USING ENGLISH LOANWORDS IN COMPUTER TERMINOLOGY: BRIDGE OR OBSTACLE TO EFFECTIVE COMMUNICATION?

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Abstract: This study was based on the observation that a group of Romanian Computer Science students often use English-loan words instead of Romanian concepts, especially when discussing computer-related topics. We tried to find out whether the same students still used anglicizations for computer terminology, rather than Romanian words, after they had been taught those specific concepts in Romanian, during a prior semester of their undergraduate program. In order to provide a deeper insight into the dynamics of such language preference among computer science students and the reasons behind their choice of either English or Romanian words when discussing topics pertaining to computers, we collected data based on a survey that included a number of 58 students, enrolled at the Faculty of Electrical Engineering and Information Technology, University of Oradea, in the academic year 2024-2025. The results are presented in the body of this paper.

Keywords: English loanwords, survey, computer terminology

1. Introduction

This study began with the observation that a group of Computer Science students at the University of Oradea, Faculty of Electrical Engineering and Information Technology, frequently employ English words instead of Romanian concepts, both in everyday speech and when discussing computer-related topics. Therefore, we wanted to find out if the same students continued to use anglicizations for information technology concepts after acquiring the corresponding Romanian vocabulary at an undergraduate course during a prior semester. We also aimed to understand some of the reasons behind their choice of English loanwords in communication.

To accomplish this goal, we first conducted research on the topic of linguistic borrowings and began our paper with a brief overview of the phenomenon, paying particular attention to the case of English loanwords and the factors that contribute to their widespread usage. Next we referred to the anglicisms employed in the field of Information Technology.

The main body of the paper outlines the methodology and findings of a research study that investigated how using English technical terminology in survey materials influenced the comprehension and production of technical texts. It also sought to address the following key issues:

a. whether the use of English loanwords facilitated or hindered the understanding of technical texts among the selected group of Computer Science students;
b. the frequency at which English concepts occurred in the presentation of a technological process that referred to a context presented at the university course during a previous semester;

c. the underlying reasons for choosing English concepts over the Romanian ones, or vice versa, which might involve factors such as ease of use, time needed for processing information, perceived clarity, professional relevance, brevity of expression.

The final part of our paper presents the conclusions that can be drawn based on the evaluation of the data gathered.

2. Considerations on the use of English loanwords in the IT domain

2.1 Brief Discussion of Linguistic Borrowings

Communication lies at the core of all human activities. While significance can often be given by non-verbal forms of communication, words play a crucial role in conveying and interpreting information. They reflect the constantly changing nature of reality, as well as the complexity and richness of human interaction. Thus, languages may be regarded as fluid, dynamic structures, which constantly evolve in order to adapt to diverse communication contexts and needs.

In today's globalized world, cultural exchanges, along with economic and technological advancement, intensified the phenomenon of linguistic borrowings (Van Coetsem, 1988, apud Martin Haspelmath, 2009:36), that is the adoption of words, idioms, and phrases from other languages, in order to enable the expression of a wider range of ideas. This phenomenon happens when languages are unable to generate new concepts for extra-linguistic realities at the same rate as the changes occurring in different areas of human activity. Since the process of language rejuvenation is relatively slow, users tend to adopt words from other languages when certain concepts have no equivalent in their own language or when longer phrases need to be used in order to describe a particular aspect of reality. (Abrudan&Sturza, 2015:358).

The phenomenon of linguistic borrowing has been a constant characteristic of languages, being regarded either as a necessary action, or as a "luxury" (i.e. unnecessary) one, meant to make one's discourse particular. (Pușcariu, 1976:371; Carstensesn, (1965); Kratochvílová, (2002), Katarína Seresová and Edita Jurčáková (2017:4). Linguistic borrowings have also been categorised as:

a. denotative, referring to new concepts that are generally adopted in specific domains, in order to facilitate communication among specialists; and

b. connotative, or stylistic, which enhance the stylistic nuances of a word that already exists in a certain language (Rus, 2005:267)

Certain words are adopted in their original form. In this case, linguists typically design them as *loanwords*. Other borrowings are modified to align with the grammatical or phonetic standards of the target language, combine the original word with one from the receiving language (*loanblends*), or change the meaning of a concept in a language under the influence of the donor language (*loanshifts),* (Șimon, Stoian, Dejica-Carţiş & Kriston, 2021:2).

