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**Faculty of Letters and Languages
Department of English**

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Master's Thesis

Exploring Teachers' Perceptions of the Role of Artificial Intelligence in Learner Autonomy

The Case of Teachers of English at Relizane University

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Statement of Originality

I hereby declare that this dissertation is my own original work and has not been submitted, wholly or partially, for any other degree or qualification at this or any other institution. All sources of information, ideas, quotations, and materials used in this research have been properly acknowledged and referenced in accordance with academic standards and ethical guidelines.

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Dedications

I dedicate this humble piece of work to all my beloved ones, starting with my parents, although one of them is missing but I can't deny that did his best, Thank you father. Mom, it might seem like I'm overreacting but words cannot express how much I'm thankful for supporting me through this journey, thank you for everything.

To my siblings, you stood with me throughout this journey and that let me be where I am now, much love for you.

To my godfather, more than a friend, you have been a constant source of strength, encouragement, and belief you continuously offered me along the way. Some people become part of success without writing a single word, simply because they never stop believing in the person behind it. You are one of those people.

I dedicate this humble work to you, with sincere gratitude and appreciation.

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ABSTRACT:

This research focuses on the perception of teachers of the role artificial intelligence in learner autonomy within the higher education framework. It seeks to answer the question shows how teachers perceive the role of artificial intelligence in learner autonomy in higher education, followed by three sub-questions that looks at the challenges teachers associate with AI-assisted autonomous learning, the opportunities AI provides for autonomous learning, and to what extent teachers use Artificial intelligence in their practices. The main purpose of this research is to explore teachers' perceptions of AI in promoting learner autonomy, identify the opportunities and challenges of AI-assisted autonomous learning, examine teachers' use of AI tools in educational practices, and suggest pedagogical recommendations for the effective integration of AI in education. The data collection process took a place at Ahmad Zabana university where 23 English department teachers participated in this research. A mixed-method approach was adopted in this case, combining a structured interview and questionnaire. It took an online form due to the lack of time and the unavailability of respondents. The obtained Data was analyzed both quantitatively and qualitatively in order to provide deep insights into the research topic. The findings indicated that the majority of the teachers tend to have a generally positive attitude towards using artificial intelligence in education and perceive the concept of learner autonomy as one of the key elements of modern-day learning process. It was stated that AI can help facilitate personalized learning, self-regulated learning, and access to various learning resources. On the other hand, some concerns were highlighted, with its implementation identified, such as students' over-reliance on AI technology, weak critical thinking skills, plagiarism, and low levels of digital literacy. In order for the proper use of AI to be ensured, teachers should act as guides, same for institutions by providing appropriate support in order to foster learners' digital literacy.

Keywords: Artificial Intelligence; Learner Autonomy; Higher Education; Teachers' Perceptions; Digital Literacy; Self-Regulated Learning; Personalized Learning; Critical Thinking; Academic Integrity.

Resumé:

Cette recherche porte sur les perceptions des enseignants du rôle de l'intelligence artificielle dans l'autonomie de l'apprenant dans l'enseignement supérieur. Elle vise à répondre à la question principale concernant la manière dont les enseignants perçoivent l'intelligence artificielle dans l'autonomie de l'apprenant, ainsi qu'à deux questions secondaires liées aux difficultés rencontrées lors de son utilisation et aux stratégies nécessaires pour un usage équilibré dans les établissements d'enseignement supérieur. L'objectif principal est d'explorer les perceptions des enseignants sur l'intelligence artificielle dans la promotion de l'autonomie de l'apprenant, et d'identifier les opportunités et défis liés à l'apprentissage autorégulé et à l'apprentissage personnalisé, tout en proposant des recommandations pédagogiques pour son intégration efficace. La collecte des données a été réalisée à l'université Ahmed Zabana avec 23 enseignants du département d'anglais. Une approche mixte a été adoptée, combinant questionnaire et entretien structuré en ligne en raison du manque de temps et de la disponibilité limitée des participants. Les données ont été analysées quantitativement et qualitativement. Les résultats montrent une perception globalement positive de l'intelligence artificielle et confirment que l'autonomie de l'apprenant est un élément central de l'enseignement supérieur. Cependant, des préoccupations ont été soulevées, notamment la dépendance des étudiants, la faiblesse de la pensée critique, les problèmes d'intégrité académique et le faible niveau de littératie numérique.

Les Mots Clé : Intelligence artificielle ; autonomie de l'apprenant ; enseignement supérieur ; perceptions des enseignants ; littératie numérique ; apprentissage autorégulé ; apprentissage personnalisé ; pensée critique ; intégrité académique.

ملخص :

تركّز هذه الدراسة على تصوّرات الأساتذة حول دور الذكاء الاصطناعي في التعلم الذاتي في التعليم العالي. وتهدف إلى الإجابة عن السؤال الرئيسي المتعلق بكيفية إدراك الأساتذة لدور الذكاء الاصطناعي في التعلم الذاتي، إضافة إلى سؤالين فرعيين حول الصعوبات والاستراتيجيات اللازمة لضمان استخدام متوازن في التعليم العالي. الهدف الأساسي هو استكشاف تصوّرات الأساتذة حول الذكاء الاصطناعي في تعزيز التعلم الذاتي، وتحديد الفرص والتحديات المرتبطة بالتعلم المنظم ذاتياً والتعلّم المخصّص، مع تقديم توصيات بيداغوجية لدمج فعال للذكاء الاصطناعي في التعليم العالي. تم جمع البيانات في جامعة أحمد زبانة بمشاركة 23 أستاذاً من قسم اللغة الإنجليزية، باستخدام منهجية مختلطة تجمع بين الاستبيان والمقابلة الموجهة عبر الإنترنت بسبب ضيق الوقت وقلة توفر المشاركين، وتم تحليل البيانات كمياً ونوعياً. أظهرت النتائج موقفاً إيجابياً عاماً تجاه الذكاء الاصطناعي، وأكدت أهمية التعلم الذاتي في التعليم الحديث. ومع ذلك، ظهرت مخاوف تتعلق باعتماد الطلاب على الذكاء الاصطناعي، وضعف التفكير النقدي، ومشكلات النزاهة الأكاديمية، وضعف الثقافة الرقمية.

الكلمات المفتاحية : الذكاء الاصطناعي؛ التعلم الذاتي؛ التعليم العالي؛ تصوّرات الأساتذة؛ الثقافة الرقمية؛ التوجيه ذاتي؛ التعلّم المخصّص؛ التفكير النقدي؛ النزاهة الأكاديمية.

List Of Abbreviations

Abbreviation	Full Form
AI	Artificial Intelligence
AIEd	Artificial Intelligence in Education
ITS	Intelligent Tutoring Systems
NLP	Natural Language Processing
LMS	Learning Management Systems
GANs	Generative Adversarial Networks
SRL	Self-Regulated Learning
MOOCs	Massive Open Online Courses
CALL	Computer-Assisted Language Learning
MALL	Mobile-Assisted Language Learning
STEM	Science, Technology, Engineering, and Mathematics
COVID-19	Coronavirus Disease 2019

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General introduction

Background and context:

learners' autonomy had different definitions throughout the years, from learners educating themselves through classical methods, commonly by reading books, listening to lectures and taking notes. With the evolution of technology that sense has witnessed a considerable change to learners educating themselves using what is known by AI (Artificial intelligence). But making the process of collecting information easy and exposing infinite amount data might have some negative impact on learners' cognitive function. These are the perceptions of teachers that observed the transformation accured on learners since the use of Ai became accessible. However, there are ones that see it as a beneficial and a helpful tool to make the learning process easy for both sides.

Statement of the problem:

The ability to gather information and gain knowledge using AI tools for learners in the process of educating themselves became both a matter of interest and disagreement between teachers that have different perspective about what would happen with using this tool. Some teachers oppose with these new methods of leaners' autonomy stating that it causes weak critical thinking, superficial knowledge acquisition and increase teacher workload from verifying originality and provide guidance on ethical AI use. On the other hand, A group of teachers seem to have no problem with learners using Ai tools for self-education, thinking that it gives more time for teachers to focus on higher-order tasks rather than the basic ones, and increase learner motivation as students engage with interactive tools, instant feedback, and personalized content that sustain their interest in learning. This contradiction highlights the need to go for further research into understanding the opinions of teachers from both sides and to determine appropriate use of AI tools among learners.

Questions:

- How do teachers perceive the role of AI in fostering learner autonomy?
- To what extent teachers use artificial intelligence in their practices?
- What opportunities does AI provide for autonomous learning?
- What challenges do teachers associate with AI-assisted autonomous learning?

Hypothesis:

- Teachers generally hold positive perceptions regarding the role of artificial intelligence in promoting learner autonomy in higher education.
- Teachers frequently use artificial intelligence tools in their educational practices, particularly for instructional support and information retrieval.
- Artificial intelligence provides significant opportunities for autonomous learning, especially in terms of personalized learning, self-regulated learning.
- Despite its benefits, teachers associate AI-assisted autonomous learning with several challenges, including students' over-reliance on AI and the weakening of critical thinking skills.

Objectives:

- To explore teachers' perceptions of AI in promoting learner autonomy.
- To examine teachers' use of AI tools in educational practices.
- To identify the opportunities and challenges of AI-assisted autonomous learning.
- To suggest pedagogical recommendations for the effective integration of AI in education.

Structure of The Study

This research explored teachers' perspectives on the use of AI in promoting learner autonomy among English learners at Relizane University. It consists of three chapters; the first chapter dealt with the theoretical background of AI and learner autonomy, where definitions, dimensions, as well as opportunities and challenges of AI and learner autonomy in the educational context are discussed. The second chapter discusses the methodology used in this research, which points out the use of the mixed method approach through the use of questionnaires and interviews. The third chapter explores the results of the study in connection with the research questions posed. Focusing on teachers' views on AI's role in learner autonomy, along with the opportunities, challenges, pedagogical implications, recommendations, and study limitations. Ending the thesis with the general conclusion addressing what was found by conducting this research, followed by the references used and the appendices.

I. CHAPTER ONE: LITERATURE REVIEW

I.1. Introduction

In order to give a clear theoretical and conceptual background, this chapter examines the collection of literature related to the current study. It focuses on analyzing important ideas, concepts, and empirical studies concerning learner autonomy, artificial intelligence in education, and teachers' opinions of AI-assisted instruction. The chapter establishes the framework for comprehending how artificial intelligence might support the growth of learner autonomy by referencing and synthesizing previous academic research.

The chapter begins by defining artificial intelligence and going over its primary uses and impacts in educational contexts. The main definitions, aspects, and importance of learner autonomy in higher education are then presented. The relationship between learner autonomy and artificial intelligence is given particular attention, especially in terms of how AI-based tools can both encourage and hinder learners' capacity for independent learning. The chapter also summarizes earlier research that looks at how educators feel about using AI in the classroom, with an emphasis on how they see it affecting student autonomy.

This chapter highlights significant trends, ongoing discussions, and research gaps by critically analyzing the body of existing literature. Finding these gaps contributes to the justification of the current study's necessity and serves as the theoretical foundation for the research design and data analysis covered in the upcoming chapters.

I.2. Artificial Intelligence in Education

The term Artificial Intelligence in Education (AIEd) describes the application of AI methods and tools to assist and improve the teaching and learning process. Over the past decades, the field has developed alongside changes in educational theory, practice, and

technological environments. With a focus on adaptive learning and AI-based assessment, this section describes the theoretical foundations of AIED, charts its development, and examines its principal applications.

The application of artificial intelligence to education (AIED) has been the subject of academic research for more than 30 years. The field investigates learning wherever it occurs, in traditional classrooms or in workplaces, in order to support formal education as well as lifelong learning. It brings together AI, which is itself interdisciplinary, and the learning sciences (education, psychology, neuroscience, linguistics, sociology, and anthropology) to promote the development of adaptive learning environments and other AIED tools that are flexible, inclusive, personalized, engaging, and effective (Luckin, 2016, p 46)

As the field of AIED developed, it both shaped and was shaped by broader transformations in educational goals, theories, and practices. (Chi & Wylie, 2014; Hake, 1998). These trends join rapid shifts in information technologies and accessibility (Wikipedia), high-speed Internet, and mobile technologies). We cluster major recent developments in education into three groups: (1) goals, (2) practices, and (3) environment. Naturally, given the scope of the paper, we focus on changes that affect AIED. (Roll, I., & Wylie, R. 2016, p 32)

Building on these conceptual and theoretical developments, AIED encompasses a broad range of applications across different educational contexts, includes everything from AI-driven, step-by-step personalized instructional and dialogue systems, through AI-supported exploratory learning, the analysis of student writing, intelligent agents in game-based environments, and student-support chatbots, to AI-facilitated student/tutor matching that puts students firmly in control of their own learning. It also includes students interacting

one-to-one with computers, whole-school approaches, students using mobile phones outside the classroom, and much more besides. In addition, AIED can also shine a light on learning and educational practices. The field of AIED is both derivative and innovative. On the one hand, it brings theories and methodologies from related fields such as AI, cognitive science, and education. (Holmes, W., Bialik, M., & Fadel, C. 2019, P22)

Among the various applications of AIED, adaptive learning systems represent one of the most prominent and mature implementations of artificial intelligence in education, in which data mining, intelligent teaching systems, learning analytics, and real-time analysis are applied in adaptive learning. Adaptive learning attempts to incorporate all aspects of testing, teaching, learning, and practice into the adaptive learning system to facilitate students' learning (Van Der Vorst & Jelcic, 2019). Plan the optimal learning path for students based on the analysis of student abilities, and complete the closed-loop learning process by pushing learning content as online teaching videos. There are some problems that encountered and cannot be solved after class study, the human-computer interaction technology provided by AI can assist teachers in answering questions for students online (Goel & Polepeddi, 2016, p 27).

