

Original Research

Language learning with physical activity: The case of learning Italian in tourism

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The aim of the paper is to present how movement improves language learning in the case of rehearsing regular and irregular Italian verbs. In the paper we address the importance of language learning in the frame of Language for Special Purposes (LSP), providing an overview of it and continuing to the frame of Language for Tourism (Lft) and Content and Language Integrated Learning (CLIL) in relation to movement and physical activity where examples of good practice are presented. As seen from the examples of good practice, the introduction of movement into the school curricula in connection to language learning stops too soon in elementary school and does not continue onwards. The survey is composed of an experiment where students from the University of Maribor rehearse regular and irregular Italian verbs performing a physical activity and a control group of students rehearsing the verbs without the introduction of physical activity, language testing and a questionnaire. The main objective of the paper is to show through the experiment, the language testing and the questionnaire that movement improves understanding and memorising Italian verbs and, consequently, language learning. As it is seen from the results of the language testing, we can conclude that the experimental groups achieved better results in conjugating the verbs, both regular and irregular, and were also more successful in providing correct forms of the regular and irregular verbs compared to the control group. From the questionnaire it is visible that movement improves language learning and memorising verbs. The respondents answered that movement improved topic focus (97%) and should be introduced also in subjects other than languages (57%).

KEYWORDS: LSP, CLIL, tourism, Italian, movement, language learning



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1. INTRODUCTION

In view of the goal of the EU language policy in promoting language acquisition and multilingualism (Farr & Song, 2011; Romaine, 2013; Standley, 2015; Schenk & Schmidt, 2018; Kompara Lukančič

& Fabijanić, 2020) the knowledge of two or more languages in addition to one's mother tongue is seen as an asset for language learners (Dmitrenko, 2017; Jaekel et al., 2017; Festman, 2020). In the paper we focus on the importance of language

learning in the frame of Language for Special Purposes (LSP) and Language for Tourism (LFT) and present language learning in relation to movement and physical activity. We present examples of good practice in introducing movement in language learning and how movement is incorporated in the school curriculum. In the survey students from the Faculty of Tourism and Faculty of Arts, University of Maribor, took part in the experiment where they rehearsed regular and irregular Italian verbs, performing a physical activity for four weeks and completing a language test and questionnaire on how movement improves learning Italian verbs. In the analysis the teacher's observations are also presented.

2. MATERIAL AND METHODS

2.1. The survey

The present research idea was developed in 2020, during the Covid-19 lockdown, when university classes were transferred from a live situation to online, and teachers as well as students were exposed even more to sedentarism, which according to the latest research has a negative impact on health (Chandrasekaran & Ganesan, 2020; Narici et al., 2021). For the purpose of the present paper, we conducted a survey on learning the Italian language in tourism with the aid of physical movement at the Faculty of Tourism, University of Maribor. Within the survey we wanted to expand the concept of language acquisition with physical education to young adults and show the benefits of such an approach in terms of language learning with movement as observed by the teacher's analysis. As the research is oriented towards the promotion of language knowledge as core research point, the physical, psychical and motivational research concepts of the introduction of physical education in language learning are not measured. With the survey we wanted to show that the introduction of physical education into language learning brings better results in the language acquisition process, compared to language acquisition in a sedentary position as observed by the teacher's analysis. The survey is composed of an experiment where students rehearsed regular and irregular

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verbs whilst performing a physical activity, where a type of exercise students have been familiar with since their first school years, namely squats, was used. Squats are beneficial for a variety of purposes (Contreras et al., 2017; Park et al., 2015) and are a form of physical activity familiar to students since childhood. In the survey the central point of research was not on the benefits of physical activity, but on the benefits that physical activity brings to language acquisition.

The undergraduate and postgraduate students of the Faculty of Tourism, University of Maribor, who participated in the survey, were complete beginners and started learning Italian as a foreign language in year two of postgraduate studies and year three of undergraduate studies, both for one semester, in total 60 hours in one semester per study programme.

For the survey, a group of students from the Faculty of Arts, University of Maribor, also participated, namely undergraduate students, predominantly studying languages, but also history, sociology, etc., who had the Italian language as an elective course for 30 hours.

The experiment was followed by a language test which the students completed after learning verbs with movement and the teacher's analysis of the students' results. At the end of the survey the students were asked to complete a questionnaire which gives an insight into their attitude towards language acquisition with movement.

2.2. Participants

In the survey, the following groups participated: 3 groups of students as part of the experiment and 1 group as control group.

As part of the experiment:

– one group of third year students (VS) from the Faculty of Tourism, University of Maribor (approximately 23 students);

– one group of second year masters students (MAG) from the Faculty of Tourism, University of Maribor (approximately 16 students);

– one group of second/third year students (LEKT) from the Faculty of Arts, University of Maribor (approximately 21 students).

As part of the control group:

– one group of third year students (UN) from the Faculty of Tourism, University of Maribor (approximately 17 students).

Approximately 60 students participated in the experiment and learned the regular and irregular verbs in the Present Simple for the duration of 4 consecutive weeks with the introduction of movement, where the students were performing squats for every single verb form, and 17 students representing the control group that learned the regular and irregular verbs in Present Simple in an ordinary sedentary way, without the introduction of movement. All four groups learned in total 28 regular and irregular verbs with six different verb endings. In total, 168 verbs were studied with movements or in a sedentary position. Within the experiment the students practised for 4 weeks, both during classes with the aid of the language teacher and as a homework activity. At the end of the experiment the students were asked to complete the testing exercises, aiming at verifying the acquired language knowledge and a questionnaire aiming at obtaining the students' feedback. The results are presented in the following sections.

2.3. The experiment

Italian is a language with an extremely rich variety of verbal morphology (Murakami, 2013). The Italian verbal stem is bimorphemic, as it consists of a verbal root followed by a vowel that is distinctive for each of the three main conjugations (Pizzuto & Caselli, 1994). All conjugations comprise regular and irregular verbs. There are three regular conjugations (Murakami, 2013), namely the 1st conjugation in *-are*, i.e. *parlare* (to talk), the 2nd conju-

gation in *-ere*, i.e. *credere* (to believe), and the 3rd conjugation in *-ire*, i.e. *dormire* (to sleep). The 3rd conjugation type has also the possibility of an infixed *-isc*, i.e. *finire* – *finisco* (to finish). In Italian there are basically six different verb endings for so many person/number agreement combinations, both for regular and irregular verbs. Within the course syllabus the students who participated in the experiment learn basic tourism vocabulary and grammar. Two course books (Kompara Lukančič, 2019, 2020) were prepared and implemented in the course curricula, for the purpose of language learning of LSP for tourism. Both books cover from CEFR A1 up until B1 level of language knowledge and are focused on the specific LSP field of tourism. Within one semester (60 hours) the students learn the basic grammatical points and the three basic Italian verb tenses, namely Present Simple, Past Simple, and Future Simple. Within the course syllabus the main focus is on the usage of Present Simple and Future Simple, while Past Simple is observed in a more marginal way. Within the acquired knowledge of Present Simple, the students learn the regular verbs terminating in *-are*, *-ere*, *-ire* and the irregular verbs, i.e. *bere*. Once the structure of the regular verbs is acquired, the students are able to conjugate any regular verbs following the respective endings for *-are*, *-ere* and *-ire*. The irregular verbs, which also include the modal verbs, have to be memorised. The students had to learn 21 irregular verbs, including the modal verbs. The verbs learnt were oriented towards the tourism sector, i.e. *bere* (to drink), *mangiare* (to eat), etc.

