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#### INTERPLAY OF EMPLOYABILITY OF GRADUATES AND ENGLISH LANGUAGE PROFICIENCY: A CASE STUDY FROM A UKRAINIAN PUBLIC UNIVERSITY

*This study investigates the association between English for Specific Purposes (ESP) course results and graduate employability across three academic years (2019, 2020, and 2021). Chi-square tests were conducted to explore this relationship. Results consistently revealed a significant association between ESP course performance and employment outcomes. In 2019, the p-value was .006; in 2020, it was .047; and in 2021, it was .028, all indicating statistical significance and leading to the rejection of the null hypothesis ( $H_0$ ) in favour of the alternative hypothesis ( $H_1$ ). These findings underscore the importance of ESP course results as a predictor of employability, suggesting that higher performance in ESP courses is associated with better job prospects for graduates. This study highlights the relevance of academic performance in specialised language courses for future career success.*

**Keywords:** higher education; employment; English language for specific purpose proficiency; graduate employability.

**Tabl. 6. Ref. 9.**

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#### ВЗАЄМОЗВ'ЯЗОК МІЖ СПРОМОЖНІСТЮ ВИПУСКНИКІВ ДО ПРАЦЕВЛАШТУВАННЯ ТА РІВНЕМ ВОЛОДІННЯ АНГЛІЙСЬКОЮ МОВОЮ: ПРИКЛАД З УКРАЇНСЬКОГО ДЕРЖАВНОГО УНІВЕРСИТЕТУ

*Дане дослідження вивчає зв'язок між результатами вивчення англійської мови професійного спрямування (ESP) та можливістю працевлаштування випускників протягом трьох навчальних років (2019, 2020 та 2021). Для дослідження цього зв'язку було використано критерій  $\chi^2$ -квадрат. Результати підтвердили суттєвий зв'язок між успішністю на курсі англійської мови професійного спрямування та результатами працевлаштування. У 2019 році  $p$ -значення становило 0,006, у 2020 році – 0,047, а в 2021 році – 0,028, що свідчить про статистичну значущість і дозволяє відхилити нульову гіпотезу ( $H_0$ ) на користь альтернативної гіпотези ( $H_1$ ). Ці результати підкреслюють важливість результатів курсу англійської мови професійного спрямування як предиктора можливості працевлаштування, припускаючи, що краща успішність на заняттях з англійської мови за професійним спрямуванням пов'язана з кращими перспективами працевлаштування для випускників. Це дослідження підкреслює важливість академічної успішності на мовних спеціалізованих курсах для майбутнього кар'єрного успіху.*

**Ключові слова:** вища освіта; працевлаштування; рівень володіння англійською мовою за професійним спрямуванням; працевлаштування випускників.

**Problem statement.** Every year, universities around the world produce graduates across diverse disciplines, all aiming to secure employment in their respective fields. However, the criteria for employment have evolved beyond mere expertise [1]. While specialised knowledge and skills remain essential, employers now seek well-rounded candidates who bring additional attributes to the workplace, such as strong work ethics, adaptability, and the ability to thrive in a dynamic work environment [2]. This shift underscores the responsibility of higher education institutions to equip graduates not only with subject-specific knowledge but also with market-driven competencies that align with current industry demands [3].

In Ukraine, the issue of graduate employability is particularly pressing. Data from the Ministry of Educa-

tion and Science of Ukraine [4] indicate that in 2022, 46.18 % of recent graduates at all levels of higher education were employed or conditionally employed, which was lower than the 58.96 % reported in 2021 [5]. There was a decrease in employability among graduates majoring in Law and international law, economics, management, and administration, with employment rates dropping to 40 %–60 % in 2022 from 65 %–70 % in 2021 [4]. Reports highlight a significant mismatch between the growing number of degree holders and the limited availability of high-skilled employees [6]. This discrepancy has been attributed to an imbalance between the supply of graduates and the demand for skilled workers, emphasising the need for universities to produce graduates who are not only well-trained in their fields but also possess additional attributes that enhance their employability.

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English language proficiency is a key supplementary attribute that is gaining increasing recognition in the global job market [7]. However, there is a notable scarcity of research examining the specific impact of English language skills on the employability of graduates from Ukrainian public universities. This gap in the existing literature underscores the necessity of conducting this study.

