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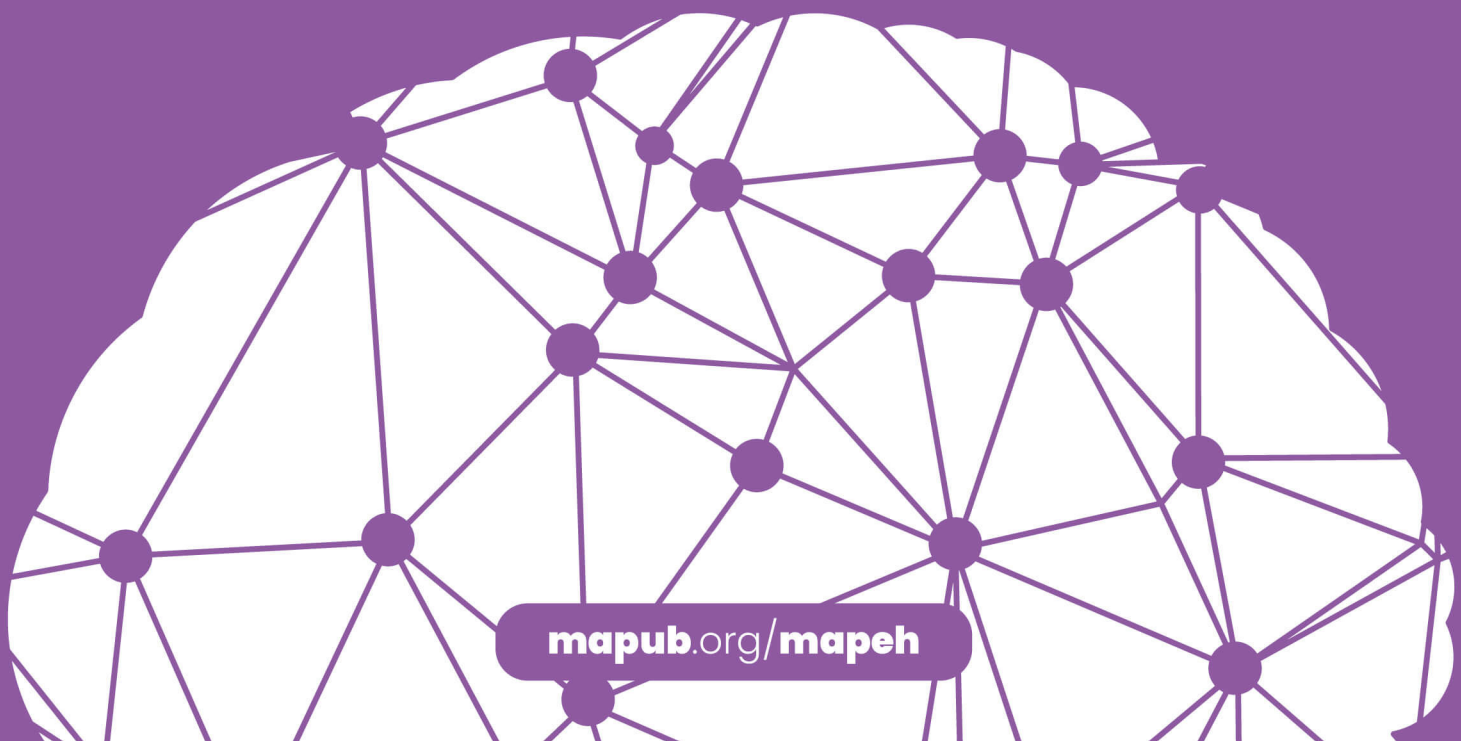

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ORIGINAL RESEARCH PAPER

EXAMINING STUDENTS' INTERACTION AND SATISFACTION WITH ONLINE LEARNING

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ABSTRACT

Technology has made it possible for the higher education ecosystem to adapt to the different needs of students and to interact with them remotely when face-to-face interaction is impossible. This study aimed to investigate the relationship between interaction and online learning satisfaction and whether this relationship is mediated by academic self-efficacy and student engagement among 175 Bosnian high school students during the COVID-19 pandemic. The questionnaire was used to collect the data from the participants. The findings suggested that the participants feel confident while using the Internet, are pretty self-directed, and do not lack interactions or satisfaction with online learning. In addition, the findings indicated that while grade level and GPA do not significantly influence students' satisfaction levels, the amount of time spent online and gender significantly influence it, with males reporting higher levels of satisfaction. There is no correlation between gender or the amount of time spent online and online interaction. However, grade level and grade point average have a significant impact.

Further, studies show that students who put less effort into their studies are much more likely to be satisfied with the online learning environment. Time spent online substantially affects internet self-efficacy and self-regulated learning, while grade, GPA, and gender have little to no effect. The results of this investigation may help educators design virtual classrooms that stimulate student engagement, discussion, confidence in using the web for learning, and self-directed study. Online learning will become more efficient as a result of this.

Keywords: online learning, student satisfaction, interaction, academic self-efficacy, student engagement

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Introduction

The COVID-19 virus, which was declared to be a pandemic by the World Health Organization in the year 2020, has caused an enormous amount of havoc in the educational system. As a result, most high schools have been forced to shut down completely, impacting hundreds of millions of students and teachers worldwide ((Abdullah et al., 2022)). Due to its adaptability, accessibility, and convenience, online learning (both synchronous and asynchronous) can be a viable alternative to traditional learning and teaching methods if these methods are no longer feasible. This helps to ensure that education can continue even during a pandemic. Most higher education institutions transitioned from face-to-face learning to emergency remote teaching in January 2020. This implementation aimed to reduce the risk of the coronavirus spreading and to ensure that education would continue uninterrupted during the difficult times of lockdown among students and educators. This COVID-19 epidemic has repercussions for everyone's way of life, including the educational system in every country. Because of COVID-19, schools have been forced to close worldwide, and more than 1.2 billion children were kept away from their stable learning environments. Many private higher education institutions (PHEIs) were forced to adopt online and remote teaching.

A sizeable amount of money and time was invested in guaranteeing that students will not be deprived of the opportunity to acquire the information connected to an essential for their future and career (Abdullah et al., 2022). PHEIs were required to invest a significant amount of money in developing improved online education platforms that would increase the number of hours students spent studying online and lower the number of students who dropped out of school during the pandemic. Some of these educational establishments have implemented blended learning and fully online classes. In contrast, others had established the teaching and learning (TNL) unit to educate their instructors on online learning management platforms such as Blackboard to ensure that online classes could be carried out without hiccups. To ensure the success of online teaching and learning, the lecturers needed to receive the appropriate direction and training. Podcasts and tutorials were made available to all the teaching staff and the students, and adequate support and guidance for online learning were provided. The students and the teachers benefited in some ways and suffered in others due to this change. There is still a lack of clear understanding about how students' experiences could influence their satisfaction level and intention to continue their studies, even though many universities have adopted online learning.

Online learning platforms have become the primary solution that provides higher education institutions with a broader reach, more convenience, collaboration, and customisation compared to traditional classrooms due to the growing popularity of applications that utilise wireless technology (Shiue et al., 2019). Despite this, implementing innovative instruction methods is complex, making it challenging to ensure the success of both students and educational institutions. This is due to people's generally pessimistic attitudes and perceptions about the benefits of online education.

A recent study found that students' attitudes and levels of satisfaction regarding remote online learning had no impact on the extent to which they intended to continue utilising this strategy in their educational pursuits.

The factors associated with student satisfaction in traditional classroom settings are often more tangible. These factors include the amenities and facilities provided, the lecturers' quality and qualifications, and the support services and available activities. On the other hand, remote online learning presents various challenges to teachers and students, mainly when implemented under a Movement Control Order (MCO), which could put either group under enormous pressure (Shiue et al., 2019). In light of this, higher education institutions have realised that it is urgently necessary to conquer the technological challenges and to be well-equipped for online teaching and learning, particularly during the pandemic. Because students are the most important stakeholders at the receiving end, it is essential to have a solid understanding of the factors that influence their level of contentment (Peterson et al., 2019). Even though many studies, such as those mentioned above, may have investigated the level of satisfaction that students have concerning online learning, it is essential to comprehend how the current situation may have impacted those students.

Literature review

Remote learning pros and cons vary. According to the research, remote learning improves retention and saves time (De Freitas et al., 2015).

Remote online learning allows students and lecturers to work from home. When students have problems, they may be too shy to ask questions during online live classes, and some may not give their full attention if their webcams are off. These are some online learning challenges.

Course proficiency often replaces learning engagement in student satisfaction (Bolliger, 2004). According to Moore (2011), online learning success and competence indicate learner satisfaction. Satisfaction is a crucial indicator of learning effectiveness, especially in online courses.

Satisfied learners are more engaged, responsive, and motivated, which promotes a productive learning environment. Their achievement level is higher, but teachers have more trouble helping dissatisfied students learn. It is not easy to measure learner satisfaction (Graham, 2019). However, it is crucial because students spend a lot of time, money, and energy to get a good education and make online learning useful (Bollinger, Erichsen, 2013).

Learners' satisfaction, one of the critical predictors of a course's success and distance learning's effectiveness (Allen, Seaman, 2003), is related to self-efficacy, technology, students' autonomy, interaction, and self-regulation (Rodriguez Robles, 2006). Interaction, self-regulated learning, and Internet-self efficacy are all assumed to indicate learner satisfaction. Interaction is essential to online and face-to-face learning programmes (Kuo et al., 2013).

According to past research, instructors are the primary facilitators, and their online teaching effectiveness (OTE) predicts student satisfaction (Glazier & Harris, 2021). Instructors can effectively deliver course content, have subject matter expertise, use online tools, and manage their online classroom environment to engage students (Roddy et al., 2017). Even though the academic staff was the least important factor in measuring the quality of HEIs, instructors are necessary for the majority of online courses in order to successfully deliver the content. According to Paechter et al. (2010), other essential factors included course design, instructor expertise, flexibility, self-motivation, and personal communication skills.

Online interaction between students is another important aspect of remote learning satisfaction.

Peer interaction and collaboration enhance the online learning environment. Despite implementation difficulties, open communication usually leads to joyful learning. Practical online collaborative tools increase student satisfaction with online learning as they become more independent and adaptable (Hong et al., 2021)). According to research, a lack of faculty connection negatively affects a student's sense of course completion potential (Moralista & Oducado, 2020). Long-term, online social interaction creates meaningful dialogues and positive relationships (Keaton & Gilbert, 2020). According to a previous review, online support (OSP) is a significant factor in student satisfaction. Tech-savvy students are less dissatisfied (Roff, 2018). Students without the Internet or software would be disadvantaged. Students preferred teachers with 24-hour online technical support (Hashemi, 2021). Institutions that provide comprehensive online student support can ensure a positive learning experience (Roddy et al., 2017). This includes student-instructor interaction and e-books, videos, and other academic resources. Online students rely on technology to learn synchronously without delays or disruptions. They expect 24/7 online tech support.

Remote online learning is consistent with lifelong learning principles because students can learn independently (Hong, 2021). Real-world course design improves students' soft skills and job market employability (De Freitas et al., 2015). Online future relevance (OFR) is how students perceive their online course content and activities to help them achieve future career goals (Knoster & Myers, 2020). Online future relevance has received little scholarly attention (Knoster & Myers, 2020). Kuo (2010) included computer self-efficacy in research on online learning. Using a computer effectively predicts online course satisfaction, he says. Self-regulation affects online learning success (Shih & Gamon, 2001). High scores and grades reflect students' achievement (Sinanović & Bećirović, 2016), and it is a goal for both learners and instructors. Course satisfaction and goal achievement are linked through learner-instructor feedback.

This study investigates to what extent GPA, gender, average time spent online for courses each week, and grade level mediate the relationship between interaction and online learning satisfaction among Bosnian high schoolers. Based on the presented theoretical ground, the study was guided by the following research questions:

1. Is a statistically significant difference in students' satisfaction with online learning based on GPA, gender, average time spent online for courses each week, and grade level?

2. Is a statistically significant difference in students' interaction in online learning based on GPA, gender, average time spent online for courses each week, and grade level?

Methodology

Participants

The examination sample comprised 175 selected participants from high schools in Bosnia and Herzegovina. Participants were selected from different grade levels. Thus, there were 27 (15.4 %) first-grade students, 30 (17.1 %) second grade students, 56 (32 %) third grade students, and 62 (35.4 %) fourth grade students. 125 (71.4%) male and 50 (28.6%) female students with ages ranging from 15-19, and the assumption of a minimum of 10 participants per group (McMilan, 2012) was fulfilled.

Table 1.
Descriptive analysis of the participant

		N	%
Gender	Male	125	71.40
	Female	50	28.60
Grade level	First	27	15.40
	Second	30	17.10
	Third	56	32.00
	Fourth	62	35.40
GPA	<3.0 (low)	4	2.29
	3.0 – 4.0 (medium)	65	37.14
	>4.0 (high)	106	60.57
Hours spent online for the course per week	Less than 5 hours	40	22.90
	6-10 hours	64	36.60
	11-15 hours	34	19.40
	16-20 hours	37	21.10

Instruments and procedures

Five distinct components make up the instrument. The first section included questions about demographic factors such as gender, age, overall grade point average, grade level, and the typical weekly time spent online for the course. The second section comprises the learners' interaction scale developed and validated by Kuo and his colleagues (2009). The purpose of this instrument was to collect additional information that was more detailed about the students. Using the five-point Likert scale, respondents' satisfaction levels with online learning ranged from 1 (strongly dissatisfied) to 5 (very satisfied). disagree) to 5 (strongly agree). The instrument comprised 18 items divided into three subscales, namely learner-learner interaction (8 items, e.g., Overall, I had numerous interactions related to the course content with fellow students); learner-instructor interaction (6 items, e.g., I had numerous interactions with the instructor during the class); and learner-content interaction (4 items, e.g., Online course materials helped me to understand better the class content).

The internet self-efficacy scale developed and validated by Eastin and colleagues was included in the third part of the study. LaRose (2000) conducted a study to determine student confidence levels when using internet-based technology. This instrument consisted of a total of eight different items (e.g., I feel confident explaining why a task will not run on the Internet) with seven possible answers ranging from 1 (very unlikely) to 7 (very likely). The next was the self-regulated scale with twelve items (e.g., When I study for this class, I set goals for myself to direct my activities in each study period) developed by Pintrich et al. (1993).

After obtaining administrative approval and the students' informed consent from the schools, the data online collection tools were made available and modified following the high schools by the investigators in the high schools in question. None of the participants was without an appropriate clarification on how to fill out a scale similar to the Likert scale, as well as enlightenment that the data obtained from These tools would be completely anonymous, voluntary, and confidential.

Data analysis

The Statistical Package for Social Science (SPSS) version 26.0 was utilised to examine the data, and three different statistical methods were employed. To determine the degree of students' satisfaction as well as their interaction, self-efficacy, and self-regulated learning, the means (M) and the standard deviation (SD) were utilised. Further, a One-way ANOVA was performed to see the influence of GPA on learners' interactions, and a factorial ANOVA was run to analyse the effect of gender,

average time spent online for courses weekly, and grade level on learners' satisfaction. Finally, standard multiple regression was applied to investigate students' satisfaction, self-efficacy, and self-regulated learning impact on students' achievement in online learning.

Results

Initial Analysis

The results in Table 2 showed that the high school students generally felt confident in the online learning environment, with a moderate mean (M=3.18, SD=.44). Regarding learner-to-learner interaction (M=3.47, SD=.7), again being pretty moderate. At the same time, the most used one seemed to be learner-instructor interaction (M=3.69, SD=.63); however, only slight differences were observed in learner-course (M=3.46, SD=.52).

The lowest mean among these scales was observed on the side of learners' digital competence (M=2.70, SD=.35). However, the highest mean was in informal digital learning (M=3.91, SD=.59). The analysis showed that all variables above are customarily distributed using skewness and kurtosis values (ranging from -2 to +2, as proposed by Hair et al., 2010).

Table 2.
Descriptive results and correlation

	N	M	SD	1	2	3	4	5	6	α	Skewness	Kurtosis
1	175	3.18	.44	1	.212**	.310**	.501**	.350**	.189*	.78	-.174	-.401
2	175	3.47	.70	.212**	1	.585**	.491**	.202**	.338**	.76	-.420	1.005
3	175	3.69	.63	.310**	.585**	1	.627**	.173*	.466**	.72	-.983	2.821
4	175	3.46	.52	.501**	.491**	.627**	1	.335**	.564**	.70	-.578	2.260
5	175	2.70	.35	.350**	.202**	.173*	.335**	1	.391**	.79	-1.438	1.859
6	175	3.91	.59	.189*	.338**	.466**	.564**	.391**	1	.75	-.824	2.811

1. Satisfaction, 2. Learner-to-learner interaction, 3. Learner-to-instructor interaction, 4. Learner-to-course interaction, 5. Competence, 6. Digital informal learning

***. Correlation is significant at the 0.01 level (2-tailed)*

**. Correlation is significant at the 0.05 level (2-tailed)*

Furthermore, correlation analyses demonstrated that all scales were positively and significantly correlated with each other ($p < .01$) for all, except for scales one and six where significance is ($p < .05$). In particular, it is found that learners' satisfaction is positively and significantly correlated with learner-learner interaction ($r = .212$ $p < .01$), learner-instructor interaction ($r = .310$ $p < .01$), learner-course interaction ($r = .501$ $p < .01$), competence ($r = .350$ $p < .01$), and digital informal learning ($r = .189$ $p < .05$). Thus, the more learners interact with each other, instructors and courses, as well as use digital informal learning materials, the more likely they will be satisfied and confident during online lessons.

Learners' satisfaction Based on Gender, GPA, Grade Level and Average Time Spent Online for a Course Per Week

The four-way analysis of variance (factorial ANOVA) was performed to investigate learners' differences in satisfaction with online learning based on gender, general GPA, grade level, and average time spent online on courses each week.

In particular, the factorial ANOVA analysis does not indicate a significant interaction effect between all analysed variables. Specifically, for gender and average time spent online $F(3,121) = .325$, $p = .807$, partial $\eta_p^2 = .008$. $F(9,121) = .481$, $p = .885$, partial $\eta_p^2 = .035$ for grade and average time spent online, and, lastly, for GPA and average time spent

online F (4,121) = .571, p = .684, partial η_p^2= .019. Also, no significant main effects were found for gender, GPA, grade level, and hours spent online. For example, gender F (1, 121) = 3.573, p = .061, with moderate effect size partial η_p^2 = .029 and average time spent online F (3, 121) = .138, p = .937, having low effect size partial η_p^2= .003, while main effects of grade level F (3, 121) = .818, p = .487, η_p^2 = .020, and GPA F (2, 121) = .537, p = .566, with effect size being really low partial η_p^2 = .009, were statistically insignificant (Table 3).

The results showed that males were significantly more satisfied with online learning (*M*=3.23, *SD*=.43) compared to their female counterparts (M=3.06, *SD*=.44).

Table 3.
Learners' satisfaction based on gender, GPA, grade level and average time spent online for the course per week

Source	SS	df	F	p	ηp2
Gender	.711	1	3.573	.061	.029
Grade	.488	3	.818	.487	.020
GPA	.228	2	.573	.566	.009
Hours spent online per week	.082	3	.138	.937	.003
Gender * Grade	.897	3	1.503	.217	.036
Gender * GPA	.045	1	.224	.637	.002
Gender * Hours spent online per week	.194	3	.325	.807	.008
Grade * GPA	.514	3	.861	.463	.021
Grade * Hours spent online per week	.861	9	.481	.885	.035
GPA * Hours spent online per week	.454	4	.571	.684	.019
Gender * Grade * GPA	.039	2	.098	.907	.002
Gender * Grade * Hours spent online per week	.653	7	.469	.855	.026
Gender * GPA * Hours spent online per week	.113	2	.283	.754	.005
Grade * GPA * Hours spent online per week	.394	5	.396	.851	.016
Gender * Grade * GPA* Hours spent online per week	.059	1	.296	.587	.002

Further, the results suggested that learners with low GPA scores were more satisfied (*M*=3.42, *SD*=.39) than learners with medium (*M*=3.18, *SD*=.47) and high GPA scores (*M*=3.18, *SD*=.42), whose level of satisfaction was the same. When considering grade levels, it is found that the participants in the 2nd grade obtained the highest score of satisfaction (*M*=3.36, *SD*=.36), next was the 4th grade (*M*=3.21, *SD*=.44), followed by the 3rd graders (*M*=3.12, *SD*=.43), while the lowest was among the 1st graders (*M*=3.07, *SD*=.49). Moreover, learners who spent less than 5hrs (*M*=3.25, *SD*=.48) were the most satisfied, next were those who spent 6-10 hrs (*M*=3.21, *SD*=.39), followed by the learners who spent 11-15 hours online (*M*=3.16, *SD*=.35), while the least satisfied were those with 16-20 hrs online (*M*=3.09, *SD*=.53).

Learners' interaction based on gender, GPA, grade level and average time spent online for the course per week

A factorial MANOVA was also conducted to investigate the impact of gender, GPA, grade level, and average time spent online on learner-learner interaction, learner-instructor interaction, and learner-content interaction. Multivariate MANOVA showed no significant interaction effect between all analysed variables. The main effects of variables also showed no significant interaction. All interactions and main effects on learners' interactions are presented in Table 4.

Further, descriptive results showed that the male students experienced learner-instructor interaction (*M*=3.74, *SD*=.60) at the highest level of learner interaction as their female counterparts (*M*=3.54, *SD*=.68). Considering GPA, it is revealed that learners with low grades interact the most with all types of interaction, as follows: learner-learner (*M*=3.68, *SD*=.38), learner-instructor (*M*=4.00, *SD*=.35), and learner-course (*M*=3.64, *SD*=.13) interactions. Regarding grade level, it is found that 2nd graders interact the most in all types of interaction. The highest mean is noticed in learner-instructor interaction (*M*=3.86, *SD*=.77) and learner-learner interaction (*M*=3.61, *SD*=.78). However, the lowest is observed with learner-course interaction (*M*=3.57, *SD*=.66). Surprisingly, 1st graders interact the least, favourably disposed to interact with instructors (*M*=3.49, *SD*=.75), followed by courses (*M*=3.38, *SD*=.48), and then learners (*M*=3.31, *SD*=.78). Finally, when it comes to hours spent online, it is found that those who spend 11-15 hours interact the most in all types of interaction. The highest mean is noticed in learner-instructor interaction (*M*=3.79, *SD*=.53) and learner-course interaction (*M*=3.57, *SD*=.55). However, the lowest is observed with learner-learner interaction (*M*=3.56, *SD*=.56). The lowest level of learner-course interaction as those who spend less than 5 hours (*M*=3.32, *SD*=.54). In comparison,

for those spending 16-20 hours it is noticed that they interact the least with other learners (*M*=3.42, *SD*=.95) and instructors (*M*=3.54, *SD*=.78). Additionally, those spending 16-20 hours are the ones who have learner-learner. Learner-instructor interaction developed the least among all other analysed groups.

Table 4.
Learners' interaction based on gender, GPA, grade level and average time spent online for the course per week

Source	Dependent Variable	SS	df	F	p	ηp²
Gender	Learner-to-learner interaction	.097	1	.183	.670	.002
	Learner-to-instructor interaction	.855	1	2.073	.153	.017
	Learner-to-course interaction	.823	1	2.919	.090	.024
Grade	Learner-to-learner interaction	1.634	3	1.024	.385	.025
	Learner-to-instructor interaction	1.291	3	1.043	.376	.025
	Learner-to-course interaction	.928	3	1.097	.353	.026
GPA	Learner-to-learner interaction	.845	2	.794	.454	.013
	Learner-to-instructor interaction	.786	2	.952	.389	.015
	Learner-to-course interaction	.161	2	.285	.753	.005
Hours spent online per week	Learner-to-learner interaction	.681	3	.426	.734	.010
	Learner-to-instructor interaction	.500	3	.404	.751	.010
	Learner-to-course interaction	.618	3	.730	.536	.018
Gender * Grade	Learner-to-learner interaction	2.122	3	1.329	.268	.032
	Learner-to-instructor interaction	.637	3	.515	.673	.013
	Learner-to-course interaction	.511	3	.605	.613	.015
Gender * GPA	Learner-to-learner interaction	.024	1	.046	.831	.000
	Learner-to-instructor interaction	.708	1	1.715	.193	.014
	Learner-to-course interaction	.266	1	.945	.333	.008
Gender * Hours spent online per week	Learner-to-learner interaction	.702	3	.439	.725	.011
	Learner-to-instructor interaction	.618	3	.499	.683	.012
	Learner-to-course interaction	.266	3	.314	.815	.008
Grade * GPA	Learner-to-learner interaction	1.260	3	.789	.502	.019
	Learner-to-instructor interaction	1.609	3	1.300	.278	.031
	Learner-to-course interaction	.627	3	.741	.529	.018
Grade * Hours spent online per week	Learner-to-learner interaction	1.824	9	.381	.942	.028
	Learner-to-instructor interaction	1.969	9	.530	.850	.038
	Learner-to-course interaction	2.199	9	.866	.557	.061
GPA * Hours spent online per week	Learner-to-learner interaction	.911	4	.428	.788	.014
	Learner-to-instructor interaction	1.091	4	.661	.620	.021
	Learner-to-course interaction	.343	4	.304	.875	.010
Gender * Grade * GPA	Learner-to-learner interaction	.153	2	.144	.866	.002
	Learner-to-instructor interaction	.131	2	.159	.854	.003
	Learner-to-course interaction	.294	2	.521	.595	.009
Gender * Grade * Hours spent online per week	Learner-to-learner interaction	.932	7	.250	.971	.014
	Learner-to-instructor interaction	2.458	7	.851	.547	.047
	Learner-to-course interaction	1.111	7	.563	.785	.032
Gender * GPA * Hours spent online per week	Learner-to-learner interaction	.248	2	.233	.793	.004
	Learner-to-instructor interaction	2.584	2	3.133	.047	.049
	Learner-to-course interaction	.195	2	.346	.709	.006
Grade * GPA * Hours spent online per week	Learner-to-learner interaction	3.160	5	1.188	.319	.047
	Learner-to-instructor interaction	1.883	5	.913	.475	.036
	Learner-to-course interaction	.658	5	.467	.800	.019
Gender * Grade * GPA * Hours spent online per week	Learner-to-learner interaction	.173	1	.325	.570	.003
	Learner-to-instructor interaction	.041	1	.099	.753	.001
	Learner-to-course interaction	.093	1	.331	.566	.003

Discussion

The global pandemic caused by the COVID-19 virus has caused significant disruptions in educational endeavours. In most under-resourced contexts, where accessibility, availability, and use of technology in education are not widespread, it has been difficult for teachers to bring learning into students' homes (Khan et al., 2012). Aside from this, teachers' inadequate digital skills prevent them from delivering effective learning (Laudari & Maher, 2019), and little thought has been given to providing them with training on managing the social, physiological, and psychological issues that arise among students. The COVID-19 pandemic has encouraged online teaching on a much larger scale than it had been promoted previously, even though it has been encouraged for several years. Students at all educational levels (college, secondary school, and elementary school) could not attend classes during the pandemic caused by the COVID-19 virus.