The experiment, where the three groups of students were involved in language acquisition with the aid of movement, started at the end of November 2020 and lasted for four consecutive weeks, up until mid-December 2020. Within the experiment the three groups rehearsed regular and irregular Italian verbs in Present Simple with the introduction of movement. Within the experiment the students were learning with movement which has beneficial functions proven by authors in the field of kinesthetics (Werner & Burton, 1979; Lengel & Kuczala, 2010; Streat, 2011; Nafisi,

2013). The central focus of the research is on language acquisition. For that purpose, we decided to incorporate simple exercises that students have been familiar with since their childhood. In this perspective we decided to incorporate squats in the rehearsal process. Within the experiment the students of the three groups rehearsed in class with movement (squats) 3 regular verbs (*amare, vedere, dormire*), 1 verb of their choice from the *-ire* category (*capire, finire, pulire, unire*), 4 modal verbs (*volere, potere, dovere, sapere*), and 17 irregular verbs (*essere, avere, andare, dare, dire, fare, venire, baciare, mangiare, pagare, cercare, bere, stare, rimanere, tenere, scegliere, uscire*). In total they rehearsed 25 verbs, with six different verb endings, that is 150 verb forms and the same number of squats in the presence of the teacher. At home they rehearsed 3 more verbs from the *-ire* category. In total they rehearsed 28 verbs and consecutively 168 verb forms with the aid of movement but without the presence of the teacher. The three groups rehearsed with the teacher, who did the squats with them and motivated them during the rehearsal. At the same time the control group rehearsed all the above-mentioned verbs without the introduction of movement.

3. THEORETICAL BACKGROUND

3.1. Language learning in the frame of LSP

As argued by Gunnarsson (1997), the history of Language for Special Purposes (LSP) proves early theoretical interests in specific sublanguages, existing within the general language system, for the purpose of professional needs. Gunnarsson (1997) argues that the LSP tradition developed predominantly within foreign languages departments and was focused on the analysis of the language system, i.e. problems related to translation and standardisation of terminology, etc. At present this connection between the study of foreign languages and professional communication still exists, as the earlier interest in language differences developed an interest in language-in-context issues (Vasileva & Ivanova, 2021). Gunnarsson (1997) adds that the use of LSP is of ancient origin, manifesting from the need to shape the language in order to

suit different types of activities. When presenting LSP in an academic field, the field has a much shorter history and the oldest branch is oriented towards the study of terminology. The very first beginnings of LSP date back to the 1930s when German engineers elaborated lists of terms used within different fields. Thanks to the theoretical work of Wüster (1970) in the 1930s, the foundation for international collaboration to standardise terminology was developed. An increase in LSP studies dates back to the 1960s with some prominent publications, including Mellinkoff's (1963) *The Language of the Law* and Barber's (1962) *Some Measurable Characteristics of Modern Scientific Prose*.

The LSP field appeared in a more organised form in the 1970s, when various activities were in progress, i.e. the first European symposium on LSP in 1977, the LSP journal *Fachsprache* launched in 1979 and the journal *English for Specific Purposes* in 1981. According to Gunnarsson (1997), the traditional LSP research could be described as language-based and product-oriented. Classifying and describing different types of languages for specific purposes is divided into 2 parallel schools, namely the Germanic European LSP tradition, and the Anglo-American tradition. The core field of LSP could be divided into language-oriented subfields, i.e. ESP (English for Specific Purposes). The field of ESP developed in the US and in Britain in English language departments and focused strongly on literature and the text-based analysis of different genres (Gunnarsson, 1997).

With the beginning of the development of LSP in the 1960s, its main communicative approach focused on the communicative function of language and discourse features (Udina, 2014). English for Specific Purposes (ESP) plays a leading role in the international movement of LSP, and is subdivided into two main subcategories, namely English for Occupational Purposes and English for Academic Purposes, and further into Vocational ESL, Professional English, English for Science and Technology and English for Academic Purposes (Johns & Dudley-Evans, 1991; Udina, 2014). At the current stage of its development, ESP is considered interdisciplinary, but it went through several stages

of development from the level of sentence to the use of psycholinguistics and cognitive sciences. ESP is oriented towards traditional terminology and genres, but also sociolinguistics, sociology, psychology, cognitive sciences and the cultural aspects of communication (Udina, 2014; Yelenevskaya & Protassova, 2021). Within LSP and ESP the changing role of the teacher and the student in the learning process is reflected. ESP focuses on the learning process and emphasises a variety of different types of methods shifting the role of the teacher from information transfer to facilitating student learning (Blumberg, 2017; Udina, 2014). In LSP teaching different approaches are required, from general language teaching to the process of learning and understanding the cultural concept and conventions of specialised discourse communities (Gandin, 2016). In the present paper we are focused on the language of tourism as a specific type of LSP which is made up of varied stylistic, pragmatic and lexical features and influenced by different registers and specialised languages (Gandin, 2016).

3.2. Language of tourism in the frame of LSP

Prominent linguists (Bowker & Pearson, 2002; Gandin, 2016) argue that LSP is a language used to discuss any type of specialist field having specific lexical, syntactic, morphological, stylistic and pragmatic characteristics used in a specialised communicative context. The language of tourism in the frame of LSP is defined by specialised stylistic, pragmatic and lexical characteristics linked and influenced by different registers and specialised languages (Dann, 1996; Dann & Liebman Parrinello, 2009; Francesconi, 2007; Nigro, 2006; Gandin, 2016). Nigro (2006) argues that the language of tourism has been widely studied from the perspective of fields such as sociology or economics but only recently from a linguistic perspective. On the one hand, the language of tourism appears as a general, common and very broad language addressing a wide audience that does not require specific knowledge. On the other hand, the language of tourism represents a special type of communication, different from other types of

discourse and addressing one of the largest industries, namely the tourism industry (Dann, 1996). Nigro (2006) argues that tourism does not have a single linguistic domain, but represents a combination of different fields, i.e. arts, history, geography, archaeology, economy, gastronomy, etc. Within LSP a new branch was developed recently (Ruiz-Garrido & Saorín-Iborra, 2012), namely Language for Tourism (LfT) which recognises English as the global lingua franca of tourism, but highlights multilingualism and interculturality, as the tourism business occurs in a globalised marketplace where there is a growing demand for languages other than English, i.e. Chinese or Spanish (Ruiz-Garrido & Saorín-Iborra, 2012; Bosch & Schlak, 2013). In view of promoting multilingualism and introducing languages other than English in the present paper we will focus on the acquisition of the Italian language in tourism with the aid of movement. In the experiment the focus will be on learning and rehearsing verbs related to tourism, namely *dormire*, *mangiare*, *pagare*, *bere*, *stare*, *rimanere*, *scegliere*, *uscire* etc., and the attitude of students towards language acquisition with movement.

3.3. An overview of the contemporary approach to language learning with the aid of physical activity

In their extensive overview Toumpaniari et al. (2015) argue that since ancient times, physical activity has been linked with a healthy mind, and as such has been a vital part of education. Even in Roman times, the importance of a healthy body was linked to a healthy mind (*Mens sana in corpore sano*). In today's scientific frame it has been proved that a little exercise before a course or a job enhances memory and helps us to perform better (Strong et al., 2005). Numerous studies have shown the positive impact of exercise on cognitive functioning in children, adults and the older population too (Sibley & Etnier, 2003; Tomporowski et al., 2008; Fedewa & Ahn, 2011). According to recent research findings, learning is a cognitive process linked to the interactions of the body with the world (Wilson, 2002; Pouw et al., 2014a;

Pouw et al., 2014b). The positive effects of embodied learning, the interaction of the human body with the physical environment (Wilson, 2002) is found in many research areas, from cognitive psychology, social psychology, linguistics, gesture, to mathematics (Lindgren & Johnson-Glenberg, 2013). Hostetter and Alibali (2008) argue that body movements, i.e. gestures, facilitate the retrieval of mental lexical items and gesturing has a crucial impact on a range of educationally relevant cognitive functions (Goldin Meadow et al., 2001; Hostetter, 2011). Sibley and Etnier (2003) argue that there is a positive relationship between physical activity and cognitive function in school-aged children. Hillman et al. (2005) in their studies discovered that aerobic fitness is positively related to the neuroelectric function of attention, working memory, and response speed in preadolescent children who were engaged in a stimulus discrimination task. Content and language integrated learning (CLIL), namely the usage of L2 in teaching non-language subjects, has recently been a topical issue in European education (Dalton-Puffer, 2008), also in connection with physical education (PE) (Coral, 2013; Fazio et al., 2015; Salvador-García & Chiva-Bartoll, 2017; Salvador-García et al., 2019).

