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Iraqi EFL University Students' Cognitive Complexity, Performance-Based Learning, and
Autonomous Learning : A Correlational Study

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College of Education for Human Sciences

English Language Department



**Iraqi EFL University Students' Cognitive Complexity, Performance-Based
Learning, and Autonomous Learning : A Correlational Study**

A Thesis

Submitted to the Council of the College of Education for Human Sciences

**University of Wasit, in Partial Fulfillment of the Requirements for the Degree of Master
in Education (Methods of Teaching English as a Foreign Language).**

By:

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2026 A.D

1448 A.H

بسم الله الرحمن الرحيم

﴿ وَإِنْ تَعُدُّوا نِعْمَةَ اللَّهِ لَا تُحْصُوهَا ۚ إِنَّ اللَّهَ لَغَفُورٌ رَحِيمٌ ﴾

(سورة النحل، اية ١٨)

صدق الله العلي العظيم

In the name of Allah, the Most Gracious, the Most Merciful

{ And if you would count the favours of Allāh, never could you be able to count them.

Truly! Allāh is Oft-Forgiving, Most Merciful }

(Surat An-Nahl: Ayah 18)

((Al-Hilali &Khan, 2005, p. 448)

Truly, Allah the Most High has spoken the truth.

Dedication

To

the soul of my father whose memory continues to guide my path and whose absence has only strengthened my determination to pursue knowledge and success.

my mother, my greatest inspiration and the light that has illuminated every step of this journey.

Israa

The Supervisor Certification

I certify that the thesis entitled “ **Iraqi EFL University Students’ Cognitive Complexity, Performance-Based Learning, and Autonomous Learning; A Correlational study** ” submitted by (**Israa Sadiq Jaffar**) has been prepared under my supervision at the English Language Department, College of Education for Human Sciences, University of Wasit, in partial fulfilment of the requirements for the Master Degree in Education (Methods of Teaching English as a Foreign Language).

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Abstract

Cognitive complexity, performance-based learning, and autonomous learning are considered important factors in EFL Iraqi university students' language learning . This study investigates the correlation among the three variables. Specifically, the study aims to: (1) Identify the level of cognitive complexity among Iraqi EFL university students.(2) Identify the level of performance-based learning among Iraqi EFL university students. (3) Identify the level of autonomous learning among Iraqi EFL university students. (4) Identify the correlation among cognitive complexity , performance-based learning, and autonomous learning. The study adopts a correlational study design. The sample consists of 316 3rd year students from the colleges of education at University of Wasit, College of Imam Al-Kadim, and University of Al-Kut during the academic year 2025-2026. Three instruments are used for data collection: Cognitive Complexity Questionnaire, Performance-Based Learning Questionnaire, and Autonomous Learning Questionnaire. The validity and reliability of the instruments are verified prior to their administration. It has been concluded that Iraqi EFL 3rd university students have a high level of cognitive complexity, performance-based learning, and autonomous learning. However, there is a statistically strong and positive correlation between the student's cognitive complexity, performance-based learning, and autonomous learning. According to the results and conclusions, a set of recommendations and suggestions for future studies is put forward.

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Table of Abbreviations

Abbreviations	Full Forms
AL	Autonomous Learning
ALQ	Autonomous Learning Questionnaire
CC	Cognitive Complexity
CCQ	Cognitive Complexity Questionnaire
PBL	Performance-Based Learning
PBLQ	Performance –Based Learning Questionnaire

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Chapter One

Introduction

1.0 An Introductory Note

This chapter sheds light on the problem of the study and its significance, aims, limits, values of the study, and the definitions of the basic terms.

1.1. The Problem and Its Significance

In recent years, educational studies have emphasised cognitive complexity, performance-based learning, and autonomous learning as influential variables in improving students' language proficiency and academic achievement. However, the relation among these variables was hardly studied in the Iraqi EFL context, particularly at the university level. Most previous studies have focused on examining each variable separately, while little attention has been given to exploring their interconnected influence on Iraqi EFL students.

The cognitive complexity is a highly disputable issue that is constantly brought to the debate in order to discover how students view their learning. Cognitive complexity is the capability of the learners to process, analyse, and arrange information in advanced forms to address the language tasks and the learning situations. Studies in 'Foreign Language Acquisition' have indicated that an increased degree of cognitive complexity is associated with increased levels of more advanced learning processes and language use in the learning process (Skehan,1998). Simultaneously, performance-based learning has become a powerful approach of instruction that focuses on the real-life tasks, the practical use of knowledge, and the active involvement of the learner instead of the passive reception of the information (Wiggins,1998).

Autonomous learning is another approach to effective language learning where the learners have the ability to plan, monitor, and assess their learning. Autonomous learners are more likely to show increased motivation, self-regulation, and engagement in the learning activities, which are all positively related to language development (Holec, 1981).

According to what is mentioned earlier, the variables "Cognitive Complexity, Performance-based Learning and Autonomous Learning" are reported to play a possible role in EFL students' learning English language. Carrying out a study to determine the level of Iraqi EFL students and the correlation among those variables might present a valuable opportunity to identify some of the factors contributing to the low level of proficiency reported in the Iraqi EFL classroom.

As far as the researcher knows, there is no study that examines the correlation among cognitive complexity, performance-based learning, and autonomous learning. In an environment such as English as a Foreign Language (EFL), investigating the level of these variables and their correlation among Iraqi EFL students might contribute to effective instructional strategies and interventions to improve their outcomes in English language learning. Therefore, this study aims to fill the existing gap in the literature by thoroughly investigating the correlation that has not been extensively explored in the Iraqi EFL setting.

The significance of the current study lies in the fact that it aims to enrich the understanding of the relationship between these variables in regard to enhancing students' language learning and academic performance. Furthermore, it could broaden knowledge on recent learning approaches to support students' learning. This insight could lead to a better understanding of how these approaches can aid students in developing their language abilities more effectively.

1.2 Research Questions

The problem of the present study can, accordingly, be highlighted through responding to the following questions:

1. What is the Iraqi EFL student's level of cognitive complexity?
2. What is the Iraqi EFL student's level of performance-based learning?
3. What is the Iraqi EFL student's level of autonomous learning?
4. What is the correlation between cognitive complexity, performance-based learning, and autonomous learning?

1.3 Aims

The present study aims at :

1. Identifying Iraqi EFL university students' cognitive complexity level.
2. Identifying Iraqi EFL university students' performance-based learning level.
3. Identifying Iraqi EFL university students' autonomous learning level.
4. Investigating the correlation among Iraqi EFL university students' cognitive complexity, performance-based learning, and autonomous learning.

1.4 Limits

This study is limited to Iraqi EFL 3rd year students in the departments of English/ Colleges of Education at University of Wasit, College of Imam Al-Kadim, and University of Al-Kut during the first course for the academic year 2025/2026.

1.5 Values of the Study

This study is expected to be valuable to:

1. **Teachers:** This study offers practical evidence on the interaction between cognitive complexity, performance-based, and autonomous learning in students. The subtle

knowledge of such relations allows teachers to be more in tune with students' needs. The current study, at the end, provides educators with a more profound understanding of which approach to take in order to encourage cognitive and academic growth of students in an individual and effective way.

The information about these variables of students is likely to provide teachers with a better understanding of planning the learning environment and tasks. Teachers will be equipped in a better manner about the willingness of students to deal with stressful situations, and this way, they will be in a better position to adopt a classroom management system that best fits their cohort.

As a result, EFL teachers will have a deeper empowerment to administer their lessons successfully and will be able to enjoy a more successful career trajectory.

2. **Researchers:** The current study offers a strict examination of the interaction between cognitive and behavioral variables in EFL settings and in a manner that opens up a theoretical framework that can invite further questions. It opens the door to a more sophisticated research that can attempt to explore these variables more deeply by focusing on the performance-based learning, and autonomous learning types, which may involve longitudinal or mixed-method studies.