In addition to adaptive learning, artificial intelligence plays a significant role in the assessment and evaluation of students' learning outcomes.. In the teaching process, the assessment of students is an essential part. In traditional teaching, it takes a long time for teachers to complete the assessment tasks, such as question preparation, scoring, performance evaluation, and test paper analysis. AI makes teaching evaluation methods more diverse, the evaluation process more scientific, and the evaluation results more accurate. AI technology not only can generate exam questions (Rahim, Aziz, Rauf, & Shamsudin, 2018, p 38), but also can automatically correct the assignments and test papers (Li et al., 2018, p 44). Correcting homework and test papers are routine tasks for teachers.

Correcting time is long, teachers are prone to fatigue when correcting homework and test papers for a long time. Therefore, there will be some errors in correcting test papers after a long time. Image recognition technology helps teachers to free themselves from the heavy work of correcting homework and scoring (Li, 2017, p 35), and the error rate is low. AI technology is applied to the examination paper correction, and it can also detect blank papers and suspected identical papers, saving teachers' working time. (Huang, J., Saleh, S., & Liu, Y. 2021, p 63).

1.2.1. Definition of Artificial Intelligence

Defining artificial intelligence (AI) is widely recognized as a complex task, even among experts in the field. One reason is that what AI includes is constantly shifting. As Nick Bostrom, a leading AI expert from Oxford University, explains: “[a] lot of cutting edge AI has filtered into general applications, often without being called AI because once something becomes useful enough and common enough it is not labeled AI anymore.”¹ Instead, it is considered a computer program, or an algorithm, or an app, but not AI.

For our purposes, we define AI as computer systems that have been designed to interact with the world through capabilities (for example, visual perception and speech recognition) and intelligent behaviors (for example, assessing the available information and then taking the most sensible action to achieve a stated goal) that we would think of as essentially human. Luckin, R., Holmes, W (2016) p 25.

Public understandings of artificial intelligence are often shaped by misconceptions that obscure the breadth and diversity of AI applications, which might be because news about AI is almost always illustrated with a picture of a robot or a digital brain. However, while robotics (embodied AI, that can move and physically interact with the world) is a core area of AI research, AI is being applied in many different ways and different contexts.

Meanwhile, the dystopian images of futuristic robots remain firmly in the realm of science fiction (which is why for the most part we leave robotics well alone). In the next few pages, we provide a brief background to artificial intelligence. (Holmes, W., Bialik, M., 2019 p 76).

From a scholarly and historical perspective, the concept of artificial intelligence emerged in the mid-twentieth century and has since been defined in multiple ways. when John McCarthy organised a two-month workshop at Dartmouth College in the USA. In the workshop proposal, McCarthy used the term artificial intelligence for the first time in 1956 (Russel & Norvig, 2010, p. 17): The study [of artificial intelligence] is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves. Baker and Smith (2019) provide a broad definition of AI: “Computers which perform cognitive tasks, usually associated with human minds, particularly learning and problem-solving” (p. 10). They explain that AI does not describe a single technology. It is an umbrella term to describe a range of technologies and methods, such as machine learning, natural language processing, data mining, neural networks or an algorithm. (Zawacki-Richter, 2019, p 20).

Artificial intelligence (AI) has ushered in a new era in education and is seen as a driving force of technology. First coined in the second half of the 20th century by McCarthy, artificial intelligence refers to ‘the science of endowing programs with the ability to change themselves for the better as a result of their own experiences’. It is a promising technology designed to develop computer systems that perform intelligent and adaptive behaviors, reflecting the ability to learn from their environment. Hence, AI can be described as a

system that mimics the human brain to complete specified tasks and can recursively improve through experience gained from that task (Derinalp, P. 2024, p 15).

Despite the difficulty of defining AI, there is broad consensus that it represents one of the most influential technological developments of the twenty-first century, and will transform virtually every industry, if not human endeavors at large. It would be naive to think that AI will not have an impact on education, on the contrary, the possibilities there are profound yet, for the time being, overhyped as well. (Holmes, W., Bialik, M., 2019, 23)

1.2.2. Types of AI Tools Used in Education

AI tools in education can broadly be divided into several categories. Each category addresses different aspects of the learning and administrative process:

Intelligent Tutoring Systems

Intelligent tutoring systems (ITS) use adaptive algorithms to provide customized academic assistance. These systems analyze individual student performance data to tailor content, offer hints, and create interactive learning modules. Notable examples of intelligent tutoring systems include platforms that focus on subjects like mathematics and science, where real-time error analysis and step-by-step guidance enhance student understanding.

Adaptive Learning Platforms

Adaptive learning platforms are designed to dynamically adjust the curriculum based on the learner's pace and performance. By continuously analyzing the strengths and weaknesses of students, these platforms create customized learning pathways. This personalized approach not only maximizes student engagement but also helps institutions address learning gaps effectively.

Natural Language Processing and Language Tools

Tools that leverage natural language processing (NLP) are essential for facilitating language learning, offering grammar suggestions, and providing real-time feedback. Applications range from AI-powered writing assistants that evaluate text clarity and grammar to tools that translate content into multiple languages, thus addressing educational accessibility issues.

Virtual Assistants and Chatbots

AI-driven virtual assistants and chatbots provide round-the-clock support to students and teachers. These systems answer frequently asked questions, help navigate course materials, and even guide students through assignments. With their ability to deliver personalized tutoring and summarize content, virtual assistants are becoming increasingly important for flexible learning environments.

Learning Management and Analytics Systems

AI-enhanced Learning Management Systems (LMS) integrate data analytics to monitor student engagement and performance in real time. Using predictive analytics, educators can identify at-risk students, adjust curricula, and enhance learning strategies. These systems are fundamental in creating an environment where data drives continuous improvement.

Automated Assessment and Grading Tools

In their recent report, Baker and Smith (2019, p 77) approach educational AI tools from three different perspectives; a) learner-facing, b) teacher-facing, and c) system-facing AIED. Learner-facing AI tools are software that students use to learn a subject matter, i.e. adaptive or personalised learning management systems or ITS. Teacher-facing systems are used to support the teacher and reduce his or her workload by automating tasks such as

administration, assessment, feedback and plagiarism detection. AIED tools also provide insight into the learning progress of students so that the teacher can proactively offer support and guidance where needed. System-facing AIED are tools that provide information for administrators and managers on the institutional level, for example to monitor attrition patterns across faculties or colleges.

In the context of higher education, we use the concept of the student life-cycle, as a framework to describe the various AI based services on the broader institutional and administrative level, as well as for supporting the academic teaching and learning process in the narrower sense. (Zawacki-Richter 2019, p 52)

According to *A Systematic Review of AI-Backed Tools in Education*, AI-supported educational tools can be systematically classified into functional categories based on their primary purpose and mode of use in learning environments :

Category 1: AI as Solver Tools refers to applications designed to provide direct solutions to problems across various disciplines. These tools can answer questions, perform calculations, and offer explanations, functioning as virtual tutors that support both students and educators. While they enable instant clarification and practice generation, overreliance may hinder critical thinking, and inaccuracies or lack of transparency can pose educational risks.

Category 2: AI as Multimedia Creation Tools includes systems that generate or assist in producing images, videos, audio, and other digital content. In educational contexts, they support engaging instructional materials and creative student projects through generative models such as GANs and diffusion models. Despite their effectiveness, concerns remain regarding copyright, ethical misuse (e.g., deepfakes), data privacy, and limitations in linguistic accuracy within generated media.

Category 3: AI as Feedback and Rephrasing Tools focuses on applications that provide real-time feedback on writing quality, including grammar, clarity, and style. These tools support learning through immediate revision guidance and can assist educators by reducing routine correction tasks. However, their use should complement, not replace, human instruction to ensure the development of authentic writing skills. (Systematic review of AI-backed tools in education. 2025)

1.2.3. Pedagogical Benefits and Challenges of AI :

Derinalp, P. (2024, p 82) points out that Artificial_intelligence has significant and increasingly visible educational benefits. Artificial intelligence has been used in various stages of the teaching-learning process, including the development of automatic assessment tool design and adaptive assessment methods. While evaluating student performance, artificial intelligence-based systems can replicate the behavior of teachers in automatic grading, which is an impressive application. Another significant application of artificial intelligence is in the creation of customized learning paths. Many artificial intelligence-based learning systems adapt course materials by examining the unique characteristics, skills, and interests of each student in order to offer individualized learning assistance. Additionally, adaptive learning methods, which are different from standard learning models, can be achieved.

Huang and Derinalp share similar views on the benefits of artificial intelligence in education, particularly in relation to personalised learning. Both suggest that AI can help create learning plans that match students' individual needs and learning situations. It also supports engaging learning experiences and provides continuous feedback to follow students' progress and improve learning.

By having access to students learning data, Artificial Intelligence recognizes what challenges students' and provide specific instructions to fulfill their needs, with the help of personalised tools to assure smooth learning process and the achievement of overall results (Huang, Saleh, & Liu, 2021, p 45).

Zawacki-Richter et al. (2019, p 62) had the same view as the previous scholars that with this advancement of AIED and the availability of (big) student data and learning analytics, AI can provide just-in-time feedback and assessment. In other words, as long as AI is developing, schools collect larger amounts of students data, systems will provide instant students' performance analysis. Because of AI's ability to quickly process information about students' answers and learning pattern, following it with the personalized needed feedback instead of waiting for the teacher to check the work later.

While Ai may be as good as it sounds, just like any other technology, it has its own challenges and limitations. According to Derinalp (2024, p 20), the application of AI technologies in the educational field has not yet reached its full potential. In the educational field, AI is not used in isolation; rather, it is used in tandem with the overall technological trend. The main focus of the development of AI is the development of the technology and not the application of the technology.

Many adopted this idea, not only Derinalp, Huang, J. sees the integration of artificial intelligence in education creates a number of notable obstacles, despite its possible advantages. These include worries about access and equity, especially the possibility that unequal technological systems could contribute to educational gaps. While students are expected to show greater levels of autonomy and self-regulated learning, teachers must also adjust to AI-supported instruction by acquiring the necessary digital competencies. Peer interaction may also be restricted by an over-reliance on AI systems, emphasizing the

necessity of creating learning environments that maintain social engagement. To ensure the successful and responsible integration of AI in education, educators, institutions, and policymakers must work together to address these issues. (Huang, J., Saleh, S., & Liu, Y. 2021, p 22)

I.3. Learner Autonomy

I.3.1. Concept and Definitions of Learner Autonomy

David little (1991, p 23) posed a question before defining Autonomy saying If learner autonomy is not merely a matter of organization, does not entail an abdication of initiative and control on the part of the teacher, is not a teaching method, is not to be equated with a single easily identified behavior, and is not a steady state attained by a happy band of privileged learners, then what is it? Following it by a clear definitions which concludes that “ autonomy is a capacity - for detachment, critical reflection, decision-making, and independent action. It presupposes, but also entails, that the learner will develop a particular kind of psychological relation to the process and content of his learning. The capacity for autonomy will be displayed both in the way the learner learns and in the way he or she transfers what has been learned to wider contexts.

Zimmerman (2016, p 49) described learners' Autonomy is the self-directive process by which learners sharpen their academic skills using their mental abilities, in the same context, learning is viewed as a proaction to learners activities and not a reaction to teaching

In Learner Autonomy: Towards a Theory of Learner Autonomy (1981, p 30), Henri Holec defines learner autonomy as “the ability to take charge of one's own learning.” Which means the learners being responsible and having full control over their learning process, instead of completely relying on the teacher, it's the learners active decision to what they

should learn, how to learn it and how to assess their progress, so the concept of autonomy is not about learning alone, but about having the ability to learn consciously and independently.

1.3.2. Dimensions of Learner Autonomy

In the learners' autonomy context lies a point that should not be overlooked, so called by Maria Giovanna Tassinari The Dynamic Model that is categorized into three main points • Cognitive autonomy • Metacognitive autonomy • Motivational autonomy.

Maria Tassinari (2010, p 14), after defining learners autonomy that it's "the metacapacity, the second order capacity, of the learner to take control of their learning process to different extents and in different ways according to the learning situation" describing it as "a complex construct, a construct of constructs, entailing various dimensions and components" which was mentioned previously.

These components "are spheres of competencies, skills, and actions. They are expressed by verbs, in order to focus on their action-oriented and process-oriented character: 'structuring knowledge', 'dealing with my feelings', 'motivating myself', 'planning', 'choosing materials and methods', 'completing tasks', 'monitoring', 'evaluating', 'cooperating' and 'managing my own learning'.

These ideas give us a clearer view on the dynamic model, cognitively means how the learner learn and think, by understanding the process and use the acquired knowledge independently, with the need of analyzing information, and solving problems skills.

The metacognitive component can be defined as how to manage learning, it includes learners' skill in planning how to study, setting goals, monitoring progress, in simple terms "thinking about your own ideas" and making personalized strategies when needed.