Most educational institutions have moved toward implementing online instruction to maintain student learning. This study focuses on high school education and fills in the gaps left by previous research by delving deeper into learner satisfaction, interaction among learners, self-regulated learning, and internet self-efficacy in online learning environments among high school students in Bosnia and Herzegovina. The findings suggested that high school students feel confident using the Internet for educational purposes. This is not surprising given that young learners are more connected than ever, and the Internet has created the illusion that the world is a "small village" due to people being able to share and learn information instantly (Shali, 2018).

Furthermore, for high school students, self-regulation is essential in determining their learning outcomes, even though most reported being quite self-regulated. This could be because the demands of online instruction are more challenging for their learning effectiveness. After all, there is no immediate interaction between educators and students (Broadbent, Poon, 2015). In addition, some studies (Barnard et al., 2010; Shea, Bidjerano, 2010) have demonstrated that e-learning is highly learner-centred, meaning that students are expected to assume greater autonomy and responsibilities. Because the nature of learning is social (Hamzić, Bećirović, 2021; Frey et al., 2019), the finding that learners like to interact is in some way expected. However, because learners cannot physically interact with their teachers or classmates during COVID-19, they are more likely to experience an eagerness for social relatedness during this time. (Bećirović et al., 2022).

Moreover, this study's findings show a positive correlation between social presence and overall satisfaction with courses when it is taken online. This indicates that students with a high social presence had a significantly increased chance of reporting high overall satisfaction with their classes. The findings align with many other studies ((Khalid & Nasir, 2020)). This leads to the conclusion that affective expression, open communication, and group cohesion, which are all components that are embedded in the theory of social presence as was investigated by Garrison et al. (1999), are essential in enhancing the quality of relationships with peers in an online learning environment. This is in addition to the fact that these three components were discovered in a different settings.

Social presence is essential for engagement and contentment to be maintained over time. For example, Bosnian and Herzegovinian high school students exhibited a strong correlation between social presence in the CoI (The Community of Inquiry) framework and overall course satisfaction. Therefore, a significant social presence is a crucial factor in determining the success or failure of e-learning. Although the use of digital technology has been an everyday practice for some time now, including the utilisation of digital artefacts, web resources, and platforms, the extent to which this technology is utilised in higher education and its impact on learning has primarily remained unexplored. According to Lai (2011), there is a paucity of information regarding how instructors at universities use digital technology in the classroom, how this technology is incorporated into pedagogy, and the potential effects this may have on students. According to Alzahrni and Seth (2021), the learners' expectations of the personal benefits resulting from their use of technologies (personal outcome expectations) significantly impact their continuous intention to use technologies. According to the findings of Mohammadi and colleagues (2021), who conducted research in Afghanistan, one of the most significant difficulties associated with introducing digital technologies like the learning management system (LMS) into higher education is the absence of relevant policies, guidelines, and detailed policy documents. However, Mohammadi et al. (2021) found out that "Providing an interactive learning environment and automating the administration, organisation, delivery,

and reporting of educational content and learner outcomes" is what the technologies that help to provide long-distance courses, such as the learning management systems, say they do (Turnbull et al., 2021, p. 1). In a study conducted at a teacher training institution (faculty) located in a developing context, Laudari and Maher (2019) concluded that two different types of barriers mitigate the effective use of digital technology in teacher education. First, it faces first-order barriers (external barriers), such as a lack of resources and training, unconducive policy and administration, rigid curriculum and assessment, and second-order barriers (internal barriers), which relate to teachers' beliefs, motivation, and attitude towards technology. Lastly, third-order barriers (internal barriers), which relate to third-order barriers (external barriers), such as lack of resources and training (Ertmer, 1999). The first-order barriers to technology are becoming less noticeable as more affordable technology becomes more widely used.

On the other hand, the second-order barriers are becoming more influential as more sophisticated technology becomes available. These findings provide essential hints that, if incorporated into an improved online learning experience, could lead to increased learner satisfaction and a marked improvement in the quality of the education received. It is possible that the satisfaction of learners can be controlled by the quality of the courses they take, which is an important mediator that affects learners' satisfaction (Alqurashi, 2019).

In addition, there was a statistically significant relationship between each of these variables and each other. In particular, the findings indicated that internet self-efficacy significantly correlates with students' overall satisfaction with their online experiences, which is consistent with the findings of many other studies (Chu, Chu, 2010; Shen et al., 2014; Womble, 2008). Therefore, learners' irritation and dissatisfaction could be triggered by technical difficulties that arise while using the Internet (Choy et al., 2002). The correlation between three categories of interactions (learner-learner interaction, learner-instructor interaction, and learner-content interaction) and student satisfaction was also found to be positive and significant. This finding is in line with previous research on the topic (Rodriguez, 2006). Learner-learner and learner-instructor interactions were found to be more connected to and predictive of learners' satisfaction than learner-content interactions, according to several studies that investigated online learning (Rodriguez Robles, 2006). The findings, however, are inconclusive since some studies suggested that the level of interaction with the content is more important to learners' satisfaction with online learning than other types of interaction (Bećirović et al., 2022). Specifically, regarding learners' satisfaction based on gender, general GPA, grade level, and average time spent online, recent studies found that course design (Allen et al., 2002), instructor support, and personal learner factors increase learning satisfaction (Rich, 2006). According to the findings, GPA and the average amount of time spent online had a significant interactive effect on the level of satisfaction experienced by the students, whereas the interaction effects of the other factors were found to be insignificant. Male students were more engaged in all interactions than their female counterparts.

In line with this finding, the vast majority of studies conducted on the implementation of online learning have found that learners' levels of satisfaction with online learning are significantly influenced by gender. A higher level of satisfaction was more likely found on the side of male learners, which is not surprising given that male learners intended to use computers more frequently, leading to a higher level of comfort with computer use (Bećirović et al., 2022). The same findings were obtained by Beqiri, Chase, and Bishka (2009), who discovered that male learners in online learning reported significantly higher levels of fulfilment than female learners. Despite this, some researchers could not detect significant differences between the sexes (Cuadrado-García et al., 2010). Having said this, some researchers have suggested that females have outperformed their male counterparts in online performance (Turesky, Hebert, 2016) and that their level of satisfaction is relatively higher.

According to the findings of this study, gender and grade level interaction significantly impact learner-instructor interaction. Learner-learner interaction, learner-instructor interaction, and learner-content interaction are the three levels of learner interaction based on factors such as GPA, gender, and the average amount of time spent online for courses each week. It would appear that the influence of gender on learner-instructor interaction is different for students in lower grades compared to students in higher grades. This means sophomores are the most engaged in all interactions, while first-grade students scored the worst in learner-to-learner interaction and learner-to-course interaction. This may be because students in their first grade of high school are highly perceptive and

gain much knowledge from their experiences and the people they interact with. They gain a specific understanding of what an instructor/teacher is by not listening to what teachers say but watching what teachers do. Teachers in a new class of freshmen may comment that their students do not say very much during the first few days (and weeks) of the semester.

On the other hand, it would be more accurate to say that first-grade students spend much time observing their surroundings and drawing conclusions based on those observations. Therefore, instructors must turn their observations into teaching opportunities whenever possible. During the first few class sessions, students observe whether or not their teachers smile, greet them, appear bored, or pay attention. They also notice whether or not the teachers greet the students. Students can draw conclusions about teachers and the meaning of mentoring based on their observations. In addition, learner-content interaction was significantly influenced by the interactions between GPA and the average time spent online, as well as the interactions between gender, GPA, and the average time spent online. However, the influence of other variables was found to be insignificant.

The findings, as a whole, seem to point to the fact that improving learning outcomes can be accomplished by providing online web tools in addition to traditional in-person instruction. In addition, it appears that students perform significantly better on assessment tasks when they use online self-testing assessments that are immediately marked and include feedback. Further, increases in the total amount of time spent online (accessing course content, additional examples, additional notes, references, etc.) positively affect student performance, even though this effect is only marginal for the component dealing with formal examinations. The marginal effect of time spent online varies depending on how many sessions this time is spread over. This time can be spent doing anything from reading to playing games. For instance, the effect will be insignificant if it is spread out throughout three separate online sessions. It is possible that breaking up the total amount of time spent online into multiple sessions will indicate a more consistent and ongoing engagement with the course. It is possible that student performance, learning, and interaction improvements are attributable to the increased time spent online and students' consistent engagement with online activities. Since it is unlikely that a single measure will lead to improved student performance, one of the essential things that can be done to ensure that all students are successful is to continue researching how the components are combined and find a connection between them (Korkofingas & Macri, 2013).

On the other hand, it was discovered that GPA significantly influences the interaction between learners and between learners and instructors. The current study demonstrates that online education benefits learners more when connecting strongly with their teachers and classmates. This finding is consistent with earlier studies, which stated that a positive student-teacher connection presumes students' perceptions of their ability to acquire knowledge (Song et al., 2019). There is no denying that the awareness of learners' identities (Chang & Hus, 2016) and the exchange of ideas are undeniably more challenging between learners and teachers (Bećirović & Dervić, 2022; Bećirović et al., 2021). Learning from one's peers in an online environment can be challenging due to the difficulties arising from learner-to-learner interactions during group activities. In face-to-face classrooms, learners can immediately discuss with classmates to obtain understanding, ideas, and suggestions, whereas, in online contexts, this is impossible. Wut and Xu (2021) state that this is not the case.

In addition, Keaton and Gilbert (2020) argue that interaction among learners was the most difficult. This is because learners typically had little interaction with other learners due to time and distance constraints. Many studies considered learner-content interaction the most critical (Kuo et al., 2009). This is because learners spend more time on requested reading or projects and absorb the content they need to master through reflections, thinking, or elaboration, which is the confidentially intellectual interaction of an individual with the content (Laličić, Dubravac, 2021; Kuo et al., 2009). It is interesting; therefore, instructors should encourage students to interact with the course's subject matter to develop a new concept during the learning process. This can be accomplished by selecting content for online courses describing specific methods students can use in their regular lives. Indeed, increased interaction can improve students' academic performance, attitudes toward learning, and motivation to learn (Hillman et al., 1994). Also, it is found that grade level significantly influences learner-instructor and learner-learner interaction, with the difference between 1st and 4th grade on one side and 2nd and 3rd grade on the other side. The former insists on less interaction, while the latter shows more interaction than the first group.

Besides, the analysis showed that only the interaction between GPA and average time spent online significantly influences internet self-efficacy. In contrast, a significant influence was not found on the side of student-regulated learning corresponding to internet self-efficacy and student-regulated learning based on GPA, gender, average time spent online for courses each week, and the grade level of learners. GPA, gender, and average time spent online for courses each week were considered. Learners with higher GPAs are more likely to be self-sufficient when navigating the Internet and have spent less time doing so than students with lower GPAs. It was found that the average amount of time spent online significantly influences both internet self-efficacy and self-regulated learning; this was the case when single variables were considered. It appears that learners who spent 11-15 hours online had the highest interaction in all types, especially learner-instructor, but those spending less than 5 hours online interacted the least, while those spending 16-20 hours interacted the most with other learners and instructors. There is a positive correlation between self-efficacy and student performance (Kuo et al., 2014). Students with a higher level of self-efficacy tend to have better academic performance overall than their counterparts with a lower level of self-efficacy. The influence of self-efficacy on learning outcomes may or may not be significant depending on the circumstances, even though self-efficacy is an essential component of the online learning experience. Students in online learning environments are required to engage in activities related to the Internet to complete their online assignments, which is not required in traditional classroom instruction.

According to Kuo et al. (2014), self-regulation is essential in academic or learning performance. Research has shown that students who can better self-regulate their learning are more likely to succeed academically than their peers. Students may find that, due to the characteristics of online learning environments, they must utilise a more significant number of self-regulated skills to organise their learning and progress in online contexts.

Lastly, the research findings indicate that digital technology has become an established component of education and is influencing how students of today learn. The term "computing" can refer to various tasks when discussing digital technology. Hardware and software, such as mobile devices, web tools, application software, communications and storage services, and other similar things; however, high school students appear to be digitally illiterate. However, high schoolers seem to be digitally illiterate. Students in today's classrooms have an excellent working knowledge of digital technology and can generally access, create, and distribute digital information (Ting, 2015). According to Greene et al., 2014 in order to be considered digitally literate, a person not only needs to be able to search and manage digital information, but they also need to be able to scrutinise and integrate it. Even though today's students are thought to have a good understanding of technology, many struggles to use it to its full potential; they conclude that students need to acquire skills in critical thinking, planning, monitoring, and controlling information management and that this is a requirement for graduation. It should not be surprising that many high schoolers find online resources (such as e-books, digital databases, audio or video web cassettes, etc.). This is because today's young high schoolers generally have good knowledge of using digital technology in their everyday activities (for example, finding information online, watching videos, listening to music, using social media, etc.). Online resources, online course announcements, and online assignment submissions are the top three features of the learning management system that are most liked. In light of the findings of this research, instructors of blended learning classes need first to understand the students in terms of the student's level of digital literacy for learning before they can plan or deliver such classes. For blended learning to be successful, the student's level of digital literacy must be a good match for the requirements of the course. If it is determined that certain students have low levels of digital literacy, additional exercises and tutorials can be used to assist them in improving their digital literacy capabilities.

Miglbauer (2017) supports the idea that students can learn to use educational technologies for learning that are unfamiliar to them if they are introduced to these technologies and allowed to use them. He arrives at this conclusion by reasoning that the students would not usually use educational technologies unless there was a need for them to do so. In addition, according to Deschacht & Goeman (2015), blended learning is associated with an increased number of students dropping out of school. One possible explanation for this is that, in contrast to learning in a traditional classroom setting, blended learning calls for a certain amount of independent study on the student's part. Tang & Chaw (2016) suggest that readiness for self-directed learning is connected to self-control, self-man-

agement, and a desire to learn. According to Prior et al. (2016), students with a high level of self-efficacy tend to have higher levels of confidence, greater independence, and greater motivation. They concluded that a positive student attitude and a high level of digital literacy could help improve self-efficacy, contributing positively to online behaviours such as peer engagement, learning management system interaction, and convener interaction. Therefore, lecturers can play an essential role in encouraging students to engage in self-directed learning by assisting students in developing their digital literacy.

Conclusion

The rapid dissemination of computer technologies and improvements in Internet infrastructure have contributed to the rise of distance learning. The COVID-19 pandemic has encouraged online teaching more than before.

This study examines learner satisfaction, interaction, and self-regulated learning among high school students in Bosnia and Herzegovina. A study found a positive correlation between social presence and online course satisfaction. Affective expression, open communication and group cohesion are essential in enhancing peer relationships. In most under-resourced contexts, where accessibility, availability, and use of technology in education are not widespread, it has been difficult for teachers to bring learning into students' homes. This study focuses on high school education and fills in the gaps left by previous research by delving deeper into learner satisfaction, interaction among learners, self-regulated learning, and internet self-efficacy in online learning environments among high school students in Bosnia and Herzegovina.

Because the nature of learning is social, the finding that learners like to interact is in some way expected. Providing an interactive learning environment and automating the administration, organisation, delivery, and reporting of educational content and learner outcomes" is what the technologies that help to provide long-distance courses, such as the learning management systems, say they do. These findings provide essential hints that, if incorporated into an improved online learning experience, could lead to increased learner satisfaction and a marked improvement in the quality of the education received.

In particular, the findings indicated that internet self-efficacy significantly correlates with students' overall satisfaction with their online experiences, which is consistent with the findings of many other studies. The correlation between three categories of interactions (learner-learner interaction, learner-instructor interaction, and learner-content interaction) and student satisfaction was also found to be positive and significant. Learner-learner and learner-instructor interactions were found to be more connected to and predictive of learners' satisfaction than learner-content interactions, according to several studies that investigated online learning.

The findings, however, are inconclusive since some studies suggested that the level of interaction with the content is more important to learners' satisfaction with online learning than other types of interaction. Specifically, regarding learners' satisfaction based on gender, general GPA, grade level, and average time spent online, recent studies found that course design, instructor support, and personal learner factors increase learning satisfaction.

According to the findings, GPA and the average amount of time spent online had a significant interactive effect on the level of satisfaction experienced by the students, whereas the interaction effects of the other factors were found to be insignificant. In line with this finding, the vast majority of studies conducted on the implementation of online learning have found that learners' levels of satisfaction with online learning are significantly influenced by gender. Learner-learner interaction, learner-instructor interaction, and learner-content interaction are the three levels of learner interaction based on factors such as GPA, gender, and the average amount of time spent online for courses each week. This means sophomores are the most engaged in all interactions, while first-grade students scored the worst in learner-to-learner interaction and learner-to-course interaction. In addition, learner-content interaction was significantly influenced by the interactions between GPA and the average time spent online, as well as the interactions between gender, GPA, and the average time spent online. It is possible that student performance, learning, and interaction improvements are attributable to the increased time spent online and students' consistent engagement with online activities.

ndeed, increased interaction can improve students' academic performance, attitudes toward learning, and motivation to learn. In contrast, a significant influence was not found on the side of student-regulated learning corresponding to internet self-efficacy and student-regulated learning based on GPA, gender, average time spent online for courses each week, and the grade level of learners. It appears that learners who spent 11-15 hours online had the highest interaction in all types, especially learner-instructor, but those spending less than 5 hours online interacted the least, while those spending 16-20 hours interacted the most with other learners and instructors.

Students in online learning environments are required to engage in activities related to the Internet to complete their online assignments, which is not required in traditional classroom instruction. Students may find that, due to the characteristics of online learning environments, they must utilise a more significant number of self-regulated skills to organise their learning and progress in online contexts. Online resources, online course announcements, and online assignment submissions are the top three features of the learning management system that are most liked.

In light of the findings of this research, instructors of blended learning classes need first to understand the students in terms of the student's level of digital literacy for learning before they can plan or deliver such classes. Miglbauer (2017) supports the idea that students can learn to use educational technologies for learning that are unfamiliar to them if they are introduced to these technologies and allowed to use them. They concluded that a positive student attitude and a high level of digital literacy could help improve self-efficacy, contributing positively to online behaviours such as peer engagement, learning management system interaction, and convener interaction.

In order to improve the quality of e-learning offered in secondary schools in Bosnia and Herzegovina, teachers should have been tasked with utilising educational platforms to improve the flow of communication and the organisation of the curriculum. When it comes to encouraging teachers to make changes, school principals can positively impact when they believe in changing themselves. They encourage change, address teachers' concerns, and make it easier for teachers to feel less anxious and irritated by change-related concerns. Change-related concerns include other factors that can help facilitate change, including reminding educators of the positive outcomes of change and increasing their professional development and relevant skills and knowledge.

On the other hand, students responded quite well to this type of learning despite being unprepared for it and forced to deal effectively with unknown challenges. It is a well-known fact that younger generations respond to new technologies with more enthusiasm and curiosity than older generations do. However, a generational gap may affect how learners and educators approach the situation.

Since educators are currently not ready for the next step, that step should be to work on gaining knowledge about the attitudes and beliefs held by learners. These should be observed from the perspective of learners' ability to self-regulate their learning, their level of self-efficacy in using the Internet, the level of interaction between learners, and their level of satisfaction with online learning.

Learning through the Internet is more forward-thinking and resilient against certain external factors. It is a mode of communication prevalent in today's world, and as a powerful instrument in education, it merits more attention from teachers and professors.

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ORIGINAL RESEARCH PAPER

THE RELATIONSHIP BETWEEN DIGITAL COMPETENCY, LEARNING STYLES AND LEARNERS' PERCEPTION OF TRADITIONAL VERSUS TECHNOLOGY-ASSISTED LANGUAGE LEARNING

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ABSTRACT

The face of education is bound to be reshaped due to the changing needs of students, imposed by new and emerging technologies. The educational system has been stuck in time for generations, and while some improvements have been made, there is still a long way to go before the means of teaching and learning entailed by educational programs and institutions is fully adapted to the new digital age and learner profiles. There are numerous benefits of incorporating computer and mobile tools in the teaching and learning methods and its effectiveness has been demonstrated through numerous studies, some of which are referred to in this research paper. Technology allows students and teachers to interact and engage in creative ways through a digital environment that enables students of divergent learning styles to simultaneously learn lessons in a personalized manner that will ensure successful learning and performance. This research presents the results of a survey conducted with 50 learners in Bosnia and Herzegovina, between ages 18 and 47, which was conducted for the purpose of exploring relationships between digital competency, learning styles, and learners' attitudes towards traditional versus digital means of education. The research found that there is a strong preference for technology-assisted learning where participants primarily chose video as a learning medium, followed by voice recordings, music, podcasts, and practical use of the language with native or highly proficient speakers of the language learned. The study results, therefore, suggest a necessity for the application of an eclectic approach in education.

Keywords: digital competency, learning styles, technology-assisted learning, online learning, modern teaching methods

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1. Introduction

The application of technology in education systems has become an inevitable necessity in modern society and its proper integration has been an issue that has encouraged intensive research, as well as rich dialogue among professionals, in the academic sector. Due to the presence of technology in both private and professional life around the world, the search for knowledge has adopted a new form and changed the learning styles and needs of students. For thousands of years, children have been taught through self-directed play and free exploration, but industrialization has suppressed this mode of learning by imposed labour. Finally, the principles applied in the workplace have been transferred to educational institutions and learning has been standardized, modeled, and abstracted from real environments (Gray, 2008).

Since the emergence of new technologies, learning through play has been reignited with numerous forms of entertainment of educational nature; video, audio, games and so on. Technology has become so integrated in society that a large percentage of the global population has smartphones, computers, laptops, smart pads, smart watches or other devices and gadgets. Thus, the integration of technology in education has become imperative, since new generations of learners are born into an age of technology and most spaces that are deprived of it or insufficiently adapted to it are considered unappealing to them. This problematizes effective capacity building of learners that will form them into knowledgeable, skilled, responsible, and contributing members of society.

With the migration of many everyday tasks to a digitized space, education has changed its form in some respects, but this trend was especially prompted by the COVID-19 pandemic in 2019. Due to great health risks, the shift to online education was made by necessity and it opened a whole new frontier demonstrating the possibilities of technology-assisted learning, which allows a fluid approach that is not bound by time and place in the manner it used to be. The possibility of education in an online space has provided an opportunity for the exploration of its capacity for providing educational content using innovative ways of communication and interaction with learning material. Online learning has also allowed schools and universities to teach students from all over the world, making educational programs more available, which both learners and institutions can benefit from. An online educational program allows for a greater number of enrollments and students per class, and it allows students to have more options and greater freedom of choice when it comes to their studies. However, due to the earlier insufficient level of integration of modern technology into classrooms, issues have emerged as a result of the global pandemic that forced a complete shift to online teaching, learning and assessment. Unprepared students and teachers reported experiencing a high level of academic stress due to this novel model of work. In a qualitative study conducted by Francisco et al. (2022), it was found that some of the major factors causing students to be academically stressed included: overwhelming academic workload, an unconductive learning environment, role conflict, and adjusting to the new mode of learning, among others. Dautbašić and Bećirović (2021) argue in their research on teacher and student experiences in online classes during the COVID-19 pandemic in Serbia, Bosnia and Herzegovina and Croatia, that these countries have to make radical changes in order to meet the demands that will be imposed by the inevitable evolution of digitalization and thus online education.

This paper will analyze the possibilities and requirements of online learning, the relationship between digital competency and online learning, the effectiveness of online learning, the relationship between learning styles and online learning, and the effectiveness of computer-assisted and mobile-assisted learning.

2. Literature review

2.1. Online learning

Online learning can be defined as: "[t]he use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience" (Ally, 2009). The use of digital technology entails mixed learning methods through the use of divergent media forms such as video, audio, texts, graphics, animations, simulations, and other, as well as platforms such as Youtube, Zoom, WorldClassroom, Google Meet, Slack, learning management systems, digital libraries and similar. In this manner, learning is facilitated, since it allows options such as repetition of material, practice, learning at one's own pace, using supporting materials of students' choice that will help with understanding, and so on.

This helps to support teachers in their teaching process, since students who need further explanation can also work autonomously on lessons and improve their acquisition of knowledge in a personalized manner (Hasifa, 2020; Wan Aziaris, 2015).

For online education to be effective, there are certain requirements that need to be met to ensure knowledge transfer and successful acquisition. Bonk and Reynolds (1997) argue that it is imperative for online learning to include challenging activities that promote higher-order thinking and require the connection between old and new information and use of metacognitive abilities. According to Meinchenbaum (1985), metacognition is one's awareness of acquired knowledge or that which has not been previously attained. Thus, the concept relates to the ability of the learner to comprehend and manipulate cognitive operations. For instance, learners are engaging in metacognition while planning their approach to solving a task, reflecting on the final result, self-assessing, self-correcting, and adapting their steps and approaches to learning for ensuring successful completion. Flavell (1976) was the first to use the term metacognition and he explained it in terms of awareness of blockades in learning, evaluation of approaches to task-performance, and awareness of one's own thinking patterns. He divided the metacognition into three categories:

Person variables: personal characteristics in learning and information processing recognized as strengths or weaknesses;

Task variables: characteristics of the nature of the task and the demands for completion that the learner identifies as requirements

Strategy variables: schematized strategies, previously encoded knowledge, that can easily be activated to apply in task completion.

An example is provided by Livingston (1997) who described the applications of the three variables by stating: "I know that I (person variable) have difficulty with word problems (task variable), so I will answer the computational problems first and save the word problems for last (strategy variable)." (p. 5)

In the context of the requirements identified by Bonk and Reynolds (1997), they also argue that instructional strategy affects the quality of learning more than technology. However, Kozma (2001) provides a somewhat different view by stating that the medium does impact learning and technology, particularly referring to computers, is in fact needed for real-life simulations and model-presenting that help students get a better understanding of the learning material. Clark (2001) argues that the computer is a vehicle that creates a space for students to be delivered instruction and to be able to process information in an effective way. Cole (2000) also presents a favorable case for online learning by describing it as a means for collapsing time and space due to the flexibility that it provides in terms of access to learning materials. However, Cole highlights the importance of the role of teachers in designing effective learning materials that are appealing to students and elicit interest in the learning process. Rossett (2002) shares Cole's point of view by reiterating the significance of "proper design" when it comes to materials and instruction provided, and the support system that should all be tailored to student's needs. The need for high authenticity in learning was identified by Ring and Mathieux (2002), who brought forth an argument for designing learning in the context of the workplace, which would build the capacity of students in a more practical manner, and for the integration of highly interactive activities to strengthen the ability for collaboration.

