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Doctoral Dissertation

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The Pedagogical Purposes of the Use of Virtual Learning Environments and Web 2.0 Tools in Tertiary Language Teaching in a Blended Learning Environment

THESIS BOOKLET

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1 Introduction

As the use of computers and the internet is becoming increasingly important in every aspect of today’s world affecting the ways of working, socializing and communication, there is great pressure on teachers and schools to prepare students for their future life by new ways of teaching, including the integration of technology into education (Szüts, 2014). A second reason for the integration is to meet the needs of students, who are considered to be digital experts (Oblinger & Oblinger, 2005; Prensky, 2001). As a result, the use of technology in teaching in general, as well as in language teaching, has become widespread in the developed countries. Hence, the question today is not whether to use technology in the classroom but how to use it to enhance teaching. The present research describes the development of a project that attempts to answer this question in a particular context, at a higher education college in Budapest.

1.1 The aims of the research

The main aim of this study is to investigate the possibility of integrating a virtual learning environment (VLE) and web 2.0 tools in language teaching at a college in Budapest. Since there is general consensus among researchers that new tools and methods need to be introduced gradually with utmost care and after extensive preparation (e.g. Ducate, Lomicka Anderson, & Moreno, 2011), it is essential to consider all the factors that influence the use of technology including students’, as well as teachers’ perceptions in order to maximize its potential in the classroom. Thus, a mixed-methods research design was applied in the present study with a development function, in which qualitative and quantitative methods were used “sequentially so that the results of the first method inform the development of the second” (Dörnyei, 2007, p.147). In the case of my research, the results of the first three phases informed the development of the fourth phase, which was the main phase investigating the possibility of integrating a virtual classroom and web 2.0 tools in language teaching.
findings of the first three phases of the research were not only used to guide the design of the main phase but also provided information about the possibilities of the integration of technology at the college. While in Phases 1 to 3 the research methods included quantitative surveys and qualitative interviews, in Phase 4 a longitudinal case study was conducted applying multiple instruments. The aims of the four phases were

- to explore students’ dispositions – Phase 1 (2010)
  - towards the use of computers and the Internet
  - towards attending a blended course

- to explore teachers’ use of VLEs and web 2.0 tools and their dispositions – Phase 2-3
  - to find out how they use the VLE at the college – Phase 2 (2011)
  - to investigate best practices of language teachers using VLEs and web 2.0 tools in higher education – Phase 3 (2012)
  - to find common pedagogical purposes behind the use of VLEs and web 2.0 tools in higher education – Phase 3 (2012)

- to gain in-depth experience about the use of VLEs and web 2.0 tools and about students’ dispositions – Phase 4 (2012-2013)

2 Background

2.1 Students’ and teachers’ use of technology

A major argument for applying technology in teaching is to meet students’ needs, who are supposed to be experts at using computers and the internet. Prensky (2001) described today’s students as “digital natives” (p.1) because they have grown up with digital technology, which has become an integral part of their lives. However, the results of empirical studies conducted in several countries and contexts do not support the existence of a homogeneous, technologically savvy Net Generation, who need and demand new ways of teaching. Although the great majority of students have access to core technologies and use
basic devices and the internet for leisure and communication purposes frequently (e.g. Fehér & Hornyák, 2011; Jones & Shao, 2011; Ollé, 2011; Papp-Danka, 2013), they only use a limited set of ICT in educational contexts and seem to prefer traditional ways of teaching with moderate use of technology in the classroom (e.g. Fehér & Hornyák, 2011). The assumption that there is a divide between digital native students and digital immigrant teachers that makes teaching difficult (Prensky, 2001; Tapscott, 1998) has also been questioned on the basis of the results of empirical research comparing the two groups. Similarly to students, teachers have been found a heterogeneous group with different experiences and preferences for technology use (e.g. Buda, 2013). Nevertheless, teachers’ use of technology has been characterized by the dominance of low-level applications mostly supporting traditional, teacher-directed instruction influenced by internal and external factors (e.g. Garrett, 2009).