3.4. Examples of good practice in introducing movement in language learning

Despite the fact that Salvador-García et al. (2019) see physical education (PE) as a subject chosen for applying multilingual initiatives based on Content and Language Integrated Learning (CLIL), at the same time they argue that PE as a subject tends to lose its essence if language learning is too emphasised and could lead to a reduced Moderate-Vigorous Physical Activity (MVPA), which is directly related to healthy lifestyles (Lynott, 2008; Merino, 2016).

In their study Salvador-García et al. (2019) analysed how and why CLIL affects the levels of MVPA. A mixed methodological approach based on a sequential explanatory design was used and data were collected and analysed in two consecutive phases, namely a quantitative one ($n = 49$)

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based on a quasi-experimental design in which mixed and factorial ANOVA (Analysis of Variance) was applied; and a qualitative one based on a subsequent analysis of interviews with 13 participants. According to the results, the levels of MVPA were higher in the experimental group (CLIL) due to greater attention paid and the usage of certain communicative teaching strategies.

Vázquez et al. (2018) argue that embodied theories of language propose that verbal communication is grounded in our body. Conventionally, a second language is taught without the inclusion of kinesthetics, but Vázquez et al. (2018) present a new concept called Words in Motion which is a virtual reality language learning system. Words in Motion reinforces associations between word-action pairs by recognising a student’s movements and presenting the corresponding name of the performed action in the target language. According to the study that involved 57 participants, the kinaesthetic approach in virtual reality has less immediate learning gain in comparison to a text-only approach. There is also no immediate difference with participants in a non-kinaesthetic virtual reality approach. The results showed that virtual kinaesthetic learners have significantly higher retention rates after a week of exposure than all other approach and higher performance than non-kinaesthetic virtual reality learners. Vázquez et al. (2018) argue that a positive correlation between the times a word-action pair was executed and the times a word was remembered by the subjects, proves that virtual reality can impact language learning by using kinaesthetic elements.

In their study Coral and Lleixà (2014) identified physical education in CLIL teaching strategies aiming at improving oral communication in primary

education pupils. Coral and Lleixà (2014) argue that there were significant improvements in using the PE-in-CLIL approach, as specific teaching strategies improved oral communication. The study demonstrated how a PE-in-CLIL programme can be used to improve teaching.

Macedonia and Klimesch (2014) argue that language and gesture are a highly interdependent system. Gestures support communication and also positively impact memory for verbal information in native and foreign language learning. In their study Macedonia and Klimesch (2014) tested the use of gestures in the classroom. The participants involved in the study learned 36 words in two training situations, an audio-visual situation where they read, heard, and spoke the words and in the gestural situation where they accompanied the words with symbolic gestures. According to the findings, gestures enhance vocabulary learning in quantity and over time. The results show that a code, a word, is better integrated into long-term memory if it is comprised of many interconnected components.

In their study Graham et al. (2012) explored the issue of language learning and physical education among 78 learners (aged 12-13) from two schools in England. In the questionnaire learners presented their feelings about the prospect of being identified as gifted/talented in these subjects. The learners expressed a fairly stereotypical view of their ability in language learning and physical education. The authors discuss the relevance of the findings for motivation and offer a curriculum design joining both subjects.

Toumpaniari et al. (2015) argue that physical activity involving gross motor activities leads to better cognitive functioning and higher academic achievement. In addition, embodying knowledge through the usage of subtle motor activities, i.e. task-relevant gestures, positively affects the learning process. In their study Toumpaniari et al. (2015) investigated whether combining physical activities and gestures could improve the learning process in a 4-week intervention programme on foreign language vocabulary learning in preschool children. The results showed that learning by em-

bodying words through task-relevant enactment gestures and physical activities is perceived as the preferred teaching method and leads to higher learning outcomes compared to learning by embodying words through task-relevant enactment gestures only and learning without physical activities or gestures. According to the results presented, there is a great potential for instructional methods combining physical activities and gestures in enhancing the learning process of individuals.

In their study Fernández Barrionuevo and Baena Extremera (2018) observe the differences between girls and boys in the perception of Foreign Language Learning (FLL), and physical education in the context of CLIL where significant differences in motivation by gender were found. Numerous studies proved the positive effects of CLIL on motivation in different contexts (Coyle, 2006; Seikkula-Leino, 2007; Coyle et al., 2010; Hunt, 2011; Lasagabaster, 2011; Mearns, 2012). In their paper Fernández Barrionuevo and Baena Extremera (2018) argue that regarding gender differences, the way students are motivated through PE and FLL shows an opposite pattern of behaviour. Boys and girls perceive PE and FLL differently.

The aspect of motivation was also researched by Baena-Extremera et al. (2018) who analysed a model of prediction of satisfaction with bilingual physical education from basic psychological needs and motivation. The experiment was composed of 758 students in secondary education in Spain, aged between 13 years and 18 years old. Their model proves that autonomy is the best predictor of intrinsic motivation, and that this is the best predictor of satisfaction in bilingual physical education.

In their study Mavilidi et al. (2015) argue that integrating physical activity into learning is effective and demonstrate it with a foreign language vocabulary task in preschool children who learned Italian words in a 4-week teaching programme. As part of the experiment, their memory for words was tested during, directly after, and six weeks after the programme. According to the results, children in the integrated physical exercise condition achieved the highest learning outcomes.

3.5. Examples of incorporating physical activity into the school curricula

As stated by Mahar et al. (2006), physical activity can be incorporated into the school schedule in many ways, and a classroom-based physical activity programme effectively increases daily in-school physical activity and enhances on-task behaviour during instruction time. Mahar et al. (2006) developed the *Energizers*, a programme that contains short (10 min) classroom-based physical activities that involve no equipment, incorporates grade-appropriate learning materials, and requires little-to-no teacher preparation. In the study the classroom based physical activity programme was used in order to assess its effects on elementary children's in-school physical activity levels during the school day. According to the results, the students taking part in the *Energizers* activities were more active and energetic during the school day and showed better on-task behaviour than those who did not take part in the activities.

Tompsonowski et al. (2008) argue that exercise has a positive effect on children's mental functioning and that is why exercise programmes are important.

Pontifex et al. (2009) argue that aerobic exercises of moderate intensity improve cognitive performance, with large improvements in working memory capacity.

Kim and Lee (2009) argue that academic performance improves with physical activity, but physical activity tends to decline across childhood, with the greatest decline occurring in elementary school.

In this perspective Bartholomew and Jowers (2011) developed physically active academic courses, called *Texas I-CAN!* The aim of the courses is to increase physical activity and at the same time address educational goals.

Donnelly and Lambourne (2011) examined the concepts of Physical Activity Across the Curriculum (PAAC) where moderate to vigorous physically active academic lessons are promoted. The PAAC approach can be applied to various academic areas, also to languages. Within PAAC Donnelly and Lambourne (2011) promote the occurrence of

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physical activity at any place and time. Donnelly and Lambourne (2011) argue that physical activity positively affects academic performance.