Moreover, the “Strategy for the Development of Higher Education in Ukraine for 2021–2031” assigns the responsibility for graduate employability to the higher education system, attributing it to a combination of knowledge and skills—including disciplinary knowledge, cognitive abilities, and language proficiency—as well as ethical and moral attributes, such as patriotism, leadership capabilities, and spiritual values [8]. The Strategy emphasises that English language proficiency is a crucial factor influencing graduate employability in Ukraine.

In light of this, **the present study aims to** explore whether a significant relationship exists between the employability of science graduates and their proficiency in English language courses within the framework of a public university in Ukraine. The research question is:

(i) To what extent does English language course performance correlate with the employability of the university’s graduates?

The research explored the following hypotheses:

*Null Hypothesis ( $H_0$ ):* No association exists between the results of the university English Language course and the employability of graduates.

*Alternative Hypothesis ( $H_1$ ):* An association exists between the results of the university English Language course and the employability of graduates.

**Research Methods.** This study employed quantitative research methods [9]. A random sampling technique was utilised to select data on English language course results for 343 graduates, which represents the valid sample size calculated for a population of 3,183, with a 95 % confidence level and a 5 % margin of error. Employment data for the sampled students were obtained from the Faculty Dean’s Offices, Career Centers, and Alumni Centers. The graduates included in the study completed their degrees in 2019, 2020, and 2021. The randomly selected students represented six faculties at the State University of Trade and Economics, namely: the Faculty of International Trade and Law (FITL), the Faculty of Trade and Marketing (FTM), the Faculty of Economics, Management and Psychology (FEMP), the Faculty of Information Technology (FIT), the Faculty of Technologies and Business (FTB), and the Faculty of Finance and Accounting (FFA). Detailed information, such as employment by gender, job type, work location, and salary, was limitedly available. The distribution of the sampled students who graduated from various faculties in the university in 2019, 2020, and 2021 was as follows:

**Table 1: Distribution of Graduates by Faculty and Year (2019–2021)**

Faculty	2019 ( <i>n</i> = 123)	2020 ( <i>n</i> = 112)	2021 ( <i>n</i> = 108)
FITL	24 (19.51%)	22 (19.64%)	21 (19.44%)
FTM	19 (15.45%)	22 (19.64%)	19 (17.59%)
FEMP	13 (10.57%)	21 (18.75%)	21 (19.44%)
FIT	21 (17.07%)	17 (15.18%)	9 (8.33%)
FTB	22 (17.89%)	18 (16.07%)	21 (19.44%)
FFA	24 (19.51%)	12 (10.71%)	17 (15.74%)

The collected data were tabulated, and descriptive analysis was conducted to assess the total number of employed and unemployed graduates and English Language for Specific Purpose course results. The normality of the distribution of the graduates’ English Language for Specific Purpose course results was evaluated using the Kolmogorov-Smirnov test. Since the test indicated that the data were not normally distributed, the independent Chi-square test, a non-parametric test, was employed to examine the relationship between the employability of the university’s graduates and their English Language for Specific Purpose course results.

**Presentation of the main research material.** The results of the study, based on the sampled students’ employment data and English language course results, are presented in the following order: first, descriptive analyses of the employment data of the sampled students

and English for Specific Purpose (ESP) course results; second, the results of the Kolmogorov-Smirnov test; and finally, the outcomes of the independent Chi-square test.

Descriptive statistics of the employment data of the sampled students (see Table 2) found that the number of unemployed graduates was overall greater than that of employed graduates in 2019, 2020, and 2021.

As shown in Table 2, in 2019, 53.0 % of the graduates were unemployed, compared to 38.2% who were employed. This trend persisted into 2020, with 47.9 % unemployed and 44.3 % employed. By 2021, the gap narrowed slightly, with 46.29 % unemployed and 37.96 % employed. The “Others” category, representing graduates whose employment status did not fit the standard employed/unemployed classifications, remained relatively stable in 2019 and 2020. However, in 2021, this category was further divided into more

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specific groups, including “Further study” (5.55 %), which refers to additional formal education such as Master’s or PhD programmes, “Improving skills” (1.85 %), encompassing professional development courses, workshops, certifications, or technical training programmes. This more detailed classification in 2021

indicates a broader range of post-graduation activities, highlighting the diverse paths graduates may take as they transition into the workforce. Additionally, the “No information” category reflects a small percentage of graduates for whom employment data was unavailable, pointing to possible gaps in data collection.

