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From Self-Learners to System-Dependents: The Negative Effects of AI on EFL Autonomy in Jordan

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Abstract: Generative AI technology such as ChatGPT, Grammarly, and DeepL has changed the way linguistic learning occurs. Although such technologies can be of great benefit in terms of linguistic scaffolding, overuse can disrupt learner autonomy by diminishing cognitive activities and metacognitive monitor. The study focuses on the impact of AI-mediated learning on the autonomy of Jordanian English as a Foreign Language (EFL) university students to fill a gap in the existing empirical research on the topic of cognitive offloading in non-Western learning institutions. A mixed-method design was used involving quantitative survey (N = 376) to measure the frequency and metacognitive strategies involved in the use of AI, and semi-structured interviews (n = 22) to understand perceptions held by students. Demographic variables were controlled through hierarchical regression, and thematic code of qualitative data were subjected to inter-rater validation. The results of the quantitative research are that intensive use of AI is a significant predictor of reduced self-regulation, confidence in error-correction, and retention of vocabulary ($b = -0.46$, $p < 0.001$). Qualitative data show there is a paradox of dependence, AI will give immediate feedback whilst it tends to discourage any strategic interaction. It is important to note that, students who utilised reflective strategies in addition to moderate use of AI had higher autonomy levels. Pedagogically, the findings suggest that digital literacy should be trained and that AI-based scaffolds should be designed so that they do not interfere with the agency of learners in EFL settings.

Keywords: Artificial Intelligence; Learner Agency; EFL Students; Jordan; Digital Addiction; AI in Teaching

1. Introduction

The active adoption of the tools of Artificial Intelligence (AI) into English as a Foreign language (EFL) instruction has radically changed the way learners address the language activities. Language assistance, machine translation systems, ChatGPT, Grammarly, and other applications assist in processing input text and give immediate feedback, automatically generated texts, and linguistic scaffold in real-time. As much of the scholarship has focused on how their pedagogical affordances enhance accuracy, enhancement of access to input and task efficiency, not much attention has been paid on how these types of technologies are restructuring the cognitive and metacognitive as-

pects of learning. Learner autonomy that is defined by Holec [1] as the ability to assume responsibility of learning oneself is based on self-regulation, strategic decision making and reflective consideration. Later models of autonomy [2,3] also prioritize the importance of the learner agency and the strategic control of the learning processes. Nevertheless, the current literature on AI in language learning has mainly focused on the results of performance and not on changes in agency among learners. Consequently, one critical theoretical question has not been addressed yet: Does AI act as an externalization of autonomy enhancer or is it an externalization of mental processes that slowly undermine it? This contradiction exposes a major gap in the literature [4–8].

Even though technology-enhanced learning has traditionally been linked to heightened independence, the AI-driven automation is not like the previous digital tools since the AI-driven automation does not implement any higher-order linguistic and cognitive tasks as the learner does. There are also no adequate theoretical and empirical frameworks on how this shift affects autonomy theory, especially in non-Western EFL settings. In Jordan, the acceleration of the digital integration process after the pandemic has made AI-based language practices a normal practice among college students [9–12]. However, even with the wide adoption, there is scant empirical data on the effect of long-term AI use on self-regulating learning behaviors, metacognitive awareness, and autonomous language production [13–15]. This lack of such research generates a blind spot in both theoretical and pedagogical research. In this respect, the research problem that is studied is the following: To what degree does the regular AI-supported learning redefine the independent learning habits of EFL university students in Jordan? Using a mixed-methods design, the research aims at examining the correlation between the use of AI and measurable changes in self-regulation, strategic engagement, and learner agency. That way, it provides a contribution to the autonomy theory by the conceptualization of AI dependency as a possible mediating factor in the autonomy-technology relationship and provides fact-based information on a moderate introduction of AI in EFL teaching.

2. Literature Review

Learner autonomy as an idea has taken center stage in the field of language teaching since it was defined by Holec [1] as the capacity of the learner to become responsible in their learning. The later literature broadened this definition to the independent study only to define it as metacognitive regulation, strategic acting, and reflective interaction with the process of learning [2,3]. In EFL, the role of autonomy has been largely related to enhanced motivation, strategic competence and long-term language development. Notably, the autonomy theory presupposes that learners actively build the knowledge by means of planning, monitoring, revising and assessing their linguistic performance. They have always been traditionally understood as scaffolds, which need interpretation and manipulation by the learner as opposed to systems, which do cognitive work on the behalf of the learner even when technology tools are used. This is the premise under challenge by the fast development of AI-powered language tools. Previous digital aids like online dictionaries, corpora, or grammar-checking software assisted with making decisions by learners but left them to be taken analytically. Generative AI systems, on the contrary, are now used to generate ideas, organize, paraphrase, and fix mistakes in the text. It has been found that these technologies have a considerable number of advantages such as improving writing fluency, developing lexical sophistication, and gaining confidence [16,17]. These results support a hegemonic discourse of technological empowerment in language learning. Nevertheless, the majority of research is mainly concerned with the results of performance as opposed to the mental processes of performance. Consequently, the connection between AI application and the establishment of learner autonomy is not explored in theory. This gap has caused a new tension in the literature. On the one hand, such AI tools are offered as tools that increase the capacity of learners and offer personalized assistance. Conversely, research professionals have also started doubting the possibility of automation externalizing basic learning.

