INTEGRATING ARTIFICIAL INTELLIGENCE TOOLS IN THE VOCATIONAL TRAINING OF IT TECHNICAL SUPPORT OPERATORS: OPPORTUNITIES AND CHALLENGES

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Abstract. This paper presents a case study conducted over two academic years (2024–2025 and 2025–2026) at the Vocational School in Soroca, Republic of Moldova, aiming to analyse the impact of AI-based tools, specifically ChatGPT and Microsoft Copilot, on the performance of students enrolled in the "IT Technical Support Operator" programme.

In the first year, a group of 20 second-year students completed various SOHO network configuration scenarios and Cisco Packet Tracer simulations (Cisco, 2026), comparing results achieved under traditional working conditions with those obtained using AI support. In the second year, 28 first-year students were divided into two equal groups, each assigned identical practical hardware assembly tasks. The first group worked using traditional methods, while the second used AI tools for documentation and guidance.

The data show that AI use contributed to an average grade increase of approximately one point, a reduction in task completion time of around 35–45%, and the production of more detailed and better-structured final reports. The study also identifies challenges, particularly the tendency of approximately 30% of students to adopt AI-generated answers without critical analysis or practical verification.

Based on these results, the paper identifies the pedagogical conditions that favour effective AI use in vocational training and proposes a didactic model adapted to VET institutions in the Republic of Moldova, focused on developing practical competencies, critical thinking, and student autonomy.

Keywords: artificial intelligence, ChatGPT, Copilot, vocational and technical education, IT technical support, Cisco Packet Tracer, networking, hardware assembly, critical thinking, vocational training.

JEL Classification: I21, I23, O33

INTRODUCTION

Generative artificial intelligence has, in a relatively short time, become part of everyday activities in the IT sector, including technical support processes, fault diagnosis and equipment configuration. Today, numerous platforms and services use virtual assistants or automated AI-based systems for the rapid identification of problems and the provision of technical solutions. Under these circumstances, vocational and technical education institutions are required to adapt their training processes to the current realities of the labour market. Students pursuing the IT Technical Support Operator qualification will inevitably interact with such tools immediately upon employment, and ignoring this aspect during training would create a significant gap between the competencies formed at school and the actual requirements of the field.

This paper does not aim to develop a general theory regarding the use of artificial intelligence in education. The focus is on the practical experience gained in the course of teaching activities at a vocational and technical education institution in Soroca, over two consecutive academic years, working directly with students, practical tasks, and situations close to real professional contexts. The study is applied in nature and seeks to provide useful data and observations for VET teachers, as well as for those involved in the development and modernisation of vocational training programmes. The primary aim is not to validate a pre-established theoretical hypothesis, but to analyse concrete results obtained in the instructional process.

The research is oriented towards identifying the real impact that AI tools can have on the practical activities carried out by students in the field of IT technical support. In this context, the study aims to answer several key questions: whether the use of AI tools influences student performance as measured by grades in practical networking and hardware tasks; whether these tools contribute to reducing the time required for task completion; and what pedagogical factors determine the difference between effective use of AI as a support instrument and superficial use based on mechanical copying of generated responses.

1. THEORETICAL FRAMEWORK AND PEDAGOGICAL CONTEXT

In the context analysed in this paper, AI-based tools such as ChatGPT (OpenAI, 2026) and Microsoft Copilot (Microsoft, 2026) were used at practically all levels of the SAMR model, depending on the manner in which each student chose to interact with them. In some instances, AI was used merely as a substitute for conventional internet searching, with students requesting quick explanations or technical definitions. In other cases, AI tools contributed to augmenting activities by generating more structured explanations adapted to the student's level of understanding and the context of the practical task.

The integration of digital technologies into vocational education has been analysed in multiple studies through the SAMR model developed by Ruben Puentedura, which distinguishes between the use of technology as a simple substitute for traditional methods and its use as an element that transforms and redefines the learning activity (Puentedura, 2006). In current educational practice, this model provides a useful framework for understanding not just what students do with technology, but especially how their learning changes. Holmes et al. (2019) emphasize that artificial intelligence in education offers significant opportunities for personalizing learning.