However, students’ preferences for traditional teaching methods do not mean that technology should not be applied in teaching. On the contrary, there is an opportunity for teachers to integrate students’ tools and experience into the classroom. The fact that the majority of students displayed positive perceptions towards various types of technology implemented in their courses also indicates that their preference for traditional learning can be overcome. Nevertheless, the way new tools are integrated is crucial and several researchers have formulated recommendations about how to make it successful (e.g. Hockly, 2011; Jones & Shao, 2011).

2.2 The use of VLEs and web 2.0 tools

As for the implementation of virtual learning environments, (VLEs), personal learning environments (PLEs), web 2.0 tools and wikis in teaching, the results of previous research revealed considerable differences between the tools. Similarly to technology in general, the use of VLEs, which are web-based platforms for the organisation of teaching and learning, seems to be mainly confined to administration and the provision of course material and
resources, which support traditional teaching practices (e.g. Limniou & Smith, 2010; Yu, Sun, & Chang, 2010). However, PLEs, web 2.0 tools and wikis, which are websites for adding and editing content, have been observed to serve more innovative purposes, such as collaboration, knowledge building and sharing, as well as personalized learning (e.g. Monje, 2014; Papadima-Sophocleous & Yerou, 2013). A possible explanation for this might be the difference in teachers’ motivations for using the tools. While VLEs are implemented by institutions and a large number of teachers use them as an obligatory tool in teaching; PLEs, web 2.0 tools and wikis are mostly selected voluntarily by teachers who seek innovation. Furthermore, the diversity of web 2.0 tools, the scarcity of empirical research on PLEs and the importance of context for the integration of technology in the classroom necessitate case studies conducted in specific settings. My investigation of the integration of a VLE and web 2.0 tools into language teaching at a Hungarian college not only aims at providing the background for the successful implementation of technology, but also attempts to contribute to the research area by examining the relatively under-researched Hungarian higher education context.

3 Research design

The four phases of the research introduced in section 1.1 were guided by one main research question:

RQ For what pedagogical purposes and how can virtual learning environments and web 2.0 tools be applied in language teaching in tertiary education in a blended learning environment at one particular college?

The main question has been broken up into several sub-questions, which focus on an area that is crucial for the successful implementation of VLEs and web 2.0 tools. A summary of the sub-questions, aims, methods of data collection and analysis is presented in Table 1.
### Table 1

**Research questions and methods**

<table>
<thead>
<tr>
<th>Research questions</th>
<th>Aim</th>
<th>Methods of data collection</th>
<th>Data analysis</th>
</tr>
</thead>
</table>
| 1 What is first-year students’ disposition towards the use of computers and the internet at a Budapest college?  
1a Are first-year students at the college ‘digital natives’?  
1b Is there any difference between regular and distance course first-year students’ dispositions towards computers and the internet in language learning at the college?  
1c Is first-year students’ disposition influenced by any other individual characteristics at the college?  
1d Are there any variables that predict first-year college students’ willingness to take part in online language courses at the college? | to find out if students would be interested in using technology in language learning | questionnaire study with 91 first-year students | statistical analysis |
| 2 What characterizes language teachers’ use of a virtual learning environment and their dispositions towards e-learning at the college?  
2a How often do language teachers use CooSpace and which functions do they use at the college?  
2b What influences language teachers’ use of CooSpace at the college?  
2c What do language teachers feel about using CooSpace and e-learning at the college? | to find out if the use of a VLE means blended learning | questionnaire study with 46 language teachers and follow-up interviews | statistical analysis and thematic analysis of the interviews |
| 3 What motivates language teachers’ use of virtual learning environments and web 2.0 tools teaching at different tertiary institutions in Budapest?  
3a What web 2.0 tools and features of VLEs do language teachers use at different tertiary institutions in Budapest?  
3b For what pedagogical purposes do language teachers use VLEs and web 2.0 tools at different tertiary institutions in Budapest? | - to find pedagogical purposes behind the use of VLEs and web 2.0 tools  
- to find out about best practices of language teachers  
- to use their experience for course design | interview study with 10 language teachers at different colleges and universities with follow-up questionnaires | thematic analysis of the interviews |
| 4 How can VLEs and web 2.0 tools be integrated into teaching ESP to two groups of first-year students at a Budapest college?  
4a What is first-year students’ disposition towards computers and the internet before and after a course using technology at the college?  
4b What characterizes first-year students’ use of the wiki and their dispositions towards the wiki project at the college?  
4c What impact does the use of VLEs and web 2.0 tools have on participants’ language use at the college? | - to gain in-depth experience about the use of VLEs and web 2.0 tools and about students’ dispositions | longitudinal case study  
- student surveys  
- student interviews  
- teacher’s diary  
- wiki statistics | statistical analysis and thematic analysis of the interviews and statistics |
4 Phase 1