Over time, certain languages such as Latin, Greek, and French have played significant roles in global communication; however, contemporary evidence suggests that English has emerged as the predominant global language (Crystal, 2003:1). Nowadays we witness an unparalleled assimilation of English-derived words into different languages, therefore the concept of anglicism has been introduced in order to refer to such linguistic borrowings. The phenomenon of loaning English concepts, within

the framework of increasingly globalized communication, has caused ambivalence among linguists and users, as will be highlighted in the following section.

2.2. The case of anglicisms

As defined by dictionaries, anglicisms refer to words or phrases adopted from the English language into other languages, along with linguistic structures typical of English that are integrated into another language (Cambridge English Dictionary; Collins English Dictionary). In addition to this understanding of the concept, the Explanatory Dictionary of the Romanian Language emphasizes the notion of a lack of necessity in the case of the borrowed anglicisms, as well as on the difficulty of integrating such neologisms in dictionaries and the vocabulary of certain speakers (DEX, 1996:41).

In this line of reasoning, some researchers regard the infusion of anglicisms into different languages as unjustified and warn against the risk of demeaning languages through the overuse of loanwords (Avram, 1987; Ciobanu, 2006; Pruteanu, 2007), which may result in a loss of linguistic diversity and the deterioration of local languages and cultures. The excessive incorporation of English loanwords can also generate communication barriers and unintentionally exclude from communication the participants who are not acquainted with the adopted terminology. (Spahiu, I., Nuredini, Z., 2023:14). The colonization of languages by English, or the Anglophone and Anglophile explosion have also been discussed in a context that places emphasis on the importance of preserving linguistic and cultural heritage (Ivan, 2017:211) in an increasingly globalized world.

Conversely, other linguists emphasize the contribution of loanwords to the modernization and enrichment of vocabulary (Neculce, 2012:173, apud Pușcașu, 2022:210), their support towards the standardization and internationalization of professional terminology, and ability to fill existing lexical gaps (Mladin, 2004:1).The adoption of English concepts may be interpreted as a sign of openness, whereas their rejection is linked to the potential for provincialism and self-isolation. (Greavu, 2010:98, apud Șimon, Stoian & Kriston, 2021)

Between these two positions, there is another group of linguists who argue for a more balanced approach to the incorporation of English words into specific languages, asserting that this phenomenon is a natural development rather than a threat to the core attributes of languages and cultures. This perspective highlights the openness of individuals to new concepts and suggests that tradition and innovation can harmoniously coexist. In addition, as long as it does not produce linguistic ambiguity, the phenomenon may be considered acceptable.

2.3. Factors contributing to the extensive adoption of English loanwords

The widespread adoption of English loanwords has emerged rapidly, with an ongoing increase in the number of these neologisms across various domains such as commerce, economics, media, culture, education, and particularly computer science..

The practical and social motivations behind choosing English loanwords, whether in their original form, or modified so as to fit the characteristics of the target language, can be associated with: (1) the absence of a specific concept in a language; (2) language economy, which encompasses not only the brevity of words, but also the accuracy of the information conveyed; (3) progress in various fields, which leads to the perception of certain English terms as being more current and precise; (4) peer influence that leads to

collective preference; (Seresová & Jurčáková, 2017:4); (5) cultural affiliations and aspirations (expectations to live and/or work in a multicultural environment where English is spoken; (6) English is the predominant language of social media and the Internet; and (7) English is used in a representative percentage in corporations today (Apetrei, 2015).