According to Sun [18], planning and revision processes that are vital in metacognitive development are circumvented by generative AI. These objections bring about what can be termed an autonomy paradox: although AI improves efficiency and quality of output, it can also lead to a decrease in the levels of engagement of learners within those processes, which develop independence. However, this contradiction has not been sufficiently resolved by empirical research, mainly due to the fact that the concept of autonomy is not often operationalized as a measurable concept in addition to the frequency of AI use. This controversy is further worsened by the fact that the previous educational technologies have been different, as opposed to generative AI. The traditional CALL instruments also demanded learners to perceive the feedback, to choose the right linguistic options and make strategic amendments. On the other hand, generative AI is able to generate near-complete linguistic answers with little cognitive effort on

the part of the user. This qualitative change creates theoretical main issues whether autonomy in the era of AI is to be perceived as strategic tool handling or cognitive possession of learning procedures. In case autonomy is lowered to efficient use of resources, AI might seem to increase it. In case autonomy implies the presence of long-term self-control and introspection, overdependence on AI could be an indication of corrosion instead of empowerment. There is also the lack of clarity in the conceptualization of autonomy which also explains the lack of consistency in the results of various studies. The problem is especially acute when it comes to non-Western settings of EFL, in which the mediation of AI usage is not always provided by an institution. In Jordan, the rapid pace of digital adoption increased with the COVID-19 pandemic, and AI tools are already established in universities. Nevertheless, there are no formal guidelines that govern the integration of pedagogical AI. Early studies of the region show trends of unquestionable dependence, such as direct copying of AI-generated text and little revision or contemplation [19–21].

However, these studies do not go all the way to attribute such behaviors to autonomy theory directly or quantitatively assess change in self-managed studying. As a result, the overlap between AI dependency and learner autonomy in the Jordanian EFL context is not theorized and empirically tested. The literature, when put together, demonstrates three issues that remain unsolved: a conceptual conflict between the notions of empowerment and dependency, a methodological shift towards products and away from processes, and the empirical gap between generative AI and previous digital applications in the study of autonomy. The solution to these gaps is to look past descriptive descriptions of AI advantages to systematic investigation of the correlation between the frequency of AI use and objective indicators of self-regulation, metacognitive awareness, and autonomous language use. The current research can address this requirement by addressing the question of whether AI-mediated learning can transform autonomous behavior among EFL university students in Jordan and consequently may contribute to the theoretical advancement of autonomy studies and the emerging dynamic realm of AI-mediated language learning.

Theoretical and Conceptual Framework

This study relies on three complementary theories, such as the learner autonomy theory, sociocultural theory, and Self-Determination Theory to explore cognitive, motivational and social factors of learning a second language in AI-mediated environment. The concept of learner autonomy was originally determined by Henri Holec as the ability of a learner to be in charge of his or her learning. Nowadays, scholars consider it as not just a single study, but there is self-regulation, self-monitoring, tactical decision-making, and consideration of findings. In contemporary research, autonomy is measured based on observable behaviors that reveal how the learners cope with their learning. Four dimensions are used to measure autonomy in our study; (1) often learners start their learning strategies, (2) actively drafting and revising work, (3) tolerating productive struggle before seeking help, (4) demonstrating metacognitive awareness when working on language tasks. These measures indicate the predetermined aspects of self-directed learning and enable us to assess the construct in AI-enriched academic settings. We perceive a drop in these acts, particularly those where AI is applied regularly, as the undermining of acts of autonomy. This deterioration does not imply loss of autonomy, and this is an objective reduction in self-control and reflective, but it is. The dependence on AI is another metric that we measure; AI tools are used regularly to brainstorm, spell check, paraphrase, or complete tasks without learners being allowed to engage in thinking on their own. The study separates the strategic AI use, in which learners attempt to solve the problem to begin with, and AI dependence, in which AI is the initial option. This difference allows us to divide technology aiding the sense of autonomy into automation that substitutes the effort of learners. Socioculturally, AI plays the role of mediator in learning [22].