In addition to this, the study provides empirical evidence that can be compared with the results obtained in different cultural or regional settings, and thus, it enhances the understanding of EFL education on a global scale.

3. **Curriculum Designers:** The study highlights the importance of the student autonomy as an inseparable element of curriculum design. Curriculum developers can design programs that not only suit the cognitive preconditions of the students but also instill a sense of ownership of the learning paths by introducing possibilities of self-directed study, reflective practice, and self-assessment.

Moreover, the empirical data provide a factual rationale of the construction of EFL curriculum that is more responsive, student-driven, and able to support long-term academic and personal development.

1.6 Definitions of Basic Terms

The definitions of the basic terms are as follows:

1.6.1 Cognitive Complexity

It can be defined as follows:

- A.** According to Pervin (1984), Cognitive complexity has been defined as "an aspect of a person's cognitive functioning which at one end is defined by the use of many constructs with many relationships to one another (complexity), and at the other end by the use of few constructs with limited relationships to one another (simplicity)" (p.507).
- B.** It has been defined as the ability of an individual to process social information in a multidimensional way and, hence, allow an individual to be more flexible in devising and taking into account alternative solutions to problems. A person with a more complicated cognitive process can process information more delicately and sophisticatedly (Cooper & Cornish-Bowden, 2004).
- C.** It has been defined as the degree to which a person can distinguish and incorporate the differentiated elements of a circumstance or issue. It involves the capability of individuals to analyse, perceive, and integrate multiple dimensions of information, perspective, or concepts, when interpreting situations or solving problems. People of high cognitive complexity can look at problems from different perspectives and can deal with ambiguity and uncertainty in a better way (Bieri, 1955 ; Schoroder et al., 1967).

The researcher has adopted the third definition as an operational definition in the present study.

1.6.2 Performance-Based Learning

It can be defined as follows:

- A. As a model that makes students use their knowledge in observable and measurable performance tasks, which will put the emphasis on performing something, rather than on knowledge acquisition. These learning performances are all aligned in instruction, curriculum, assessment, evaluation, and reporting (Berman, 2007).
- B. It can be defined as a strategy that entails redesigning curriculum and assessment where student success is measured by performance demonstrated through real tasks, products, goals, and mastery measurement. It highlights the correspondence between program objectives and learning outcomes, and visible and measurable student performance (Baron et al., 2008).
- C. It can also be defined as an instructional approach in which students gain and display knowledge and skills through learning activities in specific situations. This approach places emphasis on two aspects of learning performance: the outcome (what the students do or achieve) and the process (how students perform and complete the task). Performance-Based Learning is thus an indicator of students' learning competence and ability to employ learning in meaningful and practical ways (Moccozet, 2012).

The researcher has adopted the third definition as an operational definition in the present study.

1.6.3. Autonomous Learning

It can be defined as follows:

- A.** According to Holec (1981), autonomous Learning can be defined as the ability to take charge of learning to oneself.
- B.** It involves critical thinking, learning planning, learning evaluation, and reflection, which is an active process of the learner to be in a continuous state of watching the learning process along the line of its initiation to its end (Benson 2001).
- C.** It can be defined as an approach that allows learners to determine their own learning needs, create their own learning objectives, develop independent strategies for achieving these goals, and assess their own learning progress. In autonomous learning, teachers play a different role than they used to; they are more like facilitators and guides in the teaching/learning process (Hoo et al., 2025).

The researcher has adopted the third definition as an operational definition in the present study.

Chapter Two

Literature Review and Previous Related Studies

2.0 An Introductory Note

This chapter comprises the first part, which provides a comprehensive view of the three variables dealt with in this study, namely: Cognitive Complexity, Performance-Based Learning, and Autonomous Learning, in addition to the correlational study. While an overview of some previous studies will be presented in the second part.

2.1 Theoretical Background

In this section, the cognitive complexity, performance-based learning, as well as autonomous learning are discussed in detail.

2.1.1 Cognitive Complexity (CC)

The psychologist Bieri (1955), made a major contribution to the study of the cognition and interaction of individuals with their social environments through the introduction of cognitive complexity. CC refers to the interconnected mental structures, including thoughts, feelings, and memories, that influence how individuals perceive, process, and respond to information and situations. These structures often operate unconsciously and shape everyday thinking and behavior.

2.1.1.1 The Concept of Cognitive Complexity

The concept of complexity may be described in most situations as the number of components, the complicatedness or difficulty of handling or comprehending a situation. Complexity, conversely, comes to be defined as the level of independent dimension-worth concepts, which an individual would impose when describing a certain area of phenomena.

The most widespread definition of CC is mainly used in the field of psychology to define the way of thinking and information processing (Scott, 1962).

The Florida Department of Education (2012), noted three cognitive complexity levels, such as: low, moderate, and high. These classifications indicate the different levels of difficulty that an item may present to a student; the levels are :

1. **Low Complexity** : Low-complexity items may necessitate that students remember, notice, ask or describe simple facts. Students are supposed to be able to show elementary skills or competencies. These are items that require very poor content of only a basic understanding of the text, it may be by automatic memorisation or by simple association with one word or phrase. Categories of items to which the competencies are needed to respond with high accuracy , are of low complexity , and most of them include:

- Recovery of the correct meaning of grade-appropriate words.
- Finding information in a text.
- Finding information on graphs, charts, or diagrams.
- Understanding the proper order of occurrence in a text .
- Determining figurative language in a text (Florida Department of Education,2012).

2. **Moderate Complexity** : Moderate-complexity items may necessitate students to use a two-step process, namely original comprehension and a second step of text processing. Probably, all the students are expected to make simple inferences and might be given tasks that require the use of words like summarise, infer, classify, collect, organise, compare, and present. Students may also be required to explain, describe, or interpret depending on the desired moderate-level objective. The required competencies of responding to moderate-complexity items accurately include (but are not limited to) the following:

- Interpreting the context to identify the meaning of new words.
- Decision on how to explain the details of the main idea.
- Process of interpretation of information contained in graphs, charts, as well as diagrams.
- Determining cause and effect relationships.
- Finding out how an author means or sees something.
- The identification of differences and similarities.
- Showing knowledge of the plot development.
- Knowledge of plot aspects.
- The awareness of organisational models.
- Concluding the major arguments of a text.
- Comparing word meanings (Florida Department of Education,2012).

3. **High Complexity** : Items that are high in complexity require a lot of thinking. Students can be asked to explain, generalise or to make several connections that require a number of steps involving abstract logic and strategic thinking. Students are required to clarify their line of thought. These things might involve finding themes and some underlying core ideas, making multifaceted inferences within or between texts, deriving information out of at least part of one text, applying it to new tasks, and making multifaceted analyses of inter-textual relations. The testable skills of the correct response to items of higher complexity entail, although are not restricted to, the following:

- The examination of the figurative language used in a text.
- Showing the use of graphs, charts, and diagrams in a text.
- Confirming the purpose or point of view of an author and explaining how it affected the work.
- Assessing the quality of arguments used in writing.

- Dissimilarities and similarities.
- Characterisation and exegesis of different types of literature.
- Explicating and demonstrating the way common themes are represented in texts.
- Applying the cause-and-effect relationships (Florida Department of Education, 2012).