In their research Kibbe et al. (2011) investigate the effect of the *TAKE 10!* classroom-based physical activity programme. The aim of the programme is to integrate movement and learning. Within the programme the students are involved in physical activity, but at the same time they improve their ability to meet learning objectives in the subjects they are studying. The results of the implementation of the programme in the classroom showed that students benefit by experiencing higher physical activity levels as well as higher scores in the specific subjects, i.e. language.

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4. RESULTS AND DISCUSSION

4.1. Results of the language test

After rehearsing the verbs for 4 weeks the teacher orally tested all four groups of students. Due to the large number of students to be tested and lack of time available during classes the teacher decided to test 15 students from the experimental groups, and 5 from the control group. In order to provide the confidentiality of personal data, the students are named with letters (Tables 1 and 2). The students were asked mainly about one regular and one irregular verb. Just in one case the student was asked about two regular verbs and, in three cases, two irregular verbs.

Table 1
Experimental groups results

STUDENTS	REGULAR VERB	IRREGULAR VERB	ADDITIONAL VERB
A	<i>parlare</i> (did not reply)	<i>avere</i> (did not reply)	
B	<i>parlare</i> (all forms correct)	<i>avere</i> (all forms correct)	
C	<i>amare</i> (did not reply)	<i>essere</i> (mistake in <i>tu è</i> ; did not reply for <i>voi</i> and <i>loro</i>)	
D	<i>finire</i> (mistakes in <i>io finite</i> , <i>tu finischi</i> , <i>noi finischi</i>)		<i>dormire</i> (all forms correct; mistake in <i>lui dorma</i>)
E	<i>studiare</i> (all forms correct)	<i>dare</i> (all forms correct; mistakes in <i>noi andiamo</i> , <i>voi andate</i> , <i>loro andano</i> ; mixed verbs <i>andare</i> and <i>dare</i>)	
F	<i>vedere</i> (all forms correct)	<i>andare</i> (all forms correct)	
G	<i>parlare</i> (all forms correct)	<i>fare</i> (did not reply)	
H	<i>finire</i> (all forms correct; mistakes in <i>io fino</i> , <i>tu finischi</i> , <i>loro finite</i>)	any irregular of your choice (did not reply)	
I	<i>studiare</i> (did not reply)	<i>avere</i> (all forms correct; mistake in <i>io jo</i>)	
J	<i>studiare</i> (all forms correct)	<i>fare</i> (did not reply; mistakes in <i>io faro</i> , <i>tu facci</i>)	
K	<i>amare</i> (all forms correct; mistake in <i>loro hanno</i>)	<i>fare</i> (all forms correct)	
L	<i>vedere</i> (all forms correct; mistakes in <i>lui vedere</i> , <i>voi vediate</i>)	<i>essere</i> (all forms correct)	
M		<i>andare</i> (all forms correct; mistakes in <i>tu vadi</i> , <i>loro andiano</i>)	<i>volere</i> (all forms correct)
N		<i>dire</i> (all forms correct)	<i>uscire</i> (all forms correct)
O		<i>stare</i> (all forms correct)	<i>bere</i> (all forms correct)

In total the students were asked to conjugate 13 regular verbs, in 3 cases, namely for the verbs *studiare* (to study), *amare* (to love) and *parlare* (to speak) 3 students (A, I, C) did not provide any conjugation forms. Out of 13 verbs in 5 cases, namely for 5 verbs, i.e. *parlare*, *studiare* and *vedere* (to

see), the students (B, E, F, G, J) provided correct conjugation forms. For 4 regular verbs the following mistakes were observed. For the verb *finire* (to finish) two students made the following mistakes: student D for the conjugation forms *io finite* instead of *io finisco*, *tu finischi*, instead of *tu finisci*

and *noi finischiamo*, instead of *noi finiamo*. Student H made the following mistake: *io fino*, instead of *io finisco*, *tu finischi*, instead of *tu finisci* and *loro finito* instead of *loro finiscono*. For the verb *amare* (to love) student K made the wrong conjugation for just the last verb form, namely *loro hanno* instead of *loro amano*. For the verb *vedere* (to see) student L made the following mistakes: *lui vedere*, where the student did not provide any conjugation form, the correct form is *lui vede*, and *voi vediate*, the correct form is *voi vedete*. Student D knew all the conjugation forms except for the third person singular, *lui dorma*. The correct form is *lui dorme*.

Among the irregular verbs just in 2 cases out of 18 verbs, namely with students A and G for the verbs *avere* (to have) and *fare* (to do) the students did not provide any answer. In addition, student H did not provide any irregular verb conjugation forms. Out of 18 verbs in 9 cases all the conjugation forms were entirely correct, i.e. for the verbs *stare* (to be), *bere* (to drink), *dire* (to say), *uscire* (to exit), *volere* (to want), *essere* (to be), *fare* (to do),

andare (to go), and *avere* (to have). Mistakes were present in 6 verbs. Student C did not know the conjugation forms for *essere*, *voi* or *loro* and used a wrong form for *tu*, namely *è*. Student E mixed two verbs, *andare* and *dare*, for the three plural forms providing the verb *andare* instead of *dare*, namely *noi andiamo*, *voi andate* and *loro andono*, the conjugation form for *loro* should be *loro vanno* if the verb *andare* is conjugated. Student I provided all the conjugation forms correctly for the verb *avere*, but failed in the first person, *io jo*, instead of *io ho*. Student J did not correctly provide the two forms for the verb *fare*, namely for *io* the student provided *faro* instead of *faccio* and for *tu* *facci* instead of *fai*. Student M provided 2 wrong verb forms for the verb *andare*, namely *tu vadi* instead of *tu vai* and *loro andiano* instead of *vanno*. Generally speaking, the students were more successful in providing the conjugation forms for the irregular compared to the regular verbs.

Group 4 represents the control group and is composed of third year students (UN) from the Faculty of Tourism, University of Maribor.

Table 2
Control groups results

STUDENTS	REGULAR VERB	IRREGULAR VERB	ADDITIONAL VERB
P	<i>studiare</i> (did not reply)	<i>dare</i> (did not reply)	
R	<i>amare</i> (did not reply)	<i>fare</i> (did not reply)	
S	<i>amare</i> (all forms correct)	<i>avere</i> (all forms correct)	
T	<i>dormire</i> (mistakes in <i>lui dorma</i> , <i>voi dormiete</i>)		<i>finire</i> (mistakes in <i>tu finischi</i> , <i>voi finischiete</i>)
U	<i>studiare</i> (mistake in <i>voi studete</i>)	<i>volere</i> (mistake in <i>tu vogli</i>)	

As seen in Table 2, two students (P and R) failed to provide any correct verb form for the regular or irregular verb, also two more students provided the same answer but were not included in the representation of the results. Just one student (S) provided all correct conjugation forms for the regular

verb *amare* and the irregular verb *avere*. Student T encountered issues in providing the conjugation form for *dormire*: *lui dorma* instead of *dorme*, and *voi dormiete* instead of *dormite*. For the verb form *finire* the same student made the following mistakes: *tu finischi* instead of *finisci* and *voi finischi-*

ete instead of *finite*. Student U encountered issues in the regular verb *studiare* for the form *voi studete*, the correct form is *studiate* and for the irregular verb *volere* in *tu vogli*, instead of *vuoi*.