Last but not least, motivational autonomy, can be given superiority as the active element in learning autonomy, it overlaps with controlling and sustaining motivation, by maintaining interest building confidence, and persisting despite challenges without waiting for external encouragement to develop inner drive and self-discipline.

1.3.3. Learner Autonomy in Technology-Enhanced Learning

In this section we're basically raising a discussion on how digital tools influence learners' ability to take control of their learning, in order to find if technology supports or limits autonomy.

Gambo.y says that smart learning environment is an emerging learning environment that integrates learning objects using smart and mobile technologies to provide smart learning processes for active learning experiences. It creates innovative approaches to smart learning, technological services to local on-campus and online students, easy local and remote student-to-faculty interactions and local and remote student-to-student collaborations. The emergence of a smart learning environment as a rapidly growing area represents how learning objects, learning processes, and learning activities are interrelated that can provide personalized and inclusive learning experiences. A smart learning environment can be developed using smart and mobile technologies to bring learning personalization to meet learners' learning styles and needs. It brings a paradigm shift from traditional learning approaches to new learning methods and offers a student-centred learning environment that integrates diverse pedagogical methods and strategies to practice and reflect on the learning process; and take in a formal and informal learning situation. (Gambo, Y. & Shakir, M. Z. 2021, p 55)

This statement shows a strong, clear and a positive view of smart learning environments, the focus on personalization and student-centered learning goes along with the theories of

learning autonomy and self-regulated learning when the smart technologies are integrated, the whole concept have the potential to enhance accessibility and interaction in blended and online context, however, Gambo's statement assumes that the broad integration of technology will lead to active, personalized learning. Not forgetting that it also depends on the effective pedagogical design, teachers digital competence, learners' self-regulation skills and the easy access to technology. All these elements laps over each other and the process of using technology to achieve certain goals wouldn't be as effective as it's needed with the absence of one of these.

Azevedo.R in his article *Does Training on Self-Regulated Learning Facilitate Students' Learning With Hypermedia?* pointing what we called "smart environment" hypermedia. with a perspective that doesn't differ from the previous one, standing on the idea that "Hypermedia environments have the potential to be powerful learning tools for fostering students' learning about complex topics" and also "provide students with random, dynamic, nonlinear access to a wide range of information represented as text, graphics, animation, audio, and video". (Azevedo.R 2004, p 36) but he added that "too few learners are skilled at regulating their learning to optimize what they learn. The majority of studies has shown that using hypermedia often leads to very little learning .For the most part, these studies have found that students learn little with hypermedia environments and do not deploy key self-regulatory processes and mechanisms such as effective cognitive strategies and metacognitive monitoring during learning.

Hypermedia environments have strong potential because they allow students to explore information in flexible and non-linear ways. Learners can move freely between topics, choose what to focus on, and access rich multimedia content. In theory, this should help them understand complex subjects better. However, in reality, this potential is often not fully realized and why?

Because most students do not have strong self-regulation skills. When they are given freedom in hypermedia environments, they often do not plan their learning properly and use effective cognitive strategies, also by not monitor their understanding and evaluate whether they are learning successfully.

I.4. The Role of AI in Fostering Learner Autonomy

I.4.1. AI as a Tool for Self-Regulated Learning

For Jin, S., Im, K., (2023, p 72) Various AI applications are expected to support students' SRL in online learning. Mentioning that "Somasundaram and his colleagues (2020) developed an AI-based plan organizer that can help students set learning goals, suggest action plans, and offer study tips based on past historic data drawn from an institution and current data drawn from student profiles and performance. Hussein and colleagues (2014) developed an AI-based question generation application that uses natural language processing technology to support students' self-learning with regard to different topics and fields."

Luckin (2018) proposed an intelligent assessment and suggestion application that can suggest study materials and strategies to students based on data regarding each student's interactions during the online learning process. Seo et al., (2021a2021b) proposed an AI analytics application that provides instructors with an analysis of students' behavioral data and learning context.

Woolf and colleagues (2010, p 09) developed an AI companion that enhances student motivation by providing emotional support to students whose learning progress is slower than planned and makes suggestions regarding the goals that they can achieve to support their desired career path after completing study.

Goel and Polepeddi (2016, p 27) developed an AI agent that can answer student questions before, during, or after online courses based on answers to questions collected in from previous courses.

Srinivasa and her colleagues (2021, p 04) developed the Notelink application, which allows students to take pictures of their notes to rediscover and play relevant videos on their smartphones or tablets. Ross et al. (2018, p 11) designed an adaptive quiz application in which AI provides students with a personalized set of exercise questions that suit their individual level of knowledge.

While goal setting helps learners plan and design their own learning process, feedback is likely as important, by enabling them to monitor their progress and customize their strategies accordingly, Alsaiani et al. (2025, p 39) argue that AI-generated feedback can support students' well-being while maintaining learning outcomes, in his word, "Feedback constitutes a collaborative process in which both instructors and learners actively exchange perspectives, with the aim of developing students' evaluative skills and promoting self-regulation. In online learning, AI-generated feedback can supplement or replace certain instructor-led comments, offering immediacy and personalization at scale. Studies have reported that AI-based feedback may be as or more valuable than human feedback in some contexts, while requiring minimal modification by instructors. Despite clear advantages, AI feedback also poses challenges. Students may become dependent on automated guidance, potentially diminishing their autonomy and sense of agency (Darvishi et al., 2024, p 16). Moreover, although AI feedback can be highly specific, it might not consistently account for the emotional and motivational dimensions essential to sustaining student engagement and initiative. Consequently, careful system design is needed to ensure that feedback not only addresses correctness but also supports students' broader learning processes, including the management of emotions and self-regulation (Afzaal et al., 2023, p 38). Overall, while

AI feedback offers clear benefits, including immediate responses, personalization, and scalability, it is crucial to design these systems carefully to avoid compromising students' independent learning and critical thinking skills.”page3.

Adding that “Feedback has a direct impact on students’ emotional states: positive or constructive critiques can promote feelings of competence and interest, whereas poorly conveyed or invalidated critiques may elicit frustration or shame. Studies indicate that students’ emotional reactions often depend less on the content of the feedback itself and more on how they interpret it; a student open to critique, for instance, might view critical feedback as beneficial, whereas another might interpret the same feedback as an affront to ability.

1.4.2. Opportunities and Risks

1.4.2.1. Opportunities

Luckin, R. (2018, p 07) discusses that with artificially intelligent collaborators. We are also now in a position to use AI to evaluate the extent to which students can achieve greater performance in applying their knowledge to solve problems, both alone and with others, across a wide range of disciplinary and interdisciplinary problem sets, ... we can use AI to help us to both support and assess our students as they develop their academic and their social intelligence. We do, however, need to invest in the development of these AI systems as a matter of urgency. We must also take great care to ensure these systems give significant credit to students who persevere and overcome difficulties, so that we recognize these vital qualities as well as the acquisition of disciplinary and interdisciplinary skill and knowledge.

Also AI gives opportunities to enhance learning skills and foster motivation. MOOCs have offered learners flexibility, but Ai guides students by providing exercises that overlap with their needs, such as pointing their weaknesses and predict the disengagement and

sustain their motivation (Chtatou, 2024, p 17), positively impacting awareness and attitudes towards learning (Labarthe & Luengo, 2016, p 37). Student can track their progress autonomously, enjoying flexibility in learning time (Chtatou, 2024, p 21).

Such tools as Grammarly or ChatGPT are examples of this trend, which offer immediate feedback on grammatical errors, vocabulary building, and speaking practice that far exceeds the conventional classroom setting (Holmes & Tuomi, 2022). The speed with which these tools have spread is testimony to an essential shift in language acquisition and practice. The beauty of these tools is that they offer learners an opportunity for personalization in their learning process. This is achieved through analyzing what is entered into these tools, which can then offer learners suggestions on their weak areas in their language proficiency. For example, these tools can offer grammatical explanations that go beyond simply correcting grammatical errors, while also offering learners an opportunity for speaking practice that reduces anxiety for those who fear speaking (Li, 2017; Sharadagh & Sa'adi, 2022). These tools have been described as revolutionary innovations that can empower learners, motivate them, and make quality learning accessible to many.

Zawacki-Richter et al.(2019, p 13) in his article *International Journal of Educational Technology in Higher Education* says that “Articles concerned with feedback included a range of student-facing tools, including intelligent agents that provide students with prompts or guidance when they are confused or stalled in their work and machine learning techniques with lexical features to generate automatic feedback and assist in improving student writing, which can help reduce students cognitive overload.

In the field of language learning, Asya.A & Amelia.A (2024, p 24) point that the possibilities became endless for language learners as they were able to communicate directly with native speakers of the intended language of learning. social media platforms

like Twitter, Facebook, and Instagram offer opportunities for learners to interact with native speakers, language experts, and fellow learners, which can help build confidence and fluency in using the target language. Social media helps learners become more autonomous in their language learning by giving them the tools, resources, and encouragement they need to take charge of their education and acquire the knowledge and abilities needed for self-directed learning. Mobile Assisted Language Learning (MALL) has significantly improved improvements and chances for language learning autonomy in addition to CALL, the Internet, and social media.

I.4.2.2. Risks

Although Ai-driven tools provide important and useful opportunities for specialized and dynamic learning, it also brings a number of concerns. A number of emerging voices have also cautioned against overdependence on these tools, arguing that overdependence on AI results in learners losing their critical thinking abilities (Aiken & Epstein, 2000; Crompton, 2024). Furthermore, learners may not even think about their own thinking process or problem-solving mechanisms, leading to an “intellectual laziness” among them.

Another important issue that has come up is related to ethics in learning, which has also emerged as an important factor in relation to AI in learning. Concerns have been raised regarding learners plagiarizing content by using AI-generated texts without proper acknowledgment, learners’ personal information being breached due to data collection by these tools, and algorithmic bias in these tools, which may favor certain learners over others (Font de la Valle & Araya, 2023; Wogu et al., 2018, p 47).

Chaudhry & Kazim (2022, p 20) saw that in the field of education, AI holds the promise of revolutionizing learning and teaching processes. And this transformative wave is accompanied by a range of risks and challenges that demand vigilant oversight. For

instance, AI can exacerbate disparities within educational systems, potentially disadvantaging certain student groups. It also raises concerns about the issues of confidentiality, data privacy, and ethical use of information (Caucheteux et al., 2024, p 18). Other concerns revolved around the ease with which ready-made answers can be obtained from AI systems, which may impede students' critical thinking abilities (Chaudhry & Kazim, 2022, p 10). Due to the influx of data from AI tools, teachers may also experience difficulties related to information overload, which can complicate their ability to integrate technology into pedagogy.

The danger, of course, lies in seeing data and coding as an absolute rather than relative source of guidance and support. Education is far too complex to be reduced solely to data analysis and algorithms. As with digital technologies in general, digital data do not offer a neat technical fix to education dilemmas – no matter how compelling the output might be. (Zawacki-Richter et al. 2019) adding to this that “the dramatic lack of critical reflection of the pedagogical and ethical implications as well as risks of implementing AI applications in higher education. Concerning ethical implications, privacy issues were also noted to be rarely addressed in empirical studies in a recent systematic review on Learning Analytics (Misiejuk & Wasson, 2017, p 50). More research is needed from educators and learning designers on how to integrate AI applications throughout the student lifecycle, to harness the enormous opportunities that they afford for creating intelligent learning and teaching systems. The low presence of authors affiliated with Education departments identified in our systematic review is evidence of the need for educational perspectives on these technological developments.

According to Patty (2023, p 40), AI offers various benefits to language learners, such as progress tracking, interactive engagement, and personalized education. It also raises concerns about the shifting role of language teachers, the potential impact on learners'

autonomy, and less human connection. Although there is a growing trend of employing AI in education and learning, there are several downsides to this strategy. UNESCO, in a study ("Guidance for Generative AI in Education and Research," 2023), sets recommendations for the use of Generative AI in education and underlines ethical considerations connected to human intellectual growth. Commenting that "GenAI systems in education may limit learners' autonomy and agency by providing predetermined solutions or narrowing the range of possible learning experiences".

I.5. Teachers' Perceptions of AI in Education

I.5.1. Acceptance and resistance

Ertmer P.A highlighted a sort of a contradiction within how teachers perceive integrating technology in general in education context, saying that *“Although teachers today recognize the importance of integrating technology into their curricula, efforts are often limited by both external (first-order) and internal (second-order) barriers.”* On one hand, first-order barriers involve external factors that may affect teachers' capacity to incorporate AI, such as teachers not having access to technology and support from the institution, which can limit their capacity to incorporate AI despite perceiving the benefits that can be achieved through its incorporation. On the other hand, second-order barriers involve internal factors such as teachers' beliefs and attitudes towards change. In this respect, a teacher who is averse to the incorporation of AI may be doing so because they think it can affect their capacity to control the classroom and the students' learning in a negative way. This explains how the teachers' perception of the integration of AI can be complex and even contradictory in some cases. (Ertmer, P. A. 1999,P47-48).

Though technology has been transformative in changing the educational process in general, the focus of attention in recent times has been on the application of artificial

intelligence (AI) as a more advanced technology in education. Moreover, on the teachers' attitudes toward it. In a study made by Yovian Yustiko Prasetya 2024, the author observed that the perceptions of artificial intelligence in the education sector tend to be more positive in teachers who have gained more than ten years of teaching experience compared to those who have less than five years of teaching experience. This suggests that the experience gained by the teacher is one of the factors that can affect the perceptions of artificial intelligence in the education sector. It is observed that experienced teachers may have a positive attitude toward the adoption of artificial intelligence in the education sector because they can understand the benefits of artificial intelligence in the teaching and learning process. Adding that providing targeted training and support to teachers can improve their readiness and attitudes towards AI education.