The effective application of digital technologies in the educational process depends on the integration of technological, pedagogical, and content knowledge, an aspect highlighted in the TPACK model proposed by Mishra and Koehler (2006).

At the higher levels of the model, it was observed that some students used AI to develop network configurations, generate CLI commands, or verify troubleshooting steps in simulated environments such as Cisco Packet Tracer (Cisco, 2026). In these situations, the practical task was significantly modified through the introduction of a working process more closely aligned with the reality of IT technical support. In certain activities, AI use even allowed the learning experience to be redefined. Students came to simulate interactions similar to those in a real technical support centre. Problem analysis, request formulation, and response interpretation became an almost continuous flow.

During one observed moment in the course of activities, a student spontaneously remarked that "it feels like I'm working with a more experienced colleague, not just with a programme". This

perception reflects the way in which AI was integrated into the learning activity, transcending its simple function as a tool.

Recent literature on the use of artificial intelligence in education highlights that the primary risk lies not in the use of AI itself, but in its superficial and uncritical use. Kasneci *et al.* (2023) and Baidoo-Anu and Ansah (2023) describe this phenomenon through the concept of "AI-assisted surface learning", a situation in which the student transfers the cognitive process to the AI tool without analysing, verifying, or adapting the generated response. The observations made in the context of this study confirm this tendency in the VET context as well.

Students who formulated clear prompts, compared generated responses with technical documentation, and practically verified proposed solutions achieved noticeably better results both in practical assessments and in the preparation of final reports. In contrast, students who used AI exclusively for rapid copying encountered difficulties in explaining their own solutions or in resolving situations slightly different from the examples provided by the model.

An important aspect observed during the research is the fact that AI use influenced not only the speed of task completion but also students' confidence in carrying out practical activities. Particularly among first-year students, AI tools reduced the frequency of blockages during independent work and encouraged the formulation of technical questions. However, this increase in autonomy was expressed positively only when the teacher continuously monitored the process and required students to justify the solutions proposed by AI.

In the specific context of the VET system in the Republic of Moldova, it is relevant that the occupational standards and curriculum for the IT Technical Support Operator qualification do not explicitly include competencies related to the use of AI-based tools (Ministry of Education and Research of the Republic of Moldova, 2016, 2020). Given that IT companies and modern technical support services already use such solutions in their daily operations, this absence risks creating a gap between the competencies formed at school and those required upon employment.

For this reason, this paper argues for the necessity of updating the curriculum to include the critical, responsible, and effective use of AI tools as part of vocational training. In this way, students will not merely learn to use technology, but to understand it and consciously integrate it into their professional activity.

2. STUDY DESIGN AND METHODOLOGY

2.1. Participants and Period

The research was conducted in two distinct stages over two consecutive academic years at the Vocational School in Soroca, in the IT Technical Support Operator programme. The study design aimed to compare how the use of AI-based tools influences student performance in practical IT-related activities.

The first study was conducted during the 2024–2025 academic year and included a group of 20 second-year students in their final year of vocational training. The students already possessed consolidated foundational knowledge in networking and computing equipment. Practical activities focused primarily on SOHO network configuration and simulations in Cisco Packet Tracer. In the first stage, students individually completed a practical scenario without using AI tools, relying only on standard teaching materials and previously acquired knowledge. Subsequently, the same students received a scenario of similar difficulty, with the option of using ChatGPT and Microsoft Copilot for documentation, configuration generation, and verification of working steps.

This design allowed direct comparison of the same group's performance under two different working conditions, reducing the influence of individual differences on the final results. In addition to grade assessment, the time required for task completion, the number of technical errors identified in configurations, and the students' ability to explain their solutions during the final presentation were all monitored.

The second study was conducted during the 2025–2026 academic year and involved 28 first-year students. For this stage, students were divided into two equal groups of 14, balanced according to initial proficiency levels established through assessments conducted at the beginning of the academic year. The first group carried out practical activities using traditional methods, employing performance guides, teacher explanations, and laboratory demonstrations. The second group received the same tasks and working conditions, but students were additionally permitted to use AI tools for guidance and verification of assembly steps.