From the presentation of the results we can notice that the students from the three experimental groups achieved better results in conjugating the verbs, both regular and irregular. Students from the experimental groups were more successful in providing correct forms of the regular and irregular verbs. Only five students failed to provide the correct forms of one regular or irregular verb. Only in one case did a student (A) fail to provide one regular or irregular verb. Only one student (S) correctly provided both verbs and two (P, R) failed to provide any correct answer. We are concerned by the fact that of 5 students just the results of 3 are represented, 2 did not provide any reply. We can conclude that the experimental groups were more successful compared to the control group.

4.2. Results of the questionnaire

Three groups of students taking part in the experiment, namely one group of third year students (VS) from the Faculty of Tourism, University of Maribor; one group of second year master students (MAG) from the Faculty of Tourism, University of Maribor; and one group of second/third year students (LEKT) from the Faculty of Arts, University of Maribor, answered the questionnaire.

In total 60 students were asked, after practising in a 4-week long experimental period with squats, to answer 13 questions from the online questionnaire. In total, there were 30 valid answers, among them 20 females and 10 males.

The highest number of respondents (27) is in the age group from 21 to 25 (Table 3), the most common level of education is secondary school (Table 4), the majority of the respondents are studying in an undergraduate study programme (Table 5).

Table 3

Distribution of respondents by age

AGE BRACKET	FREQUENCY	PERCENTAGE
Below 20	1	3%
From 21 to 25	27	90%
From 26 to 30	1	3%
31 or more	1	3%

Table 4

Distribution of respondents by level of education

LEVEL OF EDUCATION	FREQUENCY	PERCENTAGE
Finished secondary school	24	80%
Finished undergraduate programme (3 years)	5	17%
Finished master's programme (2 years)	1	3%

Table 5
Distribution of respondents by the study programme

STUDY PROGRAMME	FREQUENCY	PERCENTAGE
Undergraduate VS	13	43%
Undergraduate LEKT	13	43%
Master's	4	13%

With the survey we wanted to show that movement improves language learning and memorising verbs and, thus, could be introduced into subjects other than languages. This was supported by 57% of the respondents that found the introduction of movement in other subjects very useful and 37%

found it useful, whereas only 7% found it not useful. Comparing classroom and online lessons, during online lessons 53% of respondents spent more time sitting. During one online lesson 80% of students sat for the whole hour (45 minutes), only 3% affirmed sitting less than 30 minutes (Figure 1).

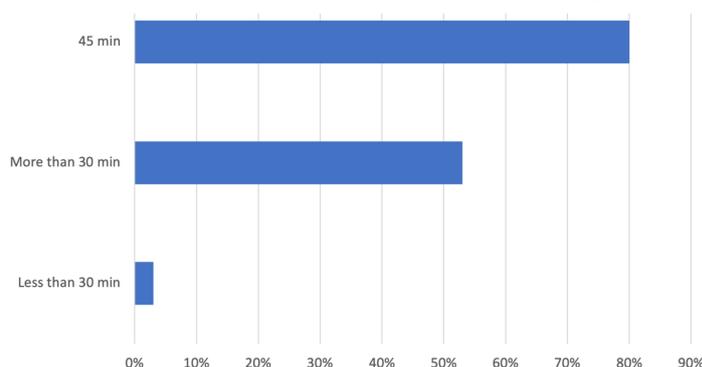


Figure 1. Time spent sitting during one online lesson

The first question of interest was whether movement improved respondents' focus on the topic discussed in class. The set of possible responses were 'It does not' (1), 'Fairly/medium' (2) and 'Very much' (3).

A large majority of them (97%) agreed that movement improved the topic focus. 47% of respondents answered that it had a fair/medium impact, and the same number believed it improved focus very much (Figure 2).

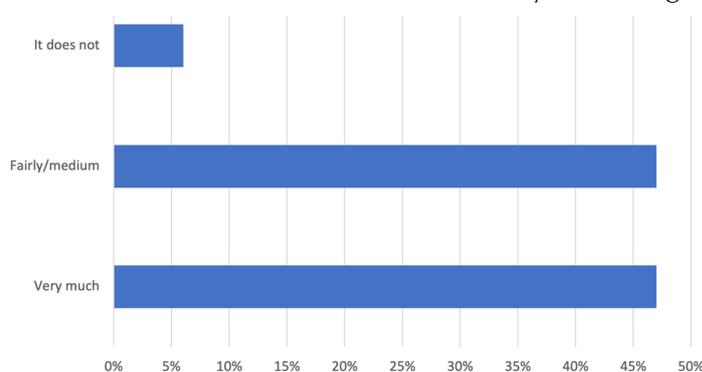


Figure 2. Movement improves your focus on the topic discussed in class

Tables 6 and 7 present data related to the same question whether movement improved focus on the topic discussed in class, but disaggregated by sex and study programme respectively. Two male respondents answered that it did not, 4 – fairly/medium, and 4 – very much. Among the female respondents 10 answered fairly/medium, and 10 – very much. Using a t-test to check the mean re-

sponses, we can observe that the difference in the mean responses between male and female respondents (2.2 and 2.5 respectively) is not statistically significant (P-value = 0.29), where we require a P-value of 0.95 or higher to assume a statistically significant value. Hence, we cannot conclude that either group found that movement improved their focus more than the other group on average.

Table 6

Movement improves your focus on the topic discussed in class, by sex

ANSWER	MALE	FEMALE
It does not		
Fairly/medium	4	10
Very much	4	10

Looking at respondents by study programme, two undergraduate VS students answered that movement didn't improve their focus, whereas 4 answered with fairly/medium, and 7 with very much, compared to undergraduate LEKT students where no one answered that it did not, 7 – fairly/medium, and 6 – very much. Among the master's students only 3 thought movement improved their

focus fairly/medium, and 1 – very much. Using ANOVA analysis, we cannot reject the null hypothesis that the mean value of responses is equal between the three groups (F=0.17, P-value = 0.84).

Hence, we cannot conclude that respondents' answers differ in terms of the study programme on average.

Table 7

Movement improves your focus on the topic discussed in class, by study programme

STUDY PROGRAMME	ASSESS IF MOVEMENT IMPROVES YOUR FOCUS ON THE TOPICS DISCUSSED			AVERAGE	STANDARD DEVIATION	
	Does not (1)	Fairly/medium (2)	Very much (3)			Total
Undergraduate VS	2 (15%)	4 (31%)	7 (54%)	13	2.38	0.77
Undergraduate LEKT	0 (0%)	7 (54%)	6 (46%)	13	2.46	0.52
Master	0 (0%)	3 (75%)	1 (25%)	4	2.25	0.50
Total	2 (7%)	14 (47%)	14 (47%)	30	2.40	0.62
F test						0.17
P-value						0.84

According to the data, movement positively affects the comprehension of Italian verbs. To the question whether movement improved under-

standing and memorising of verbs 70% of respondents answered it did fairly/medium, 17% thought it did very much, and 13% that it didn't (Figure 3).

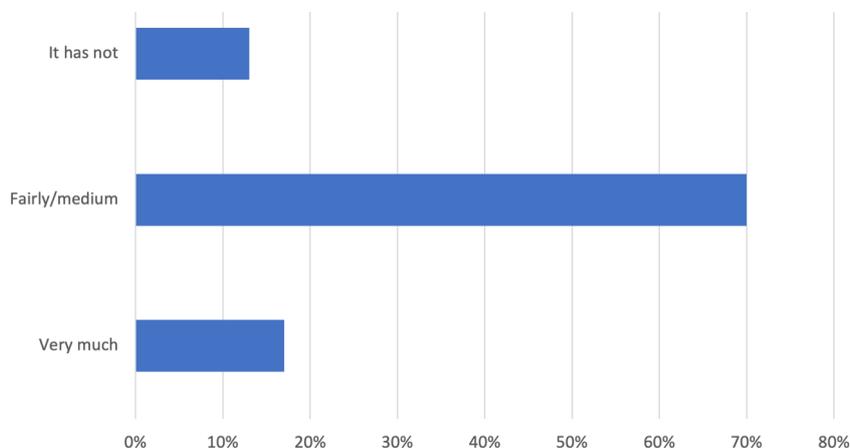


Figure 3. Improvement of understanding and memorising of verbs with movement

Tables 8 and 9 present the answers to the same question disaggregated by sex and study programme. One male respondent answered that movement did not improve understanding and

memorising verbs, 8 – fairly/medium, and 1 – very much. Among the female respondents 13 answered fairly/medium, 4 – very much, and 3 – it did not.