4.1 Participants

The participants of the study were 91 first-year students of the college. The sample consisted of two subsamples: 52 full-time students and 39 distance students.

4.2 Instruments

I developed a questionnaire with 78 questions on the basis of existing questionnaires (Akbulut, 2008; Vig, 2008; Warschauer, 1996). As Vig’s questionnaire focused on the general use of computers and the internet, while Akbulut’s and Warschauer’s only on computer-assisted writing, additional aspects of language learning needed to be incorporated.

4.3 Data collection and analysis

While the final version of the questionnaire was administered to full-time students during their regular classes by their English teachers, distance students filled it in after a written English language exam with the assistance of the researcher and another teacher. All the questionnaires were computer coded and SPSS (Statistical Package for Social Sciences) 17.0 was used to analyse the results with the significance level set for \( p < .05 \).

4.4 Results

RQ 1 What is first-year students’ disposition towards the use of computers and the internet at a Budapest college?

The results confirmed previous studies’ findings (e.g. Akbulut, 2008; Fehér & Hornyák, 2011; Jones & Shao, 2011; Vig, 2008) that writing emails, browsing on the internet and instant messaging are most frequently used among students, with instant messaging only for full-time students. A further function that is often applied is the use of online dictionaries, which did not emerge in previous studies. Neither applications requiring higher level skills nor creativity such as writing blogs, making websites or the educational use of the internet are very frequent among students, which is also in line with several researchers’ findings (e.g.
Fehér & Hornyák, 2011; Jones & Shao, 2011). The results also support previous results that ‘digital natives’ constitute a heterogeneous group (e.g. Buda, 2013; Hockly, 2011). Although students’ dispositions towards the internet are positive in general, only distance students are positive about language learning on the internet and online language courses. At the same time, distance students’ willingness to take part in an online language course organised by the college shows that there is an interest among students in this new way of learning.

5 Phase 2

5.1 Participants

The participants for the questionnaire were 44 language teachers of the college, 31 teachers from Faculty 1 (F1) and 13 teachers from Faculty 2 (F2). As only two teachers volunteered for an interview in the questionnaire, two interviews were conducted. However, the two teachers represent the two ends of the spectrum: one uses CooSpace very frequently, while the other never uses it.

5.2 Instruments

The instruments of this phase were a questionnaire with 43 questions and a semi-structured interview schedule that I have developed. The questionnaire contained 40 questions about the participants’ use of CooSpace in general, as well as about the frequency of use of 14 functions and about their usefulness. In the second part of the research project semi-structured interviews were conducted with two participants. about five topics: the teachers’ professional background and language teaching, their answers to the questionnaire, their feelings about using CooSpace, their opinions about computers and the internet in general and the suitability of technology for teaching.

5.3 Data collection and analysis

The link to a web-based electronic questionnaire with 43 Hungarian questions was sent to the participants by email. The two interviews were conducted in an office at the
college which was out of use at that time, thus an undisturbed recording process was guaranteed. All the questionnaires were computer coded and SPSS (Statistical Package for Social Sciences) 17.0 was used to analyse the results with the significance level set for p<.05. The interviews were conducted at the college in Hungarian, then transcribed and analysed following Maykut and Morehouse’s (1994) qualitative data analysis principles.