Ratheswari (2018) considers that information technologies are crucial for students learning in the 21st century as it will prepare them for their entrance into the professional world as digitally literate, skilled and adaptable individuals. Cachia and Ferrari (2010) argue for technology-based education via creative means that will facilitate learning and interactions between peers and teachers.

2.2. Digital competency and online learning

Life has become almost inconceivable without computer technology, as society has largely turned to digitization for everyday tasks. The knowledge and skills needed to use information technology and computer technology have become one of the biggest requirements in today's professional world. The aim of facilitating faster, more efficient and flexible operations, problem solving and training has promoted and opened the possibility of integrating various forms of entertainment in education through video and games. The advent of information technology has revitalized the ability to learn through play. With the widespread use of ICT, digital competence in education, as well as in

others, has become a necessity. Ferrari (2012) presented the seven basic skills that teachers and students should have in the modern educational environment:

1. Information management: locating, accessing, retrieving, storing and organizing information in the digital space;
2. Collaboration: the ability to connect with others in the online space and interact in a constructive manner;
3. Communication and sharing: using online tools to communicate with others in the digital space;
4. Creation of content and knowledge: the ability to integrate previous knowledge, re-elaborate it and create new knowledge;
5. Ethics and responsibility: the ability to responsibly use ICTs and to follow the legal framework that applies to the digital space;
6. Evaluation and problem solving: to identify and solve problems using digital tools;
7. Technical operations: the ability to use media and digital tools.

The emergence of new technologies and their introduction into the school environment has changed the conventional understanding of education. In previous years, both teachers and students had to be present in the same physical space to communicate directly, while the teacher had to apply specialized teaching methods in classrooms so that students could interpret and internalize the concepts transmitted. As a result, this framework is characterized by the synchronization of students and teachers, in which both must coincide in time for teaching to be successful (Requerey, 2009). Presently, the need for physical education has been eliminated, and students are no longer limited to the classroom so that learning can take place. By integrating computer-assisted learning and mobile-assisted learning, students are able to tailor their own learning model according to the curriculum and their circumstances and skills. According to Danilović and Danilović (2012), information and communication technology is "a symbiosis of technology, methods and tools that together enable the transfer and use of educational content in accordance with the needs of educational actors, their intellectual capacities and teaching goals." This has led to better participation in courses and a greater interest in educational materials. Education can be further transformed at all levels, with the full application of technology in education and adequate staff training (Sangra & González-Sanmamed, 2010). The roles of teachers and students have already changed to some extent, with new opportunities for autonomous learning and easy access to information from around the world. However, this change can be further enhanced and developed with new information technology and computer and mobile-assisted learning, to provide students with even more independence and space for personalized learning with continuous practical experience. It is necessary to consider, as presented in research done by Bećirović and Dervic (2022) on student's pespectives of digital transformation of higher education in Bosnia and Herzegovina, that student's preference of learning mode (hybrid, online or live) impact their preparedness for e-learning, attitudes and satisfaction among other, which are crucial factors to discuss when planning for digital transformation and the advancement of educational programs and strategies.

The study presented in this paper aims to aid this purpose and investigate the relationship between digital competence, learning styles and the effectiveness of computer and mobile learning, especially in terms of improving language acquisition.

2.3. The effectiveness of online learning/online language learning

A study by Kiliçkaya and Krajka (2010) found that students remember their new vocabulary better when learning online. The main aim of their research was to compare the effect of different learning contexts on vocabulary learning. The two contexts examined are online and traditional learning. Participants in the control group (20) practiced new vocabulary from texts using notebooks and word cards, and participants in the experimental group (18) studied the same vocabulary through WordChamp - an online educational site. The researchers reported better memory performance in the experimental group after the test results were obtained three months after the experiment.

Another study investigating the effects of ICT on language learning was conducted by Ahmad (2016). The aim was to determine the relationship between ICT and skills. The experiment was based on an analysis of how modern ICT tools affect the

learning and speaking skills of a new language, as well as the construction of vocabulary and grammar knowledge. The survey was conducted with 100 English students from King Abdulaziz University. Participants in the control group, who used traditional methods, and in the experimental group, who used technology, were between 18 and 25 years old. The team that used the technology demonstrated a greater ability to use language learning in real situations and improved listening and speaking skills. Participants who used the technology showed better results in terms of pronunciation accuracy, vocabulary range and grammar knowledge. Therefore, the researcher concluded that technology has a significant impact on learning in a positive way, in which students are able to acquire new information and encode it more efficiently in long-term memory than when only traditional means are used.

Murnani and Salehi (2015) investigated the use of online dictionaries and the extent to which they improve the learning of different forms of language. 100 children participated in the experiment. The researchers divided the participants into experimental and control groups to investigate the effectiveness of using digital vocabulary to obtain words or phrases. During the learning sessions, the participants in the experimental group learned language forms using an electronic dictionary, while the participants in the control group took classes in the classroom using traditional methods. The study's findings suggest that learning using digital dictionaries significantly improves the learning of words and phrases.

Further research supports the application of technology in learning and online learning. Navaro and Shoemaker (2000) found that online students have equal or better results than traditional students, and that students are more likely to enjoy online learning regardless of their background. Rovai and Jordan's (2004) study of the relationship between social class and integrated form of learning found that students who use technology for online learning have a stronger sense of community. Several studies also demonstrated that through online learning, game mechanics and virtual successes increase engagement and reduce attrition (Dittering et al., 2011; Huatari & Hamari, 2012). The results from research conducted by Chen et. al. (2007) found that online learning allows for divergent teaching approaches that address various learning styles of students. Learning provides an opportunity for edutainment, which can improve academic performance due to higher interest and motivation for engaging in the learning process (Nguyen, 2015). Kenney and Newcombe (2011) found that blended learning resulted in higher average grades compared to a traditional learning environment. Garrison and Kanuka (2004) found that students are more likely to complete courses that employ a blended approach to learning than those who do not. They also found that student retention and satisfaction are improved through this teaching method. Research conducted by Bećirović et al. (2022), on student online learning satisfaction, interaction, self-efficacy and self-regulated learning, found that there is a direct positive correlation between learner satisfaction, time spent online and student GPA. Thus, the researchers concluded that "[o]nline learning is progressive and more resistant to certain outer factors. It is a contemporary way of communication and, as a powerful tool in education, it deserves more attention from educators" (p.30).

Research is largely in favor of ICT applications in educational institutions and other learning environments. However, it is extremely important to remember that for the use of technology to have fruitful effects on education, there are two key issues that determine student success and that need to be addressed in the curriculum reform process - technological competence and learning styles. Technological competence is examined in this study with regards to the seven competencies offered by Farrari (2012). Technological competencies refer to skills and competences acquired through the repeated use and exploration of digital tools and applications and are largely based on trial and error. As technological innovations evolve, so do the requirements for developing new skills. The strength of one's ability in this regard depends on repetition and correction. Ability is not a predetermined feature, so it can be manipulated and improved.

2.4. The relationship between online learning and learning styles

"Learning style" refers to the student's learning systems or learning preferences or memorization of knowledge and information. Learning styles are classified into four learning modes: auditory, kinesthetic, visual, and reading and writing. When it comes to learning styles, they depend on students' psychological patterns and attitudes about the most effective way to interact and receive new information. An individual's learning style depends largely on his or her psychology, so teachers are not able to control this variable during knowledge

transfer. A student with an auditory learning style cannot spontaneously change his style and develop the ability to learn faster by reading and writing. A student's learning style has a great influence on his or her performance on tests based on learning methods that differ from the dominant one. Therefore, assessments can give uncertain results that do not realistically reflect students' level of skill and knowledge. The education system still does not satisfactorily integrate flexible learning methods to suit the needs of students and the four learning styles (Lucas, 2004). However, it is important to keep this in mind when looking at the future of digital education, which offers ample opportunities and greater freedom for teachers and students.

Auditory types learn best while engaging in group discussions, listening to music, sounds, cassettes, or by reading aloud (Lucas, 2004). They learn majorly by talking and listening, and such students have a strong preference for oral assignments (Sprenger, 2002). To meet the needs of listening students, auditory stimuli such as music, conversations, interactive CD-ROMs, recordings, or demonstrations with verbal explanations should be included (Lucas, 2004). The challenge faced by most students with this learning style is having to be quiet and still.

Students with a visual learning style prefer to learn through visual aids such as posters, drawings, images, charts/maps, pictures, colors, visualization (Lucas, 2004). They may not fully grasp verbally discussed concepts, but they will "see" what is being said (Sprenger, 2002). Visual students are oriented towards creating visual representations of material being studied to encode information. Visually lenient students appreciate colored papers, graphically presented information and analogies related to the topic of the learning session, using cartoons for instance. Video plays a large role in this learning style, as it helps in the process of visualization of the progression and the relationships between concepts (Lucas, 2004).

A kinesthetic learner is best engaged in learning through activities and practical performance such as through gaming, movement, objects, modeling, and excursions (Lucas, 2004). This learning style requires movement and action, which is why students with this style have the most challenging time in traditional classroom arrangements and approaches to teaching that impose a style based on listening and note-taking (Sprenger, 2002).

The traditional education method is highly based on auditory and reading/writing learning styles which places students with different styles at a disadvantage. In a digital space, learning can take on a form that suits all learning styles and addresses their needs through applications such as virtual reality (VR), educational games, movies, music and so on. Learning in a virtual space enables the creation of an appealing visual representation of the study material through simple designs that are easily navigated. The compatibility of educational methods with students' learning styles highly affects academic performance as well as skill development. Remaining stuck in the old ways of knowledge transference and not adequately adapting the education system to the diversity of student needs and learning styles is hampering the progress of society.

3. Methodology

3.1. Research Objectives

Considering how digital competency and learning styles have a significant impact on the learning process, this research aimed to explore the relationships between age, gender, different aspects of digital literacy and students' perception of the efficiency of computer and mobile-assisted language learning in terms of boosting learner's motivation and language acquisition. The study also analyzes attitudes of participants in terms of traditional and digital/online learning based on gamification and relationships with the consideration of variables such as attention span, type of learning content, and students' needs.

3.2. Research questions

Previous studies conducted on the role of information technology on foreign language learning as well as on digital competency depended on the region where the research was conducted. Similar studies were not conducted in Bosnia and Herzegovina which is why different variables were considered and several research questions are stated as following:

RQ1: What is the relationship between learning style, content form preference, age, gender and digital competency?

RQ2: What is the relationship between attention and frequency of use of technology for language learning?

RQ3: What is the relationship between self-rated ability for autonomous use of technology for language learning, style of learning and attitude towards traditional versus new technology methods of learning, as well as their potential for boosting motivation in language learning?

3.3. Instruments and procedures

The research conducted primarily aimed to explore the relationships between digital competency, learning style needs, gender, attention capacity, type of learning material, attitudes towards online and traditional learning, and age using an online survey composed of 21 questions pertaining to relevant educational experiences of students. The variables measured in the survey are: learning style, content form preference, age, gender, digital competency, attention and frequency of use of technology for language learning. The questionnaire was obtained from Coman et al., 2020. The survey was written in Bosnian and English. The questionnaire is of structured nature, with close-ended questions and it was distributed via social media and snowball sampling. A sample of 50 participants was collected. Data was processed using SPSS software and Excel operations to perform statistical analysis.

3.4. Participants

The sample consists of 23 males and 27 females, which means the percentage ratio is 46:54. The proportion of the genders in the sample is close in number, therefore there is an overall balanced representation. The participants who took part in the research are between 18 and 47 years old. The age range is 29, while the average age is 27 years old. It is also the most represented age in the group. Participant demographics are diverse and mostly include high school and university students, as well as persons who are no longer in the education system, but have graduated and are employed. The majority of the sample are students from public universities in Bosnia and Herzegovina. The average questionnaire participant has graduated from high school and is in the first or second cycle of studies in university.

4. Results

45 out of 50 have used a computer or mobile phone for language learning, while 5 out of 50 did not. However, the sample contains a variety of degrees in digital literacy. When it comes to learning style, the majority of participants are visual learners (44%), 26% are textual learners, 16% are auditory learners, and kinesthetic learners make up the smallest percentage of 14%.

Chart 1.
Representation of learning styles in the sample

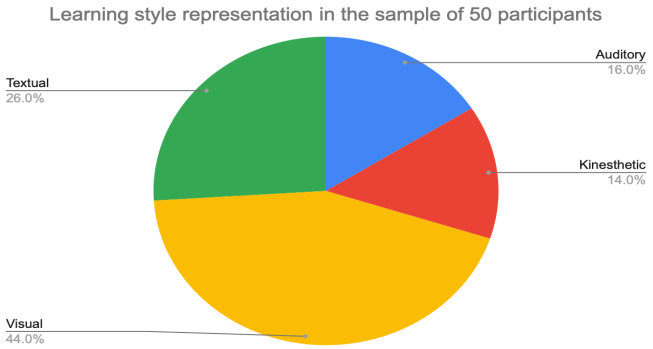
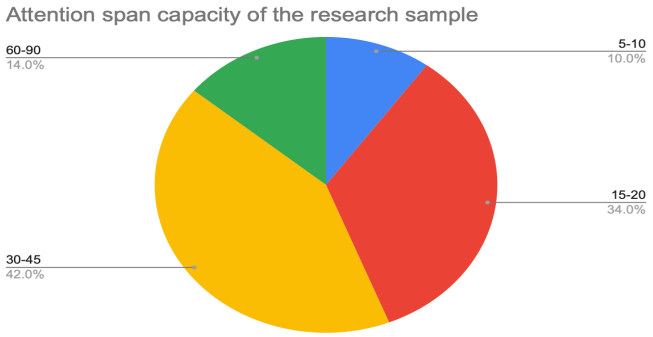


Chart 2.
Attention span capacity in the research sample (in minutes).



From chart 2. it can be seen that the majority of participants, 42%, have an attention span of 30 to 35 minutes, and 34% 15 to 20 minutes. 14% have the capacity to focus on one type of content for 60 to 90 minutes, while the last 10% have only the capacity to focus for 5 to 10 minutes at a time.

4.1. Digital competency

When it comes to digital competency or literacy, participants were asked to rate their abilities in using digital tools in terms of connecting, communicating, and collaborating with other users in the digital space, applying knowledge and creating content, identifying and solving problems, autonomously learning languages, and they were asked to rate their familiarity with their rights and those of others in the digital world on the scale from "poor" to "excellent". They were also asked to rate the frequency of their use of computer or mobile technol-

ogy for language learning on the scale from "never" to "very often". The results showed that 34% of participants use technology for language learning very often, 30% use it often, 28% use it sometimes, and 8% rarely use it. When it comes to self-rated ability of using language learning technology autonomously, 52% of the participants rated their ability as "excellent" meaning that they feel comfortable using technology without needing assistance and guidance by a trained or highly experienced user. 28% of participants rated their ability as very good, 16% rated it as good, and 2% percent rated it as insufficient and poor each. In terms of self-rated ability of using technology for connecting and collaborating with users in the digital community, the participant sample is overall confident in the ability to use technology for connecting and collaborating with users in a digital environment, where 50% consider themselves proficient in it, 26% consider themselves to be very skilled, 20% rate it as good, and only 4% consider it not good enough. With respect to using digital tools for communication with others (such as Zoom, WhatsApp, email, etc.), the participants' self-rated ability for communicating with others using tools such as email, Zoom, WhatsApp, Viber, and similar, showed that confidence level is high in the sample, with 56% rating their abilities as excellent, 34% rating it as very good, and only 8% as good enough and 2% as poor. Most of the participants rate their abilities to apply knowledge and create content using technology as quite high, with 38% rating it as excellent and 48% as very good. A smaller percentage rate their abilities as good, 4%, not good enough, 4% and poor 6%.

Participants seem to have a good understanding of their rights in the online community, which is an interesting finding since laws applied to the digital space are constantly being developed and adjusted. The management of events in the digital world is highly challenging as a consequence of its availability to a large population, the ease of access, freedom to create and manipulate content of diverse nature, the difficulty of tracking users due to availability of virtual private network programs (VPN), anonymous accounts, the creation of alternative "dark" networks with complex algorithms that scramble the digital footprint of a user, making it impossible to track those who violate digital laws. In this sample, 18% of participants rate their level of knowledge as excellent, 42% as very good, 18% as good, 10% as not good enough, and 12% as poor.

Self-rated ability of the group for troubleshooting using technology is quite high as well, with 48% rating it as excellent, 30% rating it very good, 10% as good, 6% as not good enough, and 6% as poor. When it comes to self-rated level of technical skills, participants' responses reveal that, on average, the sample would position themselves as overall very skilled in technology use. 28% rate the sum of their abilities as excellent, 48% as very good, 18% as good, and 6% as not good enough.

90% of the group reported that they have had some experience with computer and mobile-based applications for language learning, while only 10% have not used language-learning applications before. The answers reflecting satisfaction with the experience of using digital media for language learning show that the satisfaction rate is significantly high. 62% rate it as excellent, 20% as very good, 10% as good, and 8% as poor.

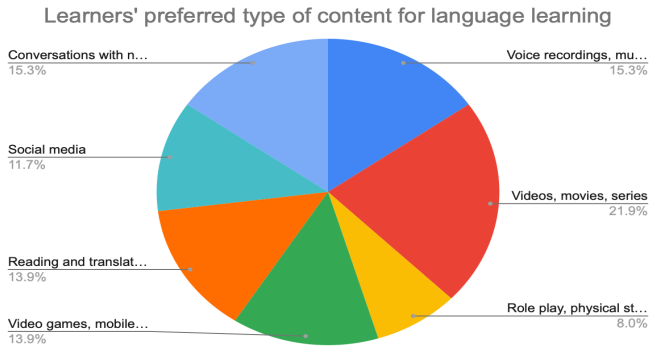
4.2. Student needs and attitudes towards traditional versus online teaching and learning methods

Table 1. and Chart 3. show the format in which the sample of learners prefer to engage with language learning. The participants were allowed to choose several answers and all have selected more than one type of preferred learning content. The content that is most preferred by the sample group is in video form, such as movies and series. This option was selected by 30 out of 50 individuals. The second most preferred content forms are voice recordings, music, podcasts, and practical use of the language with native or highly proficient speakers of the language learned. Reading and translating texts and video games share the third place when it comes to their popularity among learners, with 19 out of 50 total picks, which makes 13.9% of the sample. Social media is preferred by 16 out of 50 participants, which makes up 11.7% of the sample, while role play and physical stimulation were preferred by 11 participants, 8% of the sample.

Table 1.
Learners' preferred type of content for language studies

What content do you prefer for language learning? (several answers possible)		
Content type	**Frequency**	**Cumulative percent**
Voice recordings, music, podcasts	21	15.3
Videos, movies, series	30	21.9
Role play, physical stimulation	11	8
Video games, mobile games (narrative, memory, crossword puzzles ...)	19	13.9
Reading and translating texts	19	13.9
Social media	16	11.7
Conversations with native speakers or with those who speak the language with high proficiency	21	15.3

Chart 3.
Preferred type of content for language learning in the research sample



Participants were provided a list of needs from which they could identify their own in the context of language learning. Several answers were possible and all participants chose more than one answer. Table 2. and Chart 4. show the representativeness of identified student needs in the sample. The need that was selected by the largest number, 28 out of 50 or 15%, is fast feedback on progress. A close second is proper instructions on how to learn, with 27 out of 50 picks or 14.4.% of the sample. Creative tasks, momentary correction of mistakes and the ability to repeat lessons are in third place in terms of learning demands of the sample group. 18 out of 50 participants selected flexibility in terms of times and modes of learning as a major need, which makes 9.6%. Entertainment and momentary application of lessons was chosen by 16 individuals each or 8.6%. The least selected needs were a fixed schedule of lessons and physical stimulation, which make up 7% and 5.3% of the sample respectively.

The participants were asked to rate the traditional approach to learning in terms of its satisfaction of their aforementioned student needs. When considering the traditional approach, participants were provided an explanation of what is meant by the term in brackets, which includes: classroom lectures, abstract presentation of concepts, learning from a book and so on. 20% of participants rated the method as fully satisfying their student needs, 32% rated it as satisfying most of their needs, 24% rated it as sufficient but not ideal, 16% rated it as not sufficient enough, and 8% rated it as completely insufficient. When asked about the satisfaction of identified student needs through the use of mobile and computer-assisted learning, 52% of the sample rated the method as being fully satisfying in terms of their needs, while 36% rated it as satisfying and 12% as sufficient. Furthermore, participants were asked to express their perception about the future integration of gamified language learning materials and their belief about its effect on the improvement of their knowledge and use of a language. The question included multiple choices where number 1 signified yes – they believe that the integration of such content would improve their knowledge and language use, 2 signifies no – they do not believe that its integration would improve knowledge and language use, and 3 signifies maybe – it is possible that this factor could improve these aspects in the learning process. 76% of participants believe that the integration of technologies based on gamification would improve students' knowledge and language use. 20% believe that there is potential for its benefits in the context of knowledge development and language use, while 4% do not believe that it would be beneficial. Lastly, participants were asked if they would recommend computer or mobile-assisted language learning. From the research sample 86% stated yes, 2% stated no, and 12% answered maybe.

Table 2.
Major student needs identified by the sample group

What are your major student needs?		
Identified needs	**Frequency**	**Cumulative percent**
Entertainment	16	8.6
Fast feedback on progress	28	15
Instructions on how to learn	27	14.4
Flexibility in terms of times and modes of learning	18	9.6
A fixed schedule of lessons	13	7
Creative tasks	20	10.7
Momentary application of lessons	16	8.6
Momentary correction of mistakes	19	10.2
The ability to repeat lessons	20	10.7
Physical stimulation through learning activities	10	5.3

Chart 4.
Representativeness of student needs in the sample

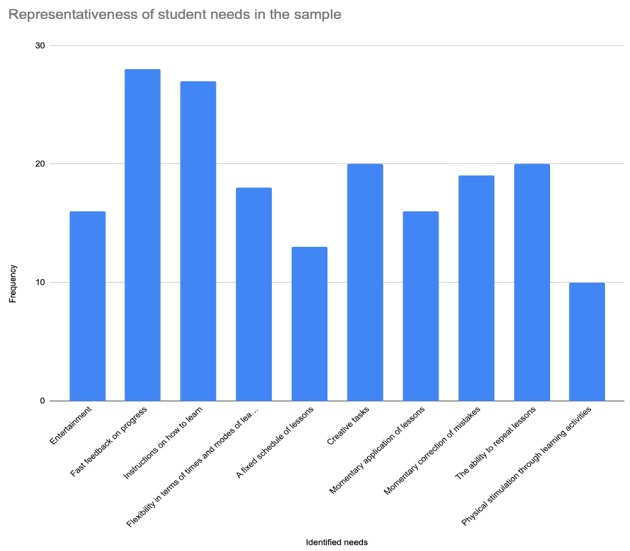


Table 3. Shows the frequency of content form choices per learning style. Participants were allowed to choose several forms of learning that they prefer to employ in their language studies. The most popular choice for the visual type of learners is video games and mobile games, then video and audio formats. For textual learners, as expected, reading, and translating texts is the most preferred choice, then application of knowledge through speaking and video. Interestingly, auditory learners in the sample preferred the video format most, then verbal communication. Kinesthetic learners seem to have an equal preference for the video format and physical stimulation such as role play.

Table 3.
Content form preferences per learning style (multiple answers were possible per participant)

Content type	Learning style			
	Textual	**Auditory**	**Visual**	**Kinesthetic**
	Frequency of choice			
Voice recordings, music, podcasts	4	3	11	3
Videos, movies, series	6	5	12	5
Role play, physical stimulation	0	1	4	5
Video games, mobile games (narrative, memory, crossword puzzles ...)	1	2	14	3
Reading and translating texts	12	1	5	0
Social media	5	3	6	0
Conversations with native speakers or with those who speak the language with high proficiency	8	4	5	3

According to collected data, the level of correlation between all research variables is very low in the sample except for age and self-rated digital competency, where the Pearson correlation coefficient is 0.3, which indicates a low relationship. A low relationship was also found in the sample between self-rated ability for autonomous use of technology for language learning and attitude towards traditional versus new technology methods of learning and their ability to meet identified student needs (Pearson correlation coefficient: 0.36)

5. Discussion and conclusion

Research data collected suggests a necessity for the application of an eclectic approach in education. The content that is most preferred by the sample group is in video form, such as movies and series. This option was selected by 30 out of 50

individuals which is 60% of participants, hence represents a significant amount for this form of study. Video is a multi-sensorial media that engages several senses at once and provides a fuller experience, closer to real-life, that is more likely to get transferred to long-term memory (Hanson, 2004). Video also provides entertainment to the viewer, which is an important aspect to consider when analyzing the choices made by participants. In today's society, entertainment is everywhere, we even carry it in our pocket, thus the factor of entertainment has become needed in education as well due to the manner in which our minds have become selective and discriminant against unappealing content. Another extremely important element is human attention span which has significantly decreased in the past few years due to the aforementioned entertainment that we as humanity are now used to in the 21st century (Wilmer et al., 2017). Therefore, the ability to learn and acquire new information has not only changed, but has become almost impossible in a traditional environment, which is supported by the previously gathered data. Hence, the indication for application of an eclectic approach in education is clear. By preferring video as a learning medium, participants expressed their need for a dynamic environment and constant entertainment per se, in order to focus and be able to acquire knowledge and new information that they will remember and be able to apply themselves.

The second most preferred content forms are voice recordings, music, podcasts, and practical use of the language with native or highly proficient speakers of the language learned. This somewhat supports previous conclusions where participants dominantly chose video as a learning medium, however an important element in choosing podcasts, recordings and communication with natives of the language shows participants need for immediate application of acquired knowledge. This additionally supports the previously mentioned conclusion that human attention span has significantly decreased, which represents a threat to traditional learning methods and expresses the need for dynamic learning environment and learning methods (Wilmer, et al., 2017). The important aspect for participants obviously is the practice and application of knowledge in real life, which supports many previous studies that have confirmed the well known method of successful language acquisition by traveling or living in countries where the chosen language is spoken (Mancini-Cross et al., 2009).

Very interesting discovery proposed by the gathered results of this research is that reading and translating texts and video games share the third place when it comes to their popularity among learners. Based on previous findings, one could somewhat assume that video games, due to their dynamics and ability to keep participants attention span would come earlier, however it not only comes third in this study's results, but even shares third place with an entirely opposite method of learning, which is reading and translating texts. Therefore, reading and translating texts in the traditional sense and playing games are quite different modes of learning, however, presumably, the link may be that they both require the same type of mental processing in terms of reading and identifying words, making word associations, understanding lexical structures, order, meaning and so on.