**Table 2. Descriptive Statistics of the Employment Data of the Sampled Students in 2019, 2020 and 2021**

Category/ Year	2019 (n = 123)	2020 (n = 112)	2021 (n = 108)
Employed	47 (38.2 %)	49 (44.3 %)	41 (37.96 %)
Unemployed	65 (53.0 %)	54 (47.9 %)	50 (46.29 %)
Others	9 (7.7 %)	9 (7.8 %)	n/a
Further study (additional formal education, Masters’ or PhD programmes)	n/a	n/a	6 (5.55 %)
Improving skills (professional development courses, workshops, certifications, or technical training programmes)	n/a	n/a	7 (6.47%)
No information	1 (1.1 %)	0.00 (0.00 %)	4 (3.70 %)

Descriptive analysis of the results obtained by the sampled students in the English Language for Specific Purpose course the highest percentage of both

employed and unemployed graduates in 2019, 2020, and 2021 performed a ‘B’ grade in their university ESP course.

**Table 3. Descriptive analysis of the English for Specific Purpose Course Results of the Sampled Students in 2019, 2020, and 2021**

ESP Course Grade	2019 (n = 123)		2020 (n = 112)		2021 (n = 108)	
	Employed, n (%)	Unemployed, n (%)	Employed, n (%)	Unemployed, n (%)	Employed, n (%)	Unemployed, n (%)
A (90-100)	19 (15.44)	16 (13.00)	12 (10.71)	11 (9.82)	11 (10.18)	9 (8.33)
B (82-89)	35 (28.45)	46 (37.39)	40 (35.71)	34 (30.35)	31 (28.70)	42 (38.88)
C (75-81)	2 (1.62)	3 (2.43)	3 (2.67)	4 (3.57)	2 (1.85)	3 (2.77)
D (69-74)	1 (0.81)	0 (0.00)	1 (0.89)	1 (0.89)	2 (1.85)	2 (1.85)
E (60-68)	0 (0.00)	1 (0.81)	2 (1.78)	5 (4.46)	2 (1.85)	4 (3.70)

The data in Table 3 highlights that graduates who achieved a ‘B’ grade in their English Language for Specific Purposes (ESP) course consistently represented the largest proportion of employed individuals across the years 2019, 2020, and 2021. In 2019, 28.45 % of employed graduates had a ‘B’ grade, which increased to 35.71 % in 2020 and slightly decreased to 28.70 % in 2021. This trend suggests that while a ‘B’ grade is not the highest academic performance, it is closely associated with employability among graduates. Conversely, the ‘B’ grade also features prominently in the unemployed category, particularly in 2019 and 2021, where 37.39% and 38.88% of unemployed graduates, respec-

tively, held a ‘B’ grade. This dual representation implies that while achieving a ‘B’ grade in the ESP course is advantageous, it may not be the sole determinant of employability, and other factors likely play a critical role in graduates securing employment. Moreover, the data for those who achieved an ‘A’ grade, while indicating a higher academic level, did not show a substantial difference in employment outcomes compared to those with lower grades. This suggested that employers could consider a broader range of skills and qualifications beyond language proficiency when making hiring decisions.

The Kolmogorov-Smirnov test results across the years 2019, 2020, and 2021 consistently indicate that

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the distribution of graduate employability based on University English Language grades deviates significantly from a normal distribution. For each year, the test shows significant deviations (all p-values < .001) for every grade category (A through E). Specifically:

- 2019: The deviation is most pronounced in grade E ( $D(35) = 0.462$ ) and least in grade A ( $D(33) = 0.346$ ), but all grades significantly diverge from normality.

- 2020: Similar to 2019, the deviations are significant across all grades, with grade C showing the highest deviation ( $D(36) = 0.379$ ) and grade A the lowest ( $D(42) = 0.376$ ).

- 2021: The deviations are again significant, with grade D exhibiting the highest deviation ( $D(31) = 0.428$ ) and grade A the lowest ( $D(37) = 0.373$ ).

These results suggested that the distribution of employability outcomes does not conform to a normal distribution in any of the years studied, indicating potential skewness or other deviations from normality. This might imply that the data were not symmetrically distributed and could be influenced by factors such as extreme values or uneven distributions across the different grades. Further investigation into the distribution characteristics and potential underlying factors affecting these deviations will proceed with the non-parametric Chi-square test to gain more insights into the relationship between employability and ESP course results.