The perception of the role of the teacher in the integration of AI in education is characterized by optimism and caution, as well as the perception of the evolving role of the teacher in the educational process. According to Wayne Holmes, Maya Bialik, and Charles Fadel (2019, p 42), "Crucially we do not see a future in which AIED replaces teachers." Rather, it helps the teacher in the perception of the students' learning process and in providing support in providing effective educational services through its applications in personalization and the teacher's planning and delivery of educational services. This approach emphasizes the role of the teacher in the educational process and the integration of AI in the teacher's role.

At the same time, research has shown that the perception of AI by teachers can be two-fold, as they are both aware of the benefits and the potential of the technology and are concerned about its implications. A survey carried out by ASJP (2025) found that "61% believe that AI can enhance the quality of instruction in classes," which indicates the optimism and trust in the potential of the technology. However, at the same time, the survey

found that “26.8% are unsure about the potential negative impact of AI on teachers’ tasks and roles,” and when the survey asked the participants about the effectiveness of the technology in assisting students, “48.8% of the respondents answered Not sure.”

Taken together, these studies point out the importance of the ways in which the perception of AI is shaped by the potential benefits that can be obtained through the support of the technology and the professional responsibilities of the teachers. It is very important to understand the perceptions of these teachers in order to build a strategy for the professional development of the teachers in a way that would be successful in the integration of AI while at the same time acknowledging the importance of the teacher in the process of education.

In their study on the classroom application AI-based educational tool, Kim & Kim (2022, p 53) found the following results: "Most STEM teachers positively experienced AI as a source for superior scaffolding"; this means that the attitude of the teacher is positive, but this positivity is related not to the use of AI as a teaching tool, but as a supporting factor in the educational process. Moreover, the following results were found in the study: "Teachers raised the possibility of several issues caused by using AI, such as the change of the role played by the teachers in the classroom and the transparency of the decisions made by the AI system"; this means that the attitude of the teacher is not entirely positive, but this is related to the role of the teacher him/herself. Moreover, the following results were found in the study: "Most teachers simply have no specific idea of what AI-adopted tools would be like"; this means that the educators themselves do not have any experience in the use of AI technologies.

educators frequently express anxiety regarding the potential replacement of their roles, the erosion of pedagogical autonomy, and the risk of being relegated to mere facilitators in

the learning process. Moreover, ethical apprehensions related to algorithmic transparency, data privacy, and digital surveillance exacerbate skepticism and distrust toward AI systems. These attitudinal and ethical concerns are further amplified by institutional limitations such as unclear policies, insufficient support structures, and scarce professional development opportunities. (Țîru, L. G., Hîncu, D., & Drăgan, I. 2025,P03)

Based on the results of the survey that was presented to the teachers about their perceptions of the use of artificial intelligence technology in learning activities by Sholikhah, S. S., Zamzami, N., & Sulistyaningsih. (2025, p 17), it can be concluded that the majority of the teachers showed a positive attitude towards the use of AI technology in the education sector. Although it needs to be further explored. There were 'Neutral' responses from 5.88%. This indicated that a small number of teachers still do not have a definite position towards the use of AI technology. There were 'Strongly Disagree' responses from 5.88%. This indicated that the teachers were concerned about the use of AI technology. However, the number of response in this category is very small.

1.5.2. Factors Influencing Teachers' Perceptions

1.5.2.1. Training and Digital Competence

Areen.H,Ofrit.K ,Shalom.L (2025, p 63) in a research that deals Factors Influencing Teachers' Perceptions pointed that the way teachers perceive AI in education is controlled by external and internal factors. As the study points out, "Factors such as intrinsic motivation and self-efficacy are crucial internal factors that help understand what drives teachers to adopt AI tools." In addition to the above factors, there are a number of contextual factors. As emphasized, "The proposed comprehensive model incorporates both external factors (exposure to AI information, information credibility, and institutional support) and internal factors (intrinsic motivation and self-efficacy)."

This implies that when the university and other education institutions offer proper training, technological support, and other forms of institutional support, the teacher is likely to have a favorable perception concerning the adoption and use of artificial intelligence in education. For instance , another study has “documented a statistically significant link between institutional policy and the use of AI by colleagues on the one hand, and AI adoption among schoolteachers on the other” (Bakhadirov et al., 2024, p 25).

In addition, the information that is accessible and available about AI technologies can have an impact on teachers, and it is said that “Access to credible information is particularly significant in shaping teachers’ awareness and understanding of AI tools and their potential benefits in education.” Finally, the acceptance of AI technologies by teachers is also dependent on how they perceive AI technologies, and it is said that “Two crucial factors play a role in shaping a user's willingness to adopt a technology: perceived usefulness and perceived ease of use.”

Sintiawati.S, Zamzami.N, (2025, p 34) stated that “Teachers showed generally positive attitudes, With proper guidance, digital literacy enhancement” and “expressing readiness to adopt AI for its potential to personalize learning, ease evaluation, and support interactive teaching.”

The teachers’ willingness to adopt AI in higher education is also related to the training they have received. A study conducted by Walida Haddadi and Khaoula Zidane (2024,p 06) where they proposed a number of strategies to promote the adoption of AI in higher education. These strategies include:

- the development of AI tools to detect scientific plagiarism
- the incorporation of AI into the curriculum of academic courses,
- the encouragement of AI research in the university,

- the provision of the necessary means to carry out the research.

Another significant aspect that influences teachers' perspectives on AI is associated with teachers' psychological and individual factors, such as teachers' trust and confidence in using AI systems. As a recent study indicates, "psychological security and AI trust have emerged as critical factors influencing teachers' acceptance and continuance intention." (Zhang et al., 2025, p 31). Additionally, As emphasized by Al-Adwan et al., (2023, p 13), "individuals who believe that AI will enhance their performance, those who find it easy to use, and those who are generally open to new technologies are more likely to adopt these tools.". This shows that teachers' individual perceptions about AI systems are crucial in influencing teachers' perspectives on AI systems.

Lastly, another critical factor that could influence teachers' perspectives which is teachers' familiarity with AI technology and the contextual environment. Many researchers have agreed that "teachers' AI familiarity, AI usage, and personalization of AI are key factors influencing AI use in higher education" (Liu et al., 2025, p 26). That means, teachers who were previously exposed to AI technology and digital tools could have a positive influence on their perspective. However, contextual factors could also influence teachers' perspective. For instance, teachers could be prevented from using AI technology due to resource and technology constraints. according to Sánchez-Prieto et al., (2022, p 19) "external obstacles, such as large class sizes, insufficient resources, slow internet connections, and outdated technology" in other words, teachers' familiarity and the technology environment could play an essential role in shaping their perspective on the use of AI technology.

1.5.3. Teachers' Perceptions of AI in Relation to Learner Autonomy

Wan, Q., Zhang, H., & Liu, T. (2025) in their article emphasized that after the COVID-19 pandemic, it has become a necessity for learning institutions around the world to embrace technology-enhanced learning, especially online learning and later blended learning. However, it is not just a disaster recovery necessity but also a golden opportunity to inculcate adaptive learning, student-centered learning, and flexible learning methods in students. Hence, autonomy is a primary requirement in learning in the 21st century that allows students to be more autonomous in learning. Autonomy is a basic requirement in technology-enhanced learning, especially blended learning, for learning and academic achievement.

The perceptions of teachers about artificial intelligence in the educational process reveal some aspects of teachers' optimism and pessimism about the potential of artificial intelligence in developing autonomy in learning. Thus, "teachers increasingly perceive AI as an opportunity to support personalized learning and to reduce administrative workload,"(P.04) which reflects the optimism of teachers about the potential of artificial intelligence in developing the efficiency and adaptability of the learning process in accordance with the individual demands of the student. However, there is some aspect of pessimism in the perceptions of teachers about the potential of artificial intelligence in the educational process because "Teachers also perceive significant challenges and concerns associated with AI integration," such as "concerns about the accuracy and reliability of content generated by AI."(P.04)

1.5.4. Conclusion

Throughout the chapter, the integration of artificial intelligence into educational processes and the prospects of applying such technology to promoting learner autonomy have been explored in detail. In particular, the chapter has convincingly shown that artificial

intelligence cannot be regarded as an occasional innovation in today's education but rather becomes an increasingly significant element, capable of revolutionizing all educational processes involved. Adaptive systems, intelligent tutoring systems, as well as other innovations based on artificial intelligence can promote individualized learning paths, allowing learners to progress in their education individually and become more independent regarding their educational experience. Therefore, artificial intelligence and learner autonomy share a lot of common features.

On the other hand, it is worth mentioning that according to the information provided in the chapter, the effective implementation of AI into the learning process depends not only on its technological aspects but is strongly influenced by the perception and attitude of teachers towards it. As mentioned above, there are two perspectives towards AI in educational settings. First of all, the literature indicates that teachers acknowledge the benefits of AI use which include improved instructional effectiveness, enhanced differentiation opportunities, and reduced administrative tasks. However, on the other hand, educators also have some reservations concerning the use of this tool due to the ethical concerns, fear of dependence on technology among students, and changes in teachers' roles.

In addition to this, it must be highlighted that several interrelated aspects determine the perceptions of the teachers. Factors like training and digital competencies, access to technology, institutional aspects, and previous experiences related to technology use greatly contribute to the way AI technologies are perceived by the teaching personnel. The teachers possessing higher levels of digital literacy and sufficient training will perceive AI technologies in a positive manner. On the other hand, the absence of these aspects will lead to the development of negative perceptions about AI and reluctance to embrace this technological change. Thus, the institutional dimension will also affect the successful incorporation of AI in the learning process.

Moreover, it has been made evident that the effect of artificial intelligence on the autonomy of the learner is neither inevitable nor assured. Although artificial intelligence provides a platform for students to engage in self-regulated learning, the extent to which the latter is achieved relies heavily on the way in which the former is utilized in the classroom setting. Otherwise, the danger lurks that learners may develop an unhealthy reliance on artificial intelligence, thus stifling their creativity and initiative in dealing with problems. Thus, the teacher still plays a crucial role in mediating between artificial intelligence and students, thereby guiding them in the proper application of artificial intelligence technology.

Generally, this chapter has provided an adequate theoretical background for the discussion on the connection between artificial intelligence, learner autonomy, and teachers' attitudes. From this chapter, it can be seen that while artificial intelligence provides great potential for innovative approaches to teaching and learning, there must be due attention paid to certain aspects of human psychology in order to ensure successful integration. As a matter of fact, teachers have to play a key role in this integration process, being able to determine whether the introduction of AI technologies can be effective or not in fostering learner autonomy. These findings lay the ground for further discussion of the topic in the following chapter that will focus on practical aspects, considering attitudes towards AI among teachers working at Ahmed Zabana University.

II. CHAPTER TWO: RESEARCH METHODOLOGY AND DATA ANALYSIS

II.1. Introduction

The following chapter provides the methodology framework employed in this study in exploring the teachers' perspectives on the role of AI in learner autonomy. It covers the research design, setting and subjects, instruments employed to collect data, data gathering process, data analysis techniques, and validity and reliability considerations.

In addition, the chapter contains an analysis of the data collected within the context of the current research that aims to investigate teachers' views on how artificial intelligence can help develop learner autonomy among students.

Data analysis is conducted in relation with the research questions and hypotheses. Patterns and trends within the data obtained in relation to the research questions and hypotheses are meant to reveal similarities and differences between teachers' views. This chapter provides a clear look at the results of the research that will be discussed.

II.2. Research Design

This research integrates a Mixed-methods design (quantitative and qualitative methodologies) in order to have a complete picture of the subject, and gain deeper understanding. Combining these methods can enhance validity and provides reliable result, avoiding the risk of bias from using a single method only.

II.2.1. Research Type

This study has an exploratory nature, which is adopted in cases where it is adopted to go deep, aiming to give a better and a clear insight on a specific subject. In this case, the research explores teachers perspective on the overlap of Ai with learner autonomy and

measure the divergence in their opinions through both structured questionnaire and interview.

II.3. Research Context and Participants

II.3.1. Educational Context

This research was conducted in Ahmed Zabana University. This research centers on the perceptions of teachers who are employed in The English department of the institution on Ai use in the educational environment and its role in learners autonomy.

II.3.2. Sampling Method

This research adopted a Purposive sampling technique, which is mostly used where participants are selected based on specific characteristics relevant to the research. In this research's case, the relevant sample is Ahmed Zabana university teachers who might be familiar digital tools since it's integrated in the educational system.

II.3.3. Participants

The study dealt with a number of 23 teachers from Ahmad Zabana University, whose experience from 3 years and more ,including both genders, with varying levels of familiarity with digitals technologies and practices related to it. As for the interview....

II.4. Research Instruments

Strong research is always connected to well chosen data collection instruments that goes along with the nature of the research. In this case, a questionnaire and a structured interview were considered as the optimal instruments to gain valid and reliable qualitative and quantitative data. A questionnaire to measure experience and teaching practices in digital technologies context, specifically Ai tools, and the interview to go deeper in how they see the relation between Ai tools and learner autonomy

II.4.1. Questionnaire

The questionnaire is a widely used research instrument in educational studies due to its effectiveness in collecting data from a large number of participants in a structured and efficient manner. In this study, the questionnaire consisted of 20 questions, including closed-ended, open-ended and Multiple choice questions. In addition to Likert scale questions, designed to explore teachers' perceptions of Ai, learner autonomy, the challenges they face with integration of this technology in education, and how can it be useful, The importance of this instrument lies in its ability to gather decent data that can be easily analyzed and compared across participants.