Table 8

Improvement of understanding and memorising, by sex

ANSWER	MALE	FEMALE
It does not	1	3
Fairly/medium	8	13
Very much	1	4

Using a t-test, we can observe that the difference in the mean responses between male and female respondents (2.0 and 2.1 respectively) is not statistically significant (P-value = 0.8). Hence, we cannot conclude that either group of respondents found that understanding and memorising of verbs would have improved with movement more than the other group on average.

Disaggregation by study programme shows that 3 undergraduate VS students answered it did not, 8 – fairly/medium, and 2 – very much, compared to

undergraduate LEKT students where 1 answered that it did not, 10 – fairly/medium, and 2 – very much. 3 master's students answered fairly/medium, and 1 – very much.

Based on the ANOVA analysis we cannot reject the null hypothesis ($F=0.58$, $P=0.57$) that the mean responses are equal between the three groups of respondents.

Hence, we cannot conclude that the answers among the groups of students in relation to the study programme are different on average.

Table 9

Improvement of understanding and memorising, by study programme

STUDY PROGRAMME	HAS THE UNDERSTANDING/MEMORISING OF VERBS WITH MOVEMENT IMPROVED?			AVERAGE	STANDARD DEVIATION	
	Does not (1)	Fairly/medium (2)	Very much (3)			Total
Undergraduate VS	3 (23%)	8 (62%)	2 (15%)	13	1.92	0.64
Undergraduate LEKT	1 (8%)	10 (77%)	2 (15%)	13	2.08	0.49
Master	0 (0%)	3 (75%)	1 (25%)	4	2.25	0.50
Total	4 (13%)	21 (70%)	5 (17%)	30	2.03	0.56
F test						0.58
P-value						0.57

5. CONCLUSION

The concept of physical activity has been linked to a healthy mind (Toumpaniari et al., 2015) and has a positive impact on the cognitive function of the learning population (Sibley & Etnier, 2003; Tomporowski et al., 2008; Fedewa & Ahn, 2011). Movement and physical activity have also been incorporated into language learning, but examples of good practice (Lynott, 2008; Merino, 2016; Vázquez et al., 2018; Salvador-García et al., 2019) show that such joint concepts unfortunately stop in primary school, around age 12-13. This lack of introduction of movement and language learning that takes into consideration only young children suggests to us the importance of extending our research to young adults, namely students, as presented in our survey. As addressed and proved by the three groups of students who took part in the experiment and practised regular and irregular Italian verbs with movement and in connection to the control group that practised the verbs without movement, from the results of the language testing we can see that better results were obtained by the students who rehearsed the verbs with the introduction of movement. As seen from the results of language testing the students from the three experimental groups achieved better results in conjugating the verbs, both regular and irregular and were also more successful in

providing correct forms of the regular and irregular verbs. From the results presented it is clear that only five students failed to provide the correct forms of one regular or irregular verb and one student (A) failed to provide one regular or irregular verb. From the observations of the language teacher it is also visible that only one student (S) correctly provided both verbs and two (P, R) failed to provide any correct answer. From the results of the language testing observed by the language teacher we can conclude that the experimental groups were more successful compared to the control group. From the results of the questionnaire it is clear that movement improves language learning and memorising verbs and, thus, could be introduced into subjects other than languages. 57% of the respondents found the introduction of movement also useful in other subjects. 97% of respondents agreed that movement improved the topic focus. As seen from the results of the t-test, the difference in the mean responses between male and female respondents (2.2 and 2.5 respectively) is not statistically significant (P-value = 0.29) and we cannot conclude that either group of respondents found that movement improved their focus more than the other group on average. Looking at respondents by study programme using ANOVA analysis, we cannot reject the null hypothesis that the mean value of responses is equal

between the three groups ($F=0.17$, $P\text{-value} = 0.84$). Observing respondents by gender, using a t -test, we can observe that the difference in the mean responses between male and female respondents (2.0 and 2.1 respectively) is not statistically

significant ($P\text{-value} = 0.8$). In view of these perspectives and in response to the current Covid-19 situation that promotes more sedentarism, we should act towards the introduction of movement in our everyday curricula.

References

- Baena-Extremera, A., Granero-Gallegos, A., Baños, R., & Ortiz-Camacho, M. D. M. (2018). Can physical education contribute to learning English? Structural model from self-determination theory. *Sustainability*, 10(10), Article 3613. <http://dx.doi.org/10.3390/su10103613>
- Barber, C. L. (1962). Some measurable characteristics of modern scientific prose. In F. Behre (Ed.), *Contributions to English syntax and philology* (pp. 21-43). Almqvist & Wiksel.
- Bartholomew, J. B., & Jowers, E. M. (2011). Physically active academic lessons in elementary children. *Preventive Medicine*, 52, S51-S54. <http://doi.org/10.1016/j.ypmed.2011.01.017>
- Basturkmen, H., & Elder, C. (2004). The practice of LSP. In A. Davies & C. Elder (Eds.), *The handbook of applied linguistics* (pp. 672-694). Blackwell Publishing.
- Blumberg, P. (2017). *Developing learner-centered teaching: A practical guide for faculty*. John Wiley & Sons.
- Bosch, G., & Schlak, T. (Eds.). (2013). *Teaching foreign languages for tourism: Research and practice*. Peter Lang.
- Bowker, L., & Pearson, J. (2002). *Working with specialized language: A practical guide to using corpora*. Routledge. <https://doi.org/10.4324/9780203469255>
- Chandrasekaran, B., & Ganesan, T. B. (2021). Sedentarism and chronic disease risk in COVID 19 lockdown: A scoping review. *Scottish Medical Journal*, 66(1), 3-10. <https://doi.org/10.1177/0036933020946336>
- Contreras, B., Vigotsky, A. D., Schoenfeld, B. J., Beardsley, C., McMaster, D. T., Reyneke, J. H., & Cronin, J. B. (2017). Effects of a six-week hip thrust vs. front squat resistance training program on performance in adolescent males: A randomized controlled trial. *Journal of Strength and Conditioning Research*, 31(4), 999-1008. <https://doi.org/10.1519/JSC.0000000000001510>
- Coral, J. (2013). Physical education and English integrated learning: How school teachers can develop PE-in-CLIL programmes. *Temps d'Educatió*, 45, 41-65.
- Coral, J., & Lleixà, T. (2016). Physical education in content and language integrated learning: Successful interaction between physical education and English as a foreign language. *International Journal of Bilingual Education and Bilingualism*, 19(1), 108-126. <https://dx.doi.org/10.1080/13670050.2014.977766>
- Coyle, D. (2006). Content and language integrated learning: Motivating learners and teachers. *Scottish Languages Review*, 13, 1-18.
- Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL: Content and Language Integrated Learning*. Cambridge University Press.
- Dalton-Puffer, C. (2008). Outcomes and processes in Content and Language Integrated Learning (CLIL): Current research from Europe. In W. Delanoy & L. Volkman (Eds.), *Future perspectives for English language teaching*. (pp. 139-157). Carl Winter.
- Dann, G. (1996). *The language of tourism. A sociolinguistic perspective*. CAB International.
- Dann, G., & Liebman Parrinello, G. (2009). *The sociology of tourism: European origins and development*. Emerald Group Publishing.
- Dmitrenko, V. (2017). Language learning strategies of multilingual adults learning additional languages. *International Journal of Multilingualism*, 14(1), 6-22. <https://dx.doi.org/10.1080/14790718.2017.1258978>
- Donnelly, J. E., & Lambourne, K. (2011). Classroom-based physical activity, cognition, and academic achievement. *Preventive Medicine*, 52, S36-S42. <https://dx.doi.org/10.1016/j.ypmed.2011.01.021>
- Farr, M., & Song, J. (2011). Language ideologies and policies. *Language and Linguistics Compass*, 5(9), 650-665. <https://dx.doi.org/10.1111/j.1749-818X.2011.00298.x>