As shown by Ivan, young people, who are naturally more open to new ideas and innovation, tend to be receptive to using English loanwords. In addition, they are the most assiduous users of information and communication technology (ICT), the Internet and social media, demonstrating an exceptionally pragmatic approach to communication. (Ivan p. 2017:217)

2.4. English loanwords in the IT domain

The specialized vocabulary employed in the field of information technology is known as IT terminology, or technology jargon. This lexicon includes words and phrases that explain technologies, procedures, and ideas related to computer systems. Familiarity with this vocabulary can improve professional communication while also fostering a more profound comprehension of technologies that are used on a daily basis.

Anglicisms have made their way into technical jargon for the reasons mentioned in the preceding section. Furthermore, it has been argued that English words are employed by IT specialists or computer science students especially because: (1) English is used extensively by multinational teams and (2) sometimes the Romanian equivalent of a word does not fully reflect the full meaning of a technical concept.

Examples of popular English words adopted by Romanian speakers are: computer, laptop, desktop, server, internet, wireless, email, display, etc.

New concepts are formed when English-loan words are adapted to the Romanian system of forming the plural or the rules of conjugation: a seta, a printa, pointere.

While the use of some English-loan words may be justified, there are situations that transcend practicality or lead to inappropriate employment due to inaccurate translations. For example, by adapting the verb to share to the Romanian conjugation rules, the form “a şerui” is used with the meaning “to distribute”, though in Romanian the aforementioned word exists but has a different connotation.

3. Research methodology and design

In order to address the research question mentioned in the introduction, we conducted a study to which a number of 58 Computer Science students took part. The participants are currently in the first year at the Faculty of Electrical Engineering and Information Technology, University of Oradea.

Before distributing the forms, students were asked to give their consent for participation to the study. Additionally, they were informed on the goal of the research, which was to ascertain whether or not employing English loanwords could improve their comprehension of IT-related communication contexts.

The survey was designed based on a mixed method approach so as to gather both quantitative information (frequency and number of anglicizations used) and qualitative data (the reasoning behind the selection of English loanwords).

In order to see whether the comprehension of technical texts may be facilitated by the presence of English concepts to denote technical issues, participants were split into two groups and presented with two versions of the same text: one including only

Romanian words, the other including English loanwords for the technical concepts discussed. We registered the average response time in order to see whether the processing of the text in Romanian would take more time than the text that included English loanwords.

For text production, an image of a vague technological process was used, which prompted students to use both reasoning and a bit of creativity when describing it. The image addressed some of the concepts participants had covered in a university course, taught in Romanian, during a previous semester. Additionally, elements referenced in the reading section they had just been presented with were included in the image they were requested to describe.

Next, an algorithm was used to analyze the collected data, which resulted in metrics regarding per-word and per-response statistics. Results included summaries of multiple-choice questions performance, the use of technical terms in free-text responses, readability, as well as reaction times among the indicators on which data analysis relied.

To gain insight into the reasons behind the preference for English concepts over the Romanian ones, or the reverse (as highlighted by the description of the technological process), a brief questionnaire was applied to the same group of students. It contained a yes/no question and an open question.

The survey was conducted on February 28th, 2025, at the Faculty of Electrical Engineering and Information Technology.

3. Discussion of findings

The first part of the study examined how the use of English IT terminology in survey materials influenced Romanian students' comprehension and technical written output. The analysis focused on several metrics: multiple-choice question (MCQ) performance, technical term usage in free-text responses, readability (as measured by Flesch Reading Ease scores), and response times.

As regards the MCQ performance, both groups demonstrated very high accuracy, with the Ro group (the group reading a text that included only words in Romanian) achieving 96.67% correct responses while the Ro-En group (the group reading a text that included both Romanian and English loanwords) scored 96.00%. These nearly equivalent performance levels suggest that the presence of English technical terms in the Ro-En survey did not have a dramatic effect on students' ability to comprehend and correctly answer fact-based questions.