2.1.1.2 Components of Cognitive Complexity

Cognitive complexity aspects in education involve different levels of mental processes, such as remembering, understanding, applying, analysing, evaluating, and creating, that are described in the updated taxonomy by Bloom. CC is denoted by the cognitive tasks that a task poses to a student, requiring deeper thinking, abstract reasoning, and synthesis of information to solve multi-step problems or to make a judgment (Ajayi, 2024). They are characterised as:

- 1. Intellectual Processes:** CC is a range of mental processes that involve the students to acquire and manipulate information through mental means. Those mindful actions, commonly called cognitive verbs like identify, analyse, compare, synthesise, and evaluate, which are varying levels of mental participation that a task requires. The famous Revised Taxonomy by Bloom divided these processes into six levels of hierarchy as: remembering, understanding, applying, analysing, evaluating, and creating. These levels can be used to develop educational objectives at levels that are advanced beyond the basic level of information memorisation to more advanced levels that require critical thinking and creativity in their completion (Anderson & Krathwohl, 2001).
- 2. Depth of Knowledge:** Depth of Knowledge refers to the complexity of thinking required of a task and not just its difficulty. The depth of knowledge framework, made by Webb contains four levels, including recall and reproduction, skills and concepts, strategic, and extended thinking. Tasks that are assigned at high levels require the learner to engage in

lengthy reasoning processes, and they should learn the ability to connect ideas and justify their reasoning. This framework will help teachers to not just evaluate what students are studying, but also the level of knowledge that they are getting and how well they are employing the knowledge (Webb, 2002).

3. **Problem-Solving Skills:** The ability to solve non-routine and unfamiliar problems is a critical feature of CC. Unlike memorised procedures, multi-step problem-solving that requires the students to assess a circumstance, synthesise data available in multiple sources, and generate multi-step solutions. This process aligns with constructivist theories of learning, which emphasise active participation, inquiry, and the construction of knowledge through experience. Problem-solving activities that involve complex tasks encourage students to apply their knowledge and skills in new contexts, thereby enhancing both their learning and cognitive development (Bransford et al., 2000).
4. **Abstract Reasoning:** Abstract reasoning is common with tasks that demand high levels of thinking, forcing a student to think beyond the simple facts or literal interpretation. The skills associated with abstract reasoning are inferencing, identification of underlying principles, prediction of consequences, and generalisation. These competencies play an important role in understanding complex systems, theories, or unclear issues. Abstract reasoning is based on research in cognitive psychology and its significance in higher-order thinking and adaptable expertise (Halpern, 2014).
5. **Integration and Differentiation:** Learning tasks that are cognitively demanding require students to integrate and differentiate information. Integration involves the combination of knowledge gathered from different sources or subjects to form a unified knowledge. On the other hand, differentiation refers to the recognition of differences, opposites, or minor differences among the concepts. These processes are core components of analytical thought, and they are spotlighted in educational models that emphasise systems

that focus more on higher-level outcomes such as analysis, evaluation, and creation. Encouraging the use of these processes by students enhances their skills of finer thinking and decision making (Marzano & Kendall, 2007).

2.1.1.3 Theories of Cognitive Complexity

The cognitive complexity theories attempted to explain the differences among individuals in the flexibility and sophistication of their cognitive processes. The theoretical frameworks that are relevant to CC include:

2.1.1.3.1 Piaget's Cognitive Development Theory

'Piaget Cognitive Development Theory', also known as his epistemology among scholars, is a complex theory on the nature of human intelligence and its developmental process. The theory was coined by the Swiss psychologist Piaget (1896-1980), and it explained the essence of knowledge and how people increasingly acquire, construct, and apply it. As a developmental stage theory, Piaget accepted that children of different ages make diverse errors due to their cognitive abilities that they have at that age; namely, age-related intelligence and quality versus quantity. His model outlines four stages that represent kids' cognitive development, namely: sensorimotor, preoperational, operational concrete, and formal phases (Bovet, 1976).

Piaget believed that cognitive development is a discontinuous rearrangement of mental processes that developed as a result of both biological development and experience. He presented the argument that children actively build their knowledge of the surrounding world, face conflicts between what they already know and what is new to them, and consequently change their ideas. In addition, Piaget argued that the cognitive development is critical to the

organism of a man, and the development of language depends on the knowledge and understanding gained as a result of this process (Pakpahan & Saragih , 2022).

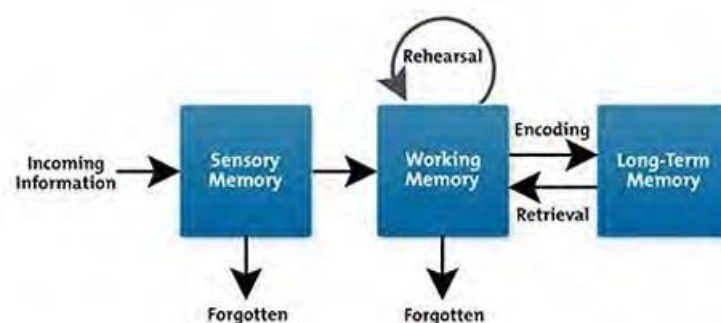
2.1.1.3.2 Cognitive Load Theory

The 'Cognitive Load Theory' that is developed by the educational psychologist John Sweller in the 1980, is based on the human information processing model. This model shows that memory is a unit of three main parts, namely, sensory memory, working memory, and long-term memory. Most of what transpires around us is filtered by sensory memory, which sends specific information to the working memory where it is processed. The working memory can handle the information in common, that is, normally five to nine pieces, or a cube of information at the same time. Working memory stores the information or disregards it to be stored in the long-term memory, which stores the information in forms commonly known as a schema, which organises information based on its application. The greater the usage is given to these schemas, the more perfect they are, thus easier to recall (Atkinson & Shiffrin, 1968).

Figure 2.1

Human memory: A Proposed System and its Control Processes

(Atkinson & Shiffrin, 1968).



The size of information that can be processed by the working memory at a specific time is known as cognitive load. Considering the educational goals, the 'Cognitive Load Theory' is an indispensable way to protect learners who can be overwhelmed by the information that cannot be absorbed into the long-term memory schemes and can only be recalled. Using this framework, teachers will be able to plan instructional resources to conform the limits of working memory to maximise encoding and retrieval mechanisms (Atkinson & Shiffrin, 1968).

2.1.1.3.3 Constructivist Theory

Constructivism is both a theory of learning and a philosophy of education that emphasises the active role of learners in constructing knowledge through experience and interaction with their environment. Rather than viewing learners as passive recipients of information, constructivism proposes that knowledge is actively built through reflection, interpretation, and engagement with prior knowledge. Learning therefore, involves the organisation and reorganisation of cognitive structures as individuals interpret their experiences and integrate new information into existing mental frameworks (Piaget, 1970; Vygotsky, 1978).

Generally, three general types of constructivism have been identified: Cognitive constructivism, based on the works of Piaget; social constructivism, based on the works of Lev Vygotsky, and radical constructivism (Vygotsky, 1978).

Cognitive constructivism postulates that knowledge is constructed proactively by learners, which relies on the already existing cognitive schemas. The process of learning is thus dependent on the stage of development that the learners are at. The pedagogical practices of cognitivists are thus geared towards helping the learner to connect the new information to the existing knowledge, so as to make the necessary modifications to their intellectual frameworks to fit new conceptual information (Vygotsky, 1978).

Within the context of the social constructivism, learning can be seen as a communal effort where wisdom is developed as a result of people engaging with culture and society. Vygotsky (1978) expressed the following: Each of the functions in cultural development of the child occurs twice, one at the social level and at the individual level; between people (inter psychologically) and within the child (intra psychologically).

Radical constructivism was proposed by Glasersfeld (1995), who claimed that everything people know is constructed and that people do not perceive scientific information passively via the sensory system.

2.1.1.3.4 Cognitive Flexibility Theory

Spiro and Jehng (1990), introduced 'Cognitive Flexibility Theory' to explain learning processes that occur in complex and ill-structured domains of knowledge. The theory highlights the importance of the capacity to restructure knowledge frameworks in order to address the varying needs of situations. Cognitive flexibility is the capacity of the learner to restructure and transfer knowledge that has been learned into many different ways so that it can transfer to different contexts and problem-solving situations. Spiro and Jehng (1990), said that this adaptation process is affected by the cognitive representation of knowledge, such as multidimensional conceptual structures, rather than by the linear schemas.