The practical task common to both groups consisted of the complete assembly of a computer from separate components, together with documentation of the working steps in a final technical report. During the activities, several aspects were monitored: assembly accuracy, compliance with safety norms, time required for task completion, degree of student autonomy, and quality of the documentation produced.

The design used in this stage was of a between-subjects type, based on comparing the results of two parallel groups under different AI use conditions. This approach allowed observation of performance differences between students who used AI tools and those who worked exclusively through traditional instructional methods.

2.2. Teaching Scenarios Used

In Study 1, practical activities were oriented towards the configuration and simulation of SOHO networks, using both physical equipment available in the laboratory and the virtual environment provided by Cisco Packet Tracer. The scenarios presented to students included configuring a router and a switch to provide local network connectivity with internet access, segmenting the network through VLANs, and configuring the DHCP service for the automatic distribution of IP addresses. In the first stage, tasks were completed using classical methods, without AI tools, with students relying on course materials, teacher guidance, and prior laboratory experience.

Subsequently, the same types of scenarios were repeated under similar difficulty conditions, but students were permitted to use tools such as ChatGPT and Microsoft Copilot. To prevent the superficial use of automatically generated responses, students were required to document each interaction with AI. This documentation included the prompts formulated, the responses received, and explanations of how the generated information was applied in solving the practical task. In their final report, students had to explicitly justify the choice of configurations used and explain any modifications made relative to AI recommendations.

This approach allowed observation not only of the final result, but also of students' thinking processes during the working procedure. In several instances it was noted that students who formulated more precise technical questions and practically verified AI-recommended commands achieved functional configurations more quickly and with fewer errors. In contrast, students who directly adopted commands without verification encountered difficulties when problems slightly different from the model's examples arose.

In Study 2, the practical activity focused on the hardware assembly of a fully functional computer from individual components available in the laboratory. The practical task aimed at

developing competencies in hardware component identification, processor–motherboard compatibility verification, processor and cooling system installation, RAM installation, storage unit mounting, and securing the motherboard in the case. Students were also required to correctly connect the power supply and perform the first system boot to verify component functionality.

The main verification criteria were correct system operation without boot errors, normal fan activity, and accessibility of the BIOS/UEFI interface. For the group that used AI, students could consult AI tools to clarify the order of component installation, identify connectors and ports, or diagnose problems encountered during assembly. As in the first study, all AI interactions had to be documented in the final report.

During the activities, it was observed that AI use was particularly useful for students encountering difficulties in identifying components and interpreting error messages at boot. The teacher continuously monitored how students used AI-generated responses to prevent the tool from becoming a source of mechanical copying without understanding of the technical processes involved.

2.3. Data Collection and Processing

For the assessment of results in both studies, both quantitative and qualitative data were collected. The aim was to understand not only "what results students obtained", but also "how they arrived at these results", step by step, during practical activities. Data collection was carried out throughout the tasks and in the final assessment stage. The same criteria were used for all participants to ensure comparability of results.

Quantitative data included the grades obtained by students in the final assessment of each practical scenario, using a grading scale from 1 to 10, where the minimum pass threshold was set at grade 7. Beyond the numbers, these grades reflected the actual level of mastery of technical competencies. The assessment addressed both the technical accuracy of the task and the student's ability to explain what they had done and why they had chosen certain solutions.

In parallel, the time required to complete each practical task was monitored, by recording the start and end time for each student individually. This was measured directly by the teacher in real time during laboratory activities. Additionally, the number of direct interventions made by the teacher for each student or group was tracked. This indicator provided a clear picture of the level of autonomy. Student autonomy varied considerably: several learners worked with minimal support, whereas others asked for frequent intervention during challenging tasks.

Qualitative evidence came from structured observation during lab activities, documenting not just physical steps but also participants' think-aloud problem-solving processes. The manner of formulating technical questions, the ability to identify errors, and the level of understanding of the steps carried out were analysed. Special emphasis was placed on how students interacted with AI tools, whether as genuine support or merely as a source of answers.