The theory of Lev Vygotsky promotes the significance of cultural resources and social experience in cognitive development. When learners work through the tools and engage with more knowledgeable persons in order to form higher levels of thought, learning is mediated. The Zone of Proximal Development (ZPD) determines the type of task that a learner can cope with with guidance before he or she becomes autonomous. The conventional scaffolding slowly transfers the role of a teacher to a learner. The generative AI brings about a new form of mediation; it is capable of generating full form linguistic outputs that learners can accept without having to reconstruct them. The change can make the mediation process shorter and it can reduce the involvement in analysis and problem solving that otherwise facilitate language development. In our work, we analyze mediation in terms of the depth of involvement of the learners with the AI feedback. We present questions on whether students process, revise and internalize the AI recommendations or whether they accept AI output with minimal thought. This operationalization connects the sociocultural theory with patterns in AI-based learning. Self-Determination Theory, developed by

Deci and Ryan, introduces a new facet since intrinsic motivation is highlighted as the key to long-term engagement. In their argument they say that autonomous motivation is achieved when learners are competent, autonomous and when they feel they own their work. On the other hand, the actions primarily motivated by external forces have the potential to decrease intrinsic interest. In our experiment, we conclude the lower intrinsic engagement based on the behaviors manifested in the form of reduced persistence in difficult problems, omitting revision, and preference of automatic answers to self-generated answers.

However, we do not suppose that AI tools necessarily decrease motivation, so we explore the idea that high AI reliance is associated with decreased sense of task ownership and reduced readiness to experiment with language. Autonomy in the learning of learners is a product of personal characteristics and circumstances. Teacher-centered instruction, examination orientation, and expedited digitisation prevalence are the traditions of learning in English-as-a-Foreign-Language classrooms in Jordan. Artificial intelligence can engage with these patterns in complicated dynamics. As such, we do not regard AI as a good or bad thing, but rather a mediating variable that can be impactful depending on how frequently it is used, based on motivation, and how much the learner will interact with the technology. On these bases, we suggest a conceptual roadmap between the use of AI and autonomy. The excessive use of AI can promote cognitive offloading the challenging tasks to technology to reduce the effort. Although offloading may lead to efficiency, it decreases the opportunity of analysis, testing of rules, and correction of errors, which could be deep. Repeat offloading may reduce metacognitive involvement, which is reduced self-monitoring, reflection on revision, and strategizing when performing tasks. Such a decrease can be observed in the form of autonomous learning behavior in the long run. Our conceptual model, therefore, is based on the following sequence: AI Use Frequency-Cognitive Offloading-Reduced Metacognitive Engagement-Learner Autonomy (see **Figure 1**).

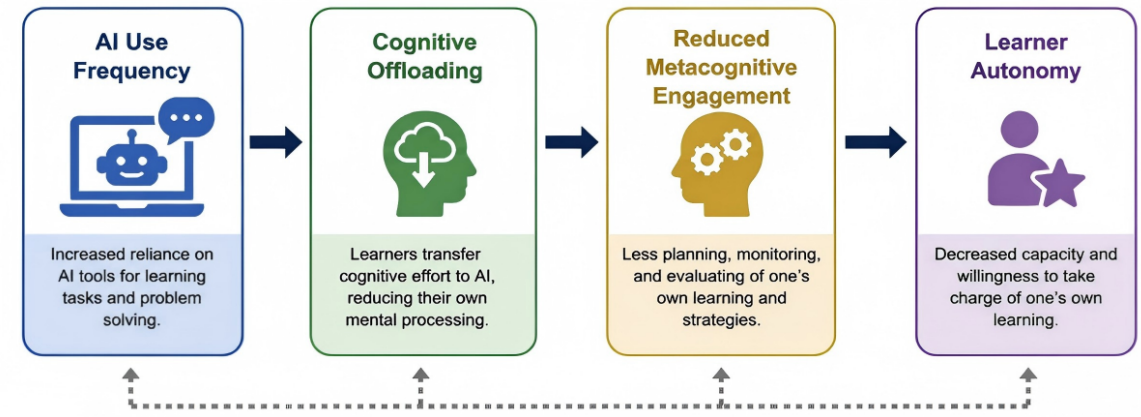

Figure 1. Conceptual Mediational Model of AI Use and Learner Autonomy.

3. Methodology

3.1. Research Design

There was a sequential explanatory mixed-methods design in this study in that quantitative data was collected, followed by qualitative elaboration of results. The strategy will allow us to examine statistical tendencies and explain them using the experiences of participants that will provide a more comprehensive understanding of the relationship between the use of AI and the autonomy of learners of English as the Foreign Language (EFL) students. Their theoretical underpinnings are a learner autonomy theory developed by Henri Holec and a sociocultural view of mediated learning as developed by Lev Vygotsky. The study was conducted during the spring semester of 2024–2025 in four Jordanian universities, which represented various geographical areas and university types (public and private). This choice of universities made contextual diversity higher and minimized the possibility of finding that the results were based on the practices of one university. Participants and Sampling To make sure that the participants were familiar with AI-based language tools in academics, we applied purposive sampling. Since the measure was AI mediated learning behaviors as opposed to general EFL practices we only got students who had already used AI mediated learning tools like automated writing assistants or generative AI platforms. The aim of purposive

sampling is not to achieve a statistical representation of all Jordanian EFL learners, but it helped to get variation in terms of institution, academic level, and learner background. The sample consisted of participants who are in various years of study in different universities of Jordan giving a representative sample of the learning experience in Jordanian universities. The involvement was voluntary. Students were informed that their feedback would not be used in course reviews. To reduce the prospects of pressure or bias, the recruitment was not dependent on instructors. In the quantitative phase, 376 EFL undergraduate students participated.