Regarding reliability, the questionnaire maintains consistency due to its well-structured form because all respondents answer the same questions. In addition, the validity and significance of the questionnaire are guaranteed by the correlation between the questions and the objectives and research questions of the study. Consequently, the questionnaire can be considered highly applicable in analyzing general tendencies regarding the subject matter.

II.4.2. Interview

The interview is an important qualitative research instrument that allows for the collection of detailed data. In this study, a structured interview was conducted with same number of participants, focusing on teachers' experiences with AI and their perceptions about it, challenges they might have faced with integration of this technology in education, reaching learners use as well and how it should be used. The importance of the interview lies in its ability to explore participants' opinions more deeply and provide richer insights that cannot be obtained through questionnaires alone.

The structure of the interview reliable for that it provides very high consistency as each participant will have similar conditions and similar questions to answer. As for the relevance of this interview to the present research, it should be noted that it is very relevant, as it helps obtain further insights into the problem and provides additional support to the results of the questionnaire.

II.5. Data Collection

The collection of data in this study was online to ensure the fast and easy access for all participants, making it flexible to avoid busy schedules barriers, with no need for direct interactions, giving them space to provide honest answers that would be efficient in this research.

II.5.1. Questionnaire Data Collection

The questionnaire was sent online via teachers' email addresses, containing a google form link that leads them to a direct page followed instructions to have a clear idea of how to complete the form. The platform was secure, guaranteeing anonymity and privacy, motivating them to be honest in their answers. The questionnaire adopted both close, open-ended questions and Likert scale questions, giving the accessibility to obtain qualitative and quantitative data regarding teachers' perceptions on learners autonomy using Ai tools.

II.5.2. Interview Data Collection

The structured interview took a written form using the same platform as the questionnaire. It was sent through emails to avoid delay and time pressure, and to keep security and full privacy to their given data and personal information. The questions were all open-ended in order to have clear insights, gain much detailed and more specific answers unlike questionnaire. It is beneficial to collect effective qualitative data.

II.6. Data Analysis Procedures

II.6.1. Quantitative Data Analysis

Analysis of the collected quantitative data was conducted by using descriptive statistical techniques. First of all, after the collection of the data, they were structured and coded for the purpose of analysis. As far as closed-ended questions were concerned, frequencies and percentages were used for the purposes of analysis to help present the participants' answers systematically. Data presentation took a form of tables, charts, and graphs also ensured that they were analyzed correctly. This technique of analysis enabled detecting general patterns in teachers' attitude towards the role of AI technology in promoting learner autonomy. Moreover, it provided various opinions that will be compared with the most popular ones detected among the participants.

II.6.2. Qualitative Data Analysis

The qualitative data received during the structured interviews was analyzed using thematic analysis. The responses were analyzed and transcribed after interviewing all participants. The data were read multiple times to gain a clear understanding of participants' answers. Then, the responses were categorized into meaningful themes that are related to the research objectives and hypotheses, such as teachers' perceptions, challenges, advantages, training and the use of AI. Similar ideas were put together to identify key themes that show participants' views. This process provided the facility to organize the data in a systematic way and highlight the most important insights. Thematic analysis was particularly useful in providing a deep understanding of teachers' perspective. It also enabled the obtaining of detailed opinions and experiences. This qualitative analysis completed the quantitative results obtained from the questionnaire, contributing to a more comprehensive interpretation of the research findings.

II.7. Background information

This section focused on the teachers' academic profile and their familiarity with Ai. After asking about their experience in teaching, the majority (47%) of teachers have taught for more than 15 years, 26% had the experience of 8 to 15 years, while a smaller percentage (27%) have been teaching for less than 7 years

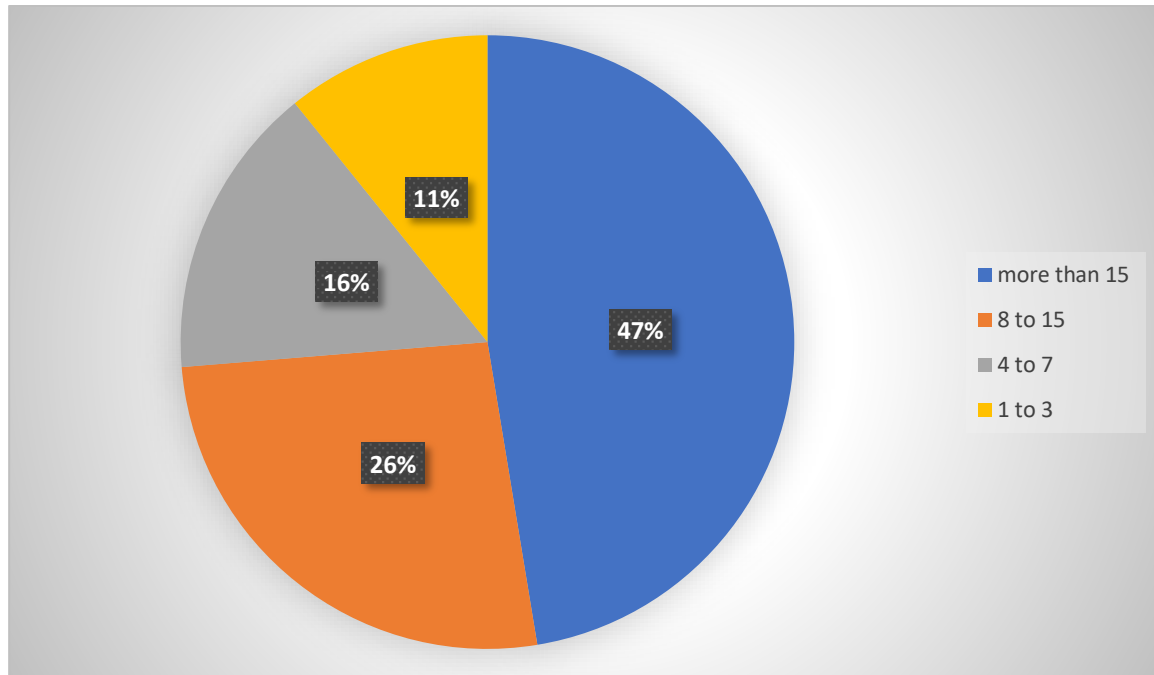


FIGURE 3.1 teachers' experience in teaching

The following table shows that the participants taught in different educational level, 61,1% were undergraduate level teacher, 33,3% were postgraduate level teachers and the other 5,6% taught in secondary school.

TABLE 3.1 educational level taught

EDUCATIONAL LEVEL	PERCENTAGE
UNDERGRADUATE	61,1%

POSTGRADUATE	33,3%
SECONDARY	5,6%

II.7.1. Participants' teaching experience

From the results of the analysis of the academic profile of teachers, most of the participants have been engaged in teaching for quite a long time. Then follow the participants who have been teaching for a short period of time. It can be concluded that the sample is represented by teachers with both great and lesser experience, which will allow for a more detailed analysis of attitudes toward the use of artificial intelligence in the educational process. In addition, the predominance of experienced teachers can positively affect the perception and understanding of the role of artificial intelligence in teaching activities.

II.7.2. Using AI tools in teaching practice

A close ended question was posed to the participants asking them if they use AI tools in their teaching practice, followed by an open ended one that asks them to point which AI tools they have used.

73% of participants answered with yes concerning the use of Ai in their practices while the rest (27%) said they have not.

II.7.3. AI tools used

The answers in the following open-ended question is related to what kind of AI tools teachers use in their practice point to the prominence of certain AI resources employed, in particular, generative AI tools. Most participants indicated that ChatGPT is the most popular AI tool they utilize in their practice, which makes it the tool with the highest frequency of usage among all other mentioned tools.

Other than ChatGPT, there are also other AI tools employed by teachers, namely, Gemini, Perplexity, Claude, and DeepSeek. All these AI-Tools are often employed in the search for data and writing texts. In addition, some participants mentioned that they used specific writing software like Grammarly, Quillbot, and DeepL.

II.8. Teachers' Understanding of Learners' Autonomy

II.8.1. Definition of Learners' Autonomy

The examination of responses provided by participants to the question regarding how they define learners' autonomy shows that teachers share a common definition of learner autonomy. They perceive it as *“The learner ability to assume the whole responsibility of his learning.”* Some of the participants pointed that it’s strongly *“linked with learners' sense of responsibility, self-directedness, and participation in learning activities”*.

Along with responsibility, *“establishing active, self-regulated learning”* were also identified by participants. In addition, there are also more complex perceptions of autonomy, One participant defined autonomy as a combination of processes that involves *“defining objectives, setting long-term and short-term goals... and selecting a variety of learning tools and sources,”* while another emphasized the learner’s *“capacity for self-assessment across a period of time.”*

II.8.2. Teachers Understanding of Learner Autonomy

Following the definitions above, the following question sought to ascertain teachers' perceptions of what learner autonomy primarily means.



FIGURE3.2 Learner autonomy primary meaning

This chart represents teachers' perspectives on the concept of learner autonomy. As it is noticed from the analysis, there is an evident agreement among the participants as 78.9% of the answers state that learner autonomy means students' capacity to take responsibility for their education.

There are fewer participants (10.5%) who consider learner autonomy to be the capacity to learn without the assistance of teachers.

Moreover, two choices share the same amount of responses (5.3%) each. The first group of teachers believe that learner autonomy means goal-setting and progress evaluation.

II.8.3. Autonomy Requirement

The following figure presents the results related to the requirements necessary for the development of learner autonomy.

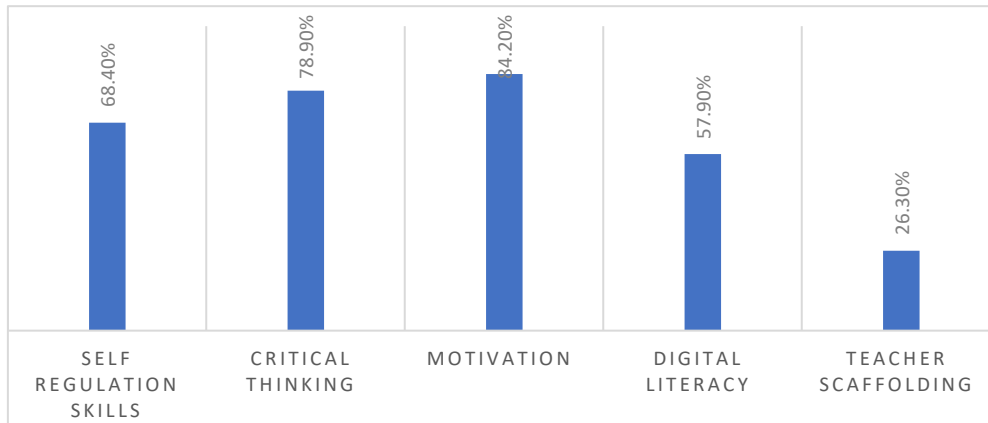


FIGURE 3.3 *Autonomy Requirement*

Motivation was chosen most frequently – as it was considered necessary by 84.2% of respondents. Teachers understand the importance of motivation in terms of autonomous learning. In order for students to take responsibility for their learning processes.

A high percentage of respondents, 78.9%, pointed out the importance of critical thinking. Following this variable was the ability to regulate one's learning (68.4%). Self-regulation involves such elements as planning, monitoring, and evaluation.

Finally, a high percentage of those who selected the necessary variables for autonomy (57.9%) agreed that digital literacy plays an important part in the process, on the other hand, teacher scaffolding obtained the lowest percentage (26.3%).

II.8.4. The extent teachers believe learner autonomy is essential in today's educational context

This figure illustrates the key requirements for fostering learner autonomy as perceived by teachers.

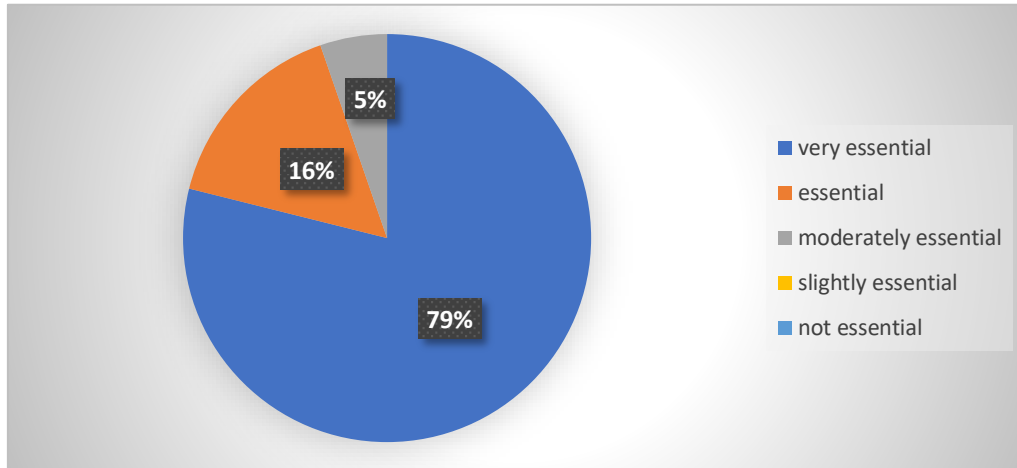


FIGURE3.4 The essentiality of Learner Autonomy

The obtained data show that the participants share a common opinion concerning the importance of learner autonomy. A high percentage (78.9%) of respondents believed that it was very essential, while 15.8% thought that it was essential, but only a few of them regarded learner autonomy as moderately essential, none of the lower levels were chosen, namely slightly essential and not essential. In addition, it seems like teachers hold positive attitudes towards learner autonomy since there are virtually no negative responses in the results.