Final reports produced by students were also analysed. These served as a "mirror" of the working process. Clarity of explanations, the logic of technical solution argumentation, and the way students documented their interactions with ChatGPT and Microsoft Copilot were examined. Some reports showed a deep understanding of the process, while others contained mechanically recounted steps, without reflection.

Following analysis of the results, basic statistical methods appropriate to the practical nature of the research were applied. Data processing included calculation of arithmetic means for grades and task completion times, frequency distribution analysis by performance levels obtained, and percentage comparisons between groups investigated under different working conditions. These

procedures were selected to allow a clear and direct interpretation of the impact of AI tools on practical activities in the field of IT technical support and networking.

3. RESULTS

3.1. Grade Distribution and Comparative Averages

Figure 1 shows the grade distribution in both studies. In Study 1 (networking), the transition from the non-AI scenario to the AI scenario produced a visible shift in the distribution towards higher grades: whereas without AI, 70% of students received grades of 5 or 6 (below the pass threshold of 7), with AI, 95% exceeded the threshold, with a substantial reduction in grade-5 scores (from 6 students to 0).

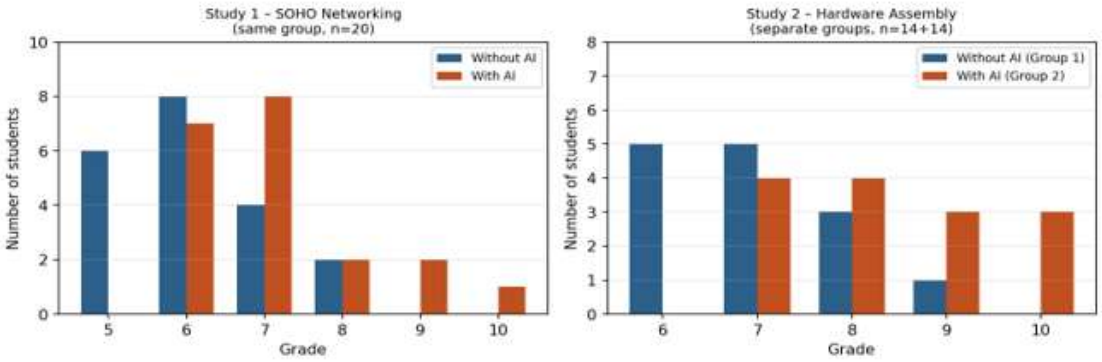


Figure 1. Grade distribution in Study 1 (networking, n=20, same group) and Study 2 (hardware, n=14+14, separate groups).

Source: *Authors' own work.*

Figure 2 summarises the averages calculated from the above distributions. The average grade increased from 6.10 to 7.10 in Study 1, and from 7.00 to 8.36 in Study 2. The pass threshold was exceeded as an average in all AI scenarios, and reached exactly at the limit in Group 1 of Study 2. The detailed distribution of grades and calculated averages is presented in Table 1.

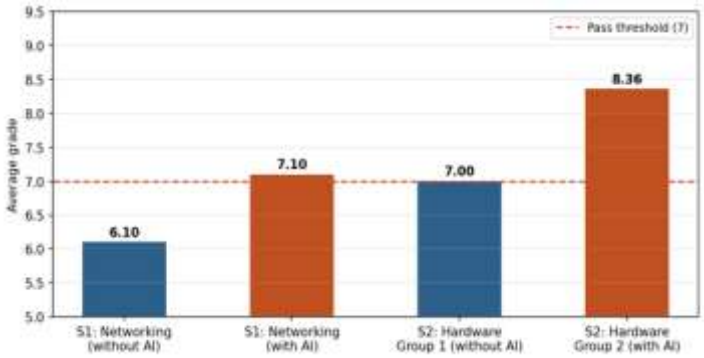


Figure 2. Comparative average grade across the four experimental conditions (pass threshold = grade 7).

Source: *Authors' own work.*

Table 1. Detailed grade distribution and calculated averages.