3.2. Instrumentation

The questionnaire survey was a mix of pre-existing scales regarding learner autonomy, self-regulation, and metacognitive engagement and new questions about AI usage. It consisted of two components (1) autonomy-related learning behaviors and (2) AI interaction patterns. The AI items were used to determine the frequency of AI use among the students and the use of AI at all or they tried to perform a task by themselves before consulting AI. Three scholars of applied linguistics reviewed the questionnaire in order to make it understandable, crafted to deliver content validity, and appropriate to the Jordanian EFL setting. Their comments were used to make some changes to enhance accuracy and language clarity. Pilot Testing and Reliability. Wording was refined and reliability was tested in a pilot study involving 42 students. The internal consistency was measured through Cronbach's alpha (see **Table 1**).

Table 1. Cronbach's Alpha Reliability Coefficients for the Study Constructs.

Construct		Cronbach's α	
Self-regulation	0.87	Self-regulation	0.87
Metacognitive awareness	0.84	Metacognitive awareness	0.84
Strategic engagement	0.81	Strategic engagement	0.81
AI reliance	0.88	AI reliance	0.88

The values are all above usual levels of reliability, which implies satisfactory internal consistency. Factor Structure and Construct Validity: The results of the exploratory factor analysis (EFA) validated logical groupings that were consistent with theoretical constructs, and loadings greater than 0.60 with no meaningful cross-loadings. The measurement model was tested in AMOS using confirmatory factor analysis (CFA). The structural validity of the adapted framework was acceptable (CFI > 0.90, RMSEA < 0.08, SRMR < 0.08) as well as the observed variables reflect the constructs of learner autonomy and AI interaction. Quantitative Data Analysis: Data were analyzed with SPSS. First, descriptive statistics described AI usage and autonomy indicators. Next, Pearson correlations were used to test AI use frequency and autonomy dimension relationships. Hierarchical multiple regression was used to explore the predictive effects at the cost of the background variables. The control variables were academic level, English proficiency, and digital literacy—aspects that may determine both the use of AI and autonomy. Regression assumptions such as normality, multicollinearity and homoscedasticity had been met by diagnostic tests. Despite the fact that these controls were designed to capture a number of characteristics of learners, other contextual variables such as instructor AI policies, assessment formats, and motivation were not captured. These variables can be incorporated in future studies to help in the understanding of AI-mediated learning mechanisms better. Qualitative Phase: The semi-structured interview was conducted with 22 participants, who were chosen through maximum variation sampling of all participants in the survey, that is, low, moderate and high AI use. The interviews took between 30 and 45 min and took place face-to-face or on Zoom. The protocol examined decision making processes, perceived cognitive effort, revision, and trust in the ability of doing tasks on your own. Transcription of all interviews occurred verbatim and thematic analysis followed by systematized code coding. A sub-set of transcripts was coded by two independent coders and the inter-coder agreement was 89. The differences were resolved by engaging in dialogue so that there was uniformity. Mixed-Methods: The interpretation stage involved integration of both the quantitative and qualitative findings. Qualitative themes of interviews were put into perspective with the relationships of the survey. Include the following: Joint Display Table between quantitative results and qualitative themes. This collaborative display model transferred statistical patterns to what students reported as their experience and decision making, which increased methodological clarity by clearly connecting the regression findings to qualitative descriptions.

4. Results and Discussion

4.1. Quantitative Findings

The quantitative part of the current work implied a questionnaire survey that had been filled in by 376 EFL students at the national level of five universities in Jordan. The questionnaire was created to assess three major constructs, which are: (1) frequency and nature of AI tool use (e.g., ChatGPT, Grammatically, translation apps), (2) self-reported autonomy in language learning, and (3) self-reported metacognition on academic work. The findings show that the prevalence of using AI tools is high as more than 84% of the students indicated that they used at least one AI-based language support tool in their daily activities. The most widely used among them were ChatGPT and Google Translate, which were mostly used in writing tasks, finding vocabulary, and grammar checking. Interestingly, 61% of the subjects admitted to using AI tools prior to even trying to complete the task individually, which could indicate that the participants were bypassing the cognitive processing. Pearson correlation analysis showed that the frequency of AI use and the reported scores of learners on autonomy are significantly negatively correlated ($r = -0.48$, $p < 0.01$). That is, the more the students used AI tools, the higher the likelihoods of reporting lower levels of self-initiated learning behavior brainstorming, re-drafting, and self-assessment. In addition, metacognitive subscales including goal setting and self-monitoring also had significant deterioration in high AI dependence students. Students who said that they used AI tools at least 5 times a week had an average score that was 17% lower on questions regarding independent mistake correction and vocabulary retention. Further, most respondents (73%) have acknowledged not doubting or critically analysing AI-generated outputs, and this is an indicator of possible loss of critical interaction (see **Table 2** below).