- Fazio, A., Isidori, E., & Bartoll, C. O. (2015). Teaching physical education in English using CLIL methodology: A critical perspective. *Procedia – Social and Behavioral Sciences*, 186, 918-926. <https://doi.org/10.1016/j.sbspro.2015.04.041>
- Fedewa, A. L., & Ahn, S. (2011). The effects of physical activity and physical fitness on children's achievement and cognitive outcomes: A meta-analysis. *Research Quarterly for Exercise and Sport*, 82, 521-535. <http://dx.doi.org/10.1080/02701367.2011.10599785>
- Fernández Barrionuevo, E., & Baena Extremera, A. (2018). Motivation in physical education and foreign language learning in CLIL teaching. *Porta Linguarum*, 30, 207-220. <http://doi.org/10.30827/Digibug.54070>
- Festman, J. (2020). Learning and processing multiple languages: The more the easier? *Language Learning*, 71(S1), 121-162. <https://dx.doi.org/10.1111/lang.12437>
- Francesconi, S. (2007). *English for tourism promotion*. Hoepli.
- Gandin, S. (2016). Teaching and learning the language of tourism as an LSP: Corpus-based approaches. In D. Gallego Hernández (Ed.), *New insights into corpora and translation* (pp. 93-110). Cambridge Scholars Publishing.
- García Laborda, J. (2011). Revisiting materials for teaching languages for specific purposes. *Language, Linguistics, Literature*, 17(1), 102-112.
- Gass, S. M., & Selinker, L. (2008). *Second language acquisition: An introductory course*. Routledge. <https://doi.org/10.4324/9780203932841>
- Goldin-Meadow, S., Nusbaum, H., Kelly, S., & Wagner, S. M. (2001). Explaining math: Gesturing lightens the load. *Psychological Science*, 12(6), 516-522. <https://doi.org/10.1111/1467-9280.00395>
- Gollin-Kies, S., Hall, D. R., & Moore, S. H. (2015). Historical and conceptual overview of LSP. In S. Gollin-Kies, D. R. Hall, & S. H. Moore (Eds.), *Language for specific purposes* (pp. 11-28). Palgrave Macmillan. https://doi.org/10.1057/9781137500762_2
- Graham, S., Macfadyen, T., & Richards, B. (2012). Learners' perceptions of being identified as very able: Insights from modern foreign languages and physical education. *Journal of Curriculum Studies*, 44(3), 323-348. <https://dx.doi.org/10.1080/00220272.2012.662525>
- Gunnarsson, B. L. (1997). Language for special purposes. In G. R. Tucker & D. Corson (Eds.), *Encyclopedia of language and education* (pp. 105-117). Springer.
- Hillman, C. H., Castelli, D. M., & Buck, S. M. (2005). Aerobic fitness and neurocognitive function in healthy preadolescent children. *Medicine and Science in Sports and Exercise*, 37(11), 1967-1974. <https://dx.doi.org/10.1249/01.mss.0000176680.79702.ce>
- Hostetter, A. B. (2011). When do gestures communicate? A meta-analysis. *Psychological Bulletin*, 137(2), 297-315. <https://dx.doi.org/10.1037/a0022128>
- Hostetter, A. B., & Alibali, M. W. (2008). Visible embodiment: Gestures as simulated action. *Psychonomic Bulletin and Review*, 15, 495-514. <https://doi.org/10.3758/PBR.15.3.495>
- Humbley, J., Budin, G., & Laurén, C. (2018). *Languages for special purposes: An international handbook*. De Gruyter Mouton.
- Hunt, M. (2011). Learners' perceptions of their experiences of learning subject content through a foreign language. *Educational Review*, 63(3), 365-378.
- Jaekel, N., Schurig, M., Florian, M., & Ritter, M. (2017). From early starters to late finishers? A longitudinal study of early foreign language learning in school. *Language Learning*, 67(3), 631-664. <https://dx.doi.org/10.1111/lang.12242>
- Johns, A. M., & Dudley-Evans, T. (1991). English for specific purposes: International in scope, specific in purpose. *TESOL Quarterly*, 25(2), 297-314. <http://dx.doi.org/10.2307/3587465>
- Kibbe, D. L., Hackett, J., Hurley, M., McFarland, A., Schubert, K. G., Schultz, A., & Harris, S. (2011). Ten years of Take 10!®: Integrating physical activity with academic concepts in elementary school classrooms. *Preventive Medicine*, 52(S1), S43-S50.
- Kim, Y., & Lee, S. (2009). Physical activity and abdominal obesity in youth. *Applied Physiology, Nutrition, and Metabolism*, 34(4), 571-581. <https://doi.org/10.1139/h09-066>
- Kompara Lukančič, M., & Fabijanić, I. (2020). LanGuide – a tool for learning English. In J. Potočnik Topler (Ed.), *English and Italian in the frame of genre-based research and foreign language learning* (pp. 33-74). University of Maribor Press.