5.4 Results

RQ 2 What characterizes language teachers’ use of a virtual learning environment and their dispositions towards e-learning at the college?

The results indicate that less than 50% of the teachers at the college use CooSpace with a limited number of functions. The fact that the most frequent function is uploading documents shows that the VLE is regarded as a mere administrative and not as a pedagogical tool. Its collaborative nature or the opportunity of personalised learning is not familiar to teachers. The results support previous findings that the two most popular functions of VLEs are administration and the provision of course material and resources, which supplement traditional teaching practices (Browne et al., 2006; Limniou & Smith, 2010; Yu et al., 2010). The two main reasons given for not using CooSpace (traditional ways are faster and don’t know how it works) echo the opinions of other teachers in Hungarian higher education, who complained about the time-consuming and complicated use of VLEs (Kétyi, 2008; Nikolov & Ottó, 2010). However, the majority of the teachers have shown an interest in a training session, which indicates that their non-use also stems from the lack of knowledge and experience. This is also supported by the fact that the perceived usefulness of most functions is significantly higher than the frequency of their use. Thus, teachers seem to be open to the integration of CooSpace into teaching but this is impossible without sufficient methodological training. Therefore, context-specific and relevant training should be offered to teachers, which not only focus on technical but also on pedagogical aspects (Yu et al., 2010).
6 Phase 3

6.1 Participants

The ten language teachers who were the participants of the third phase of the research were selected by purposeful sampling so that they could provide rich data about the use of technology in language teaching. The criterion for the selection was that the teachers should have considerable experience in the integration of ICT into teaching. Most of the participants were Hungarian native speakers, apart from two native English teachers.

6.2 Instruments

In order to gain insight into language teachers’ motivations to use virtual learning environments (VLEs) and web 2.0 tools at different tertiary level institutions in Budapest, I developed a semi-structured interview guide. The questions in the main part of the interview were grouped around six topics: teachers’ use of the internet and web 2.0 tools for personal purposes, the tools they use for teaching, the reasons for their use, students’ and colleagues’ reactions to the integration of technology into teaching and the future of language teaching. Based on the results of the interviews, I developed a follow-up questionnaire, which consisted of three sections and 41 items about the frequency of use of 16 tools, the influences that made teachers start to apply these tools and the purposes teachers can use the tools for.

6.3 Data collection and analysis

Most interviews including the pilot interview were held at the participating teachers’ institutions and were recorded with a mobile phone with the consent of the participants. Several weeks after the interviews when the results were analysed and the questionnaire was developed, I sent the link to the web-based electronic questionnaire to the participants along with an email asking them again to fill in the questionnaire. The interview data were subjected to qualitative content analysis using the constant comparative method (Maykut & Morehouse,
1994) with the help of a co-researcher. As only six teachers filled in the questionnaire, no quantitative analysis of the results will be provided.

6.4 Results

RQ 3 What motivates language teachers’ use of virtual learning environments and web 2.0 tools teaching at different tertiary institutions in Budapest?