Table 2. Prevalence of the use of AI Tools among EFL learners (N = 376).

AI Tool	Daily Use (%)	Weekly Use (%)	Rarely/Never (%)
ChatGPT	48	28	24
Grammarly	35	40	25
Google Translate	62	25	13
Other AI Writing Tools	20	15	65

This table indicates the frequency of student use of various AI tools when learning English language. It categorizes the usage into three groups, namely, daily, weekly, and rarely/never. Forty-eight percent of students use ChatGPT on a daily basis, 28% on a weekly basis, and 24% on a rare or non-occurring basis. It means that almost fifty percent of the learners use ChatGPT on a regular basis. Grammarly is used on a daily, weekly, and rarely/never basis by 35%, 40% and 25%, respectively, which is a strong yet slightly less common use than ChatGPT. The most frequently used on a daily basis (62%), Google Translate is the most popular as a fast reference tool, when one needs some vocabulary and translation. The least number of AI Writing Tools are used daily, at 20%, and most learners (65%) seldom or do not use it at all, meaning it is not as known or not as accessible as in **Table 3**.

Table 3. Mean Scores on Learner Autonomy Scale by AI Usage Level.

AI Usage Level	Mean Autonomy Score (out of 5)	Standard Deviation
Low AI Usage (<2x/week)	4.1	0.5
Moderate AI Usage (2–4x/week)	3.4	0.7
High AI Usage (5+ times/week)	2.7	0.9

The following **Table 4** is the comparison of the average scores of students in terms of the frequency of the use of AI tools on a learner autonomy scale. It is on a scale of 5, where the higher the score, the more autonomy there would be. The students who use AI Lowly (less than 2 times per week) have the highest autonomy score (mean = 4.1), which indicates that they practice more self-directed learning behaviors. Users with the Moderate AI Usage (2 to 4 times per week) obtain a moderate autonomy score (mean = 3.4), and there is a slight decrease in autonomy with the increase in the use of AI. Learner autonomy with high frequency of AI use (5 or more times per week) has a significant decline with the lowest score (mean = 2.7) among the students of the High AI Usage category.

Table 4. Correlation between AI Use Frequency and Metacognitive Strategy Use.

Variables	Correlation Coefficient (r)	Significance (*p*)
AI Use Frequency & Self-Directed Learning	−0.48	< 0.01
AI Use Frequency & Error Correction Confidence	−0.42	< 0.01
AI Use Frequency & Vocabulary Retention	−0.39	< 0.05

4.2. Quantitative Findings Discussion

The quantitative data provide a clear indication of the fact that the higher the use of AI, the more pronounced is the observed decrease in the level of learner autonomy by Jordanian EFL students. This trend reinforces the theoretical issue that has been developed in the literature regarding technological dependency whereby digital tools that were meant to facilitate learning have become those that displace the inherent thinking capacity of learners. These results are consistent with the framework on autonomy provided by Benson [2] especially when it comes to the aspects of self-direction and decision-making. It is evident that learners who overuse AI tools lose sight of strategic decisions and leave such decisions to the tool. Instead of doing planning or metacognition reflection, they are left as passive consumers of output, taken mostly without question and processed at minimum as they are received. In addition, the high negative correlation of AI use with metacognitive awareness indicates an increasing tendency to outsource the work of language-processing. The tools can hasten the production, but they will deter self-assessment, planning, and revision, which are the characteristics of independent learning.

This tendency may not only negatively affect the process of language development, but also academic resilience in the long term. In this regard, the EFL classrooms in Jordan are confronted with a new pedagogical dilemma on how to balance the accessibility and ease of AI and the cognitive requirements that need to be met in order to actually acquire the language. Unchecked, this imbalance can breed a generation of learners who would be proficient in the use of tools but ineffective in self-management and problem-solving. The correlations between the frequency with which students use AI and the frequency with which they use metacognitive strategies in language learning are provided in the following **Table 5** as statistics.

Table 5. Pearson Correlations between AI Use Frequency and Autonomy-Related Variables (N = 376).