One of the core tenets of the 'Cognitive Flexibility Theory' is to ensure the transfer of knowledge and skills from one context to another. The theory thus emphasises the need for the presentation of information from multiple points of view and in the form of different cases, as this enables learners to be exposed to different examples that would illustrate the complexity of real life situations. This can help learners prevent oversimplified knowledge and act as a stimulus to develop more flexible and interconnected knowledge systems (Spiro et al., 1992).

Moreover, the assumption of the 'Cognitive Flexibility Theory' was that effective learning is context-dependent. Therefore, instructional practices need to reflect the complexity of authentic environments by allowing learners to explore content through case-based learning, multiple representations, non-linear, and instruction designs. These strategies enable learners to make active knowledge representations, thus increasing understanding and promoting transfer of knowledge to new learning contexts (Spiro & Jehng, 1990).

'Cognitive Flexibility Theory' has theoretical underpinnings that are closely related to broader constructivist approaches to learning. In particular, it takes the concept of active construction of knowledge, as developed in the work of Piaget (genetic epistemology) and Ausubel (theory of subsumption). In this sense, learning is considered dynamic and is seen as a process in which the learner reorganises their cognitive structures in the interaction with complex information environments. The study of digital and multimedia learning environments has also been connected to 'Cognitive Flexibility Theory' in modern educational research, in which hypertext and interactive media offer ways to present knowledge in a variety of ways that are interconnected with each other (Spiro et al., 1992).

2.1.1.3.5 Social-Cognitive Theory

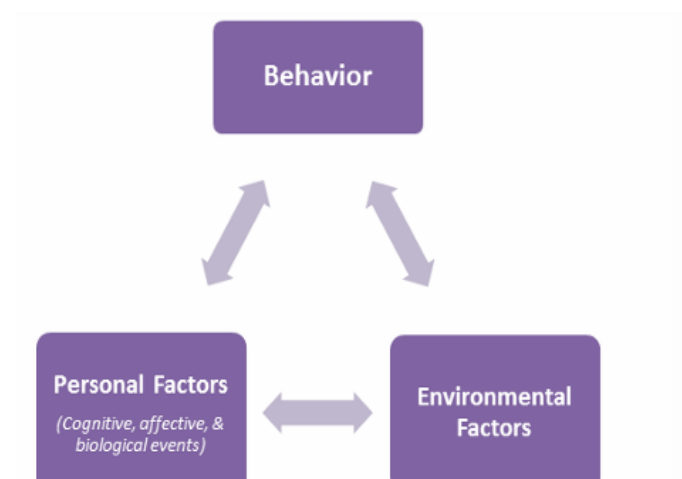
According to Bandura (1991), 'Social Cognitive Theory' was based on the premise that cognitive, behavioral, and environmental factors play roles in the learning process.

Bandura(1986), suggested that all learning phenomena could occur via observation of the actions of other individuals and the occurrence of the consequences .Wood and Bandura (1989), mentioned that observational learning can be controlled through four basic elements ,which include: attention, retention, reproduction, and motivation. Attention is the process through which individuals are selective and pick information through the activities of modeling. Retention involves processing and reorganising of information into rules and

concepts, which are then stored in the memory. The behavior that has been observed is executed in the process of reproduction. The last element is associated with motivation, which influences the learner to be attracted, practiced, and retained.

Figure 2.2

Adopted from Bandura's Reciprocal Determinism Model



Bandura, 1991

In 'Social Cognitive Theory', Bandura (1997), pointed out that imitation is not the only form of observational learning. People are seen as active agents who control, build, and drive their own actions, not simply repeating what they see around them. Within this framework, learners function as self-organising and self-reflective participants who shape their actions through cognitive processes and interactions with their environment. Based on this perspective, he identified the following principles, which serve as the basis for the learning process.

- **Human agency:** Human agency refers to a situation where the learners take conscious decisions to learn and to bring about changes in behavior. Agency is all about the ability to take meaningful action in pursuit of set goals. According to the 'Social Cognitive Theory', human agency is divided into personal, proxy, and collective (Bandura, 1997).

- **Self-Regulation:** Self-regulation is concerned with the self-planned thoughts, feelings, and actions that are planned and constantly optimised in order to achieve personal objectives. It functions in a succession of psychological sub components; these sub components are self-monitoring, judgmental evaluation, and self-reactive influences (Bandura, 1991).
- **Self-Efficacy:** The process of self-regulation revolves around self-efficacy. It is a self-belief about a person that he or she can successfully handle activities or happenings in their lives. This belief is brought about by the feeling that one has the necessary cognitive ability, motivation, and resources to do the task (Wood & Bandura, 1989). Self-efficacy in students is formed under the influence of four major information sources, which are :enactive mastery experiences, vicarious (observational) experiences, social persuasions, and psychological states (Bandura, 1997).

2.1.1.4 Factors Influencing Cognitive Complexity

Many variables can influence cognitive complexity, encompassing both internal and external factors.

2.1.1.4.1 Internal Factors

These factors are a series of inherent aspects, features, and mechanisms that mediate the complexity of the cognition and the interpretation of information by an individual. They are as follows :

1. **Cognitive Ability / Intelligence :** Cognitive ability can be described as the complex of competencies that help a person acquire, process, and understand information and use it in a proper way. On the other hand, intelligence is a range of the mental abilities such as reasoning, problem solving, abstract thinking, learning, and adaptability. People with

well-developed cognitive abilities can interpret unclear information better, hence making them to acknowledge and integrate divergent opinions in the evaluation of a particular situation. These competences are closely associated with the working memory, which allows keeping several conceptual items and managing them all at the same time (Stanovich & West, 2008; Kane et al., 2005).

Engle (2002), argued that the working memory is a kind of executive attention that influences the management and control of the cognitive processes that are essential to the extensive reasoning. In addition, Carroll (1993), pointed out that cognitive flexibility and abstract reasoning are two other dimensions of intelligence that enable people with a higher level of cognitive sophistication to identify patterns and relationships.

Neubauer and Fink (2009), stated that the concept of neural efficiency is that the more a person uses the neural substrates, the more intelligent a person is. Overall, cognitive ability is a central internal process that helps individuals to occupy their information processing depth, adjust to new situations, and come up with detailed explanations of their immediate world.

2. **Personality Traits** : Personality traits are some of the major dimensions used to describe persons. The psychology trait assumed that there are a finite number of such dimensions (extraversion, conscientiousness, agreeableness, etc.) each along which the person occupies a position (low, medium, high) with respect to a particular characteristic (Matthews et al., 2003).

The main characteristic of such traits is that they are continuous and can hardly be classified into separate types of personality. Personality traits are characterised by three key criteria, including (1) consistency, (2) stability, and (3) individual differences (San Miguel et al., 2025).

Goldberg (1990), also mentioned that there are five main characteristics that exist in the personality traits :

- Openness: The tendency to appreciate new art, innovation, different values, subjective feelings, and different ways of acting.
- Conscientiousness: The tendency to practice caution, punctuality, adherence to rules, and hard work.
- Extraversion: The talent to be talkative, sociable, enjoy interacting with people, and a domineering approach.
- Agreeableness: This is the tendency to fit in with others, to submit to everyone rather than to insist on his or her own.
- Neuroticism: The tendency to have frequent negative affect states, such as anger, worry, sadness as well as to be extremely interpersonally sensitive.

3. **Motivation** : Motivation is an internal psychological condition that drives individuals to purposeful behavior with the goal of accomplishing certain goals. Modern theory typically divides motivation into two major groups, which are explained below:

- Extrinsic motivation is external and is often material or symbolic in nature (trophies, financial gifts, social recognition, or praise).
- Intrinsic motivation, on the other hand, is self-enriching i.e., an individual can do a come what may with a taxing cross-word puzzle just out of the pleasure of solving a puzzle (Deci & Ryan , 2013).