- Kompara Lukančič, M. (2019). *Nozioni di base della lingua italiana per il settore del turismo* (1st ed.). University of Maribor Press. (In Italian)
- Kompara Lukančič, M. (2020). *Nozioni di base della lingua italiana per il settore del turismo* (2nd ed.). University of Maribor Press. (In Italian)
- Lasagabaster, D. (2011). English achievement and student motivation in CLIL and EFL settings. *Innovation in Language Learning and Teaching*, 5(1), 3-18. <https://dx.doi.org/10.1080/17501229.2010.519030>
- Lengel, T., & Kuczala, M. (2010). *The kinesthetic classroom: Teaching and learning through movement*. SAGE.
- Lindgren, R., & Johnson-Glenberg, M. (2013). Emboldened by embodiment: Six precepts for research on embodied learning and mixed reality. *Educational Researcher*, 42(8), 445-452. <https://doi.org/10.3102/0013189X13511661>
- Lynott, F. J. (2008). Integrating other subject matter without jeopardizing physical education goals: The content linkage approach. *Strategies*, 22(1), 10-17. <https://dx.doi.org/10.1080/08924562.2008.10590802>
- Macedonia, M., & Klimesch, W. (2014). Long-term effects of gestures on memory for foreign language words trained in the classroom. *Mind, Brain and Education*, 8(2), 74-88. <http://dx.doi.org/10.1111/mbe.12047>
- Mahar, M. T., Murphy, S. K., Rowe, D. A., Golden, J., Shields, A. T., & Raedeke, T. D. (2006). Effects of a classroom-based program on physical activity and on-task behavior. *Medicine and Science in Sports and Exercise*, 38(12), 2086-2094. <https://doi.org/10.1249/01.mss.0000235359.16685.a3>
- Mavilidi, M. F., Okely, A. D., Chandler, P., Cliff, D. P., & Paas, F. (2015). Effects of integrated physical exercises and gestures on preschool children's foreign language vocabulary learning. *Educational Psychology Review*, 27, 413-426. <https://dx.doi.org/10.1007/s10648-015-9337-z>
- Mearns, T. L. (2012). Using CLIL to enhance pupils' experience of learning and raise attainment in German and health education: A teacher research project. *The Language Learning Journal*, 40(2), 175-192. <https://dx.doi.org/10.1080/09571736.2011.621212>
- Mellinkoff, D. (1963). *The language of the law*. Wipf & Stock Publishers.
- Merino, J. (2016). Non-linguistic content in CLIL: Is its learning diminished? In D. Lasagabaster & A. Doiz (Eds.), *CLIL experiences in secondary and tertiary education: In search of good practices* (pp. 17-43). Peter Lang.
- Murakami, M. (2013). Verb movement: The contrast between English and Italian. In E. Servido (Ed.), *Studies in linguistics* (pp. 117-143). CISCL.
- Nafisi, J. (2013). Gesture and body-movement as teaching and learning tools in the classical voice lesson: A survey into current practice. *British Journal of Music Education*, 30(3), 347-367. <https://doi.org/10.1017/S0265051712000551>
- Narici, M., Vito, G. D., Franchi, M., Paoli, A., Moro, T., Marcolin, G., ... & Maganaris, C. (2021). Impact of sedentarism due to the COVID-19 home confinement on neuromuscular, cardiovascular and metabolic health: Physiological and pathophysiological implications and recommendations for physical and nutritional countermeasures. *European Journal of Sports Science*, 21(4), 614-635. <https://doi.org/10.1080/17461391.2020.1761076>
- Nigro, M. G. (2006). The language of tourism as LSP? A corpus-based study of the discourse of guidebooks. In H. Picht (Ed.), *Modern approach to terminological theories and applications* (pp. 187-198). Peter Lang.
- Park, S. Y., Son, W. M., & Kwon, O. S. (2015). Effects of whole body vibration training on body composition, skeletal muscle strength, and cardiovascular health. *Journal of Exercise Rehabilitation*, 11(6), 289-295. <https://dx.doi.org/10.12965/jer.150254>
- Pizzuto, E., & Caselli, M. C. (1994). The acquisition of Italian verb morphology in a cross-linguistic perspective. In Y. Levy (Ed.), *Other children, other languages: Issues in the theory of language acquisition* (pp. 137-176). Lawrence Erlbaum Associates.
- Pontifex, M., Hillman, C., Fernhall, B., Thompson, K., & Valentini, T. (2009). The effect of acute aerobic and resistance exercise on working memory. *Medicine and Science in Sports and Exercise*, 41(4), 927-934. <https://dx.doi.org/10.1249/MSS.0b013e3181907d69>
- Pouw, W. T., de Nooijer, J. A., van Gog, T., Zwaan, R. A., & Paas, F. (2014a). Toward a more embedded/extended perspective on the cognitive function of gestures. *Frontiers in Psychology*, 5(47), 12-24. <https://dx.doi.org/10.3389/fpsyg.2014.00359>

- Pouw, W. T., Van Gog, T., & Paas, F. (2014b). An embedded and embodied cognition review of instructional manipulatives. *Educational Psychology Review*, 26, 51-72. <https://doi.org/10.1007/s10648-014-9255-5>
- Romaine, S. (2013). Politics and policies of promoting multilingualism in the European Union. *Language Policy*, 12(2), 115-137. <http://dx.doi.org/10.1007/s10993-013-9277-8>
- Ruiz-Garrido, M. F., & Saorín-Iborra, A. M. (2012). Language for tourism. In C. A. Chapelle (Ed.), *The encyclopedia of applied linguistics* (pp. 620-631). Blackwell Publishing. <https://doi.org/10.1002/9781405198431.wbeal0620>
- Salvador-García, C., & Chiva-Bartoll, O. (2017). CLIL in teaching physical education: Views of the teachers in the Spanish context. *Journal of Physical Education and Sport*, 17(3), 1130-1138. <https://doi.org/10.7752/jpes.2017.03174>
- Salvador-García, C., Chiva-Bartoll, O., & Capella-Peris, C. (2019). Bilingual physical education: The effects of CLIL on physical activity levels. *International Journal of Bilingual Education and Bilingualism*. <https://doi.org/10.1080/13670050.2019.1639131>
- Schenk, A., & Schmidt, S. K. (2018). Failing on the social dimension: Judicial law-making and student mobility in the EU. *Journal on European Public Policy*, 25(10), 1522-1540. <https://dx.doi.org/10.1080/13501763.2018.1488884>
- Seikkula-Leino, J. (2007). CLIL learning: Achievement levels and affective factors. *Language and Education*, 21(4), 328-341.
- Sibley, B. A., & Etnier, J. L. (2003). The relationship between physical activity and cognition in children: A meta-analysis. *Pediatric Exercise Science*, 15(3), 243-256. <https://doi.org/10.1123/PES.15.3.243>
- Standley, H. J. (2015). International mobility placements enable students and staff in higher education to enhance transversal and employability-related skills. *FEMS Microbiology Letters*, 362(19), Article fnv157. <https://dx.doi.org/10.1093/femsle/fnv157>
- Strean, W. B. (2011). Creating student engagement? HMM: Teaching and learning with humour, music, and movement. *Creative Education*, 2(3), 189-192. <https://doi.org/10.4236/ce.2011.23026>
- Strong, W. B., Malina, R. M., Blimkie, C. J., Daniels, S. R., Dishman, R. K., Gutin, B., ... & Trudeau, F. (2005). Evidence based physical activity for school-age youth. *The Journal of Pediatrics*, 146(6), 732-737. <https://doi.org/10.1016/j.jpeds.2005.01.055>
- Tomporowski, P. D., Davis, C. L., Miller, P. H., & Naglieri, J. A. (2008). Exercise and children's intelligence, cognition, and academic achievement. *Educational Psychology Review*, 20, 111-131.
- Toumpaniari, K., Loyens, S., Mavilidi, M. F., & Paas, F. (2015). Preschool children's foreign language vocabulary learning by embodying words through physical activity and gesturing. *Educational Psychology Review*, 27, 445-456. <https://dx.doi.org/10.1007/s10648-015-9316-4>
- Udina, N. N. (2014). New approaches and trends in teaching and learning LSP/ESP. In N. M. Rumyantseva (Ed.), *Innovative teaching of the Russian language in multilingual conditions* (pp. 359-361). Peoples' Friendship University of Russia.
- Vasileva, V., & Ivanova, L. (2021). Speech etiquette of professional online communities. *Russian Journal of Communication*, 13(2), 183-198. <https://doi.org/10.1080/19409419.2021.1899563>
- Vázquez, C., Xia, L., Aikawa, T., & Maes, P. (2018, July 9-13). Words in motion: Kinesthetic language learning in virtual reality. In *Proceedings of the 18th International Conference on Advanced Learning Technologies* (pp. 272-276). IEEE. <https://dx.doi.org/10.1109/ICALT.2018.00069>
- Werner, P. H., & Burton, E. C. (1979). *Learning through movement: Teaching cognitive content through physical activities*. Mosby Inc.
- Wilson, M. (2002). Six views of embodied cognition. *Psychonomic Bulletin and Review*, 9, 625-636. <https://dx.doi.org/10.3758/BF03196322>
- Wüster, E. (1970). *Internationale Sprachnormung in der Technik besonders in der Elektrotechnik*. Bouvier. (In German)
- Yelenevskaya, M., & Protassova, E. (2021). Teaching languages in multicultural surroundings: New tendencies. *Russian Journal of Linguistics*, 25(2), 546-568. <https://doi.org/10.22363/2687-0088-2021-25-2-546-568>