II.9. Challenges in Using AI to Encourage Independent Learning

II.9.1. Challenges in Using AI to Encourage Independent Learning

Participants' responses in terms of challenges experienced while trying to integrate AI in learner autonomy can be divided into several common problems that educators face. The first and primary issue raised by teachers is the dependence of learners on the use of AI tools, which is seen through phrases such as "*students totally rely on AI tools*" and "*depend too*

much on AI instead of thinking by themselves." As one educator stated that learners tend *"to trust the information provided by AI without checking whether it is correct."*

Plagiarism and academic integrity were also raised as challenges because some educators found it hard *"to check the originality of their work."* Besides, some respondents mentioned technical limitations when using AI in the classroom due to *"limited access to technology"* and, in some instances, *"no access to the Internet."*

It should be noted that the lack of digital literacy and proper training is another important challenge, as evident from teachers stating that *"students don't know how to use AI tools wisely,"* while other respondents added that they themselves *"are not fully familiar with AI tools."*

II.9.2. AI may increase students' dependence rather than autonomy

The figure below illustrates participants' views regarding the potential of AI to increase learners' dependence rather than their autonomy.

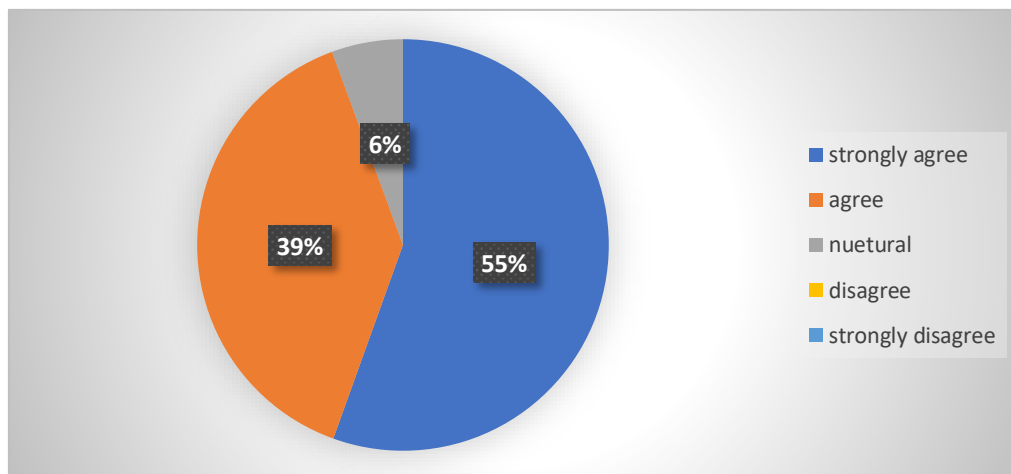


FIGURE 3.5 The Impact of AI on Students

The findings revealed strong harmony regarding the opinion as 55.5% strongly agreed with this opinion, whereas 38.9% expressed their agreement, while a minor percentage was left neutral. The important thing is that no one participant disagreed with the given view.

II.9.3. The main barriers to using AI for autonomy

The figure below shows the main obstacles to integrating AI in the promotion of learner autonomy.

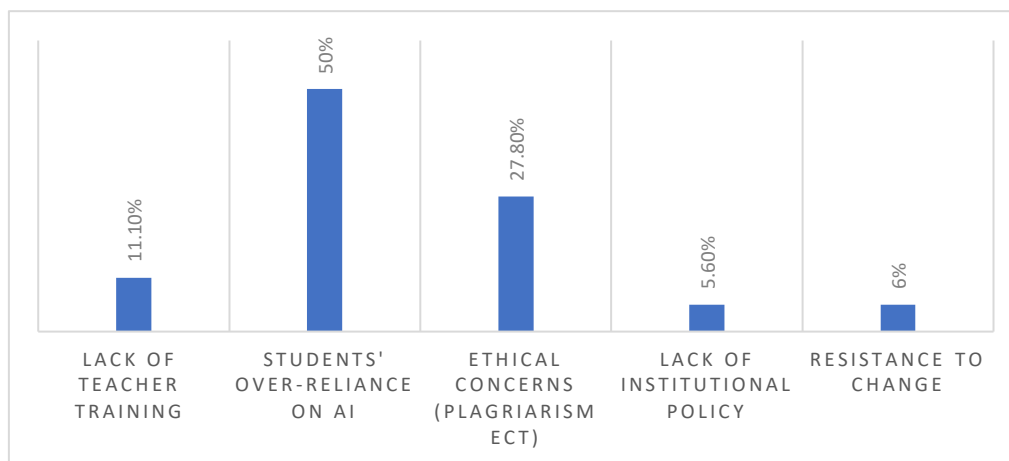


FIGURE 3.6 *The main barriers to using AI for autonomy*

The process of identifying the main obstacles to implementing AI in promoting learner autonomy involved asking the respondents to select the challenges they considered most significant. The results show 50% of participants pointed that students' over-reliance on AI is considered one of the obstacles.

Ethical issues, such as those related to plagiarism and cheating, emerged as the second largest barriers (27.7%) due to increasing understanding of the possible dangers associated with using artificial intelligence in education. However, other challenges, such as teachers' lack of preparedness (10.1%), no institution policies against using AI technologies (5.6%), and change resistance (5.6%), had been less prevalent.

No participants identified technical limitations as a barrier (0%), suggesting that access to technology is not perceived as a major issue within this context.

II.9.4. Sufficient training to guide students in using AI responsibly.

The following figure presents teachers' perceptions regarding the sufficiency of training provided to guide students in the responsible use of AI.

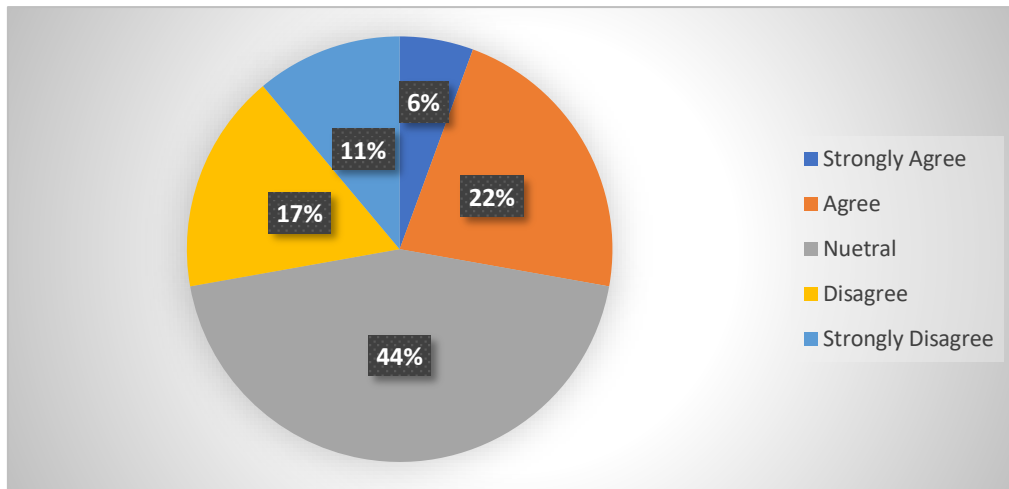


FIGURE 3.7 *Sufficient training to guide students in using AI responsibly*

The results reveal mixed perceptions among the respondents, with the majority expressing neutral views (44.4%). While 22.2% agreed and 5.6% strongly agreed with the statement, a considerable proportion of participants reported negative perceptions, as 16.7% disagreed and 11.1% strongly disagreed.

II.9.5. The impact of AI misuse on learners' independent thinking.

It can be seen from the participants' responses that there is a common opinion about the impact of the improper use of AI on the process of developing independent thinking of students. The most common problem that was raised by the teachers is related to the decrease in critical thinking as the students prefer to receive answers from AI rather than solve a task themselves. According to one participant, the misuse of AI *"encourages them to rely on generated answers instead of analyzing problems themselves."* Another teacher added that misuse leads to stopping of learners' critical thinking, which reduces creativity.

Moreover, there is an opinion that misuse of AI promotes developing certain passive behaviors associated with relying on AI and copying its ideas and results. Students become *"shifted from active thinkers to passive receivers of information,"* or even copy-pasting the material received from AI, *"without checking information."*

II.10. Proper Ways / Solutions for Successful AI Application

II.10.1. *AI should be used as*

The following figure illustrates teachers' perceptions of how artificial intelligence should be used in education.

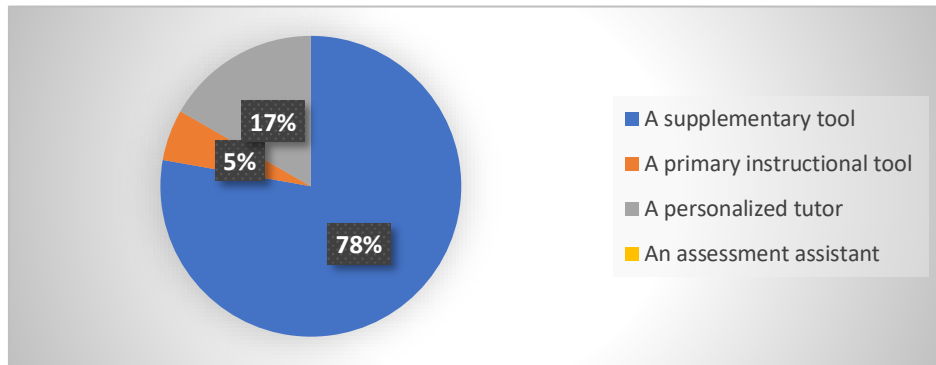


FIGURE 3.8 Ai Proper Use

In order to explore the role teachers consider for the use of artificial intelligence in education, respondents were required to express their views about how AI should be used. This analysis reveals that there is a high number of teachers who see AI as A supplementary tool (77.8%). This implies that teachers want to use AI technology as a complement to improve their instruction.

There are also fewer respondents who see the potential of AI as a personalized tutor (16.7%). On the other hand, only 5.5% of respondents believe that AI should be used as a main teaching instrument. It is also notable that there is not a single respondent who sees AI as an assessment assistant (0%).

II.10.2. Successful AI integration requirement

The figure below shows the main conditions required for the successful implementation of AI in education.

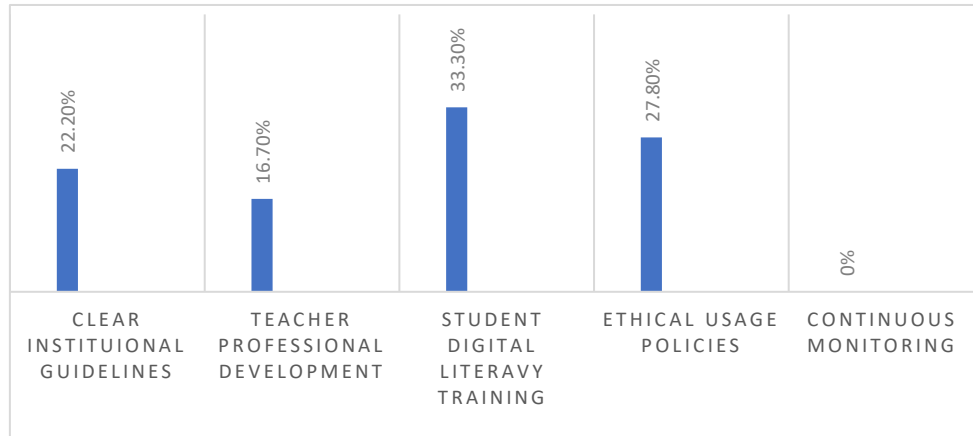


FIGURE3.9 Successful AI integration requirement

The requirements that should be considered necessary for the effective use of AI technology in order to encourage autonomy have been listed among the options. The data shows that the first priority of participants (33.3%) has been given to the issue of learner digital literacy training. Ethical use policies (27.8%) and clear institutional guidelines (22.2%) are the second and third priorities. Teachers' training (16.7%) is also mentioned. However, despite being important, it receives less attention than preparation. It is also worth noting that continuous monitoring got zero mentions from participants (0%).