The results revealed that although all teachers use VLEs and some web 2.0 tools, the range of tools and their motivations for use are quite diverse. Previous research findings that VLEs are mostly used as a repository for course materials (Browne et al., 2006; Limniou & Smith, 2010) were confirmed, while the only function which is regularly applied by five teachers appeared to be the forum. The fact that even teachers who claim to be technological experts do not seem to exploit the potential of the VLE to enhance autonomous, student-centred and individualized learning or collaborative knowledge building may sound surprising. However, as VLEs are very rarely integrated into teaching in Hungary (Hunya, 2007), even their limited use may be considered pioneering. A further possibility is that the participating teachers use other ICT tools for the pedagogical purposes discussed above. Nevertheless, the range of tools they use is also fairly limited: the majority integrates fewer than five tools into teaching including tools which cannot be considered web 2.0 tools, such as interactive whiteboards, online tests and voting systems. At the same time, the number of tools is less important than the purposes they are used for, as the use of technologies should always be based on their educational value. All the participants have decided to integrate ICT tools into teaching because they are convinced that language learning can be enhanced by their use. However, this conviction seems to be rather intuitive in most cases and only few pedagogical purposes have been mentioned in the interviews. While enhancing collaboration and group cohesion have been referred to by six teachers; critical reading and developing life-skills by three teachers; autonomy, knowledge building, learning styles and peer correction by
two teachers each; reflective learning only by one teacher. Personalized learning and lifelong learning, which are two major goals of using technology (European Commission, 2008) have not been mentioned at all. On the other hand, considering previous research findings that the use of technology in the classroom mostly supports traditional, teacher-directed instruction (Jenkins, Browne, Walker, & Hewitt 2011); the practices of the participants seem innovative and pedagogically grounded. This is even more striking if we look at Hungarian teachers’ use of ICT tools, who mostly use them for preparation, administration, communication out of the classroom or illustration (Hunya, 2007; Molnár & Kárpáti, 2012), while wikis, blogs, virtual learning environments and smart boards are very rarely integrated into teaching (Hunya, 2007). The findings suggest that the integration of technology into language teaching can take diverse forms with the common requirement of sound pedagogical purposes. The range of tools teachers use may be limited but they select them to enhance the language learning process.

7 Phase 4

In this phase a longitudinal case study with an embedded single-case design was adopted (Yin, 2014), where the case was defined as the implementation of a VLE and web 2.0 tools into teaching ESP to first-year college students, and the embedded units of analysis were the two groups of first-year students, with one unit comprising the pilot study and one the main study.

7.1 The description of the case – the group wiki

A group wiki supported by web 2.0 tools was introduced for the two groups of students in the pilot and the main study. Although the main purpose of using the wiki was to engage the students more intensively, the use of the wiki was expected to enhance language development as well. A further intention was to help students prepare for extended language learning beyond the obligatory three terms of language studies at the college. The wiki was
first used in class in a computer room, where students were trained how to use it. After that students used it at home for assignments, supplementary tasks and individual study. To encourage life-long learning, links to useful websites were collected that could be used for studying English at any time in the future. These websites included online dictionaries, pages for practicing grammar, learning vocabulary and other resources. Knowledge sharing was realized within the group by uploading students’ work on the wiki, where each group member could read them, comment on them and use them for studying. Individual learning paths were encouraged by the introduction of a personalized evaluation system based on Nádori (2012) and Prievara’s model (2013), in which points were given for any task the students had completed. Students were encouraged to select tasks freely for themselves first from given sources then from any source, which allowed them to tailor the tasks to their individual needs and learning styles. Each student had a page on the wiki which functioned as a portfolio where they uploaded all the tasks they had carried out. Although this system was employed as a supplement to in-class work, where compulsory material was covered, points earned on the wiki could compensate for lower performance in class.

7.2 Participants

Two groups of first-year students constituted the units of analysis in the pilot study (Group 1, N=13) and the main study (Group 2, N=18) in this phase. Although purposive sampling is recommended in qualitative research (Dörnyei, 2007), it is impossible to achieve in classroom settings, where the groups are not selected by the teacher. As a result of random assignment of groups to teachers, the language proficiency of the students participating in the study was higher in both groups than the average of all students studying English.

7.2 Instruments

The longitudinal case study in Phase 4 involved multiple instruments to gain in-depth experience about the integration of a wiki into teaching ESP to two groups of first-year
students at our college. While in the pilot study the main instruments were the teacher’s diary that I wrote during the term, a course evaluation questionnaire and the wiki statistics (See Table 2, Instruments 7, 9 and 10), in the main study ten instruments were employed (Table 2) to collect detailed information about the integration of the wiki.