A range of psychological theories has attempted to explain this phenomenon called motivation, where Maslows hierarchy of needs has elaborated a gradual line of requirements at a stage, the lowest being the most basic physiological needs, and the highest being the self-actualisation (Maslow, 1943) .

4. **Emotional Intelligence :** Emotional intelligence, more often referred to as emotional quotient, is the skill to identify, use, perceive, manage, and overcome emotional conditions (Filice & Weese, 2024).

Goleman (1995), argued that emotional intelligence plays an equally crucial role compared to traditional cognitive intelligence in achieving a certain level of success at both personal and life career. He identified five competencies of intelligence and emotions ,which include self-awareness, self-regulation, motivation, empathy, and social skills. These abilities are critical regarding how people manage their behaviors, chaos within the sociocultural worlds, and make decisions, which have positive consequences.

2.1.1.3.2 External Factors

There are numerous extrinsic factors that play an important role in cognitive complexity, and they include the level of education, culture, and social environments. They are as follows:

1. **Education :** Education in general can be related to delivering knowledge and learning skills, and developing the traits of the character. The formal education process occurs in organised institutional frameworks like the school system in a manner of following an established curriculum. On the other hand, the informal education also has a systematic approach but it is outside the normal schooling model whereas, the informal education would be the unstructured education based on the day to day life. The formal and informal divisions of learning also have a variety of levels, such as early childhood, primary, secondary, and the tertiary level of education. Besides, it is possible that the concept of education also refers to the mental conditions and features of educated people, as well as the academic field of study exploring the phenomena of education (Hoad, 1993).

2. **Culture :** Culture refers to the social practices, institutions, and rules that come to form in human societies, as well as the knowledge, beliefs, arts, laws, customs, skills, attitudes, and habits of the people in these groups. In other words, culture is usually formed in, or connected to a given area or place (Tylor, 2016).

The aspect of culture has a massive impact on how people interpret the world, how they communicate, and how they get to relate to their fellow human beings. It can be categorised into two mutually complementary categories, i.e., material and non-material culture.

- **Material culture:** This aspect of culture consists of the material objects, resources, and environmental objects that individuals use to define their culture. It is comprised of homes, neighborhoods, cities, equipment, production mechanisms, goods, shopping venues, and similar things. All these physical elements are involved in creating behaviors and perceptions of the members of a culture.
- **Non-material culture:** The non-material culture is a field in culture that deals with the abstract ideas that people will have about their cultural affiliation. It entails beliefs, values, regulations, norms, ethics, language, organisations and institutions. The beliefs, therefore, shape the manner in which a culture deals with its religious issues, events, and concerns (Macionis, 2015).

Culture is dynamic; it changes as time goes on because the processes of globalisation, migration, and technological development take place. There is also its dynamism that is critical in shaping identity, social cohesion, and shaping worldviews (Baker, 2012).

3. **Social Environments:** The social environment can be defined as the immediate physical and social places where individuals live, where things happen or where they develop. It includes the cultural setting that has defined the education and the present day living standard of a person, other people, and institutions to which they interact. Such

relationships can be direct in the face or with other types of the communication media that can be anonymous or one-sided (Barnett & Casper, 2001).

The early environmental experiences are important in developing cognitive and neural abilities in children. Lack of cognitive challenges in the early years may also limit the learning possibilities with long-term effects on the neural maturity, future educational, and professional performance (Smith et al., 2024).

2.1.1.4 Effects of Cognitive Complexity

Cognitive complexity has different instructional effects that can be mitigated to improve the way of instructing students in a way that facilitates learning. The subsequent sections will examine these effects:

1. Students with Increased Cognitive Skills Have Propensity to Achieve Higher

Grades: Cognitive ability may have an immediate effect on academic achievement. Students with high cognitive ability can encode the required information into memory more quickly and more accurately, and therefore can form more effective cognitive representations, leading to better academic outcomes in tests (Deary et al., 2006; Rohde & Thompson, 2007).

Conversely, when the levels of cognitive ability become extinct, some of this knowledge might not be retained in the process of learning, which leads to poor output of information and also poor academic achievement. The findings also imply that cognitive ability is usually of great importance in academic achievement (Miriam et al., 2011).

2. Complexity Influences Test Scores and Item Demandingness: Task complexity is a significant indicator of human performance and behavior, while difficulty is more subjective and can be affected by emotional factors such as motivation and anxiety (Ouhao et al., 2023).

Campbell (1988), illustrated that the relationship between complexity and test performance is clear, in which the more complex the task, the more cognitive resources will be required, and the more likely it is that someone will get it wrong, and the more difficult it is to self-evaluate. When it comes to item difficulty, complexity is very vital, particularly in examination, where an item that has high complexity may prove to be more difficult, even for high ability students.

2.1.2 Performance-Based Learning (PBL)

Performance-based learning is an educational approach that structures the curriculum around real-world tasks, requiring students to either produce a product, address a problem, or showcase a skill that can be directly seen and assessed (Berman, 2022). PBL replaced traditional assessment that relied on recall with evaluation embedded in the teaching process, so that the performance provided evidence of learning (Hibbard et al., 1996).

PBL Tasks are generally aligned with educational standards, necessitate higher-order thinking, and offer students the chance to utilise knowledge in practical situations, thus fostering a deeper comprehension and transferable skills (AlShamsi, 2023).

2.1.2.1 The Concept of Performance-Based Learning

Performance-based learning requires the students to perform, to act out, or to exemplify what they have learned in their learning. Through such activities, students develop tangible skills that can help them negotiate the disparity between the theoretical concepts and lived situations and therefore bring the academic knowledge into the real world. This way, students move the learning in the lecture hall into real-life, practical experiences, and this allows them the chance to develop their skills and gain new insights on the subject being examined (Gardner et al., 2010).

According to Hibbard et al., (1996), due to the balanced approach, PBL and assessment go beyond the traditional teaching of facts and skills. This synthesis emphasised the

complementary nature of knowledge and application and the fact that instruction is not limited to a memorisation process.

Students' learning can be transformed significantly by introducing the idea of PBL. It's a lot more interesting to students, and it's a lot more active learning for students who find it difficult to sit in one spot and listen to the teacher for a long period of time. The active learning theory indicated that students should take up the content comprehensively and acquire a better understanding of a topic that cannot be gained through the traditional lecture-based learning (Gardner et al., 2010).

PBL is supported with a net of interconnected elements, where the performance of the student is viewed as the most important indicator of achievement (Wiggins, 1993; Linn et al., 1991). The elements are the following:

1. **Authentic Learning Tasks:** Authentic learning tasks are closely linked to authentic learning contexts. The task gives students a framework for how they will do the task meaningfully, and the context is realistic for learning. Real-life learning tasks frequently present complex problems that will need students to utilise their knowledge, think critically, and use a variety of skills. These tasks can be group tasks, individual tasks or tasks that require self-directed learning. Moreover, authentic activities promote reflection and collaboration, enabling students to achieve multiple learning outcomes simultaneously (Herrington, 2006).
2. **Defined Goals and Objectives:** Performance should have well-defined goals to be achieved in terms of completion of tasks or how to achieve the objectives. These goals must be clear, thoroughly spelled out, measurable, and assessed in points. This framework is operationalised in terms of multiple assignments that would allow the students to improve their academic outcomes and meet the set objectives (Vuong & Nguyen, 2022).

- 3. Feedback:** Feedback refers to the information provided by an agent (teacher, peer, learner, and others.) regarding specific components of an individual's performance or understanding, used to help close the gap between an individual's current performance and his/her learning objectives (Hattie & Timperley, 2007).