Variable	r	*p*-Value	Strength of Relationship	Direction
Self-Directed Learning	−0.48	< 0.01	Moderate	Negative
Error Correction Confidence	−0.42	< 0.01	Moderate	Negative
Vocabulary Retention	−0.39	< 0.05	Moderate (Lower Range)	Negative

Pearson correlation showed that there were statistically significant negative correlations between AI Use Frequency and all the measured autonomy-related variables. The results revealed a moderate negative relation between AI Use Frequency and Self-Directed Learning ($r = -0.48$, $p < 0.01$) that more frequent use of AI tools relates to less planning, goal setting and independent learning management. Equally, AI Use Frequency also had a negative relationship with Error Correction Confidence ($r = -0.42$, $p < 0.01$), which implies that high-frequency AI users declare lower confidence in the ability to remedy linguistic errors on their own that low-frequency AI users show. Statistically significant, albeit, slightly, negative correlation also existed between AI Use Frequency and Vocabulary Retention ($r = -0.39$, $p < 0.05$). This observation indicates that the tendency to use AI-generated support in lexical information frequently can be connected with lower long-term memory as a possible consequence of disengaging the active process of memorization and retrieval. On the whole, the results trend shows that the more AI is being used, the smaller are the signs of learner autonomy.

4.3. Qualitative Findings

The thematic analysis of the 22 semi-structured interviews with Jordanian EFL students has shown some subtle views on the impact of AI tools on the autonomy of learners. The results are presented in the form of several major themes that are backed by representative quotes of the participants. Improved Availability of Instantaneous Feedback and Support. The most important point made by many students is that AI tools offer immediate and accessible feedback, which allows them to detect errors and improve their work without delaying to get feedback provided by the instructor.

Grammarly points out my grammar errors to me. I do not need to consult anyone, and I do not feel like I am learning slowly. (Participant 3)

ChatGPT is useful when I do not know how to use a word or a phrase. I simply type my question, and I can find answers, which I can easily understand. (Participant 10)

Prior to the use of AI, I feared making mistakes but now I am more assured of making them because I know that AI will assist me in making corrections. (Participant 18)

Change in Cognitive Engagement and Critical Thinking. Although these advantages are present, there are learners who confessed that being constantly dependent on AI decreases their thinking and interest in the language rules. It happens that I do not even care to think of the rules of grammar: I simply copy what ChatGPT offers. It is time-saving, but I do not learn the rules thoroughly. (Participant 8)

AI provides me with answers, and I do not know whether I truly understand why these answers are correct or not. I suppose I am not learning so much that way. (Participant 14)

Strategy Adaptation and Metacognitive Awareness. Several respondents were self-reflective about using AI alongside active learning strategies, which shows that they tried to remain autonomous even with the convenience of AI. I tend to request ChatGPT to provide an idea or example, after which I attempt to rephrase in my own words and format and grammar check my work using my books. (Participant 1)

I do not accept AI suggestions blindly, I check them up or ask friends to be sure that it is correct. (Participant 12)

The experience of using AI made me more aware of my learning process, therefore, I attempt to regulate the level to which I rely on it. (Participant 21)

Dependence/Empowerment Paradox. Some of the students described a conflict between feeling empowered by AI and the fear of being overly dependent, which would destroy their learning independence. AI is a safety net, it is good, but I sometimes believe such safety nets are over-used and I am concerned about it. (Participant 6)

I am glad that I am able to do more on my own, and in some cases I simply tell ChatGPT to write my entire paragraph. I understand it is not good but it is easy. (Participant 20)

I consider AI to make me lazy, but it also encourages me to practice more, since I can afford to do it without being afraid. (Participant 9)

Influence on Motivation and Autonomy Perceptions. The motivation of the learners under the effect of the AI tools was complex as some learners reported an increased motivation and others raised concerns over the fact that their intrinsic motivation was declining.

The presence of AI tools makes me write more and learn new words since it is not as stressful. (Participant 5)

Language learning is made easier with AI, similar to this personal helper as whenever you need him. (Participant 16)

However, there are cases when I lose my desire to study hard, as AI can do much of it. (Participant 22)

Contextual and Cultural Factors. Participants also projected on the way AI complements the conventional teacher-based culture of learning in Jordan, which by default seals the loopholes in the learning autonomy culture.

The classes I take do not work to motivate me to learn or research independently, so AI tools allow me to have more control over the learning process. (Participant 7)

Teachers here tend to emphasize memorization and therefore, AI provides me with an opportunity to practice more on my own. (Participant 13)

I believe that AI will be able to transform our education in Jordan, although it should be done with our learning system in a balanced way. (Participant 19).

4.4. Discussion

This paper examined the impact of artificial intelligence (AI) on the autonomy of EFL students in Jordan, including quantitative patterns and a qualitative analysis. The results demonstrate that there is a complicated interrelation between empowerment and dependency with learners incorporating AI tools like ChatGPT, Grammarly, and Google Translate into their language practice.