Another somewhat surprising discovery is that social media is preferred by 16 out of 50 participants, which makes up only 11.7% of the sample, while role play and physical stimulation were preferred by 11 participants, 8% of the sample. Arguably, the last form of learning is least popular since it requires public performances, and it was not inquired what personality types consist of the participant group, which is an important factor to consider when interpreting these choices and statistics. Considering the fact that participants have previously expressed and chose to practice and learn the language by communicating with a native speaker or highly proficient user of the language would suggest that they would be also open to learning and connecting to natives via social media, as well as role play and physical stimulation as it presents an opportunity for language application in practice and real life. However, participants surprisingly did not go for these methods, therefore, the ratios presented here cannot be generalized to the wide population, but they might provide a basis for further exploration of the topic.

As many previous research studies suggested and confirmed, information and communication technologies (ICTs) can certainly add value to the academic world and learning processes (Pandolfini, 2016). Because of ICTs, students can find knowledge in the real context, whilst instructors have the ability to design curricula according to their preferences. Nowadays, students have advanced skills and abilities in using ICTs, therefore they already know how to adapt to new learning environments which represents a significant advantage in implementation of explored modern practices of language acquisition in education.

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ORIGINAL RESEARCH PAPER

BOSNIAN AND JAPANESE STUDENTS' PERCEPTIONS OF LEARNING ENGLISH AS A FOREIGN LANGUAGE

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ABSTRACT

The present study focuses on differences in teaching and learning EFL between Japanese and Bosnian students. Language learners struggle to learn a foreign language. The paper reports which part of the learning process students find the most difficult. The purpose of this study is to find out the main differences between Bosnian and Japanese students when acquiring the English language. To achieve this, a survey was conducted among 120 students from both countries using the questionnaire employed in Tragant, Thompson and Victori (2013), and the data were collected and analyzed. All students adopt the language individually, but there are many factors that may differentiate them from each other. Besides motivation, the education system and culture may affect the learning process. The paper discusses the basic learning elements such as grammar, reading, vocabulary, writing and speaking. Therefore, this study attempts to highlight the problems of students' language incompetence. The results indicate that Japanese students are devoted to grammar, more than Bosnian students. Bosnian students pay more attention to pronunciation while Japanese students speak slowly and are dedicated to memorizing new words.

Keywords: Japanese students, Bosnian students, education system, cross-cultural differences, Japanese English, EFL, Second Language acquisition

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INTRODUCTION

The English language is one of the most important languages in the world. Nowadays, in the age of informatization and globalization, knowledge of the English language is crucial for doing almost any job. Our attitudes to the language, and the way it is instructed, reflect cultural biases and convictions about how we ought to communicate and how we should educate each other. Our language capacity and the use of language both depend on attitudes towards the language, as well as individual behavior. Language is acquired in different ways among different individuals, who live in different countries. Japanese and Bosnian students differ when it comes to learning and acquiring a new language. This distinction can be found in the education system and culture as well. Besides educational problems, students face problems with cross-cultural differences as well. Some people may learn the language randomly by collecting utterances while others would focus on learning grammar constructions as well. Other distinctions can be found in how someone can acquire the language, like language school learning, or pupils' first language. Culture is one of the issues to be considered in learning a foreign language. Because of the diverse culture, teachers should apply appropriate teaching strategies. There are differences in language aptitudes as well such as: grammar, vocabulary, reading, and speaking skills or ability to use general English. Some learners focus on grammar first, whereas for others, speaking skills are the most consequential. Some learners may find it difficult to learn a new language while others are unable to see any challenges at all. Language is shaped by people who use it, it is the main means of communication. In this paper, two groups of people with diverse nationalities are compared and differences in acquiring the English language are well described.

The research problem involves the attitude and competencies of two different groups of pupils and students towards learning English. The basic significance of the research is reflected in the application of knowledge from students in different societies, i.e. the application of practice that is present. Comparing their experiences, they will be able to learn a lot. Based on knowledge and science, even its content will be expanded, and new practices for learning English in Bosnia and Herzegovina will be generated. The paper refers to the specificities associated with the way English is learned in Japan. Certain words are presented, and special emphasis is placed on how the English language is implemented in Japanese culture.

The benefits of learning a foreign language at any age are numerous: increasing brain size, improving memory, fighting dementia, strengthening attention, as well as many, many others. Learning foreign languages, in its development, had had different phases. There were times when learning foreign languages was not viewed favorably. Some authors argued that learning a language other than the mother tongue created a kind of schizophrenia or divided personality. Also, it may have had a negative effect since bilingualism „causes cognitive, social and emotional damage to children" (Hakuta, 1986, p. 5). These claims about the positive or negative effects of bilingualism are often discussed because „language is a central part of cognitive ability" (Hakuta, 1986, p. 5). These myths and prejudices have recently been swept away by a storm of scientific research that proves the unimaginable psychological benefits of learning a foreign language. Of all the foreign languages taught in the world, English has the most (both native and non-native) speakers. And the more people speak it now, the more people will learn it in the future - creating an infinite circle, so it is unlikely that another language will soon become lingua franca. Many people struggle to keep up with work, life, and changes in the world because they are not proficient in English, and therefore learning English should be supported and taken seriously as it is vital for progress. English is the basic language for popular music, television movies, the internet, „aviation, computers, diplomacy and tourism" (Ilyosovna, 2020, p. 22). The majority of websites are in English, and the required internet resources and literature are also in English. Realizing the significance of English, many people agree learning English with native speakers and through various courses is accepted as natural as learning their mother tongue, and even those who do not really like it still take it as a second language, which means almost as important as the first they speak. Politics is one of the areas in which the English language is extremely important, „They can better grasp the vessel and nuance of international diplomacy and global affairs" (Reddy & Mahavidyalaya, 2016, p. 180). For countries to cooperate, their representatives need to know the same language, and as for the large use of English, it becomes an ideal language for communication. In addition, countries where English is the official language are an important part of the global economy and its launch, so other politicians from other countries or country leaders need to know the language in order to get in touch with these Great Powers. If politicians do not know the language, they have to have someone to interpret it, but doing so through intermediaries is considered bad manners, and political

leaders tend to avoid it and learn English, in order to discuss crucial tasks and issues along with others devoid of feeling inadequate for the job and so they can easily „communicate with other countries people" (Reddy & Mahavidyalaya 2016, p. 183). The research of diverse learning approaches among students in Bosnia and Herzegovina and Japan provides insight into distinct learning methods, attitudes and perceptions of the English language. In this way, it is possible to compare domestic and foreign methods, thus expanding knowledge. In this way, it is possible to apply foreign learning methods in BiH, i.e. those methods that have given better results in a foreign environment than those currently applied in BiH.

LITERATURE REVIEW

Language is the main tool used by humans for exchanging opinions and communication. Language is a "natural, biological phenomena" (Chomsky, 2006, p. 61). All people need language to communicate and convey messages as well as "to inform or mislead" (Chomsky, 2006, p. 61). Language is a "human possession" according to Chomsky and "we find a command of language that is totally unattainable by an ape that may in other respects surpass a human imbecile in problem-solving ability and other adaptive behavior" (Chomsky, 2006, p. 9). While learning a language, people need to acquire all sounds and rules of that language, in order to be understood, and "the person who has acquired knowledge of a language has internalized a system of rules that relate sound and meaning in a particular way" (Chomsky, 2006, p. 23). Foreign language learners have a habit of translating their thoughts in their head into a foreign language, and then saying those thoughts out loud. The transfer of thoughts from one language to another can lead to a significant reduction in the quality of what they want to say. Learning the second language can be done naturally, while listening to native speakers, and adopting the language forms. There are a lot of things that learners should be aware of, like the positive environment, as well as a series of mental actions. These actions include readiness as well as the input into linguistic knowledge. The learners of a second language should be seen rather as successful L2 learners than failed native speakers (Dubiner, 2019). L2 learners may find it difficult to communicate successfully because their vocabulary seems insufficient, and it needs constant improvement. Japanese students prefer to learn English with native or near-native English teachers rather than with non-native instructors in the classroom. The situation is similar to the traditional way of education. It can often be heard that the traditional way of education does not prepare pupils and students for life, but only for exams at school and college. Students may have difficulties with speaking English because their English teachers are mainly Japanese (Egitim & Garcia, 2021). There are two major issues with Japanese English classes, which are: the teachers' inability to use English as the language of instruction coupled with insufficient time for OC practice in the classroom (Yanagi & Baker, 2016). Teachers in Japan tend to "create a perception of English classes as a leisure pursuit rather than an opportunity to develop language skills" (Egitim & Garcia, 2021, p. 14). Japanese students may find more difficulties while learning the English language because of the alphabet and grammar structures which are completely different from English structures „i.e., Japanese uses SOV order, while English uses SVO" (Akbarov & Đapo, 2016, p. 63). On the other hand, Bosnian students use almost the same alphabet and sentences that follow the same grammatical order as the one in a target language. When it comes to addressing someone, in the Bosnian language you can easily call someone by his/her name, but for Japanese people when you are calling someone's name „you have to put 'san' after his/her name" (Aziz, Daud, & Yuridar, 2019, p. 165). However, in B&H English holds the status of the first foreign language and many studies explore its use in different domains (Ahmetović & Dubravac, 2021; Bećirović & Podojak, 2018; Bećirović, Brdarević-Čeljo, & Polz, 2021; Brdarević-Čeljo, Ahmetović, & Bajić, 2021; Brdarević-Čeljo & Dubravac, 2022; Dedović- Atilla & Dubravac, 2017, 2022; Dubravac, 2016; Ribo & Dubravac, 2021; Rizvić & Bećirović, 2017; Skopljak & Dubravac, 2019)

1.1. Research on language competence in the Bosnian and Japanese context

Teaching English as a foreign language and learning English as a second language can be considered from different aspects. 4 basic skills should be acquired in order to communicate and understand a foreign language. These skills are: listening, reading, speaking and writing skills, and they are the initial part of every language. They are an essential part of foreign language speaking. This paper revealed how Bosnian and Japanese students approach these skills. It is important to know how students master these four basic skills. According to some researchers like Fujita (2002), listening competencies are among the weak skills of Japanese English learners, and these skills have become crit-

ical for them. He states that reading skills are more developed than speaking or listening skills and they prefer a reading-oriented teaching style. Since Japan is a monolingual country, they don't see the purpose of developing a communicative English competence. Japanese teachers place more emphasis on grammar learning rather than speaking. Therefore, teachers need to find an appropriate teaching method to motivate students and to find the purpose of practicing speaking skills (Fujita, 2002). In Japan some reforms have been made, so the government decided on the TOEFL tests, which is the international four skills test. The test is more counter-productive which can help students to develop these skills, and it is a path which can lead them to the best career opportunities (Green, 2016). Yashima (2002) did a survey on the topic of Willingness to Communicate (WTC) and used a questionnaire among 297 Japanese English learners. He concluded that a lower level of anxiety and perception of L2 communication competence led to a higher level of WTC, and therefore motivated students studied harder and achieved greater results then less motivated students. Lower motivation will lead to less desire to communicate in English. He concluded that studying gives learners confidence in communication (Yashima, 2002). According to other surveys in BiH, English fluency should be more developed when it comes to English assessment (Bećirović, Delić & Brdarević-Čeljo, 2019; Brdarević-Čeljo, Bećirović & Bureković, 2018; Habibić & Dubravac, 2016; Kovačević, Brdarević-Čeljo & Bećirović, 2018; Tankosić & Dubravac, 2016). Teachers used to prepare students for writing tests in a way that those tests should be learned by heart instead, to be more communicatively-oriented, more spontaneous language should be incorporated while metalanguage should be limited (Dubravac, 2022). Self-desire to communicate in a target language should be high, followed by motivation which will lead to giving a speech in the target language. Comparing the other research results (Latić & Dubravac, 2019) among Bosnian university students in the fields of humanities and medicine, the results revealed that the majority of Bosnian students believe that younger children acquire languages easier than older people, and they believe that anyone can learn a foreign language.

METHODOLOGY

Participants

120 participants took part in this survey. 47 participants (39,2%) are male, while 73 (60,8%) are female. 113 (94,2%) participants are between 20 and 40 years old while only 7 (5,8%) are aged between 40 and 60, with the average age 22.06. 18 participants (15%) are high-school graduates, 74 participants (61,7%) are university students, while 28 participants (23,3%) are in post-graduate studies. Bosnian and Japanese students were equally represented in the sample. The study's participants were selected randomly. The descriptive results are presented in Table 1.

Table 1.
Descriptive analysis of the research sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Age				
20-40 years	113	94.2	94.2	94.2
40-60 years	7	5.8	5.8	100.0
Country				
B&H	60	50	50	50
Japan	60	50	50	100.0
Gender				
Male	47	39.2	39.2	39.2
Female	73	60.8	60.8	100.0
Educational Background				
High School	18	15	15	15
University	74	61.7	61.7	76.7
Post – Graduate	28	23.3	23.3	100.0
Total	**120**	**100**	**100**	

Instruments and procedures

The participants voluntarily answered the questionnaire. The purpose of this questionnaire is to determine if there are any variations in learning English between students in Japan and students in Bosnia and Herzegovina. The questionnaire was developed and validated by Tragant et al. The questionnaire was updated by the University of Barcelona. Participants were asked to rate each strategy statement on an 8- point Likert frequency scale (Always or almost always, often, sometimes, rarely, very rarely, never or hardly ever). The questionnaire included the demographic part at the beginning (Age, grade, gender, English level, origin).

The questionnaire consists of 6 parts:

- The general level of English,
- Vocabulary learning,
- Studying grammar,
- Reading in English,
- Writing in English,
- Speaking in English.

The instrument showed the overall consistency reliability, the general level of English α= .674 vocabulary learning α= .783, studying grammar α= .847 reading in English α= .600, writing in English α= .782, and speaking in English α= .695. The distribution normality test is presented below.

Table 2.
Test of normality

	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
GenKnowEL	120	3.30	.72	.22	-.28	.43
VocabLearEL	120	2.59	1.62	.22	2.21	.43
StudyGramEL	120	3.38	.41	.22	-.72	.43
ReadingEL	120	4.09	-.07	.22	-.48	.43
WritingEL	120	3.19	.73	.22	-1.03	.43
SpeakingEL	120	3.31	.06	.22	-.33	.43
Valid N (listwise)	120					

Data analysis

The research results were analyzed using the data processing programs MS Excel and SPSS. The results of the research are presented in tables and graphs.

First of all, the results recorded on the scales are presented through the elements of descriptive statistics. This review was performed for all six examined variables, followed by the analysis of normality through standardized skewness and kurtosis. Reliability analysis was made as well.

In the part related to hypothesis proving, the Mann - Whitney test was used, according to which it was possible to examine whether there are statistically significant differences between two different independent samples, which would be recorded in the respondents' responses.

RESULTS

General level of English

When it comes to the amount of effort required to learn English, it is evident that Japanese students put more effort in. They make their own evaluations of their knowledge (M=3.56, SD=1.52), and pay greater attention to new words and new concepts (M=3.80, SD=1.33). In addition, Japanese students use more informal learning resources (M=3.65, SD=1.21), to improve their level of English proficiency. On the other hand, Bosnian students work harder when it comes to pronunciation, and find it easier to participate in English-language debates and activities. They often read aloud (M=4.26, SD=0,63) and engage in a variety of speaking activities (M=4.50, SD=0,50). The hypotheses are tested using the Mann - Whitney test, which examines whether there are differences in the responses of the respondents in two independent samples. The Mann - Whitney test is a test used when comparing two samples. Based on the above, the following hypothesis H1 was developed: „There are significant differences among Bosnian- Japanese students at learning EFL, these differences can be found in General level of knowing the English language". The results of testing the hypotesis 1 are clearly explained below in Table 3.

Table 3.
Differences in General level of knowing English language

Test Statistics[a]

	GenKnowEL
Mann-Whitney U	665.50
Wilcoxon W	2495.50
Z	-5.97
Asymp. Sig. (2-tailed)	.00

a. Grouping Variable: Country

The value of the test is U=665.50, W= 2495.50; z=-5.97; p <0,05, indicating no differences in the context of general knowledge of English between Japanese and Bosnian students is rejected and the H1 hypothesis is accepted, which determines that there are significant differences between Bosnian and Japanese students in the context of general knowledge of English. The arithmetic means rank (Bosnian students = 41, Japanese students = 79), indicates that Japanese students express a higher level of general knowledge of English than Bosnian students.

Vocabulary learning

According to the results of this survey, neither Bosnian nor Japanese students are too committed to learning new words. Japanese students make a list of new words more often (M=2.35, SD=0.97), search for and find new words and translate them (M=2.65, SD=1.08), and are more diligent in writing than Bosnian students. Japanese students are more likely to make a list of new words in their own dictionary (M=3.45, SD=1.51), and correlate new words with pictures from the environment (M=2.95, SD=1.26). Bosnian students pay more attention to pronunciation, hence they repeat new words aloud more often than Japanese students (M=4.81, SD=0.39).

Vocabulary learning is expected to be different among students from Japan and students in Bosnia and Herzegovina. Based on the above, the H2 hypothesis was developed: „There are significant differences between Bosnian- Japanese students in Vocabulary learning of EFL learners." The results are presented in Table 4.

Table 4.
The differences in Vocabulary learning

Test Statistics[a]

	VocabLearEL
Mann-Whitney U	1495.00
Wilcoxon W	3325.00
Z	-1.61
Asymp. Sig. (2-tailed)	.106

a. Grouping Variable: Country

When it comes to hypothesis number 2, it is found that there are no significant differences in Vocabulary Learning between Bosnian and Japanese students because the Mann-Whitney test showed U=1495.00; W= 3325.00; z=-1.61; p> 0.05 (p = 0.10). Thus, in the context of the variable Vocabulary Learning, approximately equal results are shown between Japanese and Bosnian students. The arithmetic mean rank (BiH students= 19, Japanese students= 20) indicates there is no statistically significant difference between them. So, it can be concluded that there are no significant differences in EFL acquisition between Bosnian- Japanese students, however those differences can be found in Vocabulary learning.

Studying grammar

Grammar is also one of the variables that is specifically measured. In this section, it is clear that Japanese students are far more conscientious than Bosnian ones. Japanese students are more likely to write essays (M=4.20, SD=0.81), more likely to review what they have learned (M=4.200, SD=0.81926), and more likely to do translations (M=4.20, SD=0.81). Japanese students are more devoted to grammar, new words and phrases (M=2.95, SD=0.66). Learning grammar is a highly distinct process, which is expected to be different for students from Bosnia and Herzegovina and students from Japan. The next hypothesis is H3, which states that: „There are significant differences between Bosnian- Japanese students in Studying grammar of EFL learners". The results of these differences are presented in Table 5.

Table 5.
The difference in Studying grammar

Test Statistics[a]

	StudyGramEL
Mann-Whitney U	1111.50
Wilcoxon W	2941.50
Z	-3.69
Asymp. Sig. (2-tailed)	.00

a. Grouping Variable: Country

The results of the research show that in the context of the variable Studying grammar there is a statistically significant difference between Bosnian and Japanese students (Mann-Whitney = 1111.50; W= 2941.50; Z=-3.69; p <0.05; p = 0.000). Arithmetic means rank (BiH students= 16, Japanese students= 20) which indicates that there is a significant difference in Studying grammar of the English language between Bosnian and Japanese students.

Reading in English

When it comes to reading in English, there are certain segments where Japanese students are better and others where Bosnian students are better. Japanese students reflect more about what they have read or said, and connect their own knowledge with what they have read (M=4.61, SD=1.02). Japanese students like to ask for the meaning of the word (M=4.80, SD= 0.75). Also, they attempt to comprehend the sentence's structure (M=3.90, SD=1.65). Bosnian students pay more attention to reading sentences correctly, and using their own intuition while reading content in English (M=4.91, SD=0.27).

Reading English is a skill that takes a long time to master. Given the various approaches to learning, it is expected that in this context there will be some differences between students from Bosnia and Herzegovina and students from Japan. The hypothesis is, H4: „There are significant differences between Bosnian- Japanese students in Reading in the English language of EFL learners." The differences in Reading in the English language are given in Table 6.

Table 6.
The differences in Reading in English language

Test Statistics[a]

	ReadingEL
Mann-Whitney U	1455.00
Wilcoxon W	3285.00
Z	-1.81
Asymp. Sig. (2-tailed)	.06

a. Grouping Variable: Country

When it comes to reading English words, the research shows that there are no significant differences in the reading context between Bosnian and Japanese students (Mann-Whitney U = 1455.00; W= 3285.00; Z=-1.81; p> 0.05; p = 0.06). The arithmetic mean rank (BiH students= 53, Japanese students= 54) indicates that the ability to read English between Bosnian and Japanese students does not differ statistically significantly.

Writing in English

When writing in English, there are certain segments where Japanese students are better and some segments where Bosnian students are better. Japanese students are more dedicated to understanding the text (M=4.20, SD=0.81), translating, and exploring new words (M=3.60, SD=1.50), but also memorizing. Bosnian students are more committed to mastering reading (M=3.80, SD=1.03), and rely more on intuition (M=4.10, SD=0.85). On the other hand, Japanese students focus more on grammar (M=4.10, SD=0.85). It is expected that in the context of writing English words, there will be some differences between students from Bosnia and Herzegovina and students from Japan. So, the following hypothesis is, H5: „There are significant differences between Bosnian- Japanese students in Writing in English of EFL learners." The differences in Writing in English are clearly explained in Table 7. below.

Table 7.
The differences in Writing in English

Test Statistics[a]

	WritingEL
Mann-Whitney U	1262.50
Wilcoxon W	3092.50
Z	-2.83
Asymp. Sig. (2-tailed)	.00

a. Grouping Variable: Country

The results of the research indicate that there is statistically significant difference between Bosnian and Japanese students in the context of writing English words (Mann – Whitney U = 1262.50; W= 3092.50; Z=-2.83; p< 0.05; p = 0.03). The arithmetic mean rank shows the following results: BiH students= 37, Japanese students= 47).

Speaking in English (Outside class)

When it comes to speech, i.e. pronunciation of words in English, the previous chart shows that in certain segments Japanese students are in the lead, while Bosnian students are better in other segments. Japanese students translate words into their mother tongue more often and pronounce them more than Bosnian students do (M=3.50, SD=1.35). Bosnian students pay attention to intonation much more often than Japanese students (M=4.81, SD=0.62). Also, in speech, Japanese students speak more slowly than Bosnian students (M=3.50, SD=1.35). Japanese students are more aware of gestures that are made while pronouncing certain words (M=4.61, SD=0.88). It is expected that in the context of pronouncing English words, there will be some differences between students from Bosnia and Herzegovina and students from Japan. The hypothesis is, H6: „There are significant differences between Bosnian- Japanese students in Speaking in English (Outside class) of EFL learners." The results are presented below in Table 8. the differences in Speaking in English (Outside class).

Table 8.
The differences in Speaking in English (Outside class)

Test Statistics[a]

	SpeakingEL
Mann-Whitney U	1641.00
Wilcoxon W	3471.00
Z	-.83
Asymp. Sig. (2-tailed)	.40

a. Grouping Variable: Country

The results of the research indicate that there is no statistically significant difference between Bosnian and Japanese students in the context of pronunciation of English words (Mann – Whitney U = 1641.00; W=3471.00; Z=-0.83; p> 0.05; p = 0.40). The arithmetic mean rank shows the following results: BiH students= 60, Japanese students= 58. It is concluded that no statistically significant differences exist.

DISCUSSION

In the research process there were 120 participants, half of whom were students from Japan, while the other half were students from Bosnia and Herzegovina. The research process tried to determine whether there are differences in English language learning between students in Japan and students in Bosnia and Herzegovina. Six variables were examined, namely: general knowledge of English, vocabulary learning, studying grammar, reading in English, writing in English and speaking in English - outside class. These variables were examined among both Bosnian and Japanese students, and in the research part an attempt was made to compare the results. Thus, the research part tried to point out the differences between Bosnian students and Japanese students, in the context of learning English. General knowledge of English is examined separately. When it comes to the effort invested to learn English, it is evident that Japanese students work harder. On the other hand, Bosnian students work harder when it comes to pronunciation, and find it easier to take part in various debates and activities in English.

Both groups of respondents have less difficulty learning new words, i.e. acquiring new vocabulary. Japanese students more often make a list of new words, search for and find new words and

translate them, and are more diligent in writing than Bosnian students. Japanese students make lists of new words in their own dictionary, and associate new words with pictures from the environment. Bosnian students pay more attention to pronunciation, so they repeat new words aloud more often than Japanese students. Japanese students are more devoted to grammar, new words and phrases, to the extent that they sometimes memorize whole sentences in order to better adopt the rules of grammar. Bosnian students pay more attention to reading sentences correctly, and using their own intuition while reading content in English. And when writing in English, there are certain segments where Japanese students are better, and some segments where Bosnian students are better. Japanese students are more dedicated to understanding the text, translating, memorizing, and exploring new words. Bosnian students are more committed to mastering reading, and rely more on intuition. The first auxiliary hypothesis, which refers to Vocabulary learning, was rejected. Research shows that there are no significant differences among Bosnian- Japanese students at learning EFL in context of Vocabulary learning. On the other hand, the second auxiliary hypothesis is confirmed. So, there is a significant difference in Studying grammar of the English language. The importance of Vocabulary learning was discussed in Mašić and Tarabar's (2021) as well as in Laličić, Dubravac and Bećirović's (2018) articles, where authors emphasize the importance of vocabulary learning, which is becoming increasingly present today through online challenges (such as online games). Vocabulary learning of Japanese students is specifically addressed in the paper of Wakamoto and Kitao (2012). The results showed that 22 of 33 Japanese students used a vocabulary learning notebook for learning new words, and most of the students used an English-English dictionary to learn the vocabulary because they think in Japanese- English dictionary words are incorrectly written (Wakamoto & Kitao, 2012).

The third auxiliary hypothesis was rejected. The ability to read English between Bosnian and Japanese students does not differ statistically significantly. So, this aspect of learning English is very similar for Bosnian and Japanese students. However, when it comes to writing English words, there are significant differences between Bosnian and Japanese students. Thus, auxiliary hypothesis number four is confirmed. There is a statistically significant difference between Bosnian and Japanese students in the context of writing English words. This was also discussed in Izzo (1999). On the other hand, the results indicate that there is no statistically significant difference between Bosnian and Japanese students in the context of pronunciation of English words. This means that the auxiliary hypothesis number five is rejected. The research process had certain limitations. First of all, this refers to the data collection process. It was very difficult to collect data from as many as 60 Japanese and 60 Bosnian students, who were willing to participate in the research. Another limitation is the possibility of subjective inference in some segments of research. The basic recommendations for future research refer to research on a larger and wider sample, in order to obtain more relevant results.