According to Nelson et. al. (2021), the main goals of feedback are the minimisation of error, as well as the improvement of knowledge and skill training. It is used as an effective tool that can influence the learning outcomes positively. Feedback could be through various sources such as work environments, teachers, other learners, or even the computer systems, and could hold information about the present status of the learner, the desired location and the necessary actions and plans that need to be adopted to reach that location. This is not limited to the short-term and local effects of feedback, also its extended and long-term implications. Specific attention is given to the fact that it is essential to use feedback in order to develop the performance of a student in a task, strategy, or learning.

- 4. Reflection and Self-Assessment:** Reflection and self-assessment are meaningful practices that can promote an ability to learn from one's experiences, although they serve different roles and objectives. Reflection is a process that involves playing back a period of time related to previous valued experiences in search of significant discoveries or insights about oneself, one's behaviors, values, or knowledge gained. In contrast, self-assessment is an analysis of one's performance in order to improve it. Reflection and self-assessment help students examine their own thinking and establish their strengths, thus allowing students to develop their learning and problem-solving skills (Wasserman & Beyerlein, 2007).

2.1.2.2 Major Benefits of Performance-Based Learning

Performance-based learning previews the measurement and promotion of the actual performance of the students, but not just their learning. This approach is being increasingly popular among corporate training programs, higher education programs, and job promotion programs. It offers a more effective and interactive approach to the development of skills and knowledge. It emphasises practical applications and constant betterment to make sure that students retain information and use it in practice (Berman, 2007). Therefore, PBL has many benefits, and they include:

1. **Higher Engagement:** Student engagement involves the effectiveness of a student learning process in academic activities (Kahu, 2013). Engagement is exhibited when students actively explore the already acquired knowledge and insights in the learning settings. Student engagement is therefore measured with the level of time and effort invested by the students in activities that are of academic significance; such engagement includes participation in group work, communication with teachers and the accomplishment of the learning activities (Attard & Holmes, 2020).

Students involvement also provides a positive results in cases when the students are active participants in all learning activities and adhere to the guidelines, including submitting assignments on time. The use of PBL in the classroom will improve lessons and evaluations, making them more engaging to the students who will understand the importance of learning in the contrasting sense of immersion (Skinner& Pitzer ,2012; Smowl, 2024).

2. **Fostering Critical Thinking and Problem-Solving Skills:** Critical thinking refers to the ability to analyse information, evaluate evidence, and form sound arguments. While, problem-solving encompasses the ability to recognise, assess, and devise solutions for complex issues (Facione, 2011).

According to Bell (2010), such intense practice not only sharpens students' cognitive ability but also fosters creativity, thus making them prepared to face the challenges of the real world with the necessary competencies.

3. **Engaging Students in Active Learning:** Active learning, as Bonwell and Eison (1991), described it is a pedagogical model where students do not receive information passively, but they are involved in the learning process. Students' level of participation depends on the level of participation that is mandated. Such a way of learning is essential to profound, long lasting- remembrance.

In particular, PBL encourages working actively since it engages students in practical activities, teamwork, and practical tasks. Through such an interactive approach, teachers not only win the interest of the students but also enable them to take charge of their learning advancement. The students therefore, begin to acquire a greater sense of ownership of their learning process, which is then translated into a higher level of engagement and better academic performance (Prince, 2004).

4. **Preparing Students for Real-World Challenges:** In modern practice, knowledge is actively used in practice, but it is not limited to written tests. Problem-solving, creativity, and task execution are competencies that are essential whether in workplaces or daily lives. PBL presents a living example of this practical requirement since it assesses the abilities of students to complete certain tasks instead of memorising materials. This instructional methodology enhances the contextualism and practicality of learning among students, enabling the impartation of skills, which are relevant to their career paths as well as personal life (Fertal et al., 2013).
5. **Using Personalised Learning Experience:** Personalised learning is a teaching method where the teaching process is adapted to meet the unique learning needs, strengths, and interests of an individual student. This method is based on the principle that students learn

in different ways and can achieve their full potential when the mode of learning is designed according to their unique needs, instead of following a homogenised strategy. Personalised learning can include an array of educational methods, such as educational technology integration, but the development of customised learning plans and provision of experience-based learning opportunities are the key aspects of it (Martinez, 2013).

PBL provides students with a more meaningful learning experience, instead of simply rehearsing memorised facts, students are also asked to relate their knowledge, skills, and creativity to real life application. Through evaluating the students' capacity to do tasks that can be applied in their sphere of study, students gain a more thorough understanding of the material covered in the subject and its practical implementation (chen, 2011).

- 6. Improving Academic Performance:** Academic performance refers to the measurement of student achievement across various academic subjects. Teachers usually use classroom performance, graduation rates, and results from standardised tests to measure achievement (Conesa, 2024).

Improving academic performance by using PBL and assessment involves aligning the teaching, learning activities, and evaluations with real and authentic tasks which require students to actively apply their knowledge, skills, and upper order cognitions (Yaghoubi et al., 2025).

2.1.2.3 Challenges of Performance-Based Learning

Performance-based learning can pose specific difficulties for students, particularly when they do not receive sufficient support during the process. Additionally, teachers may encounter challenges when applying PBL.

2.1.2.3.1 Challenges for Students

There are several challenges faced by students when engaging in PBL, such as the following:

1. **Resource and Equity Issues:** Educational equity is one of the core principles that promotes the right of education to everyone without being dependent on socio-economic status, geographical location, or personal conditions. Nevertheless, inequality in access to computers, software, and lab equipment, as well as silent learning spaces, continues to exist, especially in low-income regions and rural communities. These inequalities can be carried by the inability of students to successfully demonstrate their competencies (Wu, 2024).

While PBL implies the use of digital research, multimedia presentations, or scientific experiments. As a result, educational institutions need to address these deficiencies and offer resources (loaner devices, additional laboratory time, or a policy of flexible deadlines) to reduce the effects of resource inequity (Vea, 2024).

2. **Performance Anxiety and Collaboration Dynamics:** Performance anxiety is identified as a common condition among students, which is associated with feelings of being apprehensive and fearful of being negatively evaluated during self-presentation. Such anxiety may be physiological, cognitive, and behavioral. Anxiety can be provoked by such situations as a presentation, a group project, or even a public demonstration, especially when it comes to shy students, students with speech or language impairment, or those facing social-emotional issues. Moreover, team work is prone to disagreement over the matters of roles and duties or even the degree of commitment. Teachers must define the rules of collaboration, support the development of presentation skills, and create an atmosphere in the classroom that will promote the willingness to take risks and not punish failure (Vea, 2024).

3. **Time Management and Self-Regulation Skills:** Time Management refers to a methodological approach of planning, organising, and prioritising activities and tasks to attain the greatest efficiency in terms of time. The process is characterised by goal setting, schedule designing, and conscious deployment of time to various activities (Britton, 1991). In contrast, self-regulation is the ability to handle emotions, thoughts, and actions to achieve goals that are long-term and, thus, promote personal and professional success (Zimmerman, 2000).

Besides, students engaged in longer, more complex tasks with multiple steps require planning, monitoring, and controlling deadlines effectively. For those who have difficulties with executive functioning, it can be challenging to break down a project into smaller parts, monitor progress, or seek help when needed. Educators should embed checkpoints, provide graphic organisers or planning templates, and teach time-management techniques to support all learners throughout the learning process (Vea, 2024).

4. **Clarity of Expectations and Feedback:** It is a requirement to have clear expectations as a precondition to effective feedback processes and performance management. This level of explicitness will make sure that all the stakeholders understand the targeted results and how their efforts are going to be integrated into the larger systemic picture. Indeterminate or vague expectations induce apprehension and unsettlement on the contrary, unambiguous expectations are the cause of understanding and create a channel towards success. In case the expectations are not adequately defined, students might feel ambivalent about the ideas of success. Accurate feedback is an essential tool that students use to understand what defines high-quality work and to modify their approaches to it accordingly (Hattie & Timperley, 2007).