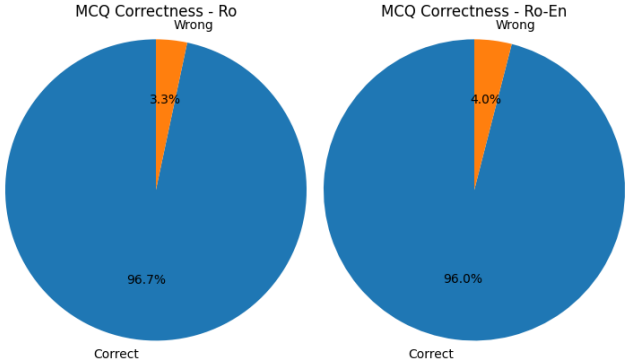

Figure 1 - Percentage of correct responses at MCQs based on Ro / Ro-En texts

The second part of the study focused on technical term usage, that is how the selected group of Computer Science students described the illustration of a technological process, after they had been exposed to concepts that might be used in the description both during a faculty course and in the reading section of the survey. A notable difference emerged in the language used to describe technical processes. In free-text responses, approximately 51.89% of technical terms employed by the Ro group were in English versus 48.11% Romanian concepts. In contrast, the responses given by the Ro-En group featured a significantly higher proportion of English technical terms - 64.43%, compared to 35.57% in Romanian concepts. This shift supports the hypothesis that exposure to English terminology in the test materials acts as an “enabler”, allowing students to express their ideas in an easier way. The results also indicate that the use of English loanwords was determined by habit rather than by the previous exposure of students to a text including English technical concepts, since the RO group also used English words in an important percentage.

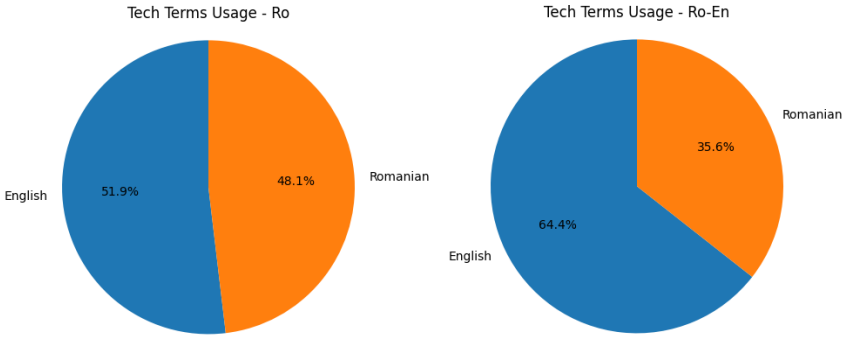

Figure 2 - Percentage of Ro/En words in the description of the technological diagram

With reference to readability, scatterplots of the Flesch Reading Ease scores for free-text responses indicate that both groups produced texts with similar readability levels. The comparable Flesch scores suggest that the integration of English technical terms does not substantially alter the overall clarity or complexity of the responses.

The analysis of response time and writing speed, derived from timestamps recorded in column H, revealed a difference. The Ro group’s average response time was approximately 1190.88 seconds (19.85 minutes), close to the Ro-En group’s average response time of 1140.64 seconds (19.01 minutes). However, the difference in writing speed was what gives this close equality its value. For the Ro-En group, the average number of words per minute was 2.98, significantly greater than that of the Ro group, which was of only 2.55 words per minute. This might suggest more rapid mental processing of terms when used in English. Compared to Romanian, where concepts may be expressed using several terms, English tends to be more straightforward — often requiring a single word per concept —, therefore the fact that the Ro-En group had a higher words-per-minute count means they could express more elaborate content in about the same amount of time.

In summary, the findings indicate that, while the presence of English technical terms in survey materials does not significantly affect overall comprehension (as measured by MCQ performance), it does influence language production in free-text responses. Students exposed to English terminology appear more inclined to use

English technical terms, reinforcing the idea that such exposure serves as an "enabler". The consistency in readability across groups further suggests that the integration of English terms does not compromise the clarity or coherence of the responses, while it may improve reasoning using English terms.