Table 2
The instruments in the main study in Phase 4

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Measured variables</th>
<th>Time of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Background questionnaire</td>
<td>students’ background</td>
<td>September 2012</td>
</tr>
<tr>
<td>2 Placement test</td>
<td>language proficiency</td>
<td>September 2012</td>
</tr>
<tr>
<td>3 Language proficiency test</td>
<td>language proficiency</td>
<td>December 2013</td>
</tr>
<tr>
<td>4 Self-assessment of language proficiency questionnaire</td>
<td>language proficiency</td>
<td>September 2012</td>
</tr>
<tr>
<td>5 Self-assessment of language development questionnaire</td>
<td>language proficiency development, impact on the learning process</td>
<td>May 2013 December 2013</td>
</tr>
<tr>
<td>6 Questionnaire about the use and disposition towards the internet</td>
<td>disposition towards internet and web 2.0 tools</td>
<td>September 2012 December 2013</td>
</tr>
<tr>
<td>7 Course evaluation questionnaire</td>
<td>disposition towards internet and web 2.0 tools, impact on the learning process</td>
<td>December 2012 May 2013 December 2013</td>
</tr>
<tr>
<td>8 Semi-structured interview schedule</td>
<td>disposition towards internet and web 2.0 tools, impact on the learning process</td>
<td>December 2013</td>
</tr>
<tr>
<td>9 Teacher's diary</td>
<td>all aspects</td>
<td>September 2012 – December 2013</td>
</tr>
<tr>
<td>10 Wiki statistics</td>
<td>students’ use of the wiki</td>
<td>September 2012 -</td>
</tr>
</tbody>
</table>

7.3 Data collection and analysis

Most of the tests and questionnaires used for data collection were administered electronically, with the exception of the questionnaire on students’ background, which they
completed in the classroom in the first week of the term and the Language proficiency test. The two interviews at the end of the project were carried out in the staff room of the Language department, in an office, which was out of use at the time. As data gained by the 10 instruments differed in nature, they were analysed applying different tools and methods, including statistical analysis and qualitative content analysis.

7.4 Results

RQ 4 How can VLEs and web 2.0 tools be integrated into teaching ESP to two groups of first-year students at a Budapest college?

The results of the research showed that students’ use of the internet was confined to entertainment and communication. Moreover, the blended course had no impact on students’ disposition towards language learning on the internet, which was equally low before and after the project. However, they perceived the use of the wiki, the web 2.0 tools and the evaluation system increasingly positively at the end of each term. Students’ language development was indicated by the results of self-assessment questionnaires and proficiency tests. Although no cause-and-effect relationship may be established between the use of the wiki and the group’s language development, the use of the wiki seems to be at least as efficient in language development as a traditional course. Problems that emerged included technical and editing problems, the lack of time and laziness, which seemed to present a cause for not doing any work on the wiki. Nevertheless, by the end of the third term, the majority of students perceived the wiki as useful, recommended it for other groups and claimed that they would use it in the future. The findings of the wiki statistics and the two student interviews, as well as a student email sent more than a year after the course suggest that some students used the wiki after the end of the course.
8 Conclusion

8.1 The main findings of the research

The present mixed methods research including quantitative and qualitative instruments, as well as a case study was intended to contribute to the research of technologically-enhanced language learning incorporating context and the experiences of teachers, promoted by several researchers (e.g. Garrett, 2009). As for the students’ use of the internet, previous research findings have been confirmed that neither applications requiring higher level skills or creativity such as writing blogs or making websites nor the educational use of the internet are very frequent among students (Fehér & Hornyák, 2011; Jones & Shao, 2011). Although students’ disposition towards the internet in general was positive in both Phase 1 and Phase 4, only distance students in Phase 1 would be willing to participate in online language courses. Full-time students’ disposition towards language learning on the internet was not very high, which confirms previous findings that students at higher education institutions would prefer moderate use of technology in the classroom (Jones & Shao, 2011). In Phase 4, the course using technology for three terms has had no significant influence on students’ use of the internet or on their dispositions towards computers and the internet. One reason for that may be that students did not generalize their experience with the wiki, which was highly positive, to other functions.

