all accompanied by teachers' notes and include a practical proposal for a course structure and an account of experiences from the test phase. Since 2019, another network (INSERT-Money) has been working on the creation of student-, lifeworld- and competence-oriented teaching/learning courses and materials for socio-economically oriented financial education at secondary levels I and II. Both networks are supported by didactic research carried out by members of the networks. The ideal case would be to motivate teachers who teach outside their own subject area to take part in relevant training events, because this would make it easier to integrate topics, goals, methods and content into everyday school life, provided that the school is well equipped, the time available is sufficient, and the materials available are supportive (Schröder-Klausen 2008, p. 151). Because, according to our study, well over two-thirds of non-specialized teachers teach a maximum of just two hours of Geography and Economics per week, it can be concluded that these New Secondary School teachers teach several subjects uncertificated, usually to a single class. These teachers would therefore have to attend training courses in all the subjects for which they work as uncertificated teachers, which is unrealistic. Moreover, empirical findings show that teachers who teach outside their own subject area rarely take advantage of further training if they are not interested in the subjects imposed (Schufft 2012, p. 295). Other findings show that non-subject teachers make significantly less frequent use of in-service training programmes (Richter et al. 2013). At the same time, there is evidence that interesting teaching materials (Schufft 2012, p. 266) and special media (Bosse and Törner 2013) are particularly important for this group of teachers – things which are being made available by the two project networks.

Third, consideration should be given to whether, in order to help and boost the competences of uncertificated teachers, individual initiatives can be encouraged and promoted in this relatively large group of people. For example, joint websites for the exchange of teaching materials and information, discussion forums, as well as links to publications on teaching practice and subject didactics would be conceivable. These measures could complement the informal exchanges between uncertificated teachers that already take place at some schools.

Finally, subject didactics experts should conduct extensive research on the phenomenon of teaching outside one's own subject area in the field of Economics education. The use of uncertificated teachers, and their motives, impact and compatibility should be researched with the involvement of learners, teachers, school administrations and education managers, as well as internal experts (i.e. specialists in the didactics of Geography and Economics) and external ones (stakeholders from the employer and employee perspectives). Such a multi-perspectival study could be used to develop solutions for sensibly reducing teaching outside one's own subject area or defusing its controversial nature.

Now to an important point in the training of certificated Geography and Economics teachers. To what kind of subject didactics and subject science have they been introduced during their training period? A full discussion of this would go beyond the scope of this article, but a number of points are worth noting.

First, that there cannot be (just) "one" Economics-related training course because the subject is spread over four Austrian educational regions, with numerous participating teacher training colleges and universities. Each university cluster has its own curriculum, but the

majority of these clusters have integrated Geography and Economics courses, dealing with globalization, socio-economic disparities, sustainability, economic geography, resource use, human-environment relations and many other topics. For example, integrated Geography and Economics courses are part of 63.3 % of teacher training courses in the subject Geography and Economics taught in the North-East cluster (Vienna and Lower Austria), 58.5 % in the Central cluster (Upper Austria and Salzburg) and 47.2 % in the South-East cluster (Styria, Carinthia and Burgenland). In the context of teacher training for Geography and Economics, the specialized courses in Economics are, without exception, compulsory. In the northeast cluster, for example, these courses cover basic concepts of economics, general business administration, economic policy in Austria, international finance, as well as further specialized modules n economics and business administration.

Second, the courses in Economics are taught in a wide range of subjects. The approaches taught range from neoclassical to post-Keynesian to heterodox ones, depending on the academic orientation of the lecturers, such that students can and should be able to form their own opinions. Just as subject-specific content courses are very diverse in their characteristics, objectives and implementation, so, too, are subject-specific didactic courses. Courses cover school-relevant areas such as consumption and private households, social entrepreneurship education, the world of work, social economics, money and finance, according to different didactic approaches, but in the vast majority of cases with a clear orientation towards socio-economic education. Many students are enthusiastic about these courses, whose basic orientation is characterized by empowerment, participation and maturity; other students are surprised that the broad subject area of economics and its didactics can be presented in such an exciting way with regard to their later teaching at school. Just as the didactics of the Austrian school subject of Geography and Economics, which is in a social science tradition, feels connected to the principles of multi-perspectivity, life-world orientation and pupil orientation, the didactic courses on Economics education are for the most part oriented towards socio-economic education.

The empirical findings of the present analysis clearly demonstrate an overarching result: although teaching outside one's own subject area may be enriching for individual ambitious and committed teachers, its necessity is embarrassing in an overall view and in the particular cases examined.

A meaningful reduction of the numbers teaching outside their own subject area would achieve one thing above all: Teachers with the best possible training to support the Economics education of children and young people, especially disadvantaged ones, in the best possible development of their economics skills.

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ACKNOWLEDGEMENTS

The empirical part of this research project was carried out with the support of the University of Teacher Education Vienna, for which the author would like to express his gratitude. My special thanks go also to Gerhard Paulinger (University Vienna) for his statistical calculations in Section 4. As part of their internships at the Institute for Educational Sciences at the University Vienna, a number of students worked on this research project, mainly in supporting its data-collection and data-entry phases. I would like to take this opportunity to thank them once again for their dedicated work: Maria Amon, Julia Englert, Brigitte Haberl, Isabella Holzmann, Felicitas Koularas and Astrid Stastka.

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ENDNOTES

[1] The questions concerned were:

1) To what extent do you like to handle the following Geography and Economics sub-areas? Traditional regional studies, ecology, economics, politics, regional geography, topography, human geography, physio geography

5) On average, what percentage of your actual teaching time do you spend on geographical content, economics content and consciously integrating the two? (Respondents could answer with a percentage for each of these for each school grade.)

6) Please rank the following topics of the GW (= Geography and Economics) curriculum for each class according to their importance. (The topics listed were to be rated on a Likert-type scale.)

7) How do you see the relationship between Geography and Economics? Please choose the answer that you think is most appropriate. a) Geography has nothing in common with Economics; Economics was "grafted" onto Geography many years ago. b) In some areas or topics, a combination of Geography and Economics is useful. c) In many areas or topics, a combination of Geography and Economics makes sense. d) For me, economics is an integral part of geography.