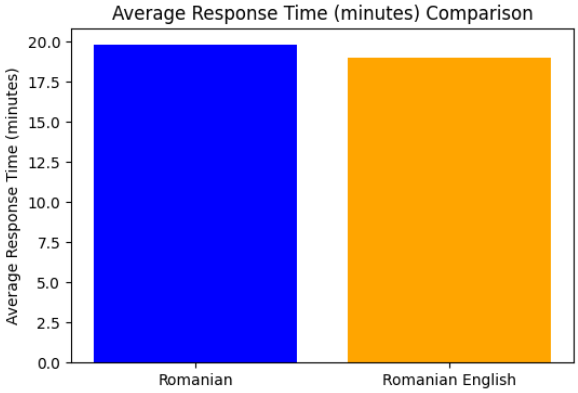

Figure 3 - Average response time to the entire form (in minutes)

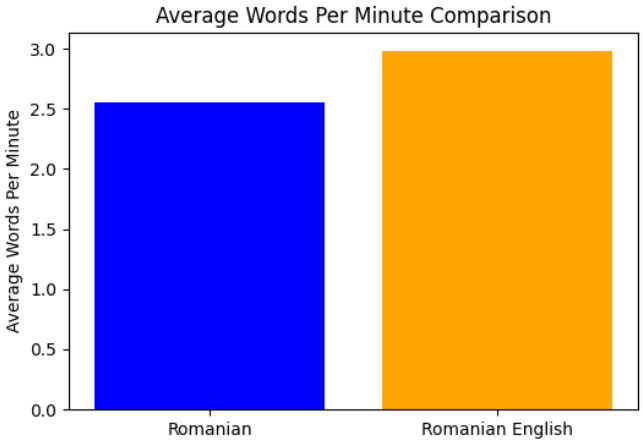

Figure 4 - Average number of words written per minute

The last part of the survey included a questionnaire made up of two items, which revealed that only 8 out of the 58 respondents did not use English concepts in the description of the technological process.

As regards their preference for English concepts, 50 respondents answered affirmatively because a. they have learnt the concepts in English (8 students); b. English IT concepts are easier to use and understand, compared to Romanian alternative concepts (28 students), even when these are used as abbreviated forms (6 answers); c. English is the standard language of communication in IT (5 answers); f. social media influences collective vocabulary (2 cases); g. personal, unspecified reasons (1 answer).

Therefore, it can be concluded that, based on participants' outlook, English words streamline communication and access to meaning, particularly in a setting where IT professionals generally need no translation of English IT terminology.

4. Conclusions

This research highlighted findings regarding the impact of using English for technical terminology on survey participants' reading comprehension, written language production and response time, ideas that were part of our research question. Thus, reading comprehension appeared to be unaffected, regardless of language exposure, as evidenced by participants' performance to answering multiple-choice questions, where clarity and coherence of responses was consistent across both groups. However, the aforementioned exposure to English concepts acted as an enabler, facilitating the use of Anglicisms in written production.

These insights may contribute to a better understanding of bilingual technical communication and suggest that the use of English terms in educational contexts may encourage students to adopt anglicisms as part of an internationally aligned technical vocabulary, which most IT specialists currently share. Whether this is a good tendency or not has not been among the research questions approached by this paper. Obviously, the integration of English loanwords in IT written or spoken discourse may cause confusion for those who don't use this jargon or are unable to speak English. It can also result in texts that may seem unnatural. Therefore, it can also be suggested that educators and IT professionals must come to a coherent conclusion as regards either using or avoiding English IT concepts in education because, as revealed by some of the responses to our questionnaire, once students are exposed to the English concepts, it becomes harder for them to use Romanian equivalents.