Condition / Scenario	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Average
S1 – Networking WITHOUT AI (n=20)	6	8	4	2	0	0	6.10
S1 – Networking WITH AI (n=20)	0	7	8	2	2	1	7.10
S2 – Hardware G1 Without AI (n=14)	0	5	5	3	1	0	7.00
S2 – Hardware G2 With AI (n=14)	0	0	4	4	3	3	8.36

Source: *Authors' own work.*

3.2. Task Completion Times

One of the most visible effects observed in both studies was the reduction in the time required for practical tasks when students had the option of using AI-based tools. The differences were consistent across the majority of activities and were maintained regardless of the difficulty level of the tasks proposed.

In the SOHO networking activities carried out in Study 1, students working without AI support needed, on average, approximately 60–70 minutes to complete the configurations and verify network functionality. When ChatGPT and Microsoft Copilot use was permitted, the average completion time fell to approximately 40–50 minutes, representing an estimated decrease of around 33–35%. In the majority of cases, AI was used to verify configuration commands, rapidly identify errors, and clarify working steps.

Differences became even more pronounced in the more complex scenarios completed in Cisco Packet Tracer, where students had to configure multiple devices, VLANs, and network services simultaneously. Without AI, the time required for full task completion ranged from 150 to 180 minutes, depending on the student's preparation level and the number of errors encountered. In scenarios where students had access to AI tools, most activities were completed within a maximum of 100 minutes, indicating an estimated reduction of between 33% and 44%. Particularly in troubleshooting situations, students were able to identify problem causes more rapidly and test more solutions in a shorter time.

Similar results were observed in Study 2, focused on hardware assembly. Group 1 students, working exclusively through traditional methods, needed an average of 60–70 minutes for component identification, system assembly, and verification of functionality. In Group 2, where students were permitted to consult AI for the order of component installation, connector identification, and technical problem diagnosis, the average task completion time was reduced to approximately 40–50 minutes. The percentage difference observed was similar to that in the networking activities, standing at around 35%.

An important aspect noted throughout the activities is that students who used AI less frequently requested direct teacher intervention. In many situations, they were able to identify the cause of simple technical problems independently and verify several solution options before seeking additional assistance. This behaviour suggests an increase in autonomy in the working process and a greater capacity for orientation in solving practical problems. However, laboratory observations showed that this autonomy was effective particularly among students who critically verified AI-

generated responses and sought to understand the logic of the proposed solutions, rather than merely applying them mechanically.

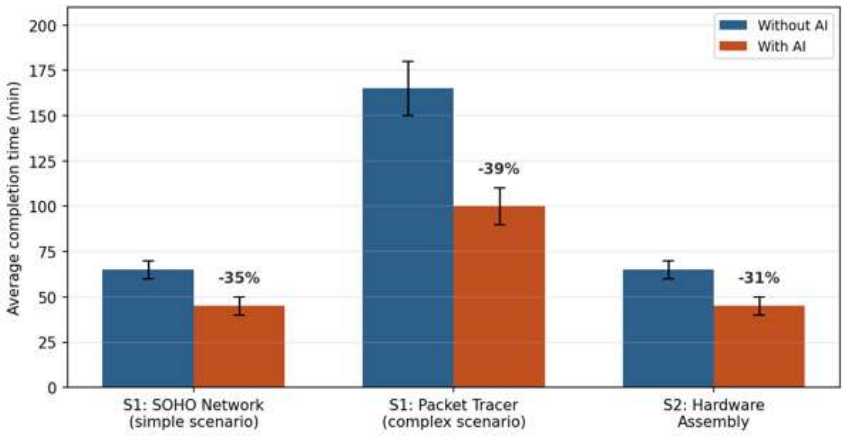


Figure 3. Average task completion time across three types of scenarios, with and without AI.
Source: *Authors' own work.*

Average task completion time (minutes) across three types of scenarios, with and without AI is presented in figure 3. Error bars indicate the observed range and the percentages indicate the reduction relative to the no-AI condition.

3.3. Quality of Final Reports and Student Autonomy

One of the most relevant findings of the study concerns the quality of the final reports, an indicator which, though more difficult to quantify, best reflects the actual level of understanding of the practical content. In both studies, a clear difference was observed between students who used AI tools in a critical and structured manner and those who used AI merely as a source of ready-made answers.