2.1.2.3.2 Challenges for Teachers

The following are the most common challenges that educators face when applying PBL:

1. **Time-Consuming Development and Scoring :**It takes a lot of time to develop and prepare authentic standards-aligned tasks. Teachers should create situations or projects that are realistic in terms of curricular goals and real-life uses. Once students have finished these tasks, the process of evaluation will involve developing detailed rubrics and will usually involve gathering and assessing artifacts, such as portfolios or presentations. The process is significantly more time-consuming compared to the evaluation of traditional tests, which elevates the strain on the already limited planning and grading time (Vea, 2024).
2. **Need for Professional Training and Calibration:** Teachers are often considered to be the basis of student achievement. Their abilities to interact, inspire, and educate students adequately determine the learning environment and have a profound impact on the academic performance. However, teachers should be trained continuously, given a chance to grow professionally and provide data-driven insights to truly foster the growth and success of their students. Training in such spheres as the differentiated instruction, classroom management, and social-emotional learning support the educators to address the students and their needs in a better way and to consider their academic and emotional needs. Unfortunately, not all teachers are prepared well in designing or evaluating PBL (Bransford et al., 2005).
3. **Balancing Workload and Instructional Demands:** The instructional workload includes the design of the curriculum, writing of lesson notes, engaging the learner in the classroom, observing student performance in the classroom, and conducting a continuous evaluation of the student. Sharing administration roles and devoting some time to curriculum planning, implementation, and revision are essential to effective workload

management in teaching. The quality of instructional implementation perceived depends on the professional knowledge, skills, areas of specialisation, and experience of teachers (Ayeni & Amanekwe, 2018).

Some teachers in various schools have to face an excessive workload, which consequently affects their teaching performance (Clarín et al., 2021). Additionally, the instructional effectiveness of teachers can be negatively influenced by the way other workloads should be handled. Quite often, teachers are confronted with work stressors that affect their ability to cope with their workload. When the workload is effectively administered by teachers, they are likely to deliver better performance in teaching. Therefore, the ability of teachers to cope with their workload is one of the important predetermines of their performance (Pagocag & Lumapenet, 2022).

On the other hand, high workload on the teachers contributes to burnout and low instructional performance. Teacher burnout turns out to be a result of their requests, especially those that pertain to workload, administration, and confusion about their duties (Chan et al., 2021).

4. **Ensuring Equity and Access to Resources:** Particular performance activities demand technology, special materials, or group learning activities. In the schools, where resources are scarce, educators often face the challenge of providing the necessary materials, which could create disparities in the experiences of students. As a result, teachers will have to devise other plans or find other aid that would allow all students to be fully engaged and without inequity (Vea, 2024).

2.1.2.4 Measuring Performance-Based Learning

In Performance-based learning, the students are required to show and put into practice a holistic understanding of the concepts and abilities. It can be done in various ways, including

observing students' behavior, engaging them in written tasks, and using analytic rubrics (Myers, 2021).

PBL allows students to participate in rich, contextualised activities, which allow them to choose or create assignments that are personally meaningful. These individualistic approaches can give more fair evaluations than standardised assessments since they can accommodate students with different learning experiences and backgrounds. Moreover, PBL allows the instructors to use the most suitable instructional practices conducting each student, thus minimising the bias by considering the extraneous variables during assessment design that can affect the performance of the students (Lam, 1995).

When it comes to behavioral analysis, two key approaches of assessment must be differentiated: descriptive and indirect. Descriptive assessment entails a systematic and direct observation, which entails accurate measurement of the target behaviors as well as the pertinent environmental events by means of repeated observation as well as coding. This approach produces empirical and time-sensitive information on behavior-environment interactions, which is not possible with other approaches (McComas et al., 2009).

Conversely, the indirect approaches, including interviews and rating scales, have other purposes, as they collect the views of the informants on the typologies of behaviors, contextual patterns, and reactions to interventions. All methodologies have their own advantages and disadvantages that influence its functionality and the best time of application in behavioral measurements (Lam, 1995).

Conversely, writing is an exercise of skills that allows students to express their own ideas, convictions, habits, and other concepts, and thus be able to comprehend and explain the subject matter effectively (Brown, 2001). Writing performance, on the other hand, is the actual application of language in real life situations. Often, this competency has been defined

as a unique ability that can be nurtured either by practice or by being taught (Alvermann, 1989).

While a rubric serves as a rating sheet enabling instructors to gauge the level of competency each student has achieved in a particular concept being discussed, it normally provides competency levels based on numerical ratings or neutral terms. There are four levels that are usually regarded as the best: Exceeds Expectations, Adequate, Needs Improvement, and Inadequate. Alternatively, a three-point scale can be used: Consistently Successful, Making Progress, Needs Improvement (Brualdi, 1998).

PBL measures various skills, and rubrics are thus commonly used to mark these tests. Portfolio rubrics are expected to be rather general, though portfolio rubrics used in projects, on-demand assignments, and exhibitions have to be specific to the assignment. The scoring rubric will evaluate students in terms of the quality and depth of their research, writing skills, and the visual presentation that will be included in the scoring rubric (Myers, 2021).

2.1.3 Autonomous Learning (AL)

Autonomous learning is a multidimensional and complex approach. It can be described as the ability of the learner to be able to self-direct his or her own learning process, and this means to make decisions on the different facets of the learning process. However, AL involves more than just managerial considerations. Mainly, it involves critical thinking, planning, learning evaluation, and reflection, which is a conscious process by the learners to constantly have a check on the learning process since the beginning until the end (Benson, 2001).

2.1.3.1 The Concept of Autonomous Learning

Autonomy refers to liberty and the power to govern oneself. In the education sector, autonomy is strongly associated with a special kind of freedom, which defines the learning process, the teacher -student relationship, or the institutional environment. It also includes such concepts as negotiation, involvement in the classroom decisions, reflection, choice, independence, self-evaluation, cooperation, and others (Horváth,2007).

Little (1990), argued that AL is not a process of studying alone without the teacher. Practically, the students are not left with full responsibility of their learning. It is neither a pedagogical method as such, nor an observable and easily described pattern of behaviour. Neither is it an absolute, eternal state that learners are bound to reach.

AL is a complex construct. Holec said that it is the ability of the learner to act as the director of their own learning, meaning that a learner is responsible for making any decision concerning different parts of the learning process. The choices of students in self-directed learning are mostly managerial in nature, at the behavioral levels of learning, self-direction deals with applied aspects like the materials to be used, the method, the locus where learning occurs, the time of learning, and people with whom the student learn among others (Holec,1981).

An autonomous learner is essentially a reflective person who is actively involved in reflective learning. Autonomous learners do not just take responsibility at the managerial level but also at the cognitive level since Little explains that these learners are willing to understand what, why, and how they are learning (Little, 1996).

Such learners are usually methodical, reflective, adaptable, adventurous, curious, and self-driven. They have a good view of themselves; they know how to seek others to help them and have the necessary interpersonal skills (Candy, 1991)

However, AL cannot be achieved without autonomous teaching. A self-reliant teacher is an autonomous, independent professional that is ethically responsible in his or her teaching. The autonomous teacher does not act as a transmitter of knowledge but performs the roles of organiser, advisor, and storehouse of knowledge (Fischer, 1996).

2.1.3.2 Historical Background of Autonomous Learning

The concept of autonomous learning became part of Western scholarship in the 1960s and has been a key focus of research in the field of education ever since. AL was first operationalised by Holec as the ability of language learners to decide on their own about the purpose of learning, the choice of goals, the choice of appropriate materials, tasks, and methodology, to meet assessment requirements independently (Holec, 1981).

Little (1991), put AL into perspective of psychological involvement of the learner to the process and the content, and holds that it is to do with self-directed, critical thought, action, and decision-making.