CONCLUSION

At the very end of the paper, it is necessary to give certain concluding remarks. The paper tries to give an overview of the basic elements of learning English, and the differences in learning and knowledge of English among Bosnian and Japanese students. These two categories of students participated in the survey, on the basis of which certain conclusions were reached.

First of all, it is important to emphasize that Bosnia and Herzegovina and Japan are two countries that are geographically and culturally very distant. Japan is a country that has a separate culture, rules, behaviors, traditions and norms, which differ in all respects from those in B&H. However, through globalization, rapid technological and economic development, there are certain connections between these countries. Given that Japan is one of the economic Great Powers, Bosnia and Herzegovina can learn a lot from this country, as it applies positive experiences in its example.

The results of the research indicate that there are certain specifics on both sides. While Japanese students are more focused on learning, learning new words, and adhering to grammar rules, Bosnian students are more focused on pronunciation. Proper pronunciation is a priority for Bosnian students. Japanese students are more likely to make their own dictionaries with new words, more likely to explore new words and try to understand them, while Bosnian students are more likely to rely on improvisation and intuition.

So, it can be concluded that there are some points where there exist some differences in learning the English language between Bosnian and

Japanese students, but also there are some points that indicate that there are no differences. When it comes to learning and reading, it can be concluded that there are no major differences between Bosnian and Japanese students. Also, the same can be concluded when it comes to pronunciation. On the other hand, there are significant differences between Bosnian and Japanese students in the context of writing and studying the grammar of the English language.

It is interesting to point out that, although there is a significant difference in monetary investment in the education systems of B&H and Japan, the results in self-assessment are not very different. This is primarily reflected in the part of reading and pronouncing English words. This confirms the diligence of B&H students, who, despite numerous difficulties on the path of their own development, still manage to achieve notable results, which will be a great success.

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ORIGINAL RESEARCH PAPER

ATTITUDES TOWARDS ANGLICISMS AND THE ENGLISH LANGUAGE IN THE BOSNIAN/CROATIAN/SERBIAN LANGUAGE USED BY IT PROFESSIONALS AND STUDENTS IN BOSNIA AND HERZEGOVINA

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ABSTRACT

Anglicisms, words borrowed from the English language, which do not have to be of English origin, are observed in the Bosnian/Croatian/Serbian language in Bosnia and Herzegovina. In addition, attitudes towards the English language by a certain group of native Bosnian/Croatian/Serbian speakers were observed. The research includes insights into the adaptation of anglicisms as an important point in borrowing into an inflective language. The research observes the attitudes towards the usage of anglicisms in the Bosnian/Croatian/Serbian language and each of them separately. Additionally, attitudes towards the English language, familiarity with anglicisms and proper use of the observed anglicisms has been included in the research. The familiarity with anglicisms is observed through the understanding of the meaning and their proper usage. The participants are random native speakers of the Bosnian/Croatian/Serbian language who belong to the Internet Technology (IT) field profession and are based in Bosnia and Herzegovina.

The results show that both the attitude towards anglicisms and the English language are vastly positive, although a total of 44% of the observed anglicisms are translated. The positive attitude towards anglicisms implies their frequent use, mainly adapted to the different systems of the Bosnian/Croatian/Serbian language. The usage is reflected in the two possibilities: English words used in their original form or adapted on different levels. In addition, as the need for it appeared along, the adaptation was also observed. The original or an adapted form and how far the adaptation goes in the system of Bosnian/Croatian/Serbian language (phonology and morphology)

The research also displays the advisability and growing need for anglicisms in this field and confirms the significance of those words in the Bosnian/Croatian/Serbian language. The findings imply that there is probably another parameter or parameter (variable(s) influencing the attitude, which could easily be the trend and the global reputation of the English language.

Keywords: Anglicisms, English language, attitude, language borrowing, purism, adaptation

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1. Introduction

As a fast-growing global industry that has the imperative of welcoming and adopting numerous words from the English language, the Information Technology industry (in further text IT) has a pioneering role in receiving anglicisms in foreign languages to keep the language functional. However, anglicisms originate in English and are widely present in many (if not in all) languages with the most frequently borrowed lexis. Moreover, the IT industry is probably the fastest growing and is constantly exposed to the influence of the English language. However, Bosnia and Herzegovina rank low in ICT Network Readiness Index - 97 around the globe, according to the 2016 Global Information Technology Report released by the World Economic Forum and Harvard University. The overall global correspondence is mainly written in English (75%), and large vast of information on computers and similar devices is in English (80%) (Šehović, 2009). Moreover, the spread of anglicisms is scaffolded with spoken language that endorses borrowing numerous English words as a more prestigious option. Therefore, professionals, freshers, and students were included for a fuller picture of the subject.

Anglicisms are words borrowed from the English language and can mean an object, idea or notion as part of English civilisation. It does not have to be of English origin but must be adapted according to the English language system and integrated into English vocabulary (Filipović, 1990). Further, those words must undergo the process of adaptation according to the system of the language that receives them to be considered integrated (Filipović 1990; Pelidija & Memišević, 2006). Sometimes it is believed that adaptation is a mere simplification and adjustment, while some authors (Haugenu, 1950) explain that borrowing among languages transfers specific patterns from one to another. For example, Boranijašević (2018) explains that 'quasi-anglicisms' widespread in weekly and monthly magazines in Serbia present an issue of the language since they did not go under the complete adaptation. Nevertheless, borrowing is complex and requires phonological, morphological, and syntactic adjustment (Weinreich, 1953), although the importance of the semantic level must be included too.

There are three main reasons for borrowing: a) coining new terminology and concepts (accelerated technological change due to exposure to the Western European overall development), b) the tendency to emulate the dominant group, and c) the tendency to create a special jargon in closed groups (the language of youth and professionals in different fields), d) direct communication (e.g. in tourism), e) mass media (the spread of popular/American culture worldwide), and f) the education system (Rosenhouse & Kowner, 2002).

It is believed that English words are pivotal in this field of work. The IT industry significantly contributes to globalising English as a lingua franca. In the IT industry, anglicisms used in Bosnia and Herzegovina in Bosnian/Croatian/Serbian (in further text B/C/S language) and other languages are essential and crucial for effective communication. Moreover, that is where anglicisms massively enter foreign languages since IT technology develops fast(est).

This paper analysed what attitudes the use of anglicisms connotates and how deeply IT professionals understand both professional and popular anglicisms. So, it is to know that the import of English words in the IT field notes fast growth, and it is hard to keep up with proscribing grammar and translational rules.

Unlike the English language, which is Germanic, the B/C/S language is Slavic, therefore highly inflected, and has phonological orthography. Consequently, the adaptation goes on the orthographic, phonological, morphological, syntactic, and semantic levels. The usage and adaptation of anglicisms are regulated through grammatical rules. However, they are challenging to follow due to their fast development and frequency of penetration in the B/C/S language. The two standardised varieties of English in Bosnia and Herzegovina are British and American English (Dubravac et all., 2018; Brdarević-Čeljo & Dubravac, 2022).

The questionnaire used in the research includes both common frequent words and some professionalism. One of the main aims is to understand the attitudes towards the English language and anglicisms among IT professionals and students to better understand their widespread use in the B/C/S language. In addition, the research went more profound in the analysis of the anglicisms and how far they are adapted to B/C/S language for more accessible and more natural use. Additionally, the description of the attitudes is dichotomous: either positive or negative. Further, sometimes it is believed that a positive and open attitude threatens the mother tongue – language as national identity (Panocová, 2020).

The demographic variables gathered data on gender, age, occupation, and level of English.

In final, the attitude towards anglicisms was not significantly impacted by the demographic variables. In other words, regardless of their diversity, the whole group of people had a positive attitude towards anglicisms. However, the analysis has shown that 44% of the units observed are used in the translated form.

Further, one of the main independent variables observed is language familiarity in relation to attitudes towards the English language from one side and in relation to attitudes towards anglicisms on the other side. The attitude towards the English language proved to be positive and correlated with language familiarity. Furthermore, familiarity with the English language was correlated with exposure to the English language as an additional variable.

Additionally, in this research, the level of English of the participants, as an independent variable, showed a significant influence on the attitude towards the English language with a high effect size partial.

As expected, the following variables turn out to be correlated - age dictates the familiarity with anglicisms and the level of English. An additional independent variable affecting the attitude towards the English language is exposure to it.

In addition, different statistical methods were used in The Statistical Package for Social Science (SPSS IBM) version 24.0: firstly - four-way ANOVA and one-way ANOVA were performed to determine attitude towards usage of anglicisms in the B/C/S language, attitude towards the English language, and familiarity with anglicisms. Secondly, Bonferroni's post hoc test was applied to determine the correlation between familiarity with anglicisms and English language exposure. Lastly, Pearson's correlation test was used for initial analysis assumptions.

2. Literature review

Anglicisms are seen as words borrowed from the English language which still preserve some characteristics of the English language and are adjusted to the Croatian language (Frančić, Hudeček, Mihaljević, 2005). According to the theory of languages in contact (Weinreich (1953), Haugen (1950), Sapir (1921), all languages borrow from others, and there is no 'pure' language (Trudgill, 2000). Borrowing words from English is present in all languages, including 'political VIPs (e.g. in France, Japan, or the Netherlands)' (Rosenhouse, Kowner, 2008).

Filipović (1990) explains that linguistic borrowing occurs when there is a need for naming new objects, phenomena or ideas and when there is no adequate equivalent in the vocabulary of the receiving language (Filipović, 1990) - filling a semantic gap in vocabulary (Skopljak & Dubravac, 2019). However, nowadays, borrowing happens even when a language, in this case, the B/C/S language, has an adequate equivalent. The reasons for it are non-linguistic: economic development, prestige, ethnic and linguistic diversity, and frequency in the usage of the forms from foreign origin.

The newer research reveals that most of the anglicisms in the B/C/S language found their place through the Internet (Okičić, 2015), putting it as the top research priority.

In the B/C/S language, many anglicisms are found (Čedić, 2008), especially in computer technology - English manoeuvres Bosnian, and the participants expressed openness to its influence (Hanić at al., 2016). However, as per Brdarević-Čeljo at al. (2021), switching to English words is more common for those speakers of B/S/C language who lived abroad and grew up in a linguistically diverse environment. In the political discourse, mostly borrowed words from English are internationalism (Ajšić, 2014). Additionally, borrowing has been researched in business (Ribo & Dubravac, 2021) and advertising (Dubravac & Milak, 2016). The usage of anglicisms in Bosnia in the education were observed on students: Dubravac et al. (2018), Kovačević et al. (2018), Brdarević-Čeljo et al. (2018) and Brdarević-Čeljo & Asotić (2017).

The research went even further into styles to gain variability and consistency in language education in Bosnia and Herzegovina regarding the style (posh or casual) Brdarević-Čeljo and Dubravac (2022). Further, research proved that female high school students in Bosnia and Herzegovina borrow English words with friends. At the same time, males and those who are more educated tend to use English words for the purpose of work, although inconsistently (Dubravc, 2016). Music-related lexical items researched by Kajtazović (2012) proved borrowing to be a positive and ongoing process. Another field in which words borrowed from English can be found, even though used inaccurately, is the media, i.e., the press (Dubravac, 2016). A study showed that the use of anglicisms in Bosnian media disrupts comprehension and leads to misunderstanding (Opačić, 2006). Media has been the most researched in this regard (Dropić, 2009; Runjić, Stailova & Pandža, 2010; Šljivić, 2006). Vlajković (2010) shows that mixing language rules

affects young people who use Facebook: doubled letters, English letters that do not exist in B/S/C, and non-adapted English words in sentences. Further, Skopljak and Dubravac (2019) confirmed that English on social networking sites is strongly present, and the younger participants displayed more competencies in English.

As already stated, English words are present in numerous modern languages. Japanese, for example, took English loans that mainly named plants and animals (Morimoto, 1978). As Taiwan opened up to the US influence in 1949 and overall development, it was initiated that English became the second official language. Still, the cord between Taiwan and China exists due to the dominance of Mandarin (Chui & Lai, 2008). The occupation era in Japan (1945-1952) gave two pidgin versions of so-called 'Bamboo English'. The extraordinary economic development made English even more present in the post-occupation period. Loan words (*gairaigo*) were most present in radio and popular culture as prestigious, but nowadays, the idea of the importance of the national language and values arises. As a result, few Japanese speak English, but numerous semantically essential loan words enter the language (Kowner & Daliot-Bul, 2008).

In Hebrew, most borrowed words are nouns, numerous adjectives and adverbs (Kowner & Rosenhouse, 2008), and in Farsi, where technology-related vocabulary found its way (Shahvar, 2008). In India, borrowing is mainly related to (electrical) technology and development, and words are being translated into Indian script (Kurzon, 2008). The Indian language has a long history of contact with English, where it is considered a lingua franca (except for the Hindu fundamentalist groups) and ubiquitous use.

The attitude towards borrowing from the English language (lexis) varies in different languages. Some languages, such as Hebrew, are observed through a political prism (Rosenhouse & Fisherman, 2008). In many others, the attitude has to do with preserving own lexis over English. As a Slavic language, Russian previously resisted borrowing from foreign languages but embraced many English words along with the political and cultural changes. Borrowing from English in Russian is framed by derivation.

Similarly, as in the B/C/S language (that is, in the same language family), a new word undergoes phonetical and then morphological changes (declension and conjugation) (Yelenevskaya, 2008). Those that identify as puristically orientated are, e.g., Finnish, Icelandic, and Revolutionised Turkish (Sapir & Zuckermann, 2008). Many European countries such as Germany, Sweden, Italy, Portugal, Luxembourg, Ireland and France constitutionally protect their official languages from the influence (Van der Burg, 1997).

By contrast, in Dutch, 'computer-related speech in the Netherlands is deluged with anglicisms' (De Vries Jr.: 2018, 72-73). Moreover, it is widespread in all aspects of life, including education, making about 90% of the population speak English (Van der Burg, 1997). Therefore, it is possible to talk about bilingualism in the Netherlands (Van der Burg, 1997).

As a Finno-Ugric language, Hungarian has very different language systems (agglutinative). Most languages borrow from English only lexis blended in with domestic words (e.g. Hungarian *software ipar* 'software industry'). Hungarian is the least affected by the English lexis compared to other European languages, probably due to its system and former borrowing from German and Russian. It is open to English influences, especially after 2004, when the country entered the EU (Gombos-Sziklain & Sturcz, 2008).

English has also highly influenced Arabic, especially in the Gulf, where it moved from the status of a foreign language to a second language with tendencies to become the first language. Some authors believe that giving more space to English or even replacing Arabic with English in daily use (Brdarević-Čeljo & Zolota, 2018) and education comes at the expense of the mother tongue (Al-Issa, 2006; Al-Issa & Dahan, 2011). The fear of the scenario from Morrocan Arabic, where the French took over (Ennaji, 2005), is present. English is used in different countries to different extents, and the most exposed is Arabic in the Gulf. The reasons have to do with the demographics (vast of the population are expatriates) or prestige (parents' preference for English in primary, middle and high schools in the UAE) (Al-Issa & Dahan, 2011) or the complexity of the Arabic language. The new movement is also noted in Oman and Qatar (Abdel-Jawad & Abu Radwan, 2011; Pessoa & Rajakumar, 2011).

French borrows lexis from English, but grammar remains resistant (Hagège, 1987, 2000). Initially divided upon Etiemble's (1964) attitude towards borrowing from English in French ('franglais crisis'), French Anglophobia lost intensity in the 80s and 90s. Some French authors named the borrowing *Anglomania* (Voirol, 1990). The rivalry in dominance between French and English on the world scene and

its outcomes probably best describe the attitudes towards foreign words in their language. However, English has a continuous history of borrowing from the French from the Middle Ages onwards. That signals that the French could also be open and accept the growing need for anglicism and avoid its fossilisation (Sancliment, 2018).

If we compare the B/C/S languages in terms of attitudes towards anglicisms, the situation shown is that Croatian displays the highest level of purism. Croatian normative endeavours to replace anglicisms with domestic words in all possible cases (Opašić & Turk, 2008) even though those are hard to understand and should be learned. Therefore, they published dictionaries of IT terminology with brand new words that replace English ones, the replacement words, apart from terms that have stayed unchanged (literal translation/a description without proper translation and original English forms). However, some of the brand-new words in the dictionaries are not widely accepted. Those dictionaries are Kiš et al. (1993), *Informatički rječnik*, Panian (2005) *Informatički enciklopedijski rječnik*, and *Megabajt Online informatički rječnik*.

In the context of orthography, one fundamental unifying orthography law demands that all words of the B/C/S language should be written phonetically - the way they are pronounced. Nevertheless, that also reflects on the words of foreign origin.

The IT sector is the main base through which anglicisms enter the B/C/S language. Therefore, it is crucial for vocabulary enrichment. Sometimes, words can get broader or narrower meanings than the English definition. That depends on the level of adaptation. For example, if a word accepts affixes, its meaning gets broader (e.g.*influencerica*). On the other hand, misunderstanding occurs when neologisms are used. There is no coverage for it in the mentioned language levels, or the translation is literal (Riđanović, 2007), especially in polysemantic words.

In the B/C/S language, the alphabets used are both Latin and Cyrillic. It is known that anglicisms cannot be written with Cyrillic letters because some graphemes already bear a different sound from the English sound (e.g., X/eks/ is read as H/h/). Furthermore, in English, one grapheme stands for more than one phoneme, while, as per the orthography in B/C/S, one grapheme stands for only one phoneme (with possible allophones) (Nikolić-Hoyt, 2005). That can generate issues with consistency and issues in orthographic and phonological adaptation - considered a *primary adaptation*. It is believed that adaptation should be according to the rules of the B/C/S language.

Additionally, some authors (Boranijašević, 2018) reasonably use the term *quasi-anglicisms* for the borrowed English words which are not adapted orthographically. Fast and frequent embracement of those words is to blame for such a lack of adaptation. Furthermore, in Serbian orthography, writing with Latin letters is against the norm and transcription is needed, except for cases such as symbols in chemistry (Pešikan et al., 2013; Prćić, 2005; Šipka, 2009).

Nevertheless, as we can see from the above, the situation in Bosnia and Herzegovina is different – anglicisms are accepted with more openness and in many areas, mainly in the following wide areas: education, media, IT sector.

The research questions:

RQ 1 - Is there a significant main effect of gender, age, occupation, and level of English on attitudes towards anglicisms?

RQ 2 - Is there a significant main effect of gender, age, occupation, and level of English on attitudes towards the English language?

RQ 3 - Is there a significant main effect of gender, age, occupation, and level of English on familiarity with anglicisms?

RQ 4 - Is there a significant main effect of exposure on the attitude towards the English language?

RQ 5 – Is there a significant effect of familiarity on the attitude towards the English language?

3. Methodology

3.1 Participants

This research included 156 randomly selected participants who study or work in the IT field in Bosnia and Herzegovina and are native speakers of the Bosnian/Croatian/Serbian langue, with a convenience sample method employed. This population, by their examples, serve as a guide for others because the first contact between the English words and the B/C/S language happens through them (most of the time), as 'strongly connected

to the borrowability of words' (Czech-Rogoyska & Krawiec, 2018: 53). Furthermore, the formal name of the language used in Bosnia and Herzegovina is Bosnian/Croatian/Serbian language (also spoken in Croatia, Serbia and Montenegro).

We had 76 women (48.717 %) and 80 men (51.28 %). Most of the participants were employees (94 or 60.25%), and the rest were students (62 or 39.74 %). The participants described their level of English as excellent (30 – 19.23 %), above average (94 – 60.25 %), average (24 – 15.38 %), below average (8 – 5.12 %), and very poor (0). The age interval of the participants is 18 to 49; the youngest group, 18-30, make 46.153 % (72), the middle group, 31-35, make 30,77 % (48 people), and the older group, 36-49, make 23,077% (36 people). Therefore, the assumption of a minimum of 10 participants per group (McMillan et al., 2012) was fulfilled. (Table 1).

Table 1.
Descriptive analysis of the research sample.

		N	%
Gender	Female	76	48.717
	Male	80	51.28
Age	18-30	72	46.153
	31-35	48	30.77
	36-49	36	23.077
Occupation	Student	62	39.74
	Professional	94	60.25
Level of English	Excellent	30	19.23
	Above average	94	60.25
	Average	24	15.38
	Below average	8	5.12
	Very poor	0	0

3.2 Instruments and Procedures

The research instrument used for the current study was developed by Brdarević-Čeljo and Sulić (2023), with content validity proven by a group of three experts in the field of linguistics. After learning about the study's respondents and objectives, these experts evaluated the questionnaire. They carefully checked the questionnaire and evaluated its appropriateness, suggesting that some items should be removed due to inconsistency. The same group of experts approved the questionnaire after the second revision (the improved version). The group approved all the items and stated that all the items represented the content. Thus, 71 questions were included in the questionnaire. The original questionnaire contains 80 questions, and the one used here was modified in the way that some common anglicisms were removed and others were replaced with words more related to the IT profession (*backend*, *router*, *gateway*, *encoding*).

The questionnaire contains six parts. The first part collects demographic information: gender, age, occupation, and level of English. The second part collects responses on exposure and ways of learning English: Level of English, how and where it was learnt, and exposure to the language through media and education (TV, music). The third part consists of questions related to the current use of the English language (mobile phone language, social media, and different occasions when English is used). The fourth section contains questions about likes/dislikes - attitude to the usage of anglicisms and towards the English language and reasons for that. Further, the fifth group of questions contains motives and reasons for using anglicisms and their abbreviations. And finally, the sixth group of questions is about the translation/adaptation of anglicisms and their abbreviations (common frequent words and some from professional vocabulary) – filling in gaps and translating English abbreviations in a range of three to seven possibilities.

Further, translation had two categories (translation or no translation) and five subcategories (partial translation (e.g., BFF - *najbolji frend*): incorrect translation (e.g., *babysitter* translated as *midwife*; no translation and with phonological transcription, (e.g., *šer)*, no translation and with morphological transcription (e.g. *u attachment)*, and without translation and with phonological and morphological transcription (e.g. *u atačmentu*).

The participants were provided with detailed instructions on the purpose of the research and that the data gained from it will be anonymous, voluntary, and confident. The Cronbach's alpha reliability analysis of the instrument displayed an acceptable level of reliability α = .839 for overall participants' attitude towards the English Language, attitude towards usage of anglicisms in the B/C/S language and overall use of the above. Cronbach's alpha for questions related to exposure to the English language is α = .686; for questions related to the translation of abbreviations is α = .699, and for translation of single words, α = .714.

3.3 Data Analysis

The Statistical Package for Social Science (SPSS IBM) version 24.0 was employed for the examination, and different statistical methods were used. For RQ1, the four-way analysis of variance (factorial ANOVA) was used to investigate participants' attitudes towards using anglicisms in the B/C/S language in the relation between the independent variances. Further, in RQ2, the four-way analysis of variance (factorial ANOVA) was performed to investigate participants' attitudes towards the English language based on gender, age, occupation, and level of English. Then, for RQ3, four-way ANOVA was used to display how gender, age, occupation, and level of English impact the overall familiarity with anglicisms in the English language observed within the questionnaire. Finally, one-way ANOVA was applied in RQ4 for the dependent variable to detect a statistically significant difference in the attitude towards the English language based on exposure.

In short, a four-way ANOVA was performed to determine attitude towards the usage of anglicisms in the B/C/S language, attitude towards the English language, and familiarity with anglicisms (translation and understanding of the analysed words and abbreviations). Second, Bonferroni's post hoc test was applied to determine the correlation between familiarity with anglicisms and English language exposure. Finally, Pearson's correlation test was applied for initial analysis assumptions.

4. Results

4.1 Initial analysis

In this research, the attitude towards the English language and anglicisms, as the main focus, turned out to be positive. In some cases, the participants prefer to translate anglicisms rather than adapting them to their mother tongue or using them in the English form. Furthermore, it has been found that demographic differentiation does not play a role in forming attitudes. Rather, the familiarity with the anglicisms and the language had to do with the attitude towards the English language. In addition, familiarity was observed through the prism of exposure and the knowledge gained later. However, an insignificant correlation was detected between familiarity with anglicisms and attitude towards the usage of anglicisms in B/C/S.

Further, familiarity proved to be related to exposure to the English language, as expected. The demographic variety also proved not to be influential on the attitude towards anglicisms. In other words, all the participants, regardless of their gender, age, occupation, or level of English, had a positive attitude. Overall, the group of participants do not resist either the English language or anglicisms - they tend to use it naturally, so it would not detract from B/C/S.

4.2 Attitude towards anglicisms in the B/C/S language based on gender, age, occupation, and level of English

RQ 1. The four-way analysis of variance (factorial ANOVA) was performed to investigate participants' attitudes towards using anglicisms in the B/C/S language in the relation between the independent variances. The analysis indicates a significant interaction effect between independent variances: gender, age, occupation, level of English and attitude towards anglicisms in the B/C/S language, as the dependent variable does not exist. (Table 2). Therefore, we can conclude that the diversity of the participants - gender, age, occupation, and level of English does not impact the overall attitude. In other words, all those people share the same or similar attitude towards anglicisms. The analysis showed that the participants have an open and positive attitude towards anglicisms. The Cronbach's alpha reliability analysis of the instrument displayed an acceptable level of reliability α = .839. It also might be that some other independent variances have significant interaction with attitudes towards anglicisms. For that reason, the analysis was undertaken further with exposure to the English language as an independent variable in RQ4 to check if that matters in this context.

Table 2.
Attitude towards anglicisms in the B/C/S language based on gender, age, occupation, and level of English.