Students who worked with ChatGPT and Microsoft Copilot in an active manner, that is, who formulated precise technical prompts, requested additional explanations, compared multiple answer variants, and practically verified solutions in the laboratory, produced more elaborated final reports. These reports contained not only execution steps but also technical justifications for the choices made (for example, why a particular VLAN configuration type was selected, why a particular hardware component was or was not compatible, or how a configuration error was identified). In many cases, students integrated their own observations from the testing process into the report, indicating a functional understanding of the task rather than a purely reproductive one.

These students also demonstrated greater autonomy in resolving new or unforeseen situations. When configuration errors or hardware incompatibilities arose, they did not limit themselves to a single answer source, but tried multiple variants, returned to initial explanations, and adjusted solutions based on the results obtained. This mode of work suggests an active learning process in which AI functions as a support tool rather than a substitute for technical thinking.

In contrast, approximately 30% of students in Study 1 used AI passively, limiting themselves to directly copying generated responses without prior analysis or practical verification in Cisco Packet Tracer. In these situations, the final reports faithfully reflected this superficial approach: general descriptions, sometimes incoherent with the steps actually carried out in the laboratory, and inclusion of technical stages that had not in fact been executed.

Furthermore, cases were identified in which AI-generated errors were automatically incorporated into the report without correction or verification. This was particularly evident in networking scenarios, where certain commands or configuration steps were incompatible with the actual topology used in the laboratory. The absence of critical intervention by the student led to reports describing processes inconsistent with technical reality. From a pedagogical perspective, this behaviour indicates a low level of cognitive engagement and a predominantly reproductive form of learning.

Overall, the difference between the two categories of students is determined not merely by the use or non-use of AI, but by the manner in which it was integrated into the learning process: as an instrument of analysis and validation versus a source of ready-made answers.

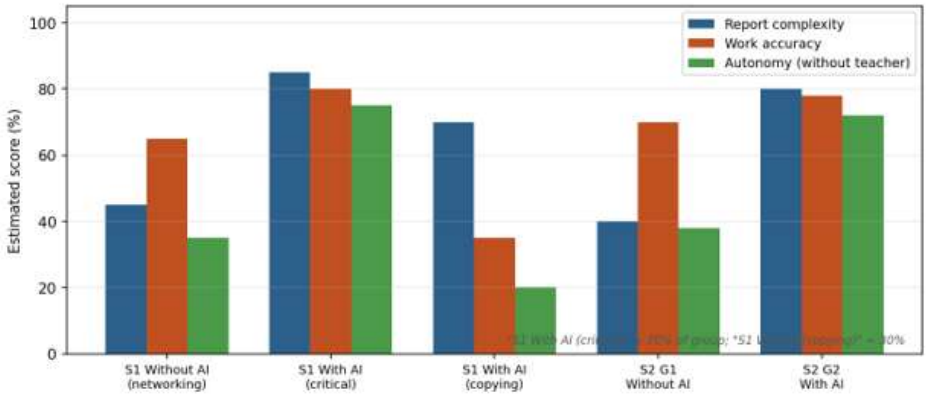


Figure 4. Comparative estimate of report complexity, work accuracy and student autonomy.
Source: *Authors' own work.*

In figure 4 is presented the comparative estimate of report complexity, work accuracy, and student autonomy, based on the teacher's structured observations (scale 0–100%), "S1 With AI (critical)" represents approximately 70% of the group and "S1 With AI (copying)" approximately 30%.

3.4. The Determining Factor: Prompt Quality

A consistent observation over both academic years was that the decisive factor differentiating results was not simply whether AI access existed, but the quality of the student's interaction with it - in particular, the ability to formulate prompts. Students who described the problem in a technical and contextualised manner, mentioning the type of equipment, network topology, specific error symptoms, or the exact stage of the working process, received far more applicable responses and were able to integrate them effectively into task resolution. In these cases, AI tools functioned as genuine diagnostic and technical guidance support.

By contrast, students who used general formulations such as "how to configure a router" or "how to assemble a computer" received equally general responses that were difficult to apply directly to the specific scenarios encountered in the laboratory. The lack of contextualisation frequently led to two types of behaviour: either the mechanical copying of steps with no full connection to the actual situation, or partial abandonment of AI use and a return to trial-and-error or direct requests for teacher assistance.