II.10.3. Teachers should explicitly teach students how to use AI critically

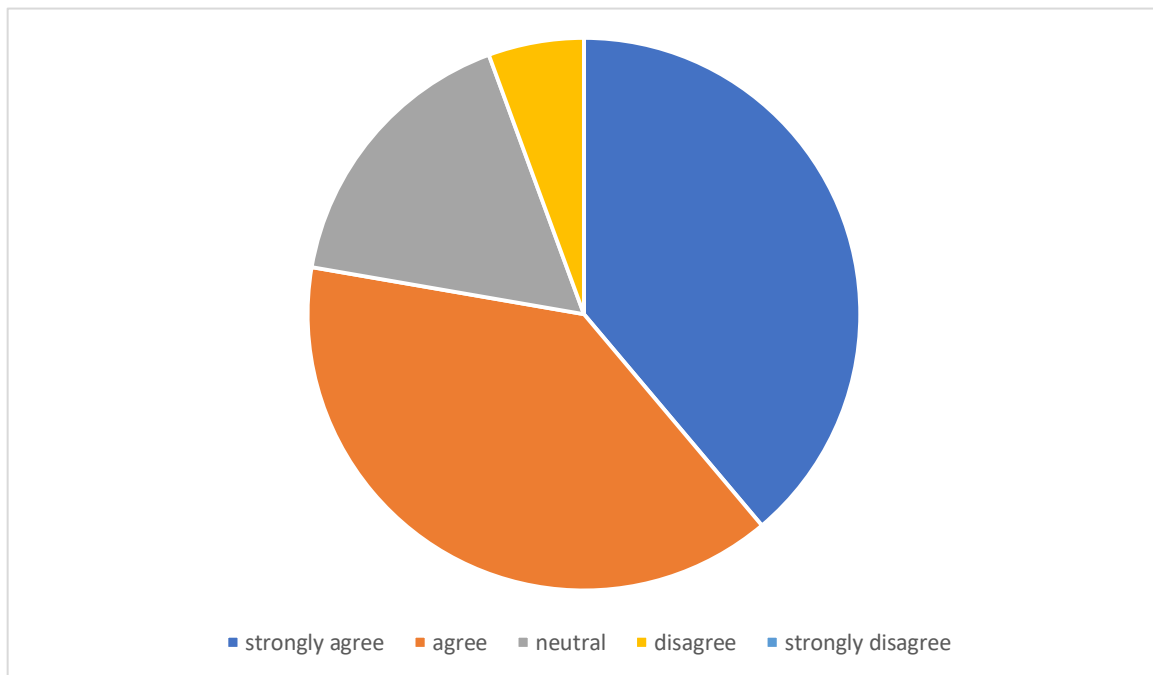


FIGURE 3.10 critical AI use

Regarding the issue of the participants' viewpoint on their activities in regulating the students' use of artificial intelligence, it is worth mentioning that the participants had to answer if they explicitly teach students how to use AI critically. As can be seen from the statistics provided, the trend is quietly positive. In particular, 38.9% of the respondents strongly agree with this statement, while 38.9% of them find this viewpoint correct, 16.7% expressed a divergent opinion about the problem under discussion, while only 5.6% disagree with it.

II.10.4. Strategies teachers believe are effective in using AI to foster learner autonomy

Considering this question, it should be mentioned that participants agree that AI is “*a tool used as a support rather than a shortcut*” and that the learner should “*not take everything for granted.*” In other words, AI is presented as a thinking partner that is used “*to generate ideas, create an outline of projects, or find multiple solutions, but not to receive ready-made*

answers. ”

Another important aspect associated with AI usage is the need for critical evaluation, according the a participant’s answer, *“learners must analyze AI-generated content to check its accuracy and learn about possible biases or gaps”* because AI *“is not a tutor, but rather a monitor and a mirror.”* Finally, personalized learning is provided with the use of AI *“allowing to learn individually at one’s own pace, depending on needs and personal goals,”* while the reverse engineering task allows to make sure that *“it will be up to students to unravel the end product. ”*.

In short, the respondents emphasize responsible and ethical application of AI, pointing to the importance of *“guidelines and training”* and that AI should always be seen *“as a guide and support tool, not a shortcut.”* Generally speaking, the results indicate that autonomous learning becomes possible if AI is applied critically and reflectively.

II.10.5. teacher’s role in balancing AI support with pedagogical guidance to maintain student responsibility

From the responses provided by the participants, it is evident that there are different methods teachers could employ to harmonize the role of AI technology with their pedagogical approaches and yet uphold the accountability of the learners. One of the most prominent concepts suggested by the respondents was that AI technology must be *“a tool and not an alternative.”* In this regard, *“AI technology will aid but not replace the learner’s accountability.”*

Other common concerns raised by the participants included the need for clarity on ethical boundaries and guidelines on how to apply AI technology. Most respondents were of the opinion that there should be *“explicit guidelines and rules for the use of AI technology.”* There should also be *“strict and meticulous ethics.”*

II.10.6. Conclusion

This chapter has outlined the research methodology adopted to investigate teachers' perceptions of the role of artificial intelligence in learner autonomy. It described the research setting and subjects, along with the data collection instrument used, which are both a questionnaire and an interview. Moreover, it explained the methods that were employed for the purpose of data gathering and analysis. The following chapter will present and analyze the findings in relation to the research questions and hypotheses.

Furthermore, analysis of the data collected via the mentioned instruments showed significant agreement amongst the surveyed teachers concerning the significance of learner autonomy, where learner autonomy refers to the learners' accountability and participation in their learning process.

Although most teachers maintain positive attitudes toward artificial intelligence and appreciate its ability to foster individual learning, they are also concerned about its misuse because it may lead to the excessive involvement of students and their limited critical thinking skills. It should be noted that some factors such as include digital literacy, ethics, institutional support, and teacher education. are essential for the successful use of artificial intelligence have been identified.

III. Chapter Three DISCUSSION, IMPLICATIONS AND LIMITATIONS

III.1. Introduction

In this chapter, the results obtained data will be interpreted and presented in light of the research questions formulated at the beginning of this study. Besides discussing them, it also provides insights into what those results mean in the context of the wider educational environment. Specifically, the teachers' perceptions about AI, the effect of AI on learner autonomy, and the benefits and obstacles involved in implementing AI in learning environments.

This chapter will identify the pedagogical implications of the research findings for teachers, students in the educational institution where this study took place. Moreover, this chapter will present specific recommendations for using artificial intelligence effectively and responsibly in enhancing learner autonomy.

Ending it by mentioning the limitations of this study and how they might have affected the research findings.

III.2. Discussion

III.2.1. AI tools in teaching practice

The obtained data shows that the use of artificial intelligence has become widespread among the teaching methods employed by the majority of teachers. As a result, this finding suggests that the teachers have realized the potential benefits that can be derived from utilizing the digital technologies in learning activities.

However, the fact that a significant number of instructors have not started using AI-powered tools for teaching means that this technology still needs time to spread across all spheres of education. There are various reasons behind this fact. In one case, some of these instructors lack the capacity to utilize these technologies in their everyday activities.

III.2.2. AI tools used

The results indicate that teachers are familiar with artificial intelligence tools, with ChatGPT being the most popular platform among respondents. The fact that it's widely adopted may be attributed to teachers' perception of ChatGPT's easy accessibility, practical and effective in supporting educational and professional tasks. The frequent use of it also points to the increasing uptake of conversational AI technologies in higher education.

Tools such as Gemini, Perplexity, Claude and DeepSeek suggests that teachers are turning to a wider variety of AI technologies to meet a range of needs, especially in terms of information obtaining, text generation, and academic support. Furthermore, the references to Grammarly, Quillbot and DeepL show that in addition to content creation, a lot of participants use AI for language help, improving writing, writing, and translation. Generally, the responses show that teachers have a favorable attitude toward AI technology.

III.2.3. The Understanding of learners' autonomy

It can be stated that teachers generally share an understanding of learner autonomy in the context of students' independence and initiative to manage their learning process. In most cases, autonomy was presented as a learner's activity aimed at gaining control over the learning process and engaging in self-learning practices.

Self-directed learning and self-regulation in education were also seen as essential features mentioned by teachers. Among the aspects which are important for self-directed learning are personal responsibility for one's education and personal involvement in educational activities.

Lastly, there were some participants who showed a broader view on learner autonomy as a process involving various aspects such as goal-setting, selection of proper learning resources, and evaluation of the results obtained during the process. The views provided above show that a number of teachers view autonomy as a multidimensional notion.

III.2.4. learner autonomy meaning

It is shown from the results that most teachers view learner autonomy as the learners' capacity to take charge of their own learning process, agreement on autonomy being a learner-centered one.

Another group of respondents viewed learner autonomy as a process where the learners are expected to learn independently without the guidance of a teacher. This may imply that some teachers are of the view that learner autonomy refers to total independence on the part of the learners. Additionally, the aspect of goal setting and progress evaluation was also mentioned. This implies that some of the respondents see learner autonomy as an exercise where the learners are expected to set goals and evaluate their progress towards meeting the stated objectives.

III.2.5. autonomy requirement

As evident from the above, the autonomy concept is believed to emerge out of the learner's readiness to take responsibility for their learning.

Critical thinking is considered an element of learner autonomy. Hence, this indicates that teachers also consider learner autonomy associated with the ability of the learner to think critically by analyzing, evaluating, and making decisions. Thus, the above result indicates that the learner should have some higher-order thinking abilities. Self-regulation is seen as being an intrinsic component of learner autonomy. This, therefore, means that teachers view learner autonomy as a series of processes whereby a person plans, controls, and evaluates their own learning. While Digital literacy is moderately perceived by the teachers as it is considered important, but not central. In addition, digital literacy is treated by teachers as a facilitation skill that aids in accessing and using educational resources for the learners.

Teacher scaffolding has the least proportion among the other perceptions. This is because the teachers view autonomy as an aspect that involves independent learning by the learners rather than scaffolding the learners' development. It is evident that the teachers underestimate their role while developing autonomy among the learners.

III.2.6. learner autonomy Essentiality in today's educational context

The results show that teachers really agree on how AI is important for learners to be independent. Most teachers think it is very essential for learners to be independent. Another group thinks it is essential. A few teachers think it is moderately essential. It is worth noting that no teachers think it is only slightly essential or not essential at all. While some participants adopted a neutral stance towards Autonomy. This indicates that teachers have a positive view of learner autonomy and know how valuable it is for learning. Overall, the results show that teachers believe learner autonomy is a part of education. Teachers do not have different opinions about learner autonomy. Learner autonomy is something that teachers think is very important, for learners.

III.2.7. Challenges in Using AI in Independent Learning

The research results have revealed several important obstacles to the use of AI in autonomous learning. First, one of the biggest obstacles in this process is the excessive dependence on AI on the part of the learners who prefer getting AI-generated solutions to conducting analysis and solving problems independently. This factor negatively impacts the efficiency of autonomous learning. Also, the problem of academic integrity should be highlighted as an important obstacle. The problem of AI-generated papers and plagiarism is likely to arise as a result of the use of this technology.

Thirdly, the issue of infrastructure is highlighted by the participants as yet another vital concern associated with the implementation of AI in the teaching-learning process. Limited Internet connectivity and insufficient devices may hinder the adoption of AI in the process.

Lastly, poor digital skills among the students and educators constitute one of the main hindrances. Inability to utilize the tools effectively becomes an impediment to the efficient use of AI.

III.2.8. AI impact on students' Autonomy

The results confirm the assumption that teachers view AI as a factor that can contribute to learners decreased effort towards autonomous thinking. Rather than being an effective means of supporting learning processes, AI technology becomes a tool to perform certain activities or provide solutions, which means that students are not engaged in actual learning, which results in a lack of skill acquisition, including the development of problem-solving skills, critical thinking, and self-regulatory strategies – crucial aspects of learner autonomy.

The absolute consensus among the participants about this finding is significant, indicating that there are no differences between teachers based on experience or context regarding their views on the role of AI technology. In other words, all the respondents see the risk of students' transformation into passive consumers rather than active constructors of knowledge if there are no proper guidelines on AI usage.

However, this claim does not imply that there are inherent dangers when integrating AI into education. In the event that teachers take the proper course of action, it is entirely possible to foster independence and encourage reflective practices among students despite the presence of AI.

III.2.9. The main barriers to using AI for autonomy

The analysis demonstrates that the respondents view the impediments of implementing the technology as related mostly to students' behaviors rather than institutional or technological barriers. The first issue is the excessive dependence on AI among students, and it is caused by the fear of the loss of independence of learners when using this technology. The second is related to ethics, including plagiarism and cheating. Respondents expressed concerns about students' submission of assignments created by AI but not by students themselves.

The least frequent barriers were institutional ones, such as the shortage of knowledge of teachers on AI usage, the lack of policies on AI usage, and teachers' hesitation to use new technologies. Overall, it can be concluded that respondents view the implementation of AI in learner autonomy mostly through the prism of students' behaviors and problems associated with them.

III.2.10. Sufficient training for responsible AI usage

From an overall standpoint, the outcomes show no consistency amongst teachers about whether the training provided is enough to teach students the appropriate use of AI. There were some respondents who found that the training was enough and enabled them to help the learners in a way that ensured the proper use of technology. Nevertheless, there were also respondents who stated that they felt frustrated since the training offered did not cover certain points.

The fact that many teachers expressed uncertainty regarding training shows that there must be some kind of inconsistency in the training that educators receive regarding AI use. It also means that there are numerous teachers who do not know how to properly assess AI and integrate it into their teaching activities. Therefore, the findings demonstrate the problem of

inadequate professional development which does not include any sort of standardization of training practices.