The results of the Chi-square test aimed to identify the relationship between the university ESP course results and graduate employability are presented in Tables 4, 5, and 6.

**Table 4. Results of the Chi-Square Test for the 2019 Graduates**

Chi-Square Test (2019), (n=123)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.680*	32	.006
Likelihood Ratio	50.033	32	.022
N of Valid Cases	123		

\*23 cells (51.1 %) have an expected count of less than 5. The minimum expected count is .01.

**Table 5. Results of the Chi-Square Test for the 2020 Graduates**

Chi-Square Test (2020), (n=112)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.783*	28	.047
Likelihood Ratio	27.545	28	.048
N of Valid Cases	112		

\*14 cells (35.0 %) have an expected count of less than 5. The minimum expected count is .01.

**Table 6. Results of the Chi-Square Test for the 2021 Graduates**

Chi-Square Test (2021), (n=108)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.677*	35	.028
Likelihood Ratio	35.986	35	.039
N of Valid Cases	108		

\*14 cells (35.0 %) have an expected count of less than 5. The minimum expected count is .01.

The result of the Chi-Square Test for 2019 (see Table 4) suggests a statistically significant association between the ESP course results and graduate employability, leading to the rejection of the null hypothesis  $H_0$  and supporting the alternative hypothesis  $H_1$ . The p-value is .006, which is less than the common alpha level of .05. The result of the Chi-Square Test for 2020 (see Table 5) also indicates a significant association between the ESP course results and graduate employability. Thus, the null hypothesis  $H_0$  is rejected, and the alternative hypothesis  $H_1$  is supported. The p-value is slightly below .05, suggesting a statistically significant result. The result of the Chi-Square Test for 2021 (see Table 6) shows a significant relationship between the ESP course results and graduate employability.

Consequently, the null hypothesis  $H_0$  is rejected, and the alternative hypothesis  $H_1$  is supported. Overall, the data from all three years consistently supports a significant association between ESP course results and employability.

The findings of this study highlight several key aspects regarding the employability of university graduates. Notably, the area of specialization or field of study undertaken at university emerges as a crucial predictor of future job prospects. Among the six faculties analysed, graduates from the Faculty of International Trade and Law (FITL) were identified as the most employable. Specifically, 24 FITL graduates (19.51 %) were employed full-time in various sectors in 2019, 22 (19.64 %) in 2020, and 21 (19.44 %) in 2021.

However, data regarding their job locations and specific workplace responsibilities could not be collected due to ethical considerations. It is also suggested that, in industry-based positions, absolute linguistic accuracy may not be as critical as fluency and the ability to effectively convey and understand information. This contrasts with roles involving frequent client and public interactions, such as those in the service industry, where precise communication is essential for business success and maintaining client relationships. This difference may account for the higher employment rates among graduates from university 'B' who scored well in these faculties.

### Conclusions.

*1. Area of Specialisation and Employability:* The study reveals that the area of specialization or field of study at university is a significant predictor of graduate employability. Among the six faculties analysed, graduates from the Faculty of International Trade and Law (FITL) demonstrated the highest employability rates, with a notable percentage securing full-time positions across various sectors each year. However, ethical constraints prevented the collection of detailed data on job locations and specific workplace responsibilities.

*2. Language Proficiency and Employability:* The findings suggest that, in industry-based positions, fluency and effective communication may be more critical than absolute linguistic accuracy. This contrasts with roles requiring frequent client and public interaction, where precise communication is vital. The higher employability rates among graduates from university 'B' who scored well in ESP courses may be attributed to these factors.

*3. Impact of ESP Course Grades:* Analysis of employment data by ESP course grades shows that graduates with a 'B' grade consistently represented a significant portion of employed individuals over the years 2019 to 2021. Specifically, 28.45 % of employed graduates had a 'B' grade in 2019, 35.71 % in 2020, and 28.70 % in 2021. However, the 'B' grade is also prominent in the unemployed category, particularly in 2019 and 2021. This dual representation suggests that while a 'B' grade is associated with employability, it is not the sole determinant, and other factors likely influence employment outcomes. Graduates with an 'A' grade did not show markedly better employment results compared to those with lower grades, indicating that employers may value a broader range of skills and qualifications beyond language proficiency alone.