This difference was sufficiently consistent to prompt an adjustment of the pedagogical design in Study 2. Accordingly, before commencing activities in which AI access was permitted, a training session of approximately 45 minutes was introduced, dedicated exclusively to practising prompt

formulation on real technical networking and hardware scenarios. Students were guided to transform general requirements into operational descriptions, incorporating details such as equipment type, configuration purpose, and the specific problem encountered.

Group 2, which benefited from this preparation, subsequently demonstrated a more effective use of AI tools, with responses better adapted to practical situations and a reduction in corrective interventions by the teacher. This result suggests that AI literacy represents a critical pedagogical factor, with a direct impact on performance in VET practical tasks.

4. DISCUSSIONS

4.1. What Works and Why

The data collected in both studies confirm that the guided use of AI tools produces real, measurable improvements in the development of competencies specific to the IT Technical Support Operator qualification. Interpretation of the results indicates that the principal value of AI lies not in "executing the task on behalf of the student", but in its functioning as a permanently available technical interlocutor, capable of providing explanations, alternatives, and clarifications in real time during the resolution of practical problems.

In conditions where a group of 14–20 students are simultaneously in the laboratory, the teacher cannot provide continuous individualised support to each student at a different point in the task. In this context, AI partly assumes the role of intermediary support, providing immediate responses to specific questions and facilitating the resolution of technical blockages. The student who formulates the technical question correctly effectively benefits from a form of real-time individualised tutoring, precisely adapted to the problem encountered at that moment.

This functionality largely explains the significant reduction in task completion times observed in both studies. Particularly in activities carried out in Cisco Packet Tracer, where scenarios involved multiple and interdependent configurations, working time decreased from 150–180 minutes in the absence of AI to a maximum of 100 minutes with AI use. This reduction should not be interpreted as a simplification of the didactic content, but rather as an optimisation of the learning process.

Qualitative analysis shows that time savings are generated primarily through the elimination of "idle time" in student activity. These periods include searching for the correct syntax for IOS-type commands, verifying equipment compatibility, interpreting error messages, or identifying the cause of non-functional configurations. Traditionally, these steps consume a significant portion of working time and can lead to frustration or stagnation in the learning process.

Through the use of ChatGPT and Microsoft Copilot, these micro-tasks are resolved much more rapidly, allowing the student to concentrate attention on understanding the overall structure of the configuration and the operational logic of the system. In this sense, AI does not replace the cognitive process, but redistributes it, shifting the emphasis from searching and memorising commands to analysing, verifying, and correlating technical information.

4.2. The Risk of Uncritical Copying - A Pedagogical, Not Technological Problem

The case of the approximately 30% of students in Study 1 who used AI by directly copying responses without analysis or reflection represents a relevant pedagogical problem; however, the correct interpretation of the phenomenon is essential. Observations show that this is not a new behaviour generated by the use of AI, but rather a manifestation of a pre-existing attitude in the educational process, the same category of students who, traditionally, resort to copying from the internet, from classmates, or from unprocessed materials. In this sense, AI does not introduce the

problem but merely lowers the threshold of access to information, making this behaviour faster and easier to perform.

To counteract this phenomenon, an explicit pedagogical measure was introduced: the requirement to document each interaction with AI tools and to provide detailed argumentation of the solutions included in the final report. This requirement functioned as a mechanism for verifying genuine understanding, not merely the final result. In practice, students who attempted to copy a configuration plan without actually completing the technical steps encountered major difficulties when asked to explain their choices, for example, justifying an IP addressing scheme, a protocol used, or a VLAN configuration.

This discrepancy between the "written product" and the "actual working process" became evident in report assessment, where the absence of technical coherence immediately indicated a lack of active engagement in task completion. For this reason, the assessment was not fundamentally modified; the evaluation criteria remained the same as in the traditional scenarios. The fundamental difference lay in the fact that the introduction of AI changed students' working methods, but did not modify the expected competency standard.

Thus, the results suggest that the effectiveness of AI use in vocational education depends directly on the integration of accountability and reflection mechanisms that ensure the tool is used as a support for learning, not as a substitute for it.