The qualitative data reveal that students value AI because it provides feedback quickly and because language support may be readily provided. They also observe that such tools allow them to receive instant corrections, explanations, and recommendations and learn more on their own. It is in line with other studies which have found that digital tools have the potential to increase learner autonomy through the provision of scaffolding in good time and allowing students to track and modify their strategies independently [2,23]. The language experimentation, the ability to identify mistakes and the ability to revise a piece of work without direct teacher assistance demonstrates the main concepts of learner autonomy as developed by Holec [1] and Little [3], in particular, self-regulation and active involvement.

There are challenges however in the study. Other subjects were less cognitive by taking AI-generated responses without necessarily thinking about the underlying rules. This implies that overdependence on AI can reduce the ability to process and critically reflect. These issues can be seen in recent texts where overreliance on technology is discussed as the explanation of the decline of critical thinking and deep learning unless supported by a reflective practice [17,24–28].

This duality also underlines one of the main paradoxes, i.e., AI can empower learners by making resources accessible, encouraging active learning, and increasing confidence, but it may also promote passive learning when used without critical thinking. Therefore, the effect of AI is not predetermined but rather determined by the ways in which learners are integrating it into their learning strategies.

Positively, there were participants who showed metacognitive awareness. These students were combining AI feedback with another source e.g., textbooks, peer discussions or independent practice. This type of strategic application demonstrates that AI can be used to increase greater degrees of autonomy provided it does not substitute but supports cognitive work. This agrees with the opinion by Oxford [29] that a combination of strategies and resources should be applied in effective autonomous learning.

The key to AI benefits is digital literacy and critical thinking. Students will have to be taught how to evaluate AI answers, doubt their accuracy, and utilize it as an initial step to more in-depth learning rather than the end result. The inclusion of digital literacy education in language schools can be used to guarantee that AI empowers, as opposed to undermining, autonomy.

The aspect of motivation is also important. Others were more motivated and acquired less anxiety in the use of AI, as it allowed receiving help instantly and practicing without pressure. Other people were also concerned that constant AI use would decrease their own intrinsic motivation to independently solve problems. This twofold effect is comparable to Self-Determination Theory of Deci and Ryan [30] which states that the instruments which facilitate autonomy may enhance motivation, but excessive external support may suppress agency when it substitutes self-directed effort.

The use of AI tools is influenced by contextual and cultural factors. AI also provides additional opportunities of independent practice outside school because, in Jordan, classrooms are usually teacher-centric. Such tools can help address the gaps in feedback and provide learners with a greater number of autonomous tasks. However, due to the fact that this research was on Jordanian EFL students, we must exercise some caution when applying it to other environments. Further studies are needed in other areas to comprehend the effects of context on the use of AI in autonomy.

On the whole, AI has tremendous potential concerning assisting the learner in language learning. The only way it can be successful is through critical and strategic use of the tools by students. Teachers and schools should direct learners in favor of responsible and cautious AI use. Teachers can use digital literacy, critical thinking, and metacognition strategies to make AI an agent of independence instead of dependency by making AI a part of language programs.

4.5. Discussion of Quantitative and Qualitative Results

These combined quantitative and qualitative results of this study provide a deep and profound insight into the effects of AI on learner autonomy in EFL students of Jordan. The two pieces of data lead to the same idea that despite their positive impact, AI tools also present their complications that learners and teachers should overcome with caution. The research found a strong negative relationship between the frequent use of AI and self-reported autonomy and metacognitive engagement among learners, which was quantitative in nature. Those students, who over-used AI tools, were more likely to report decreasing behaviors of independent learning including goal-setting, correcting mistakes and retaining vocabulary. These results cast some doubt on the possibility of AI depleting key cognitive functions that are needed to support autonomous learning that is sustainable. The qualitative interview data put this in perspective and further elaborated on this.

The benefits of AI tools given to students include instant feedback, alleviation of anxiety, and access to language resources, which can explain the high occurrence of AI utilization. However, the respondents also described a dependability versus empowerment paradox—they were both supported and limited by AI. A significant number of them have acknowledged a decreased critical engagement, including naive absorption of AI-generated responses, which is consistent with the quantitative result of a decreased use of metacognitive strategies. Notably, the qualitative data obtained showed inconsistency in the manner in which learners dealt with the use of AI. There are also examples of metacognitive awareness behaviors, which included students who successfully balanced AI-supported and independent strategies, indicating that autonomy is not deprived but instead remodeled in the online environment. This is an indication of a necessity to develop digital literacy skills and critical thinking to enable learners to utilize AI as a scaffold as opposed to an alternative to cognitive work.

The inspirational effects as portrayed in interviews make the situation more difficult. Whereas AI tools lowered affective barriers and made it more engaging to the people, it may have decreased intrinsic motivation in others a dynamic that could not be adequately measured through quantitative measurements. This highlights the need to consider cognitive and affective aspects of autonomy in the further development of pedagogy. In addition, it depends on cultural and educational environment in Jordan. The conservative pedagogical approaches do not allow autonomy and independence in learning, which is why AI is a two-sided sword: on the one hand, it fills the gaps in the system, but on the other, it contributes to the further growth of passive learning when not regarded critically.