*4. Distribution and Chi-Square Test Results:* The Kolmogorov-Smirnov test results indicate significant deviations from normal distribution in the data on graduate employability based on English Language grades across 2019, 2020, and 2021. These deviations, observed across all grade categories, suggest potential skewness or other distribution anomalies. This finding

points to the need for further investigation into the factors influencing these deviations.

*5. Chi-Square Test Findings:* The Chi-Square tests conducted for each year demonstrate a statistically significant association between ESP course results and graduate employability. For 2019, the p-value was .006; for 2020, it was .047; and for 2021, it was .028. These results consistently reject the null hypothesis  $H_0$  and support the alternative hypothesis  $H_1$ , confirming a significant relationship between ESP course results and employability across the three years studied.

Overall, the data consistently supports the notion that ESP course results have a significant association with graduate employability, although the precise nature of this relationship and its dependence on other factors warrant further investigation.

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## ІГРОВІ ПЛАТФОРМИ У НАВЧАННІ ПРОГРАМУВАННЯ ШКОЛЯРІВ В УМОВАХ ДИСТАНЦІЙНОЇ ОСВІТИ

У статті розглядаються питання використання ігрових підходів та гейміфікованих навчальних платформ у процесі навчання програмування школярів в умовах дистанційної та змішаної освіти, що особливо актуально для сучасної української освітньої системи в умовах воєнного стану. Проаналізовано можливості таких навчальних середовищ, як Scratch, Blockly, Tynker, які, хоч і не є комп'ютерними іграми у прямому розумінні, мають ігрові елементи та інтерфейс, що сприяють кращому засвоєнню програмних понять. Окремо досліджено навчальні платформи з глибокою гейміфікацією, зокрема CodeCombat, Roblox Studio, Minecraft: Education Edition, які дозволяють школярам проходити навчання у формі інтерактивних сценаріїв, розвивати обчислювальне мислення, креативність і навички командної роботи. Визначено ключові критерії вибору платформ: доступність, відповідність віковим особливостям і адаптивність до технічних обмежень. Запропоновано класифікацію освітніх ресурсів для навчання програмування за рівнем складності та цільовим призначенням. Досліджено вплив гейміфікованих підходів на мотивацію школярів: інтерактивність, візуалізація результатів та змагальні елементи підвищують зацікавленість, зменшують тривожність і формують впевненість у власних силах. На основі аналізу літературних джерел та наявного педагогічного досвіду зроблено висновок, що ігрові підходи можуть бути ефективним інструментом адаптації освітнього процесу до умов дистанційного навчання, а також сприяти формуванню актуальних цифрових компетентностей у школярів.

Особливу увагу приділено підготовці педагогів до використання гейміфікованих інструментів, що забезпечує сталість освітніх результатів. Наголошено на необхідності інтеграції ігрових платформ у національні навчальні програми з інформатики. Отримані теоретичні результати можуть бути основою для подальших емпіричних досліджень та вдосконалення методик викладання в умовах цифрової трансформації освіти.

**Ключові слова:** цифрові технології; фізичне виховання; мобільні додатки; дистанційне навчання; фітнес-додатки.

**Табл. 2. Літ. 30.**

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## GAMIFIED PLATFORMS FOR PROGRAMMING EDUCATION OF SCHOOLCHILDREN UNDER DISTANCE LEARNING CONDITIONS

The article examines the use of game-based approaches and gamified educational platforms in the process of teaching programming to school students in the context of distance and blended learning, which is particularly relevant for the modern Ukrainian educational system under martial law. The study analyzes the capabilities of educational environments such as Scratch, Blockly, and Tynker, which, although not computer games in the strict sense, contain game-like elements and interfaces that facilitate better comprehension of programming concepts. The article also explores deeply gamified learning platforms such as CodeCombat, Roblox Studio, and Minecraft: Education Edition, which allow students to engage in learning through interactive scenarios and foster the development of computational thinking, creativity, and teamwork skills. Key criteria for selecting platforms have been identified: accessibility, alignment with age-specific characteristics, and adaptability to technical constraints. A classification of educational resources for teaching programming is proposed, based on levels of complexity and educational objectives.

The impact of gamified approaches on student motivation is also discussed: interactivity, visual feedback, and competitive elements enhance engagement, reduce anxiety, and build learners' self-confidence. Based on an analysis of existing literature and pedagogical experience, it is concluded that game-based methods can be an effective tool for adapting the educational process to distance learning conditions and for fostering essential digital competencies among students. Special attention is