Tests of Between-Subject Effects
Dependent variable: Attitude towards use of anglicisms

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial E Squared
Corrected Model	29.276[a]	100	.293	.936	.619	.630
Intercept	198.477	1	198.477	634.384	<.001	.920
Gender	.042	1	.042	.135	.715	.002
Age	9.278	30	.309	.988	.502	.350
Occupation	.095	1	.095	.305	.583	.006
Level of English	.706	3	.235	.752	.526	.039
Gender*Age	2.680	12	.223	.714	.732	.135
Gender*Occupation	.083	1	.083	.266	.608	.005
Gender*Level of English	.340	2	.170	.543	.584	.019
Age*Occupation	.693	7	.099	.316	.944	.039
Age*Level of English	9.730	21	.463	1.481	.123	.361
Occupation*Level of English	.039	1	.039	.125	.725	.002
Gender*Age*Occupation	.630	1	.630	2.014	.161	.053
Gender*Age*Level of English	.000	0	.	.	.	.000
Gender*Occupation*Level of English	.000	0	.	.	.	.000
Age*Occupation*Level of English	.000	0	.	.	.	.000
Gender*Age*Occupation*Level of English	.000	0	.	.	.	.000
Error	17.208	55	.313			
Total	559.875	156				
Corrected Total	46.484	155				

a. R Squared= .630 (Adjusted R Squared= -.043)

4.3 Attitude towards the English language based on gender, age, occupation, and level of English

RQ2. The four-way analysis of variance (factorial ANOVA) was performed to investigate participants' attitudes towards the English language based on gender, age, occupation, and level of English. The analysis indicates that the level of English significantly influences attitude towards the English language - M = 3.171, F (3,55) = 6.465, p = .001, with high effect size partial η^2 = .261. Additionally, Bonferroni's and LSD post hoc tests proved that the participants with the highest levels, excellent to average, in English have the most significant impact on the attitude towards the English language, as expected, with a p-value p = <.001, which means a high level of significance.

Other interaction effects on participants' attitudes towards the English language were insignificant. A significant main effect was not found when the constant variables were compared. (Table 3). The Cronbach's alpha reliability is acceptable (α = .839).

Table 3.
Attitude towards the English language based on gender, age, occupation, and level of English.

Tests of Between-Subject Effects
Dependent variable: Attitude towards the English language

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial E Squarec
Corrected Model	70.817[a]	100	.708	1.444	.068	.724
Intercept	105.713	1	105.713	215.499	<.001	.797
Gender	.251	1	.251	.511	.478	.009
Age	15.228	30	.508	1.035	.445	.361
Occupation	.607	1	.607	1.237	.271	.022
Level of English	9.514	3	3.171	6.465	<.001	.261
Gender*Age	5.023	12	.419	.853	.597	.157
Gender*Occupation	.333	1	.333	.680	.413	.012
Gender*Level of English	.215	2	.107	.219	.804	.008
Age*Occupation	1.682	7	.240	.490	.838	.059
Age*Level of English	13.132	21	.625	1.275	.233	.327
Occupation*Level of English	.916	1	.916	1.868	.177	.033
Gender*Age*Occupation	.750	1	.750	1.529	.222	.027
Gender*Age*Level of English	.000	0	.	.	.	.000
Gender*Occupation*Level of English	.000	0	.	.	.	.000
Age*Occupation*Level of English	.000	0	.	.	.	.000
Gender*Age*Occupation*Level of English	.000	0	.	.	.	.000
Error	26.980	55	.491			
Total	326.778	156				
Corrected Total	97.797	155				

a. R. Squared= .724 (Adjusted R Squared= .223)

4.4 Familiarity with anglicisms based on gender, age, occupation, and level of English

RQ 3. The single words used in our questionnaire can be divided into words used for the IT profession and common anglicisms: words and phrases, some of which are popular acronyms or, better say, abbreviations. Those words have different levels of adaptivity. Therefore, in the analysis, they were organised into two categories and five subcategories: untranslated words and translated words; untranslated with phonological adaption, untranslated with morphological adaption and untranslated with phonological and morphological adaptation. Further, translated words had more categories – partly and wrongly translated.

Four-way ANOVA was performed to display how gender, age, occupation, and level of English impact the overall familiarity with anglicisms in the English language observed within the questionnaire: translation of single words, fill-in gap questions with translation, usage, and translation of English abbreviations. An acceptable level of reliability was found - Cronbach's alpha reliability (α = .839).

As we can see from Table 4, there is a significant interaction effect between age and familiarity with anglicisms – M = .058, F (30,55) = 2.032, p = .011, partial η^2 = .526, and between familiarity with anglicisms and combination of the level of English and age – M = .073, F (21,55) = 2.575, partial η^2 = .496. As expected, younger participants with a higher level of English were more familiar with anglicisms – they used them correctly and with an understanding of the meaning. In addition, within the level of English, gender was irrelevant since both genders got value in pairwise comparison p = .029. (Table 4).

4.5 Attitude towards the English language based on exposure

RQ 4. One-way ANOVA was deployed for the dependent variable to detect a statistically significant difference in the attitude towards the English language based on exposure. The analysis revealed significance in the relation between the exposure and attitude towards the English language: M = 2.003, F (14,144) = 4.050, p = <.001, partial η^2 = .287. Those who were more exposed to the English language had a more positive attitude. Other variables, such as familiarity with anglicisms, had no significance. (Table 5). Cronbach's alpha for questions related to exposure to the English language is α = .686.

Table 4.
Familiarity with anglicisms based on gender, age, occupation, and level of English.

Tests of Between-Subject Effects
Dependent variable: Familiarity with anglicisms

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4.790[a]	100	.048	1.685	.018	.754
Intercept	160.178	1	160.178	5634.944	<.001	.990
Gender	5.771E-6	1	5.771 E-6	.000	.989	.000
Age	1.732	30	.058	2.032	.011	.526
Occupation	.066	1	.066	2.320	.133	.040
Level of English	.130	3	.043	1.521	.219	.077
Gender*Age	.376	12	.031	1.101	.378	.194
Gender*Occupation	.054	1	.054	1.897	.174	.033
Gender*Level of English	.072	2	.036	1.263	.291	.044
Age*Occupation	.310	7	.044	1.558	.167	.166
Age*Level of English	1.537	21	.073	2.575	.003	.496
Occupation*Level of English	.001	1	.001	.024	.877	.000
Gender*Age*Occupation	.026	1	.026	.918	.342	.016
Gender*Age*Level of English	.000	0	.	.	.	.000
Gender*Occupation*Level of English	.000	0	.	.	.	.000
Age*Occupation*Level of English	.000	0	.	.	.	.000
Gender*Age*Occupation*Level of English	.000	0	.	.	.	.000
Error	1.563	55	.028			
Total	414.075	156				
Corrected Total	6.354	155				

a. R. Squared= .754 (Adjusted R Squared= .307)

Table 5.
Attitude towards the English language based on exposure.

Tests of Between-Subject Effects
Dependent variable: Attitude towards the English language

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	28.046[a]	14	2.003	4.050	<.001	.287
Intercept	89.242	1	89.242	180.399	<.001	.561
Exposure	28.046	14	2.003	4.050	<.001	.287
Error	69.751	141	.495			
Total	326.778	156				
Corrected Total	97.797	155				

a. R Squared= .287 (Adjusted R Squared= .216)

4.6 Attitude towards the English language based on familiarity

RQ 5. From analysing the bivariate correlation between attitude towards the English language and language familiarity with anglicisms measured within the analysis, the conclusion is that they are positively correlated and strong, as states Pearson Correlation = .232. In other words, the degree of relationship between those variables is high. (Table 6). The more knowledgeable the participants are, the more positive their attitude towards the English language. An acceptable level of reliability was found - Cronbach's alpha reliability (α = .839).

Table 6.
Attitude towards the English language based on familiarity.

Correlations

		Attitude towards the English language	Familiarity with anglicisms
Attitude towards the English language	Pearson Correlation	1	.232"
	Sig. (2-tailed)		.004
	N	156	156
Familiarity with anglicisms	Pearson Correlation	.232"	1
	Sig. (2-tailed)	.004	
	N	156	156

**Correlation is significant at the 0.01 level (2-tailed)

5. Discussion

As a fast-growing field worldwide, the IT industry endorsed many anglicisms into many languages, including the B/C/S language (Okičić, 2015). This industry supported the widespread of English as a lingua franca. The main reason for borrowing English words in this field is the booming need – for semantic gaps. Moreover, it would be unimaginable to run the IT industry without anglicisms. Non-linguistic reasons also exist (e.g., prestige, showing off). However, their impact is weaker, unlike in Gulf Arabic (Al-Issa, 2006; Al-Issa & Dahan, 2011; Abdel-Jawad & Abu Radwan, 2011; Pessoa & Rajakumar, 2011). It is believed that language borrowing enriches the vocabulary of other languages, including the B/C/S language (Šehović, 2009). On the contrary, others endure not allowing anglicisms and try to find a proper translation for every English word. Such puristic tendencies are noted mainly in the Croatian language (Vlašić, 2012) and some in Serbian (Vasić et al., 2018; Prćić, 2005). English words must be adapted according to the system of the B/C/S language - phonological, morphological and syntactic to get their place and functionality in B/C/S (Filipović, 1990; Pelidija & Memišević, 2006).

It is good news that the measured attitude in B/C/S is not puristic as in languages that Sapir and Zuckermann (2008) observed - Finnish, Icelandic, and Revolutionised Turkish, nor as in Germany, Sweden, Italy, Portugal, Luxembourg, Ireland and France listed by Van der Burg (1997). From another perspective, the B/C/S language is less open than Hungarian after 2004 (Gombos-Sziklain & Sturcz, 2008) or Dutch (De Vries Jr, 2018). To conclude, the B/C/S language borrows what is needed, translates when possible and adapts anglicisms actively.

5.1 Attitude towards anglicisms in the B/C/S language based on gender, age, occupation, and level of English

As the four-way ANOVA detected, the variables had no significant interaction. It has been shown that regardless of the observed independent variables, people who speak B/C/S have a positive attitude towards accepting anglicisms in their language. That is to link to the need for such words. They bear the exact meaning, enabling efficient communication between friends and colleagues. Another question is how different anglicisms should be treated in B/C/S dictionaries (Sočanac, 1994). B/C/S linguists suggest that an open and positive attitude towards endorsing and quick spread of anglicisms should be questioned since it negatively affects those languages (e.g., lack of adaptation). The negative attitude is best reflected in purism in the Croatian language (Opašić & Turk, 2008; Vlašić, 2012).

Furthermore, this research goes in line with Skopljak & Dubravac (2019), where it has found that there are 44% of translated items of overall borrowed words. The rest make the untranslated words with different levels of adaptivity (56%). In conclusion, translated and untranslated English words in the B/C/S language in this sample have almost an equable ratio, unlike, for example, in the IT sphere in the Serbian language (Ivetić, 2014). The percentage of the words at different levels of adaptation makes 38%, and it could be expected that 18% of non-translated items follow this path. The results on translated items support the existing puristic tendencies in the B/C/S language.

As already stated, the analysis indicates a significant interaction effect between independent variances: gender, age, occupation, level of English and attitude towards anglicisms in the B/C/S language, as the dependent variable does not exist. The whole group expressed a positive attitude, unlike the young participants observed by Delić and Dedović-Atilla (2022), who had an excessively positive attitude towards anglicisms based on their level of English.

5.2 Attitude towards the English language based on gender, age, occupation, and level of English

Complied analysis pointed out that only the level of English, as an independent variable, significantly influences attitude towards the English language, with high effect. Other independent variables were insignificant. Attitude towards the English language is positive, and the participants with higher levels of English have the most significant impact on the results. The attitude is based on participants' belief in the importance and prestige of the English language. Although the analysis proved that age is not a significant factor in this research question, nor are gender and occupation. An interesting question for later research is whether the attitude changes over time as the participants become more senior.

As expected, the current analysis indicates that the level of English significantly influences attitude towards the English language. The overall attitude proved to be positive, which goes hand in hand with Mašić and Bećirović (2021), where the importance of a positive attitude is stressed as pivotal in learning English as a foreign language.

5.3 Overall familiarity with anglicisms based on gender, age, occupation, and level of English

It is known from the previous research question that the level of English has an impact on attitude towards the English language, and therefore was expected that it impacts the observed familiarity with anglicisms in it. The familiarity with anglicisms included translating words and abbreviations. Most of the participants did their best to give proper translation where possible (due to non-existing equivalences in B/C/S), while some gave it up. The reason lies in the complexity of translation (Weinreich, 1953), which is not an easy task for non-professionals. It also has to do with the level of adaptivity for each word and abbreviation.

The analysis proved a significant interaction effect between age and familiarity with anglicisms on one side and between familiarity with anglicisms and the combination of the level of English and age on another side. Younger participants were more familiar with anglicisms – they used and understood them better. Additionally, within the level of English, gender was irrelevant as both genders got the same value in pairwise comparison.

Likewise, in Skopljak and Dubravac (2019) research, younger participants showed more understanding of the observed anglicisms in the current study.

5.4 Attitude towards the English language based on exposure

The exposure was tested as another potentially crucial factor for attitude towards the English language. The age range of 18-49 could be a vital datum – those people probably had diverse expo-

sure to the English language. One-way ANOVA was deployed for this RQ, where a significant relation was detected. Those participants who were more/longer exposed to the English language expressed a more positive attitude. For comparison, the findings by Delić (2020) do not match the current research findings. He finds that the attitude towards the English language in high school students in Bosnia and Herzegovina is generally negative due to school policies, the learning environment and difficulty in learning the English language per se.

5.5 Attitude towards the English language based on familiarity

Logically, we wanted to explore further and tried to set familiarity with anglicisms in relation to attitude towards the English language. The bivariate correlation proved to be positively correlated and strong, as stated by Pearson Correlation = .232, which is a high degree of relationship. In other words, the more knowledgeable and competence the more knowledgeable the participants are, the more positive results in a positive attitude towards the English language. In the context of the previously mentioned study (Delić, 2020), gaining knowledge in English (in our case – familiarity) has been influenced negatively by some factors, and the mismatching with the current study is justified and expected.

6. Conclusion

As words or phrases borrowed from the English language into a foreign language, Anglicisms are an exciting topic in the dynamic contemporary globalisation process. We were to discover how and why those words are borrowed and what attitudes they elicit in Bosnian/Croatian/Serbian native speakers in Bosnia and Herzegovina who study and work in IT. The main items observed here were attitude towards anglicisms and attitude towards the English language.

The crucial reveal is that the participants displayed a positive attitude towards the English language and anglicisms. The participants have very similar or the same attitude towards anglicisms, regardless of the numerous differences (gender, age, occupation (professional or IT student), level of English). The participants use anglicisms gladly in formal and informal communication. The reason for it probably lies in the awareness of the importance and essentiality of anglicisms in the IT field. Furthermore, most observed anglicisms concerning B/C/S phonology, morphology, and semantics were correctly used. That means that the adaptation process is ongoing dynamically, despite the short time given and the lack of professional support and help (that cannot keep up with the fast-growing needs for anglicisms). However, the participants sometimes prefer to use the translated option – in 44% of cases.

The research gave an in-depth understanding of the attitude towards the English language. It has been revealed that attitude towards the English language is significantly influenced by the participants' English level, especially those with a high level of English. This attitude was also analysed concerning overall exposure to the English language. Furthermore, a significant relation between those two was noted. Again, the overall exposure to the English language proved to correlate with overall familiarity with anglicisms observed positively.

Another important and expected confirmation is that a significant interaction effect exists between age and familiarity with anglicisms – younger participants and those who are more knowledgeable have a more positive attitude. In this context, it did not matter if those people were female or male, students or professionals.

Based on the overall analysis, we believe that The English language or anglicisms in the B/C/S language cannot be a threat within the IT field nor to the B/C/S language. To sum up, the B/C/S language borrows what it needs, translates when possible and adapts anglicisms actively.

The use of anglicisms in the field is advisable and indispensable as a part of global tendencies.

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ORIGINAL RESEARCH PAPER

EFL TEACHING IN A DIGITAL ENVIRONMENT

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ABSTRACT

English as a Foreign Language (EFL) teaching has, similarly to all other subjects, gone through a digital transformation that was accelerated by the COVID-19 pandemic in 2020. Quarantines and subsequent distance learning led to new paths of teaching languages that opened up new chances to facilitate language learning. This web-based survey, conducted among Austrian secondary school students, aimed to identify methods and tools used in the EFL classroom, predictors for students' digital skills and chances that can be utilized in the future.

The following key results were observed: English classes during the school year 2021/2022 offered a wide variety of tools that the students worked with and improved in. Furthermore, the analysis showed that English language skills significantly influence and predict the improvement of students' digital skills. Finally, multiple chances for working with digital devices in the EFL classroom could be extrapolated from the results of the survey.

Keywords: digital literacy, digital competencies, EFL, self-assessment, language learning

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1. Introduction

The present paper examines EFL learning in a digital environment based on the introduction of digital devices into Austrian classrooms in the school year 2021/2022.

After introducing the "Initiative Digitales Lernen" (Bundesministerium für Bildung, Wissenschaft und Forschung, 2020), students in Austria had the opportunity to buy (for a reduced price) digital devices that were supposed to be implemented into regular teaching processes. Of course, then, the world had to take a giant leap in its digitalization efforts because of the Covid-19 pandemic (Dautbašić & Bećirović, 2022), and the distribution of digital devices was only one of the many measures taken by teachers all across the country to facilitate access to education. The aim of this research is to explore the methods and tools used in the EFL classroom, the possible predictors for students' digital skills and the chances that can be utilized to facilitate digital literacy in the EFL classroom.

2. Literature review

2.1 Digital literacy, digital learning and e-Learning

When discussing digital literacy, one regularly comes across the term digital competence. Those two terms have a lot in common; however, they are not interchangeable.

Digital competence is defined by the European Commission as:

> "Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet". (European Parliament, 2006, p. 15)

This definition is closer to what is nowadays known as digital literacy as it does not focus on individual skills so much as on the ability within the use of them. However, the term digital competence focuses very much on the skill of using digital media. Digital literacy, on the other hand, encompasses much more than that. In 2011, UNESCO defined digital literacy as such:

> "Digital literacy is an umbrella concept for important skill clusters whose names are often used as synonyms; their content, however, is not exactly the same. ICT literacy refers to a set of user skills that enable active participation in a society where services and cultural offerings are computer-supported and distributed on the internet. Technological literacy (previously called computer literacy) entails a deeper understanding of digital technology and comprises both user and technical computing skills. Information literacy focuses on one of the key aspects of our Knowledge Society: the ability to locate, identify, retrieve, process and use digital information optimally". (Karpati, 2011, p. 2)

In order to facilitate digital literacy, digital learning serves as a natural progression of e-Learning. Möslein-Tröppner and Bernhard base it on the following four principles:

- Anytime: learning asynchronously
- Anywhere: learning location-independent
- Anyhow: learning on multiple devices
- Anybody: learning individually. (Möslein-Tröppner & Bernhard, 2021)

Therefore, e-Learning only refers to online content, whereas digital learning also encompasses content that is stored locally (Bećirović & Dervić, 2022; Francisco, et al., 2022.). On the following pages, both e-Learning and digital learning will be used when describing digital-device-supported learning.

Working with digital devices is not always welcomed by teachers or students. However, necessity beats refusal, as Beat Honegger describes in his book "Mehr als 0 und 1" the essentiality to teach "with, through and despite digital media" (Honegger, 2017, p. 45). This quote encapsulates the feeling that though sometimes unattractive, digital literacy teaching is inevitable for the school of tomorrow.

2.2 EFL teaching

EFL is short for *English as a Foreign Language*. Frequently it is interchanged with ESL (Mašić & Bećirović, 2021; Dervić & Bećirović, 2020).), which is short for *English as a Second Language*. In the particular school that was subject to the survey explored in the following chapters, English is taught as "the first living foreign language"(Lehrplan AHS-Unterstufe Erste Lebende Fremdsprache, 2018). How-

ever, although this description might be found in the Austrian curriculum, it does not have much to do with the reality of students, who are from diverse backgrounds and oftentimes speak at least two languages fluently before entering the school system. For them, English is sometimes the third, fourth, or fifth language that they learn. Therefore, the decision was made to go forward in using EFL as the target term.

Gilquin and Granger argue that there are many more categories than just the two most prevalent ones. They view EFL and ESL as two extreme definitions and state that "SLA specialists have been aware for quite some time that the EFL/ESL distinction is not a clear-cut dichotomy but a continuum, with many factors pulling language varieties in one or the other direction" (Gilquin & Granger, 1996, p. 76). Other terms that are frequently used are TESOL (Teaching English to Speakers of Other Languages), EAL (English as an Additional Language), or ELL (English Language Learners) (Gunderson et al., 2019; Saračević et al., 2021).)

2.3 Digital literacy in the EFL classroom

As established before, digital literacy is about application and reflection.

At the moment, Austria's secondary schools are following a curriculum that was published in 2018/2019, which dictates two to four weekly lessons of basic digital education within four years. It is important to note that the German language does not differentiate between digital competence and digital literacy, as there is no equivalent word for "literacy" in German. Literacy, when directly translated, is identical to the state of alphabetization. This definition does not equate to the English definition of literacy. Thus, the Austrian curriculum focuses on the term digital competence. The curriculum defines digital competence as follows:

„Die Vermittlung digitaler Kompetenzen befähigt Schülerinnen und Schüler, auf Basis eines breiten Überblicks über aktuelle digitale Werkzeuge (Hard- und Software) für bestimmte Einsatzszenarien im schulischen, beruflichen sowie privaten Kontext jeweils passende Werkzeuge und Methoden auszuwählen, diese zu reflektieren und anzuwenden". (Bundesministerium für Bildung, Wissenschaft und Forschung, 2018)

This extract from the Austrian curriculum includes both the reference toward digital skills but also the operator words "reflect" and "apply", which take us back to the definition of digital literacy. So how does digital literacy play into the objectives of EFL teaching?

There are isolated studies that explore cross-curricular competence-based teachings (Polz & Bećirović, 2022). However, a comprehensive study is pending. Most available studies have been done with a focus on EFL teachers and their digital capabilities. Only a few publications can be found that focus on the students and the results of such cross-curricular teachings.

For example, in the case study "Digital literacy and digital content supports learning: The impact of blogs on teaching English as a foreign language", Charlene L. Al-Quallaf and Afaf S.R. Al-Mutairi describe the impact of blogs on EFL primary students in a public elementary school in Kuwait. The authors analyzed students' blogs over one semester and conducted focus groups with educators, in which they were asked about the use of social media in the classroom. The analysis of the blogs showed that the students' linguistic ability significantly increased throughout the weeks of contributing to the class blog. The authors found that the interactive format resulted in a positive learning experience, which then resulted in an increase in motivation. The focus groups with educators found that they require more incentives to include more digital classroom work. However, they noted that the students a lot of times showed better digital literacy than the teachers themselves. While this case study provides interesting findings about motivation and increased language skills, it does not focus on digital literacy itself (Al-Qallaf & Al-Mutairi, 2016).

In "Digital Literacy of EFL Students: An Empirical Study in Vietnamese Universities", Lan Anh Thuy Nguyen and Anita Habok explore the question as to what extent students use digital tools when learning English, whether there is a discrepancy among sexes regarding the digital literacy and if there is an age difference. The authors state that most students seem to have access to computers and the Internet and therefore have enough resources to improve their digital competence. They also underline the feasibility of the usage of English education technologies (Nguyen & Habok, 2021). Again – as with the study by Al-Quallaf and Al-Mutairi – the study focuses on the student's perception of the

positive impact of digital tools on their language learning. Though this study is helpful for this paper in regard to the accessibility of digital tools, it again does not focus on digital literacy itself.

Similarly, "Digital literacy of language learners in two different contexts" by Jeong-Bae Son, Sang-Soon Park and Moonyounk Park (Son et al., 2017), "Technology-Based Language Learning: Investigation of Digital Technology and Digital Literacy" by Hussein Mohamad Alakrash and Norizan Abdul Razak (Alakrash & Razak, 2021), as well as "The Implementation of Digital Literacy in EFL Learning: A Case Study in SMP Muhammadiyah 1 Temanggung" by Hana Amri Solikhati and Bambang Widi Pratolo (Solikhati & Pratolo, 2021) offer interesting insights into the status quo of digital English learning, but they also do not offer data on increased digital literacy skills. These studies focus on the impact of digital literacy on language skills and student motivation.

Nuriyatul Hamidah states that recent research suggests that by developing students' digital literacy, they are supported in using said media and technology for their learning in other subjects (Hamidah, 2021). Therefore, facilitating digital literacy can have a positive effect on the digital skills of students as well as their motivation and language skills in the English classroom (Bećirović et al., 2022).

In "The use of digital technology in foreign language learning", Becirovic et al. identify a positive learner experience with technology-based language learning and the importance of the teacher's role in this learner journey (Bećirović et al., 2021). They also found a significant difference in the students' perceived usefulness of technology based on GPA level.

To sum up, there is still a lot to be explored in regard to digital literacy in the EFL classroom. Digital literacy as a secondary goal is barely touched in current research and offers huge opportunities in integrating digital literacy teaching into the existing school routine.

With the help of the following quantitative study, this paper aims to contribute to fill the gap that is outlined in the previous chapter.

3. Methodology

3.1 Participants

The study was conducted in 2022 at an Austrian grammar school with a sample of 151 students. The students attended 5th and 6th grade and had all been given a digital device as part of a nation-wide initiative of the Austrian government in 2021. The sample consisted of 6 classes, and 68 participants (45,7%) from grade 5 and 82 participants (54,3%) from grade 6 were surveyed. All subjects were asked to answer a web-based survey on a confidential basis. Since the school has this considerable amount of diverse students, it was also important to ask for the mother tongue of the students. Mother tongue was defined as the language that is spoken most in an everyday context. This showed that most of the students had a mother tongue different than German, which is the official language in Austria and is also the language the students are taught in (apart from foreign languages). 42% of participants identified German as their mother tongue, while 58% stated other languages and therefore did not see English as their "First Foreign Language".

3.2 Instruments and Procedures

The data for this study was gathered by means of a web-based survey. It included five major categories: (1) demography, (2) habits of using digital devices, (3) advantages and disadvantages of e-Learning use, (4) students' experience in using e-Learning and (5) self-assessment. After obtaining the informed consent from the Headmistress and SGA (Schulgemeinschaftsausschuß = school community committee), the online survey was provided and adjusted in accordance with the school and teachers. Participants were instructed about how to complete a Likert-type scale and were informed that the data gained from the survey would be anonymous, voluntary and confidential.

3.3 Data analysis

The data was organized by checking descriptive statistics such as percentage, standard deviation, mean or analysis of variance (ANOVA). The software of choice was Statistical Package for the Social Sciences (SPSS), which was established in the 1960s (Braunecker, 2021).

4. Results

4.1 Specific digital teaching methods and tools

The findings of the survey show that the variety of tools used in English classes was substantial and that the improvement mostly mirrored the use. Writing seems to bear significant weight in the use of digital devices in the EFL classroom, as both the numbers of the use of word processing software and the main focus of general use show. This could be attributed to the multiple benefits of working with word processing software for both the students and the teachers. Digital texts can be corrected in a way that might seem more comprehensible and easier to keep track of for the student. Furthermore, learning games and quizzes are prominent in English lessons and at home. The gamification aspect must not be underestimated in this context. Introducing a playful aspect to learning seems to have been a priority of both students and teachers, and the results show that the majority of students felt like e-Learning was a fun change of habit in the classroom.