The interaction between the contextual limitations and the integration of AI implies that the improvement of the learner autonomy implies the systemic changes as well as the adoption of the technology. Overall, the results indicate that AI tools are not empowering or disempowering, as it relies a lot on the awareness and attitudes of learners and the level of education they are in. This reflection is directed by the middle between the two poles of AI implementation with the curricula being built in such a way that they explicitly teach learners how to critically and reflectively use technology.

5. Conclusion

This paper has given an in-depth examination of how multifaceted the role of artificial intelligence (AI) tools is in influencing learner autonomy amongst Jordanian EFL students. The results display a more subtle picture: although the use of AI technologies including ChatGPT, Grammarly, and Google Translate ensure the achievement of immediate feedback, anxiety reduction, and increased confidence in learners, their regular usage is also associated with the deterioration of autonomous learning activities and metacognition. The empowerment/dependence tension emphasizes the fact that the influence of AI occurs both in favor of and against the ability of the learners to control their language learning. More importantly, this situation is exacerbated by the environment of a traditionally teacher-centered system of education in Jordan, which puts AI as a potential crutch and a useful scaffold. Finally, learner autonomy in the AI era is being reconstituted as opposed to being improved or worsened, which is why the intentional strategies that foster reflective and critical use of technology are necessary.

Recommendations According to the results of the study, some measures may be adopted to ensure the effective use of AI to EFL learners and reduce the potential drawbacks. To start with, schools ought to initiate digital-literacy programs that will educate learners on how to verify and scrutinize AI-generated text. Students need to draw parallels between AI recommendations and their own logic to ensure that they actually master the information, but not to follow the recommendations of AI blindly. AI is not to be considered a substitute of learning effort. The

curriculum developers need to incorporate metacognitive and strategic training into the language classes. As an illustration, learners might be required to write a draft by themselves and then make a log thereof of the AI recommendations they took, those disregarded, and the reasons. The assignment tasks must be scheduled in such a way that planning, self-monitoring, and revision occur concurrently with the use of AI, which will make students more self-reliant learners. It is also important to train teachers. Teachers should understand how to make use of AI-enhanced learning and how to address the motivation issues that may arise due to excessive use of AI. Educators are advised to assist pupils in reflective application of AI, which presupposes critical thinking and strategic application rather than the reliance of AI. On a broader scale, policymakers and school administrators ought to develop explicit regulations regarding the responsible use of AI, provide students with systemized access to AI tools and training, monitor AI usage over a specific period. It is this surveillance that will enable the schools to make changes in their teaching practices and policies depending on actual evidence.

Implications: The findings of the study have implications to the field of theory, teaching practice, context, and institutions in the digital era. In theory, the results contradict the notion that technology is either good or bad. They demonstrate that AI can make or diminish learner autonomy, and it depends on its utilization. AI pedagogically should be included in plans and strategies to promote critical thinking, metacognition and learner control; providing technology to students is not sufficient. In the context, AI is effective with reference to cultural and educational customs. In Jordan, where teachers tend to facilitate the lessons, AI may provide additional opportunities of practicing independently and receiving assistance during off-class. This makes it evident that the cultural responsiveness of AI integration should be provided to meet the needs of learners and practices in the area. Institutionally, technology policies must go beyond providing access, they must offer organized support, facilitate thoughtful usage and track AI activities. These steps have the ability to create reflective, self-directed, motivated and resilient learners when used strategically. On the whole, the paper provides evidence-based concepts of responsible implementation of AI in language learning and encouragement of learner autonomy and the minimization of the risks of excessive dependence on technology.

Author Contributions

Conceptualization, L.M.R., S.I.M.S.A.-N., H.A.R., and I.A.I.; methodology, S.I.M.S.A.-N. and I.A.I.; software, S.I.M.S.A.-N. and I.A.I.; validation, S.I.M.S.A.-N. and I.A.I.; formal analysis, S.I.M.S.A.-N. and I.A.I.; resources, S.I.M.S.A.-N. and I.A.I.; data, L.M.R., H.A.R., and I.A.I.; writing—original draft, H.A.R. and I.A.I.; visualization, H.A.R. and I.A.I.; supervision, L.M.R.; project administration, L.M.R. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

Ethical review and approval were waived for this study, as it involved minimal-risk, non-invasive procedures and voluntary participation of students, in accordance with local regulations and institutional policies.

Informed Consent Statement

Informed consent was obtained from all participants involved in the study.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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Conflicts of Interest

The authors declare no conflict of interest.

AI Use Statement

The authors declare that no artificial intelligence (AI) tools were used in the preparation of this manuscript.

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