III.2.11. The impact of AI misuse on learners' independent thinking

Based on the participants' responses, one can deduce that they share a similar vision regarding how abuse of AI technology may impact students' ability to think independently. Critical thinking is one of the major problems that were observed in students. They are not willing to attempt solving tasks on their own, instead, they want the AI to generate answers for them. For example, one participant claimed that misusing AI makes the student *"rely on generated answers instead of analyzing problems themselves."* The participant continued on by stating that it *"lowers critical thinking skills"* and made learners *"less creative."*

Another effect that was identified is that abuse of AI may cause students to be lazier when it comes to completing tasks. Students will not try to think of different ways to solve different problems, they will rely AI to do all of the work for them. Thus, students will be *"shifted from active thinkers to passive receivers of information"* who *"sometimes copy/paste AI answers without checking information."*

III.2.12. AI forms of use

From the data, it is evident that teachers are in support of AI technology within the learning environment, although not as a standalone tool but in a supporting role. Most respondents have acknowledged the technology to be supportive for learning.

A minor percentage of the respondents perceive AI as a private tutor, thereby revealing their awareness of the potential of this technology in personalizing education. This perception is relatively rare among the respondents. Almost none of the teachers favor AI as the primary teaching means, thus indicating a tendency toward maintaining the teacher as the central

figure in the education process. Furthermore, there is no evidence to suggest that AI would be used for assessing students' progress.

In conclusion, teachers exhibit a positive approach towards incorporating AI into education, albeit with caution since they prefer AI in a supporting capacity.

III.2.13. AI integration requirement

First of all, it can be stated that according to the findings, the two most important conditions for successful AI integration in order to promote learners' autonomy are preparation and capacity building. Learners' digital literacy seems to be emphasized as the primary condition that would allow them to use AI tools productively and responsibly and thereby learn autonomously. In addition, the importance of having certain ethical guidelines, regulations, and policies at the institutional level has been revealed, which means that the problem of AI integration is more likely to be solved via the adoption of certain rules, regulations, and policies.

As for teachers' training, although the participants agreed that it could be helpful in the process, this idea was mentioned less frequently by the respondents, which indicates that although educators' readiness plays an important role in the issue, it is much less important than learners' readiness. On the other hand, continuous monitoring of learners' activities does not seem to be necessary at all. Thus, the results obtained during the research indicate the predominance of the preparation approach over any kind of control strategy.

III.2.14. Teachers guidance for critical AI

The study revealed a relatively positive inclination toward the role of teachers in helping students understand how to interact with artificial intelligence in a critical manner. Most respondents said that they had helped students learn how to critically interact with artificial

intelligence through direct teaching. Some respondents showed more caution, as a few were neutral about helping students learn how to critically interact with artificial intelligence.

These respondents might not have always helped students learn how to critically interact with artificial intelligence at all times because of their neutrality. In summary, although many teachers have been practicing the importance of teaching critical interaction with artificial intelligence, there is still room for standardization.

III.2.15. Effective Strategies in using AI

Accordingly, teachers perceive AI as a useful tool in developing learner autonomy when used as a supportive tool and not as a means to avoid hard work. Most teachers view AI as a device that acts as an incentive for the process of thinking, thus enabling learners to reason, solve problems, and develop new ideas through analysis and evaluation of thoughts. The first critical strategy that was found essential in the promotion of learner autonomy facilitated by AI involves critical reflection on AI products.

This strategy entails the verification of information provided by AI devices to establish its authenticity and reliability. Another critical strategy identified as being vital in the promotion of AI-mediated learner autonomy includes personalized learning, whereby learners have the opportunity to study depending on their strengths and weaknesses, and assignment completion, such as reverse engineering. Therefore, the findings imply that the use of AI in promoting learner autonomy is associated with the need to incorporate the use of AI through critical evaluation mechanisms.

III.2.16. teacher's role in balancing AI support with pedagogical guidance

From the research findings, there is a strong indication that the teachers appreciate the balance in integrating artificial intelligence into educational activities. Another important

concept that emerged during the discussion was the perception that AI needs to be used as a tool, not as an alternative to the endeavors of the learners.

In addition, another interesting fact presented in the study is the recognition by participants of the importance of establishing ethical limits and guidelines related to the technology usage. Being very important in order to ensure that it will not be misused, certain limits need to be established in terms of usage. generally, one can note that the results obtained during the research demonstrate the teachers' perception of themselves as educators who help their students use AI responsibly.

III.3. Recommendations For Teachers

Based on the findings of this study, teachers have a crucial role in ensuring that artificial intelligence technology is integrated responsibly in education institutions. Consequently, teachers are supposed to guide students on how to critically analyze AI-based content and use AI ethically and purposefully, not in a passive way. In this way, teachers can assist students in preventing excessive dependence on AI technology and superficial processing of information.

Additionally, teachers should consider integrating AI in classroom practice as a supplementary tool that will facilitate the learning process but not replace other forms of direct instruction and learners' own work. The activities and assignments carried out independently by students should promote evaluating these AI-generated documents rather than using them directly. Moreover, self-evaluation activities help students become more autonomous in their studies and cultivate their critical skills. In conclusion, teachers must create programs to improve digital literacy among learners and give them relevant information about AI technologies.

III.4. Recommendations for learners

It is necessary to promote responsible and critical usage of artificial intelligence solutions that would help students' learning instead of neglecting it. In particular, one should not completely rely on the outcomes given by artificial intelligence but to use these technologies as a tool to create ideas, clarify unclear issues, do research and develop necessary skills.

This approach would allow students to keep their critical thinking and independence when studying. It is also essential to learn how to assess resources available online as well as use technologies properly. In particular, it is better not to engage in copying information without proper analysis since this can have a negative impact on the ability of students to solve problems and create something new.

In conclusion, it should be mentioned that autonomy requires responsibility and self-discipline as well. For this reason, it is advisable to apply technologies along with collaborative effort for mutual benefit.

III.5. Recommendations for Higher Education Institutions

First of all, educational institutions are encouraged to actively participate in the process of integration of AI in the learning process. Universities are expected to create institutional policy concerning the appropriate ways of using AI technologies in education. It would be helpful in making sure that AI will not adjust academic integrity or any other principles of proper learning. Additionally, institutions are recommended to pay close attention to the need to develop necessary digital literacy of teachers. Universities have to regularly conduct professional development programs that will increase teachers' competences in working with technologies. At the same time, similar measures have to be taken in relation to the students by means of organizing relevant workshops.

Lastly, universities should make efforts to improve technological organizational structure in the learning process and guarantee its access for all participants of the educational process, for both teachers and students. Improving such a structure can eliminate digital inequality, which, in its turn, will ensure the successful usage of AI to foster learner autonomy.

III.6. Pedagogical Implications

The pedagogical implications of the research described above conclude that the role of the instructor is changing. As the teacher is not considered the primary source of information anymore, he/she needs to perform new tasks and take new positions in terms of educational processes, which implies becoming a facilitator who helps his/her students develop the ability to work with AI responsibly. Also, the study reveals the significance of such pedagogical concepts as guided autonomy because learner autonomy is inseparably linked to monitoring of learners' activities and conducting specific exercises that will encourage the development of cognitive abilities in students.

Moreover, the implementation of AI in the learning process should be done moderately and should serve to provide additional assistance but never substitute learners' effort and teachers' roles. Finally, learner-centeredness remains one of the most important characteristics of effective learning because this process assumes active participation of students in educational processes and acquisition of such skills as responsibility and self-regulation.

III.7. Limitations Of the Study

Still, there are certain limitations in the research that should be noted even with all the valuable results obtained throughout the study. First of all, only a limited number of people participated in the experiment; hence, it may not be reasonable to generalize these results for all cases of higher education. In addition, while the study paid attention to the opinions of the

teachers related to the use of artificial intelligence, students opinions were also taken into account.

Furthermore, the study was conducted within a rather short period; besides, the area of artificial intelligence keeps on developing; thus, the opinions of the participants may shift in the future. Moreover, their experience in dealing with artificial intelligence was different, hence, the results may vary depending on this factor.

III.8. Conclusion

This chapter discussed recommendations and pedagogical implications of the findings from the research on the impact of artificial intelligence on promoting the development of learner autonomy among learners in higher education. Among other things, the recommendations focused on the importance of the ethical and well-balanced approach towards using artificial intelligence by educators, learners' digital literacy, and the role of universities.

The chapter also discussed a number of pedagogical implications of using artificial intelligence among which was the changing role of educators as facilitators, the necessity of using guided autonomy, and learner-centeredness. Finally, a number of limitations were identified in order to provide a deeper insight into the scope of the research conducted.

GENERAL CONCLUSION

The research was designed to explore teachers' perceptions of the role of artificial intelligence (AI) in promoting learner autonomy in higher education at Relizane University. It specifically investigates how teachers perceive the contribution of AI tools to autonomous learning, the extent to which they integrate AI into their teaching practices, and challenges teachers associate with AI-assisted autonomous learning. To achieve these objectives, the study employed a mixed-method design that involved a questionnaire and a structured interview. The data were collected online because of time constraints and lack of opportunities to meet the participants in person. The study employed a mixed-method design that involved a questionnaire and a structured interview. The data were collected online with 23 teachers from Ahmed Zabana University, because of time constraints and lack of opportunities to meet the participants in person.

According to the obtained data, teachers generally perceive learner autonomy as the capability of students to take responsibility for their learning and become active participants of the education process. It has been found that teachers generally have positive attitude toward the role of artificial intelligence in learner autonomy and stated frequent use of AI tools in their educational practices. The results also revealed that AI offers important opportunities for personalized and autonomous learning. However, participants highlighted several challenges associated with AI-assisted learning, particularly students' over-reliance on AI tools and ethical concerns related to their use.

The need for the development of digital literacy, ethical recommendations, organizational support, and teacher training have been identified by the researchers as necessary components of introducing AI in an effective way. Based on the results of the conducted study, it is safe to conclude that AI can play a significant role in promoting learner autonomy when integrated

effectively and responsibly into educational practices. It further highlights the importance of teacher training, ethical awareness, and institutional support to maximize the educational benefits of AI in higher education

Even though there were some limitations associated with the methodology of this study, the conducted research provides a better understanding of the relationship between AI and learner autonomy in higher education institutions.

There are several directions for further research on artificial intelligence and learner autonomy. Firstly, it would be appropriate to increase the number of participants of this research and include different universities and departments. In such a way, the researcher will manage to get more generalizable results. Secondly, it would be appropriate to conduct research on the perception of students about AI and learner autonomy. The point here is that the perceptions of the learners have a direct impact on their behaviors, and it can be compared to the teachers'.

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APPENDICES

Questionnaire

Section A: Background Information

1. Years of teaching experience:
 - ☐ 1–3 years
 - ☐ 4–7 years
 - ☐ 8–15 years
 - ☐ More than 15 years
2. Educational level taught:
 - ☐ Secondary
 - ☐ Undergraduate
 - ☐ Postgraduate
3. Have you used AI tools in your teaching practice?
 - ☐ Yes
 - ☐ No
4. If yes, which AI tools have you used?

Section B: Teachers' Understanding of Learners' Autonomy

5. How do you define learners' autonomy?
6. Learner autonomy primarily means that students:
 - ☐ Take responsibility for their own learning
 - ☐ Learn independently without teacher support
 - ☐ Set goals and evaluate their progress
 - ☐ Follow AI guidance instead of teacher guidance
 - ☐ Other:
7. In your opinion, autonomy requires:
 - ☐ Self-regulation skills
 - ☐ Critical thinking

- ☐ Motivation
- ☐ Digital literacy
- ☐ Teacher scaffolding

8. To what extent do you believe learner autonomy is essential in today's educational context?

- ☐ Very essential
- ☐ Essential
- ☐ Moderately essential
- ☐ Slightly essential
- ☐ Not essential

9. Do you believe autonomy develops naturally, or does it require structured guidance?

- ☐ Develops naturally
- ☐ Requires structured guidance
- ☐ Both

Section C: Challenges in Using AI to Encourage Independent Learning

10. What challenges have you encountered (or anticipate encountering) when integrating AI to promote learner autonomy?

11. AI may increase students' dependence rather than autonomy.

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

12. The main barriers to using AI for autonomy are:

- ☐ Lack of teacher training
- ☐ Students' over-reliance on AI
- ☐ Ethical concerns
- ☐ Lack of institutional policy

☐ Technical limitations

☐ Resistance to change

13. I feel sufficiently trained to guide students in using AI responsibly.

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

14. In your view, how does AI misuse affect learners' independent thinking?

Section D: Proper Ways / Solutions for Successful AI Application

15. AI should be used as:

☐ A supplementary tool

☐ A primary instructional tool

☐ A personalized tutor

☐ An assessment assistant

16. Successful AI integration requires: (Multiple answers)

☐ Clear institutional guidelines

☐ Teacher professional development

☐ Student digital literacy training

☐ Ethical usage policies

☐ Continuous monitoring

17. Teachers should explicitly teach students how to use AI critically.

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

18. What strategies do you believe are effective in using AI to foster learner autonomy?

19. How can teachers balance AI support with pedagogical guidance to maintain student responsibility?
20. In your opinion, what conditions must be in place for AI to genuinely enhance learner autonomy rather than weaken it?

Interview

1. How do you define learner autonomy in the context of higher education?
2. In your opinion, why is learner autonomy important for university students?
3. What is your general opinion about the use of artificial intelligence in education?
4. How do you think AI tools can influence students' ability to learn independently?
5. What advantages do you think AI can offer in promoting learner autonomy among students?
6. What challenges might teachers face when using AI to encourage independent learning?
7. Do you think students might become overly dependent on AI tools? Why or why not?
8. What strategies or solutions would you suggest to ensure the successful use of AI in promoting learner autonomy?