As a general conclusion, based on the results of our research, it can be stated that English represents a bridge, not an obstacle, to effective communication among IT students, enabling universal understanding and allowing IT professionals to share knowledge in a standardized way.

Definitely, in order to consider our recommendations and conclusions viable, further research, involving more participants and more controlled conditions, is necessary. In addition, the reasons behind using anglicisms in Romanian IT terminology, and the context that generated the adoption such English loanwords, also requires deeper investigation. The evolution of languages in the digital era, the impact of anglicisms on communication at large, the situation of non-English speakers among computer professionals can be other areas of further exploration.

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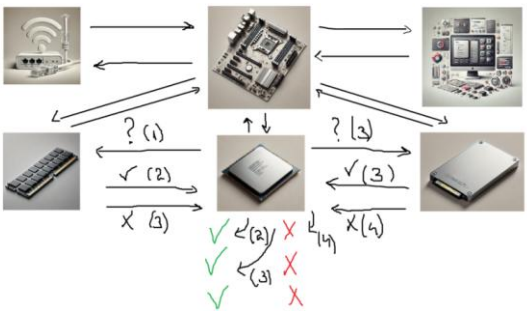
Appendix 1

Technical text 1	Technical text 2
În cadrul departamentului de dezvoltare de componente fizice al companiei noastre, se desfășoară un flux de lucru bine definit pentru integrarea și testarea componentelor cheie: UPC, UAL, PG, MAA și placă de bază. Procesul începe cu etapa de proiectare, în care echipa evaluează cerințele inițiale, analizează volumul de date care trebuie prelucrate și stabilește standardele de performanță. Se determină nevoile aplicațiilor ce urmează a fi rulate, astfel încât să se poată susține sarcini complexe, precum procesarea masivă de date sau calculare și afișarea graficii avansate a conținutului vizual. Ulterior, se trece la faza de asamblare și conectare a componentelor. UPC și UAL sunt instalate pe placă de bază și testate pentru a verifica modul în care execută instrucțiunile aritmetice și logice la frecvențe înalte. În această etapă, MAA este montată și evaluată pentru a se asigura că viteza de acces la date rămâne constantă, indiferent de încărcarea sistemului, iar placă grafică este supusă unui set de simulări – incluzând teste de calculare și afișare a graficii tridimensionale și procesare de imagini – menite să evalueze performanța vizuală în aplicații complexe. După finalizarea testelor inițiale, echipa trece la faza de calibrare și optimizare. Se ajustează parametrii de funcționare pentru UPC, UAL și placa grafică: se reglează frecvența de ceas pentru procesare, se optimizează setările de consum pentru MAA și se configurează placă grafică astfel încât să echilibreze calitatea imaginii cu rata de cadre. Placa de bază asigură coordonarea semnalelor și gestionarea traficului de date între componente, prevenind blocajele și maximizând stabilitatea sistemului. În final, se efectuează teste de stres pentru a observa comportamentul sistemului în condiții de sarcini de lucru intense, cum ar fi rularea simultană a mai multor aplicații solicitante. Rezultatele sunt documentate și analizate de echipă, servind drept reper pentru proiectele viitoare și contribuind la evoluția continuă a procesului de proiectare și testare a componentelor fizice. (307 words)	În cadrul departamentului de hardware development al companiei noastre, se desfășoară un workflow bine definit pentru integrarea și testarea componentelor cheie: CPU, ALU, GPU, RAM și motherboard. Procesul începe cu etapa de design, în care echipa evaluează requirements-urile inițiale, analizează volumul de date care trebuie prelucrate și stabilește standardele de performanță. Se determină nevoile aplicațiilor ce urmează a fi executed, astfel încât să se poată susține task-uri complexe, precum data processing sau advanced graphics processing and rendering. Ulterior, se trece la faza de asamblare și conectare a componentelor. CPU și ALU sunt instalate pe motherboard și testate pentru a verifica modul în care execută instrucțiunile aritmetice și logice la high frequency. În această etapă, RAM este montată și evaluată pentru a se asigura că data access speed-ul rămâne constant, indiferent de system load, iar GPU este supus unui set de simulations – incluzând teste de 3D graphics și image processing – menite să evalueze performanța vizuală în aplicații complexe. După finalizarea testelor inițiale, echipa trece la faza de calibrare și optimizare. Se ajustează parametrii de funcționare pentru CPU, ALU și GPU: se reglează clock speed pentru procesare, se optimizează power usage settings pentru RAM și se configurează GPU astfel încât să echilibreze calitatea imaginii cu frame rate-ul. Motherboard-ul asigură coordonarea signal-urilor și gestionarea data traffic-ului între componente, prevenind blocajele și maximizând stabilitatea sistemului. În final, se efectuează stress test-uri pentru a observa comportamentul sistemului în condiții de high workload, cum ar fi heavy multitasking. Rezultatele sunt documentate și analizate de echipă, servind drept starting point pentru proiectele viitoare și contribuind la evoluția continuă a procesului de hardware design & testing. (270 words)
Conform textului, de ce este importantă MAA în cadrul procesului de testare? A. Permite redarea grafică avansată B. Asigură un acces rapid și uniform la date C. Oferă conexiuni fizice și logice între componente D. Controlează consumul de energie al UPC	Conform textului, de ce este important RAM-ul în cadrul procesului de testare? A. Permite advanced graphics rendering B. Asigură un acces rapid și uniform la date C. Oferă conexiuni fizice și logice între componente D. Controlează power usage-ul CPU-ului
Care este rolul principal al plăcii de bază, conform descrierii?	Care este rolul principal al motherboard-ului, conform descrierii?