It was also observed that a significant amount of students completed their homework digitally. The translation of using the digital device in school towards using it at home shows the substantial connection between the methods and tools used in the educational context. It is apparent that teachers encouraged the use of digital devices beyond their presence in school.

Additionally, it would be crucial to assess if the listed tools were used in other subjects and to what extent in order to paint a broader picture of the improvement in certain areas. Furthermore, it would be valuable to inquire which other tools were used in the EFL classroom and to which extent. When it comes to teaching methods, it is clear that most participants preferred a hybrid environment in their EFL classroom. As stated in chapter 2, blended learning is regarded as one of the most promising e-Learning sectors and is experiencing a momentous surge amidst the growing number of educators incorporating digital devices into their classrooms. All participants of the survey experienced blended learning in some form during the last school year and seemed to associate a positive attitude with it.

4.2 English language skills as a predictor for students' digital skills

The analysis showed that there was a significant influence and prediction factor on the improvement of students' digital skills. This finding is particularly valuable when justifying the use of digital devices in the EFL classroom. After all, the implementation of e-Learning into existing educational structures must have a positive impact in order to bear weight. These results showed that by improving in one essential area of expertise, students develop substantial competencies in other areas as well. This makes the need for a thorough continuing education of EFL educators apparent, as an equally beneficial factor for both English and digital skills could be observed.

On the other hand, this also shows the limits of incorporating digital devices into a school subject. If students are struggling in a subject already, the implementation of e-Learning might be an additional burden on them and result in an unsatisfying outcome in both digital skills and English skills. This is certainly a factor that should be kept in mind when setting expectations for students.

4.3 Chances to be utilized in the future to facilitate digital literacy in the EFL classroom

Based on the data collected from the survey, it is important to extrapolate possible chances to facilitate digital literacy in the EFL classroom in the future.

Often, e-Learning is regarded as a promising resource for students who either do not have access to education or have different requirements for a successful learning experience (Bećirović, 2023). When asked whether e-Learning can solve many of the educational problems, only a small minority of participants agreed. This result, therefore, does not correlate with a lot of literature that was discussed in chapter two. This could mean two things: Either the available research is insufficient, or students just don't believe in e-Learning as a solution for educational problems. Both arguments could be made. Based on other results of this survey that convey a tendency towards rather negative views on e-Learning, one might conclude that this opinion might still change or be subject due to the challenging circumstances of having to adjust to digital learning because of the Covid-19 pan-

demic. I think it is reasonable to assume that the hasty shift of presence teaching to online teaching in Austria of March 2020 and the recurring tumultuous changes in teaching methods and digital requirements for students all throughout the preceding two school years have negatively impacted the students' views on online learning. The same can be observed when students were asked whether online learning increased their ability to understand the subject matter. 45% either disagree or somewhat disagree with that statement. Only 33% either agree or somewhat agree that online learning increases their ability to understand the subject matter. However, a large majority (48%) agree or somewhat agree that their new digital device has helped to significantly improve their digital skills. This shows that students do not experience a large improvement of their English abilities based on online learning but that they recognize a large improvement in their digital skills through the use of their digital devices.

While the last few findings focused on a more global approach as to how digital literacy can be facilitated, I now want to offer a more detailed interpretation of how EFL teaching can facilitate digital literacy while at the same time promoting English skills. The results showed that only 54,3% of the students felt confident in recording and digital sound editing. There is a variety of tools available to help students work with audio files like *Audacity*, *Media.io* or *Garage Band*. Listening comprehension and Speaking skills are two of the four main pillars of English competence. However, a lot of times, teachers are burdened with big classes and/or students who do not feel comfortable speaking in front of their classmates. E-Learning offers an interesting addition to tested and proven teaching methods. Students could record themselves speaking English at home and then edit their recording, analyzing their own file or the file of other students and therefore work with both listening and speaking skills in a much more intense way than they ever would in the classroom. This method would also allow them the opportunity to listen to files more than twice and at their own speed, facilitating a more individual learning experience.

The survey showed that only 45,7% of students use mobile apps for language learning purposes. This could also be a great opportunity to incorporate online learning into the daily lives of students. The gamification aspect of applications like *DuoLingo* or *Babbel*, just two of the main language acquisition apps on the market, could encourage students to learn a foreign language while at the same time fostering digital literacy.

What is clear from the results of the survey is that although 100% of the students surveyed are working with a digital device, only 66,9% feel like they understand the basic functions of computer hardware components. This is an essential part of digital literacy as well and must be promoted in a more meaningful way. The same goes for software components. When asked what kind of operating systems the students use, only 11,9% of participants answered "Windows". However, the digital devices administered to 98,7% of students run on *Windows*. This shows that there is still a big disconnect between the students and their digital devices.

To sum up, the research question "What chances can be utilized in the future to facilitate digital literacy" can only partly be answered through the findings of this survey. There is still a lot of room to grow, and it is likely that a large group of the students fosters a negative attitude towards online learning through two years of constant change in their teaching methods due to the pandemic.

5. Conclusion

The survey laid out how diverse the teaching methods were when it came to e-Learning in EFL classrooms. All provided categories showed a significant use in English class, and the improvement in the use of these tools also corresponds.

An interesting finding has been that three of the four English language skills (reading, writing, listening) significantly influenced the gain in digital skills. This correlation proves the deep connection of both language literacy and digital literacy. Lastly, the survey provided manifold insights into the chances that can still be utilized by incorporating digital literacy into the EFL classroom. With a lot of room to grow and research to be done, one can only imagine the possibilities of a marriage between the literacies.

It is utopic to assume that each school subject can cover the full scope of digital literacy. However, if each subject contributes to an educated and competent student body, a comprehensive picture could be created that will result in knowledgeable, skilled and able students.

There are manifold possibilities on how to expand this topic, and the emphasis could be laid on multiple different aspects. The next years will offer more insight into the research done during the Covid-19 pandemic, as it has been a catalyst for many digital areas of growth.

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REVIEW PAPER

SRL-O AND GAMIFICATION –THE CONNECTION BETWEEN THE TWO ELEMENTS IN ONLINE LEARNING PLATFORMS SUPPORTING LEARNING GOALS

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ABSTRACT

Showing content in online platforms is a wide topic and the possibilities for representing content seem to be endless. This paper discusses the incorporation of learners' goals into content in online learning platforms, with the focus on gamification as the content representation method. In fact, the aim of this study was to explore how learning goals in an online self-regulated learning environment match with gamification as an online representation possibility. Thus, the terms gamification, self-regulated learning and learning goals as presented in different studies are analyzed and introduced in this work. The method used in this paper was a qualitative and quantitative semi-systematic literature research method. The results show how gamification and self-regulated learning go together and which key elements are used in gamification. The findings confirm that gamification supports learners' goals in self-regulated learning during the following phases: performance, forethought and self-reflection.

Keywords: SRL-O, gamification, Learning goals, self-regulated learning, online learning support

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Introduction

Teaching is no longer limited to face-to-face (F2F) instruction as instructional technology has become more common in higher education. Consequently, e-learning and face-to-face instruction should be combined to improve accessibility, flexibility, and interactivity of university classes (Sanderson & Rosenberg, 2002). Nowadays we witness the presence of a variety of technological possibilities for presenting content to a learner: from simple PDFs to gamification and e-learning with multimedia and interactive content. Whilst classical presentation of content in online platforms just gives the possibility for the learner to download and read the content without any interaction, new technologies provide learners with interactivity and responses. Thus, a basic goal of e-learning is to establish conditions in which students are motivated, satisfied, effective, and efficient (Sun et al., 2008, Yueh & Hsu, 2008). Shea and Picket (2019, p. 5) refer to the following seven principles of learning developed by Chickering and Gamson (1987), "Contact between students and faculty members, reciprocity and cooperation among students, prompt feedback, time on task, active learning techniques, communication of high expectations, and respect for diverse talent and ways of learning" which should all be encouraged in an effective online learning environment.

Considering those principles, which are valid for online and offline teaching and learning, pure representation of content is not sufficient in online environments to support learners' progress in the right way, and to satisfy their learning goals. There are different goals in learning, but in general learning goals are the intended purposes and desired achievements of a particular training or course, which identify knowledge, skills, and capacities, "Effective learning goals are a necessary ingredient in student achievement" (Marzano, 2009, p. 3).

Interactivity is important because learners vary greatly in terms of their learning plans, styles and strategies. They keep track of progress toward their goals through evaluation and reflection, and they adapt these methods as necessary to reach their learning goals (Zimmerman, 1986). It depends on the topic and the attitude, personality, and the goal of the learner which representation will work out best to improve learners' progress over time. If objectives and goals are not met, students respond to mistakes in learning in different ways: some see them as a challenge, while others stay dejected and frustrated (Dweck & Yeager, 2019). These different types need to be suitably supported by a platform.

Closing the gap between self-regulated learning (SRL) and the media is the topic explored in the current paper. It aims to analyze how media can best support learners in reaching their learning goals. New trends and technologies in online learning make interaction with learners possible as well as measuring their performance and supporting their progress. There are many possibilities of interactive content, but this paper will focus on gamification only. Gamification presents a trend in online learning, relying mostly on learners' intrinsic motivation to gather the content (Soepriyatna & Pangaribuan, 2022). This paper should bring the principles of self-regulated learning together with the principles of education and gamification as developed over the last 10 years.

Methodology

The method used in this paper is a qualitative and quantitative semi-systematic literature research method (Snyder, 2019) as the topic was studied in different contexts as covered by various authors. The objective of this pre-study was to provide an overview and clear definition of the key terms – SRL and SRL-O, gamification and learning goals. Furthermore, the study attempted to bring these concepts together, compare the key elements and finally analyze the connection between SRL-O and gamification. In other words, it aimed to see how much these terms correlate and to test the hypothesis predicting that gamification influences learners' progress in a positive way.

Data sources

Identifying the terms was the first step, so one of the most popular scientific databases ResearchGate – which besides google scholar currently contains most books and articles for general use – was explored. Then, the key authors, terms and citations were investigated in various articles to qualify them.

As this work has two key terms: SRL(-O) and gamification, those were the terms researched in various existing scientific and peer-reviewed articles included in online databases with the aim to identify the most common authors and articles

dealing with them. Further queries for SRL-O were taken, but as it is a very new term found in articles in the third quarter of 2022, its base SRL was more intensely researched, and these findings were also described in the corresponding section. The search criteria were always reduced to one year, so the results are not summed up but they are presented for one particular year. This is an example how the data were fetched: The search criteria for ERIC were (e.g. for 2016): gamification pubyearmin:2016 pubyearmax:2016

Results and discussion of a semi-structured literature review

This chapter contains all theoretical pieces regarding the introduction into SRL, gamification, learners' goals, and SRL-O, which is a further development of the SRL especially in the context of online world. Literature research for the most common issues and most cited authors was done to build the base for the later comparison of different aspects.

Self-regulated learning (SRL)

Self-regulated learning focusses on goal settings, time management and learning. Students establish objectives, track their progress through self-reflection, and continually assess their learning strategies, which supports and enables them to adapt their engagement in academic tasks (Hawe, Lightfoot & Dixon, 2019). Thus, the key principles of self-regulated learning are setting the goal and positioning learners as active participants in the learning process (Winne & Perry, 2000). Although learning environments have altered as a result of emerging technologies and learners receive instruction online, so learners and educational information are not physically present at the same place, they should still have the chance to master essential skills through online instruction (Adam et al., 2017), and self-regulated learning becomes even more important.

Barry Zimmermann was one of the first – if not the first – who developed Self-regulated learning. We have found no study about SRL which refers to self-regulated learning and not mentioning Zimmermann's early or later studies. According to ResearchGate – fetched on 3rd of January 2023 – Zimmermann is citated 56.137 times in various articles about self-regulated learning, which was his focus topic for most of his active years as a researcher. He published 170 articles there, around half of them being connected to self-regulated learning and being the most cited ones. In every article referring to SRL here, Zimmermann was at least cited with one of his articles published between 1986 and 2012, when he changed the focus of his work and papers.

His major first work in 1986 led to the triadic analysis of self-regulated functioning. Through active feedback, a student's proactive use of a self-evaluation technique will reveal the level of accuracy and whether checking needs to continue. In this reciprocal representation, causation is started directly (by oneself), carried out through the application of strategies, and controlled through perceptions of efficacy. That model also provides the triadic illustration and connection of environmental self-regulation, as Zimmerman states (1986, p. 330), "A student's proactive use of an environmental manipulation strategy (e.g., arranging a quiet study area for completing schoolwork at home) would involve an intervening behavioral sequence of room-altering responses such as eliminating noise, arranging adequate lighting, and arranging a place to write." The continuous use of the schematic structured setting for learning depends on supporting the effectiveness of learners. Through a mutually reinforcing feedback loop in the environment, the information is alternately transported both ways. According to this formulation, learning strategies can be initiated from the environment (for example, through instruction), but they would not be classified as self-regulated unless they were influenced by significant personal processes (i.e., goal-setting, and self-efficacy perceptions). The model also gives attention to covert self-regulation. The illustration shows, that a person's covert processes also influence one another in a mutual way.

A later work of Zimmermann contains *A Cyclical Phase Model of Self-Regulatory Feedback* based on his work in 1989 and combines the feedback loop and behavioral outcomes. The three phases are: forethought, performance and self-reflection. The forethought phase describes learning processes and motivational factors that come before learning-related efforts and have an impact on students' readiness for and willingness to self-regulate their learning. The processes that take place during learning and have an impact on focus and performance are included in the performance phase, whereas the processes that

occur after learning efforts but have an impact on learner's reactions to that experience are included in the self-reflection phase. The self-regulatory cycle is completed when these self-reflections have an impact on future learning efforts. This led to the development of a new model proposed by Zimmermann and Moylan (2009), based on which the following resume might be made: Students analyze the task, set goals, and make plans for how to achieve them during the forethought phase. Several motivational beliefs fuel the process and have an impact on the activation of learning strategies. During the performance phase, students carry out the assignment while keeping track of their performance and using self-control techniques to keep their minds on the task at hand and to be motivated to complete it. Finally, during the self-reflection stage, students evaluate how they handled the assignment and assign blame for their success or failure (Panadero, 2017). When students make these attributions, they experience self-reactions that may have a positive or negative impact on how they approach the task in subsequent performances. This Zimmermann's work with the 3 phases of self-reflected learning can be applied to online learning strategies, so they will be taken as a base for analyzing the gamification as an online learning strategy.

Online Learning possibilities

The possibilities nowadays in online learning are much more than just presenting downloadable or readable content to the learner. They involve interacting with learners, understanding their objectives and goals, and representing the content in a proper way to support learners' progress.

Technically, online settings offer the following advantages in comparison to traditional ones (New Zealand Ministry of Education, 2023; Debevc et al., 2011, pp. 182-184) :

- On a computer or tablet, language and visual assistance can be accessed whenever necessary;
- Information can be conveyed using a variety of media, and the presentation can be customized to a person's needs in order to promote independence;
- There are visual and audio stimuli available;
- Students are allowed to learn at their own pace and return as frequently as they like to review what they have learned;
- Flexible presentation of differentiated work is possible to accommodate varying learning needs;
- A multisensory approach that incorporates manipulable, physical activity, and real-world experiences can be applied;
- Concrete and illustrative examples (interactives, real objects, images, video, and infographics on devices) of information are offered;
- Audio and visual materials can be used in addition to text;
- Text might be available digitally rather than on paper so that students can choose how they want to access it;
- Different versions of content, like a YouTube video, a graphic, and some text, are gathered in one place by using blogs, wikis, and online tools like Moodle.

There are some general guidelines existing, supporting the learner to gather the content better, which were evaluated in various studies. The 6-point list below is a summary of various studies about content representation and how it influences learners' perception of content – mainly in online formats found in reference articles (Bangert, 2004; Hidayati, 2021; Lin & Atkinson, 2011; Sayed et al., 2023; Shabiralyani et al., 2015; Wang, Zhang, et al., 2013):

- Help comprehension with visuals:
- Provide information in multiple formats;
- To illustrate text, use symbols and graphics;
- Maintain a clean and uncluttered layout;
- Use movies and animations;
- Use subtitles and highlights in videos.

All of above items were researched in various studies and it was concluded that they improve learners' progress and that following those rules helps learners to gather content more quickly, especially in a self-regulated environment where no teacher is present to ask or to present the content.

SRL-O

In 2022 the SRL-O identified scales for the self-regulation based especially on online learning in comparison to the SRL which is focused on traditional self-regulated learning. This recent study by Broadbent, Pandero, Lodge and Fuller-Tyszkiewic (Broadbent et al., 2022) is used as the base in this article for the further analysis and comparison with gamification elements. SRL-O is based on

the SRL Zimmermann developed, just now in the context of online learning. This study compared SRL-technologies and as the outcome of this study following elements were found relevant for SRL-O in the work of Broadbent et al. (2022, pp. 13; 21-26):

- Motivational beliefs
  - Online self-efficacy
    - Measures the students' perception of their own abilities and expectations for success in online courses.
  - Online intrinsic motivation
    - Measures whether learners participate in a task for reasons such as interest, challenge, curiosity, enjoyment, and mastery. A higher score indicates higher intrinsic motivation.
  - Online extrinsic motivation
    - Measures whether learners perceive themselves to be participating in a task for reasons such as grades, rewards, performance, evaluation by others, and competition. A high score indicates high extrinsic motivation.
  - Online negative achievement emotion
    - Includes both negative activating emotions (such as anxiety and shame), as well as negative deactivating emotions (such as hopelessness and boredom). Negative deactivating emotions can have a detrimental impact on motivation, mental processing and increase worry and mental distraction. Negative activating emotions may prompt effort but may also reduce intrinsic motivation and increase ridged strategy use.
- Learning strategies
  - Online planning and time management
    - Structuring of learners' efforts toward studying online
  - Online metacognition
    - Contains metacognitive planning, monitoring, and evaluating. Online metacognitive planning includes goal setting and task analysis, which makes organizing and comprehending material easier. Online metacognitive monitoring includes reflecting, questioning and self-testing as one studies. Online metacognitive evaluating is adjusting and correcting one's cognitive activities and behaviors in response to one's own evaluation of performance during the task.
  - Online study environment
    - Having a study environment that is quiet and distraction-free.
  - Online effort regulation
    - The ability to persist even when the task is not of primary interest, there are distractions, or there are other interesting things to do. It requires learners to be committed to their study goals, control their efforts, and implement a range of strategies to do so.
  - Online social support
    - The learner's willingness to seek help from and collaborate with peers, teachers and online. A higher score here indicates a greater willingness to seek help and collaborate with others.
  - Online task strategies
    - Including strategies that help learners integrate and connect new information with prior knowledge, select appropriate information and construct connections among the information to be learned. In other words, it refers to applying previous knowledge and experience to new situations.

As this study also takes into account not only the results and questionnaires by Zimmermann in 1986 and 2009 (Zimmerman, 1986; Zimmerman & Moylan, 2009) but also those by other authors who covered the topic of SRL like Pintrich (Pintrich et al., 1993), it shows that there is some overlap in terms of elements, but now they are all adapted to online usage.

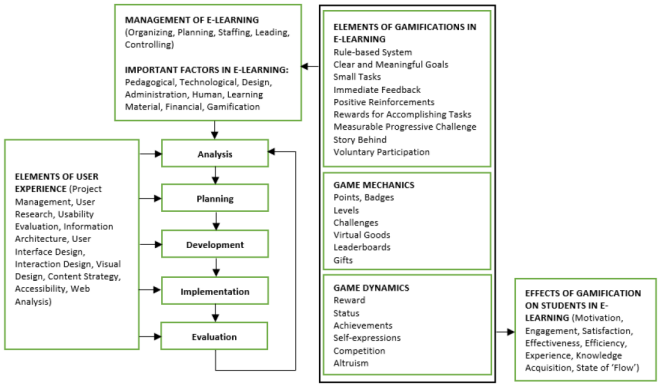
Gamification

"Gamification" is the use of game design elements in non-game context (Deterding et al., 2011). As this work aims to represent the term gamification, other similar terms used for gamification (also in earlier studies than 2002) like "productivity games", "surveillance entertainment", "funware", "playful design", "behavioral games", "game layer" or "applied gaming" (Deterding et al., 2011) are not considered. Gamification has managed to institutionalize itself as the common household term.

It is often used in the context of digital media but can also be applied to physical spaces or processes. Gamification can be used in a variety of settings, including business, education, and health care to increase user engagement and motivate desired behaviors. For example, a company might use gamification to encourage employee participation in a training program, or a fitness app might use gamification to motivate users to exercise regularly.

It is a "set of activities and processes that employ or apply game-design elements and game concepts in non-game contexts" (Deterding et al., 2011, p. 9), to improve user experience and engagement or as a tool for influencing people's motivation or engagement to solve hard problems, complete specific actions, or simply have fun (Sarkar & Datta, 2014). Some see it as a new way of thinking about problems, devising solutions, and implementing them. The following (Figure 1) shows how gamification is in the process of e-learning included with its elements, management, and effects.

Figure 1.
Gamification in online Learning (Soepriyatna & Pangaribuan, 2022, p. 41)



The major difference between online gaming and gamification is that gamification is not developed as a complete game but uses the elements above (Game Mechanics and Game Dynamics as well as the Elements of Gamification with its Systems) to transport the learning content within a gaming environment to learners to fulfill their learning goals.

The first use of the word gamification is dated differently. In ResearchGate and Eric the earliest found article containing the word 'gamification' was found in 2002 (Torres-Rodriguez & Martínez-Granada, 2002) which conflicts with the findings of Detering (2011, p. 1) who states that, "The first documented use dates back to 2008" whilst it is true when he mentions: "did not see widespread adoption before the second half of 2010.". A search in 8 best ranked databases for science according to google (*BASE*, 2023; *DOAJ*, 2023; *ERIC*, 2023; *Google Scholar*, 2023; *IEEE Xplore*, 2023; *JSTOR*, 2023; *ResearchGate*, 2023; *Web of Science*, 2023) showed similar results. For access reasons the Web of Sciences is not considered in this study. Only in ResearchGate we could find an early article of 2002, in all others the term first appeared in 2008. The following table and figure summarize the search results in different databases considered as relevant science databases.

Figure 2.
Graphical Representation for gamification over the years

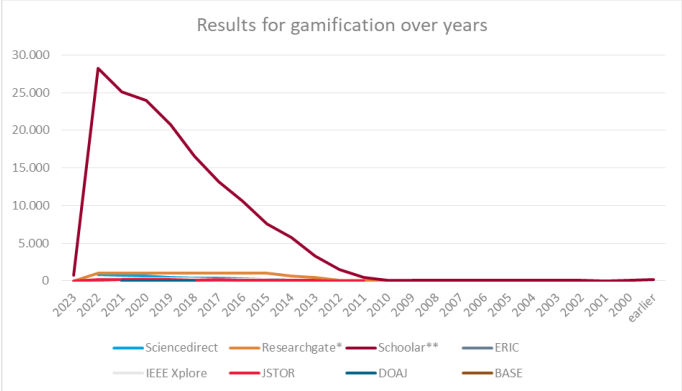
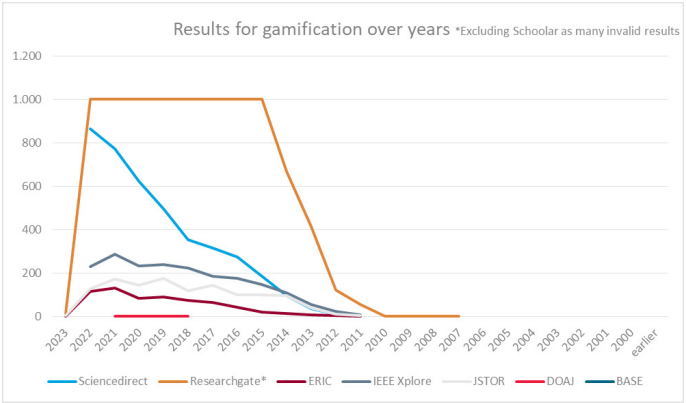


Table 1.
Search results for gamification over the years in the 8 considered science databases

Year	Sciencedirect	Researchgate*	Schoolar**	ERIC	IEEE Xplore	JSTOR	DOAJ	BASE
2023		14	747	2		6		
2022	863	1.000	28.200	115	231	128		
2021	773	1.000	25.100	132	287	172	1	
2020	622	1.000	24.000	85	232	144	1	1
2019	495	1.000	20.700	89	240	175	1	
2018	355	1.000	16.600	74	223	119	1	
2017	317	1.000	13.200	64	186	145		
2016	274	1.000	10.600	43	175	100		
2015	186	1.000	7.540	21	148	101		
2014	97	669	5.730	14	110	96		
2013	38	413	3.330	7	54	39		
2012	11	122	1.510	4	23	11		
2011	5	54	442	1	7	5		
2010		2	102					
2009		2	83					
2008		1	81			2		
2007		2	62					
2006			50					
2005			61					
2004			36					
2003			36					
2002		1	29					
2001			28					
2000			31					
Earlier			135					
		*1000 max count	**invalid results on opening random samples					

For representing the results over years graphically, another graphic was created to exclude the results of google scholar as there were, on the one hand, many invalid year results on random sampling opening, and, on the other hand, there were many not well reviewed or just online blog articles. To have a better overview, another diagram was created showing the development of 'gamification' over years.

Figure 3.
Graphical Representation for gamification over the years excluding google scholar



These findings show that before 2012 there was no mention of the term gamification in any article in these databases. In fact, the exact and correct numbers of articles mentioning the term 'gamification' was only possible to determine in ScienceDirect, as all other databases had errors in correct searching for the years. The tagging algorithm of the contained pdfs was taken wrongly for some randomly opened sample articles. There were articles found when entering 1980 from 2017 (*Google Scholar*, 2023) and ResearchGate (*ResearchGate*, 2023) stops at delivering 1000 results. However, the broad picture was almost the same on each search engine, the number of found results increased dramatically from 2011 onwards.