4.3. Implications for VET Curriculum and Assessment

The experience documented over two years of practical implementation suggests that integrating AI tools into vocational training does not require deep curricular reform, but rather a series of targeted, well-defined adjustments applied consistently in the teaching process.

The necessity emerges of introducing a session dedicated to developing the competency of formulating technical prompts, so that students learn to describe correctly and in a contextualised manner the problems encountered in practical activities. This competency has proved essential for the effectiveness of interactions with tools such as ChatGPT and Microsoft Copilot.

The results indicate the need for adjusting assessment requirements through the explicit inclusion of the obligation to argue technical choices, not merely describe the steps executed. This modification requires students to explain the reasoning behind configurations carried out in environments such as Cisco Packet Tracer or in hardware assembly activities, enabling a more faithful assessment of the actual level of understanding.

The study highlights the need to shift assessment emphasis from the final product towards the thinking process. In other words, not only the result obtained is relevant, but also how the student arrived at that result, including the use of AI tools, information verification, and the ability to adapt to unforeseen situations.

An important practical finding derived from Study 2 is that reports produced by the group that did not use AI were, in general, simpler in structure and less elaborate, but more faithfully reflected the activity actually carried out by students in the laboratory. This difference does not necessarily indicate the superiority of the traditional method, but highlights two different types of educational product: one centred on the direct reproduction of the practical experience, and another that may become more complex textually, depending on the student's capacity to integrate and filter external information.

In this context, didactic assessment must be adapted so as to differentiate between the complexity of generated discourse and the actual complexity of technical understanding, avoiding the conflation of a well-written report with a genuinely consolidated practical competency.

CONCLUSIONS AND RECOMMENDATIONS

The data collected over two years of practical implementation at the Vocational School in Soroca allow the formulation of consistent conclusions regarding the impact of AI tools on the vocational training of students in the IT Technical Support Operator programme.

Analysis of the results shows that the guided use of AI tools, such as ChatGPT (OpenAI, 2026) and Microsoft Copilot (Microsoft, 2026), is associated with an increase in students' assessed performance of approximately 1–1.4 grade points on average, regardless of the type of practical task (networking or hardware assembly). This effect remains relatively stable across both studies, suggesting a consistent and reproducible impact of the intervention.

At the same time, a significant reduction in task completion time is observed. This ranges around 33–35% in medium-complexity activities and can reach up to 44% in complex simulation scenarios carried out in Cisco Packet Tracer. The differences are explained primarily by the optimisation of technical information search steps and the acceleration of troubleshooting processes.

Another relevant aspect highlights the fact that the benefits of AI use depend directly on the quality of prompt formulation. The ability to correctly and structuredly describe a technical problem becomes a determining factor for the quality of the response obtained. This indicates the necessity of explicitly including this skill in the vocational training process, as an integral part of professional digital competencies, not as an implicit ability.

Furthermore, approximately 30% of students exhibit a tendency towards uncritical AI use, by directly copying responses without verification or adaptation to the practical context. This behaviour can be effectively managed through appropriate didactic design, in particular through clear documentation requirements and through the assessment of technical solution argumentation, elements that reduce the risk of mechanical reproduction of information.

An increase in the level of autonomy is also observed among groups that used AI, with these students requesting fewer direct teacher interventions during task completion. This aspect is particularly relevant in the context of classes of 14–20 students, where the time available for individual support is limited, and the efficiency of the teaching process becomes essential.

Based on these results, the following recommendations are formulated:

- Introduction of "technical prompt" competency as a distinct sub-competency in curricula for the IT Technical Support Operator programme, within the framework of professional digital literacy.
- Revision of national occupational standards to explicitly include competencies for the critical and responsible use of AI in diagnostic, configuration, and technical documentation activities.
- Adaptation of practical assessment criteria through the explicit inclusion of technical argumentation as a mandatory element, capable of differentiating between genuine learning and mechanical copying.
- Extension of the research to a larger sample and over a longer period, to evaluate the long-term impact on the effective professional competencies of graduates and their integration into the labour market.

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