A. Crește viteza de procesare a UAL B. Furnizează semnale de ceas pentru UPC C. Coordonează fluxul de semnale și conectează toate componentele D. Depozitează date pe termen lung Cum este evaluată placa grafică în cadrul acestui proces? A. Prin simulări care testează redarea vizuală și performanța B. Prin măsurarea vitezei de acces aleator la date C. Prin analiza consumului de energie al MAA D. Prin compararea directă cu UAL Ce se întâmplă în faza de optimizare menționată în text? A. Se înlocuiește placa de bază cu una nouă B. Se ajustează parametrii de funcționare pentru UPC, UAL și placa grafică C. Se renunță la testele de stres pentru a economisi timp D. Se instalează MAA suplimentară doar pentru stocare permanentă Care este scopul principal al testelor de stres? A. Să crească consumul de energie al sistemului B. Să testeze compatibilitatea dintre componente C. Să evalueze comportamentul sistemului la sarcini de lucru intense D. Să ajusteze frecvența ceasului pentru procesele de calcul	A. Crește viteza de procesare a ALU B. Furnizează clock signals pentru CPU C. Coordonează signal flow-ul și conectează toate componentele D. Depozitează date pe termen lung Cum este evaluat GPU-ul în cadrul acestui proces? A. Prin simulări care testează rendering-ul și performanța B. Prin măsurarea vitezei de acces random la date C. Prin analiza consumului de energie al RAM D. Prin compararea directă cu ALU Ce se întâmplă în faza de optimizare menționată în text? A. Se înlocuiește motherboard cu una nouă B. Se ajustează parametrii de funcționare pentru CPU, ALU și GPU C. Se renunță la stress test-uri pentru a economisi timp D. Se instalează RAM suplimentară doar pentru stocare permanentă Care este scopul principal al stress test-urilor? A. Să crească power usage-ul sistemului B. Să testeze compatibilitatea dintre componente C. Să evalueze comportamentul sistemului la high workload-uri D. Să ajusteze clock speed-ul pentru procesele de calcul

Appendix 2

Description of a technological process



Appendix 4

Questionnaire

1. Have you used English-loan words in your description of the technical process included in Appendix 3?
   a. Yes
   b. No
2. Explain your choice of English words in your communication on computer-related topics.