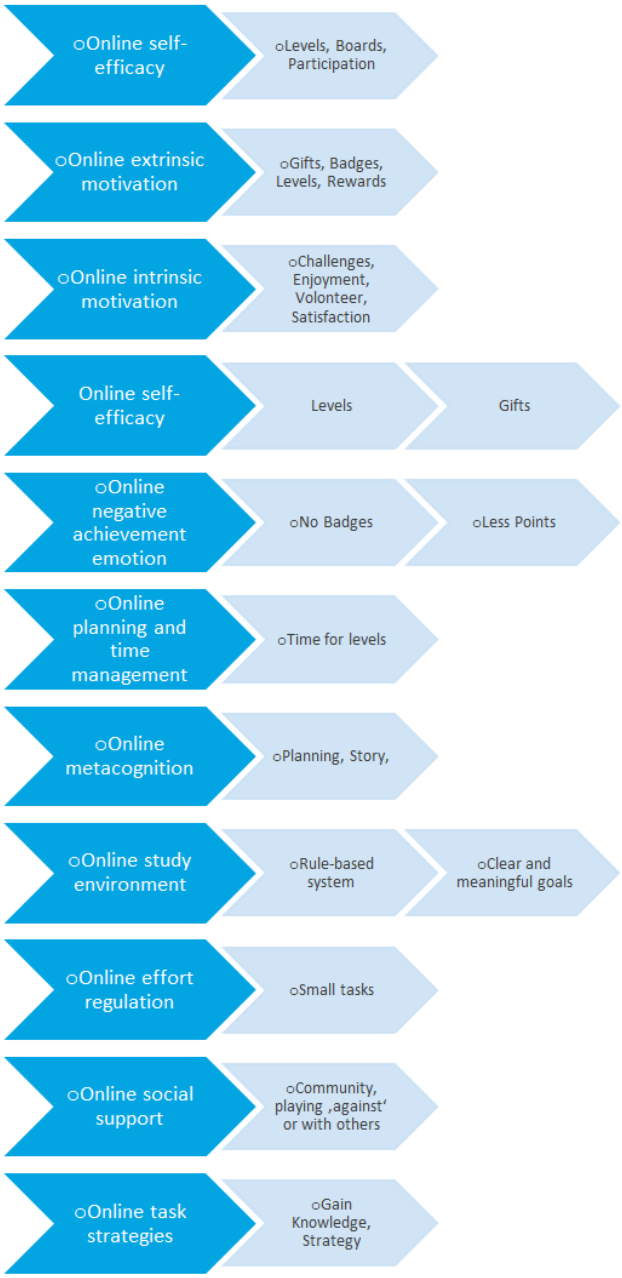
Learning Goals

Learning goals are the intended purposes and desired achievements of a particular course, which generally identify the knowledge, skills, and capacities a student should achieve in that class (Elliot, 1999; Elliot & McGregor, 2001). Goals that require students achieve a certain score are performance goals (e.g., Students will be determined proficient or higher in reading by the end of the school year). Goals that ask students to master content are called mastery goals (e.g., Students will be able to use word segmentation and syllables to decode an unrecognized word).

Studies have shown that mastery goals are more often associated with higher order learning and better performance (Marzano, 2009). Of course, there are institutional goals but also the personal learners' goal referring to their expectations of the course. However, we should bear in mind that goals can vary. It might be that the goals change during a course or a training, so the online platform should be able to cope with a change in learners' goals.

Rewarding and Goals are key elements of gamification which match the self-reflection phase as proposed by Zimmermann in his behavioral study, but also help in the performance and forethought phase. As in every game you must think strategically to get your rewards and get forward in your levels, badges, and other rewards. In fact, gamification takes many research results of SRL and SRL-O. Comparing the later work of Zimmermann (Zimmerman & Moylan, 2009), we see that the elements of gamification can be linked to the SRL-O identified items. Figure 4 shows, which methods are sufficient for supporting the identified SRL-O in combination with gamification:

Figure 4.
Comparing Gamification with the SRL-Goals (own graphic out of SRL-O added to gamification)



Conclusion

Showing content in online platforms is a wide topic and the possibilities of representing content seem to be endless. The 'best' practice of showing content always depends on the goal of learning. Therefore, there is no such thing as 'good' or 'bad' content as it depends on the learners' individual needs and expectations. The possibilities for presenting content in online platforms for self-

regulated learners have increased exponentially over the past few years. AI, graphical improvements and having a good 'gaming' experience help a lot in using this technology. Gamification ranges in its possibilities which depend on the support that learners need. Thus, we can say that gamification was developed to enhance the SRL-process. Both gamification and SRL-O are in the context of learning very new topics. Only the last decade in the whole history of learning analyses gamification, as the technical possibilities have increased a lot over the past years. SRL-O has developed just recently as an outcome of the SRL for an online setting. For sure, the corona crisis and distance learning contributed to innovations in self-regulated online leaning. This crisis was also a driver for technology development, with the focus on SRL-O and gamification as some of the outcomes.

Of course, gamification does not mean that any platform using gamification to transport content is made well. There are software designs, design principles, usability conventions and general guidelines which make a learning game – gamification – better or worse. However, the discussion here is not about good or bad software or usability design, but the gamification itself which can enforce as well as support learners' progress in the context of self-regulated learning. The hypothesis that designing learning content as game will improve learners' progress was already researched in various environments and contexts, and basically the results of this work confirm that gamification helps in improving learners' progress and goals. Of course, disturbing factors in learning need to be identified, both those inside the online platform and those outside factors like the learners' environment itself. Thus, the surrounding and the place the learner is learning in are factors for the learning progress. It also depends on the learner's personality, so some people learn better with music, some learn better on the beach, and some need absolute focus to read content.

As the presented study is just summarizing the theoretical possibilities based on literature research, by identifying and bringing the terms together and visualizing the overlap of gamification and SRL-O, there needs to be more practical research on this topic done to identify better the connection between the SRL-O and gamification and how it supports learners' goals.

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REVIEW PAPER

IMPACT OF THE COVID-19 PANDEMIC ON NETFLIX

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ABSTRACT

The COVID-19 pandemic and the restrictions related to it had a massive impact on shifts in consumer behavior and consequently accelerated the already existing trend of digital transformation. To adjust to the "new normal" we had to organize our activities remotely, from how we work, how our children learn to how we entertain ourselves. This paper aims to provide an analysis of how the pandemic reflected on Netflix´s business through the analysis of the number of subscribers, revenue, and the company`s stock price. The conducted research relies on the secondary data provided by financial reports, statistics, scholarly articles, and related news sources accessed via online databases and online searches.

With its availability in more than 190 countries worldwide, impressive video content library, and a very simple sign-up process, Netflix was very well positioned to benefit from the social restrictions during the pandemic. Millions of people under lockdown turned to at-home entertainment by subscribing to Netflix services and enjoying its content. Despite all the challenges that the company was facing during the pandemic, 2020 was a record-breaking year for Netflix in terms of subscriber number and revenue. Understanding how certain industries react to sudden disruption in the market and how quickly can they adapt their business in a rapidly changing environment is an important step in facing upcoming crises more effectively.

Keywords: COVID-19, Netflix, stock market, streaming, SVOD

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1. INTRODUCTION

The COVID-19 pandemic is not the first pandemic that the world has confronted, but the way it turned our lives upside down is unique and as a such first time in history. The first official coronavirus case was reported on 31 December 2019 in the city of Wuhan and due to its fast global spread, the World Health Organization (WHO) declared the novel coronavirus (COVID-19) a global pandemic on 11 March 2020. Only a few weeks later billions of people worldwide were under partial or strict lockdown, being forced to stay at home and organize their private and business life under these new circumstances. These kinds of measures and restrictions hindered, and in certain sectors completely shut down business activity (e.g., tourism) and caused immense losses for numerous companies.

The global stock markets responded with a freefall in share prices across all sectors, melting trillions of dollars in value in a very short period of time. But the COVID-19 pandemic and the measures related to it did not affect only the business and financial aspects of our lives, but it also changed how we learn, how we shop, how we educate ourselves, and how we entertain ourselves. During the lockdowns, digital technology not only made our lives easier and much more comfortable but also enabled businesses to keep a certain level of activity by making it possible to work from home. According to McKinsey & Company Report „How COVID-19 is changing consumer behavior – now and forever ", in 2020 „decades were covered in days" when we talk about the adoption of digital such as online delivery, online entertainment, or online education. For example, e-commerce deliveries increase in 8 weeks in 2020 equals the increase that previously took 10 years.

Because of social restrictions and the unavailability of entertainment options such as cinemas, theaters, sports games, etc., people were turning to at-home entertainment where SVOD (Subscription Video on Demand) services came as a perfect comfort for millions of people. Netflix, as a leader in the SVOD market, was very well positioned to benefit from the COVID-19 lockdown measures that kept billions of people at home. The company was founded in 1997 as a rent-by-mail movie rental, but the real success came in 2007 with the launch of a video streaming service that is now available to its customers in more than 190 countries globally. Besides worldwide availability, Netflix has an impressive library of video content that gave enough variety to their customers despite the fact that new production was completely shut down due to the pandemic restrictions. Other important benefits of Netflix that attract users are a simple access subscription, ad-free entertainment, an all-inclusive monthly flat fee, and a fast cancellation policy. In March 2020, due to an enormous demand for Internet usage and digital platforms, Netflix and other digital companies had to downgrade streaming quality in Europe to cope with bandwidth limits due to an enormous demand for online video services (initially started in the COVID-19 worst hit Italy and Spain, later rolled out across Europe).

While many companies struggled with difficulties and severe losses caused by the pandemic, Netflix was among the rare companies that expanded their business despite the ongoing pandemic. This paper aims to provide a thorough analysis of the COVID-19 pandemic's effects on Netflix`s business during 2020. The analysis of the number of subscribers, revenue, and the company`s stock price in 2020 should provide insight into how successfully Netflix adjusted to the pandemic conditions and if the company was indeed among the alleged "pandemic winners". This kind of insight is valuable for the experts in business and economy as it helps to understand better how certain industries react to sudden negative changes in the business environment, and it also improves investors` investment decisions under similar crisis conditions.

2. LITERATURE REVIEW

The COVID-19 pandemic is not the first pandemic that the world confronted, but the way how it changed our lives in a very short period of time is unique and unexplored. After the pandemic outbreak, academic literature on the impact of COVID-19 on health, the economy, education, and entertainment started to grow rapidly.

In 2020, people were spending an increased amount of time in front of their screens because imposed strict social distancing measures halted all kinds of outdoor entertainment and social gatherings. According to the Global Web Index report, 87% of U.S. and 80% of UK consumers increased their video content consumption during the COVID-19 pandemic. The pandemic speeded up the already existing digitalization trend in media consumption, meaning more and more consumers were switching from conventional media to the over the top (OTT) media (Gupta, 2021). Ofcom's study of the nation`s media habits found that during the lock-

down people in the UK spent 40% of their waketime in front of a screen, watching TV and online video services (the UK is the biggest Netflix market in Europe.

The main reasons for millions of new subscribers to choose Netflix as their video streaming service provider were its extensive library including high-quality original content, simple access to the subscription, no additional fees, and a fast cancellation policy (Sanchez Armas, 2020). Nielsen`s streaming data for the second quarter of 2020 state that 25% of total television minutes viewed were consumed through video streaming, with Netlix-`share of 34%. In July 2020, Netflix reported 26 million new subscribers for the first half of 2020, confirming the company`s outstanding success under pandemic conditions (Netflix, 2020). A survey from analyst Alex Giaimo is showing a strong increase in Netflix´s subscribers watching content 10 hours or more per week, from 16% before the pandemic to 38% during the pandemic. Entertainment is considered to be the main purpose of online video streaming services, but when education moved online during the lockdown, many users recognized the educative purpose of streaming services. YouGov survey suggested that 35% of Netflix's subscribers used the platform for its education content (McKinsey & Company, 2020). Amid a surge in Internet usage during the lockdown, many service providers had to find a way to keep a satisfying level of QoE (quality of experience) in order to keep their subscribers (Gupta, 2021). While famous Hollywood studios such as Disney, Universal, and Warner Bros. suffered immense losses caused by the shutdown of movie theaters, Netflix`s business was not negatively affected by this measure since the company does not release its movies in the theaters (Vlassis, 2021).

The global stock market crash that started in March 2020 wiped out more than 70% of the market capitalization of companies in sectors such as real estate and hospitality. Healthcare, food, and software sectors were one of the few pandemic winners because of the soaring demand for their products and services (Mazur, 2021). Throughout 2020 Netflix`s stock price surged more than 60% while S&P 500 gained a modest 6.5% (Pisal, 2021).

This article contributes to the existing literature on the impact of the COVID-19 pandemic, as it gives insight into how Netflix`s key performance indicators performed in 2020. Further research will need to be conducted as the pandemic came in several waves and the impact of every wave is different.

3. METHODOLOGY

The aim of this paper is to analyze the impact of the COVID-19 pandemic on Netflix Inc., an American subscription service and production company. The conducted research relies on the secondary data provided by financial reports, statistics, scholarly articles, and related news sources accessed via online databases and online searches. The analysis focuses on the number of subscribers, the company`s revenue in USD, and the stock price on the Nasdaq Stock Market. Netflix's official site was used as a source for basic knowledge about the company (history timeline, company`s development, and global presence). The subscribers' number, revenue, and strategy news data were obtained from the company's quarterly earnings reports, which were also accessed through Netflix`s official site. Additional statistical data was gathered from the Statista website, the online platform specialized in market and consumer data.

For a better in-depth understanding of streaming trends and consumer behavior, reports from the global performance management company Nielsen, the global management consulting firm McKinsey & Company, and an audience research company GlobalWebIndex were used. The company`s stock price historic data was gathered from the global financial data and news platforms Investing.com and Yahoo! Finance. The stock price used in the analysis is the closing market price on the Nasdaq Stock Market, the last price at which the stock is trading on a particular trading day. The analyzed time period covers a period between 2018 and 2020 with the main focus on 2020 when the COVID-19 pandemic emerged and spread globally. The data from years before demonstrate the status of Netflix`s number of subscribers, revenue, and stock price before the coronavirus outbreak, while 2020 data reflect the impact of the pandemic. Despite the fact that the COVID-19 pandemic topic is rather a new one, the research process of scholarly literature through the search engine Google Scholar and the professional network for researchers ResearchGate resulted in a certain number of related scholarly articles which contributed to the value of this paper.

4. RESULTS

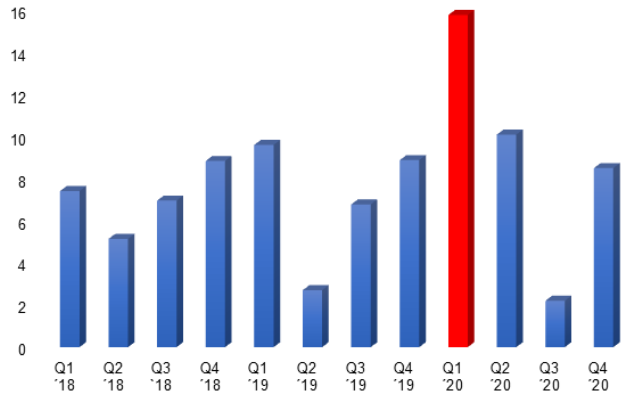
The conducted research was focused on the analysis of the number of subscribers (net adds), the company`s revenue, and the stock price on the Nasdaq Stock Market.

4.1 Number of subscribers

In the period between 2018 and 2020 average total streaming net adds per quarter amounted to 7.74 million. Net adds equal the number of new subscribers, or gross adds, minus the number of customers that canceled the service.

The record quarter was the first quarter of 2020 when Netflix added to its subscriber base 15.77 million new subscribers globally, the highest it has ever gained in a single quarter.

Figure 1:
Netflix quarterly net adds 2018-2020 (in millions)

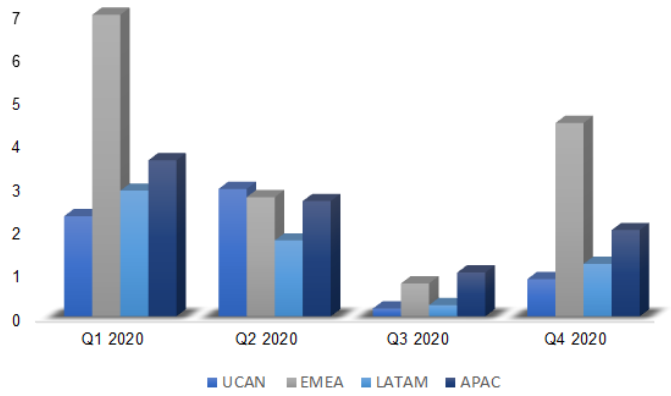


Source: Figure created by the author based on data from Statista. Netflix. (April 2023). Number of Netflix paid subscribers worldwide from 1st quarter 2013 to 1st quarter 2023

Throughout 2020, the company signed up almost 37 million new subscribers worldwide. EMEA (Europe, Middle East, Africa) region generated the biggest growth with 14.9 million new users (41%), followed by APAC (Asia Pacific) region with 9.3 million new users (25%). In total, more than 80% of the new subscribers came from international markets indicating that the home market in North America is largely saturated.

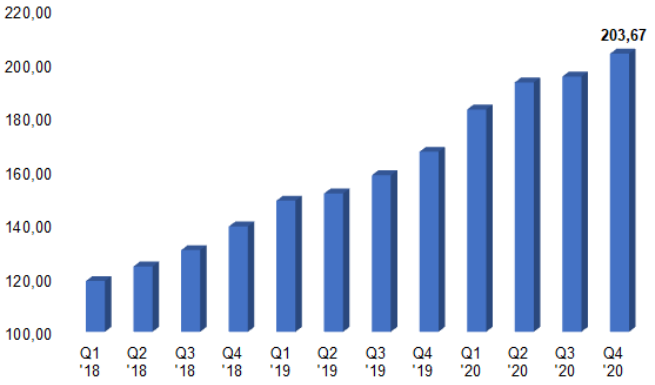
Netflix ended 2020 with more than 203 million subscribers worldwide, passing the 200-million subscribers mark for the first time in history. Compared to Q1 2018, the subscriber base grew by more than 70%.

Figure 2:
Net adds regional breakdown in 2020 (in millions)



Source: Figure created by the author based on data from www.netflix.com

Figure 3:
Netflix paid subscribers worldwide 2018-2020 (in millions)

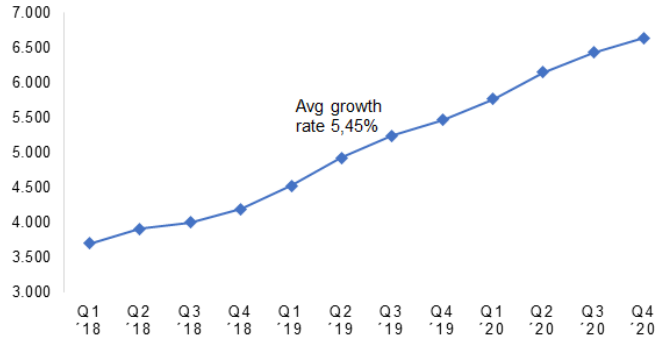


Source: Figure created by the author based on data from Statista. Netflix. (April 2023). Number of Netflix paid subscribers worldwide from 1st quarter 2013 to 1st quarter 2023.

4.2 Revenue

In the 3-year period (2018-2020) the average quarterly revenue growth amounts to 5.45%. The company ended 2020 with more than 6.6 billion USD in revenue, almost 80% higher than in the first quarter of 2018.

Figure 4:
Netflix´s quarterly revenue 2018-2020 (in USD millions)

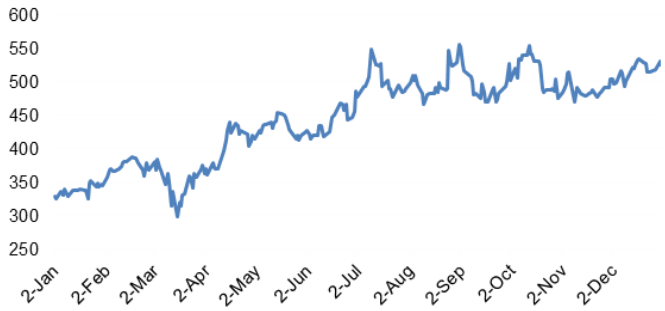


Source: *Figure created by the author based on data from Statista. Netflix. (April 18, 2023). Revenue generated by Netflix from 1st quarter 2013 to 1st quarter 2023 (in million U.S. dollars.*

4.3 Stock price

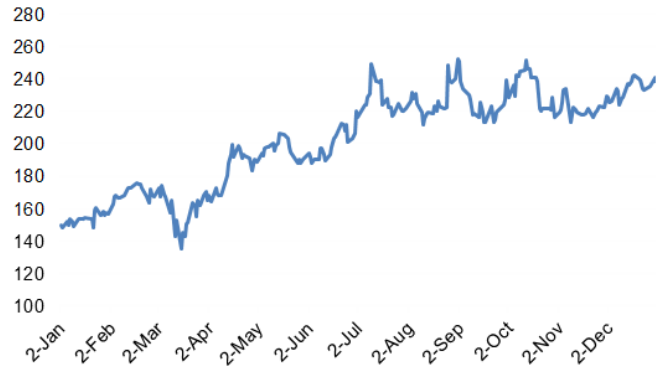
For the analysis of the company´s stock price in 2020, the closing stock prices are taken from the Nasdaq Stock Market, the main market for this stock. Netflix's stock price performed extremely well during 2020 despite the bumpy ride in the first quarter of the year. By the end of the year, it gained over 60% and boosted the company`s market capitalization to 240 bn USD, almost 100 bn USD more than a year before.

Figure 5:
Netflix`s stock price in 2020 (in USD)



Source: Figure created by the author based on data from Yahoo Finance

Figure 6:
Netflix`s market capitalization in 2020 (in USD billions)



Source: Figure created by the author based on data from Yahoo Finance

5. DISCUSSION

In 2020, many worldwide companies suffered severe economic and financial losses triggered by the COVID-19 pandemic outbreak, but a certain number of them thrived and had record growth in their business despite the pandemic. Our research was focused on Netflix, an American streaming service company, which was perfectly positioned to benefit from the COVID-19 pandemic and measures related to it. Introduced measures and restrictions did not negatively affect Netflix`s business and the company operated remotely with minimal disruption. The introduced measures did hinder the new production of the original content and the company had to rely on its existing content in the library. Despite this problem, the demand for its service surged as millions of people worldwide being under lockdown found Netflix`s streaming service as a perfect comfort. Due to social isolation, people were spending more time in front of their screens, which brought the average weekly streaming minutes to soar from 81.7 in 2019 to 142.5 minutes in 2020 (Nielsen, 2020).

In the period 2018-2020, the average quarterly growth of the streaming net adds amounted to 7.74 million but an absolute record number of 15.77 million new subscribers was gained in the first quarter of 2020 when the COVID-19 pandemic started to spread. The second and the fourth quarter of 2020 also show strong growth, while the weak third quarter with only 2.21 million net adds could be explained by the fact that most pandemic measures were eased during the summer months

and people spent less time indoors. Of the almost 37 million new subscribers in 2020, more than 80% came from the international markets, mostly from EMEA and APAC regions. Even before the pandemic, the high penetration rate and the decrease in the net adds in the USA during 2018 and 2019 put the international markets in the focus of Netflix`s strategy. This could be explained by the US market saturation where Netflix holds a 34% share of video streaming in American households (Nielsen, 2020). By the end of 2020, Netflix had in total 203.67 million subscribers globally, confirming itself as a leader in the SVOD market. The growing number of subscribers was accompanied by revenue growth with an average quarterly growth rate of 5.45% (2018-2020). Despite outpacing the forecasted number of net additions in 2020, revenue remained in-line with the company`s guidance due to the appreciation in the US dollar versus other currencies that created a drag on international revenue growth. Netflix ended 2020 with 6.6 billion USD in revenue that will, according to the company, allow it to stop relying on debt to finance its growth. In the first month of the pandemic crisis (March 2020) amid extraordinary uncertainty, the global stock markets witnessed sharp declines across all sectors. Netflix share was not an exemption, but as soon as the markets started to calm down and turn after mid-March, investors recognized Netflix as a company that will benefit from the pandemic. By year-end, the share price increased by more than 60% and pushed the company`s market capitalization towards 240bn USD, a hundred more than only a year ago.

The results of the analysis of Netflix`s chosen indicators (number of subscribers, revenue, and stock price) suggest that the COVID-19 pandemic had a positive impact on Netflix`s business by accelerating its growth. Jozic (2020) also concluded that the 2020 financial crisis had not had a significant impact on Netflix. In the end, it is worth mentioning that in 2020 Netflix was not challenged only by the COVID-19 pandemic, but also by a strong and fast-growing competitor Disney Plus. Disney launched its video streaming service Disney Plus in November 2019, perfectly timed for a huge success in 2020 when it reached by July its original five-year target of 60 million users (Vlassis, 2021).

Findings from this research contribute to the understanding of how certain industry reacts in time of a sudden global crisis and what are consumer preferences under pandemic circumstances. The COVID-19 pandemic and its impact on different industries and companies is an endless source for further research and its results will be invaluable to all economic participants to understand and respond to any kind of upcoming crisis. The analysis should be repeated on the same companies and industries for the period when most pandemic restrictions were eased or removed, and additionally when the World Health Organization declares the end of the pandemic.

6. CONCLUSION

The COVID-19 pandemic had an unprecedented impact on all industries, but the effect varied from strongly negative (e.g., tourism, air travel) to strongly positive for a smaller number of industries (e.g. pharmaceuticals, technology). The introduced restrictions moved work, school, and entertainment online, which significantly increased the demand for broadband connection, Internet usage, and digital platforms such as video streaming. Netflix, as a streaming pioneer and a leader, very quickly adapted to new conditions and became one of the biggest pandemic beneficiaries. The company offered a service, that replaced cinemas, theatres, sport events, and all other restricted social events, to millions of people worldwide. The new users were attracted by the simple sign-up process, monthly flat fee, and an impressive video content library that could be accessed from anywhere, anytime, and on any device. The pandemic did not bring only good news for Netflix. Introduced worldwide lockdowns halted the production of new Netflix`s famous original content which strongly contributes to the growth of the subscriber base and retainment of old users. The company was also challenged by its fast-growing competitor Disney Plus which accomplished extraordinary success in 2020. In the first quarter of 2020, Netflix added a record number of new subscribers, more than double what was forecasted by the company and expected by Wall Street. The majority of the new subscribers came from international markets, especially those that were hit the most by the COVID-19 pandemic. Throughout the year the demand for its services remained high and by the end of the year, Netflix had more than 200 million subscribers worldwide. The company`s revenue grew at a slower pace than the number of new subscribers because the appreciation in the US dollar versus other currencies decreased international revenue growth. Netflix`s success was confirmed also on the NASDAQ stock market where its stock was among the best performers in 2020.

In 2020 we have witnessed the largest global economic crisis in more than a century, triggered by the COVID-19 pandemic. Even though the pandemic had scarring effects on the global economy, it also gave us an opportunity to learn how certain industries and companies deal with uncertainty and how quickly and effectively they respond to imposed challenges. The next research step would be to analyze the same industries and companies in the post-pandemic period to see how the ending of the pandemic reflected on their business. A more effective response to any upcoming crisis of any kind is only possible if we analyze and study previous crises, such as the one developed in 2020.

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