Language teachers’ use of technology in the form of VLEs and other tools were investigated at the college, as well as at other higher education institutions in Budapest among technologically expert teachers. The results indicate that less than 50% of the teachers at the college used CooSpace, the college VLE, with very few functions mostly as an administrative and not as a pedagogical tool. However, the majority of the teachers have shown an interest in a training session, which suggests that their non-use stems from the lack of knowledge and experience. Although the range of tools technologically expert teachers used was also fairly
limited and the motivations for use quite diverse, they all integrated virtual learning environments into language teaching. The selection of the tools aimed to enhance the language learning process, as well as to serve students’ needs and may be characterized as innovative in the Hungarian context where the majority of teachers use ICT tools for preparation, administration or illustration (Hunya, 2007; Molnár & Kárpáti, 2012), while wikis, blogs, virtual learning environments and smart boards are very rarely integrated into teaching (Hunya, 2007).

Students’ disposition towards the wiki project in Phase 4 was overall positive. By the end of the third term, the majority of students perceived the wiki as useful, recommended it for other groups and claimed that they would use it in the future. Some evidence including the wiki statistics, the two student interviews, as well as a student email suggest that some students have visited the wiki after the course finished. As for the evaluation system, the majority of the participants regarded it as useful and fair and also recommended it for other groups. The difficulties that arose during the three terms of the course resembled those described in earlier studies, such as technical problems, including signing in and editing (Ducate et al., 2011; Lin & Yang, 2011), and the lack of time (Karasavvidis, 2010). An aspect that has not emerged in research so far is laziness, which prevented some students to work on the wiki, possibly stemming from Hungarian higher education students’ lack of motivation and ambition (Csillik & Daruka, 2015; Ollé, 2009).

Students’ language proficiency development during the course has been indicated by the results of the self-assessment questionnaires and the proficiency tests. Although no cause-and-effect relationship may be established between the use of the wiki and the group’s language development, the use of the wiki seems to be at least as efficient in language development as a traditional course.
8.2 Pedagogical and theoretical implications

These results indicate that the integration of a wiki in a professional English course in higher education may enhance language learning, which might lead to more intensive language development depending on the type of student. The finding that students’ perceived language development increased, while their dispositions towards the wiki and the personalized evaluation system became more positive by the end of the three-term project suggests that the successful implementation of a new tool not only needs utmost care and planning but also a considerable amount of time. The integration of ICT tools at the college would also have to take into consideration that teachers’ and students’ dispositions towards the use of technology in language teaching might only be moderately positive. The set of principles formulated on the basis of the literature review, which may guide the integration process, have been supplemented with some new elements (in italics) based on the findings of the research:

The implementation of new tools in language teaching needs

1. to be grounded theoretically and pedagogically
   a. following constructivist guidelines
   b. preparing students for 21\textsuperscript{st} century life and employment
   c. encouraging lifelong learning
   d. enhancing language learning

2. to consider students’ skills and needs including their
   a. learning style
   b. digital skills
   c. language proficiency
   d. disposition towards technology
   e. disposition towards learning (laziness)
3. to be perceived useful by teachers
4. to be carefully planned including
   a. the selection of appropriate tools, tasks and resources
   b. decisions about assessment and feedback
   c. time management for the teacher and the students
5. to be accompanied by training and support based on the students’ needs including
   a. technical training including editing
   b. training in group work and peer review
   c. evaluating resources
   d. helping them understand the objectives of the project
6. to be reviewed and revised continuously.

8.3 Limitations

One of the limitations of the study is related to the constantly developing nature of technology and the changes in its use affected by the wider availability of internet services and mobile devices, as well as the growing popularity of the social media. As data collection started in March 2010 and finished in December 2013, results might have been affected by these changes within the study. Additionally, findings about students’ and teachers’ use of technology may be somewhat out-of-date today. However, since students’ dispositions towards the internet did not change significantly between September 2012 and December 2013, the wider availability of the internet and mobile devices may not necessarily affect students’ dispositions. As for the main finding of the study about the integration of a wiki and web 2.0 tools in language teaching at a Budapest college, this limitation has a moderate and possibly positive impact on it. If technology use becomes wider among students and teachers alike in the future, the implementation of technology in teaching might involve less novelty and less resistance as a consequence.
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