By building on this, Zimmerman (1990), argued that learner autonomy is realised when a learner actively takes part in metacognition, self-motivation, time management, and learning behavior management.

Some scholars believed that AL has its origins in Western theory and have a long-standing interest in exploring its cultural flexibility in learning foreign languages in a variety of environmental conditions (Schmid, 2018).

AL was not only taken as an instructional strategy, but also a means through which the true nature of learning is explained. It included the teaching of the content, the choice of

pedagogical tasks, and the use of instructional resources, which would increase the competence of students in listening and speaking and thus to improve their performance in reading and writing at school (Andriani et al., 2018).

2.1.3.2 The Importance of Autonomous Learning

Autonomous learning is progressively being considered as a new way of learning English. Conversely, autonomy in language acquisition is the process whereby people take more responsibility for the goals they have established on language learning, and this means they use it to reach those goals (Benson, 2001).

One of the most important aspects of learner autonomy is that language learning is a lifelong process, and learners often learn more outside than in the classroom (Lee, 1998). AL provides people an opportunity to study independently through effective time management, independence, creative thinking, and an open mind (Hoo et al., 2022).

All people, and adolescents, in particular, should adopt the concept of AL because it would allow them to obtain knowledge independently on their own, understand their own strengths, and develop the skills that would give them a competitive edge thus, improving their self-efficacy (Jing et al., 2025).

AL is critical to language learning due to a number of reasons (Ramírez Espinosa, 2015). First, it enables the students to be in control of their learning process. Second, it will enable students to be independent users of the language, a requirement for learning and application. Third, students would become more independent and understand that the teachers are not always ready to help them study. Fourth, independence in learning helps in motivation and natural passion towards learning. Last but not least, an independent student is more confident in his or her understanding.

Many researchers emphasised the importance of autonomy in the process of education. Khalid et al., (2020) have encountered a positive association between AL and skills of time

management, goal-setting, academic performance and critical thinking abilities in learners. Additional research by Vansteenkiste et al., (2010) indicated that students with autonomy tend to be more interested in their education and to have a stronger sense of ownership over their educational experiences. Such an investigator asserted that such a feeling of ownership may positively influence motivation and perseverance, thus making the difference between academic success and failure.

The process of teaching students how to learn and keep them motivated to learn is one of the most important aspects of the educational process. Providing learners with autonomy can help them to develop a high level of creativity and independence. The current understanding of autonomy is that it is a preferred learning end result. One of the key objectives of instructors and educators must be to inculcate autonomy in a learner. On the other hand, autonomy in learners is the pillar of lifelong learning. There is no doubt that the challenge of every teacher is to increase the ability of students to study on their own. Various arguments justify the aim of developing self-sufficiency among students, which in turn can improve their performance in learning the target language (Yan, 2012).

Little (2003), suggested three essential reasons that support this line of thought. First, students are more aware and attentive to their learning when they are actively and reflectively engaged with their learning process, which results in a more productive and effective learning experience than the instances of disengagement. In other words, the material taught in the educational settings will be more likely to correspond to the overall goals of the learners. Secondly, motivation is also an intrinsically addressed issue in case students become proactive in their learning. Even though they are not always in a good mood about all the things in their educational experience, independent learners develop reflective and attitudinal competencies that would enable them to overcome temporary motivational deficits.

The third justification, as it was suggested by Little (2003), is about second and foreign languages. Effective communication requires a complex set of procedural skills that cannot be taught but only learned through practice since much of the language learning process relies heavily on practice, learners who have a high degree of social autonomy in their learning environment are likely to find it easier to attain proficiency in the whole range of discourse roles that are necessary to achieve effective spontaneous communication.

2.1.3.3 Factors Influencing Autonomous Learning

According to the latest empirical findings, Autonomous learning is currently emerging as the most efficient pedagogical method of language acquisition (Pedley et al., 1998). The construct is often referred to by equivalent terms like self-direction, independent learning, and self-learning, which summarise similar concepts. It is common that learners who reflect this paradigm are characterised by a high level of enthusiasm and a strong feeling of responsibility towards their personal education, which is associated with high academic performance (Wang et al., 2016).

Autonomy, when it comes to language learning, involves the ability to control and actively manage what is learned in the curriculum and how the learning takes place in the mind. Students must recognise and embrace their intentional engagement through the learning process. This type of self-identification is enabled by the intentional development of specific learning actions and the choice of the most favorable instructional techniques and resources (Richard & Rodgers, 2014).

However, there are numerous influences that may support or slow down the process of learning autonomy development. Such influences are normally categorised as intrapersonal (internal) and extrinsic (external).

2.1.3.3.1 Internal Factors Influencing Autonomous Learning

Internal factors encompass learning strategies, awareness, metacognitive strategies, cognitive strategies, and critical theory (Tran & Vuong, 2022).

1. **Learning Strategies:** Begum and Chowdhury (2016), found that the use of different learning strategies has a powerful connection with learning autonomy; such strategies can either support or hinder learners on their way to autonomy. Besides, psychological variables play a critical role in learning autonomy, which includes motivation, attitudes of learners, and anxiety.

Wenden (1998), argued that attitudes of the learners have a significant influence on the autonomy of learning, especially when inadequate efforts are channeled on autonomy learning. According to Zhao and Qin (2021), there are arguments that diligent learners tend to be more inclined towards learning goals and usually maintain a positive attitude toward the learning process.

2. **Awareness:** Awareness refers to the conception or understanding of a particular field. It also encompasses self-awareness, which involves the awareness of what one does, thinks, and feels. Awareness plays a crucial role in the case where learners engage in critical thinking about the learning processes, motivation, and the difficulties that they face. This type of self-awareness helps students to participate in metacognition, the process of systematically analysing their cognition, which is essential in the process of learning and personal growth. Therefore, awareness forms a ground base to making significant self-evaluation and advancements in education settings (Flavell, 1979).
3. **Metacognitive Strategies:** Metacognitive strategies refer to skills that assist individuals in learning and controlling their learning processes. These strategies are normally classified into two major constructs: metacognitive knowledge and metacognitive regulation. Metacognitive knowledge is the awareness of cognitive activities that one has,

such as the of which strategies are most effective in various tasks. Metacognitive regulation, in turn, is the process of planning, monitoring, and assessing the activities in one's learning (Ajayi, 2024).

Students who participate in such strategies successfully will have more control over their learning process as well as enjoy more responsibility regarding their academic progress. Furthermore, these strategies facilitate greater cooperation and trust between language learners, especially in foreign language settings (Leaver et al., 2005).

4. **Cognitive Strategies:** Cognitive strategies are a collection of mental processes utilised by individuals in a conscious way to control their thoughts and to process information, the express objective of which is the attainment of predefined goals or the resolution of problems (Cameron & Jago, 2013).

During the process of language acquisition, learners can utilise their cognitive abilities and use a variety of methods, such as repetition, resourcefulness, translation, note-taking, deduction, contextualisation, transfer, inference, and the elicitation of clarifying questions. By acquiring such techniques, learners will be able to take part in self-directed learning (Tran & Vuong, 2022).

5. **Critical Theory:** Critical theory provides an important understanding of the issues people face when it comes to the new social realities, which are usually treated as a given or even a norm (Parry, 2023).

According to Leaver et al., (2005), analytical thinking is very important in promoting independent learning. Instead of trying to understand and explain all the factors, this practice promotes critical thinking and growth.

2.1.3.3.2 External Factors Influencing Autonomous Learning

External factors, conversely, encompass the teacher, the tasks, and the environment (Tran & Vuong, 2022).

1. **The Teacher:** Considering the rich body of literature, the most useful tool in promoting AL involves the role of educators moving beyond their more traditional role as mere information imparting teachers within the conventional classroom setting, because the ability of students to self-regulate their learning does not imply that they would engage in self-regulation in practice (Teng, 2019).

Kemala (2016), claimed that skillful teachers give students a chance to define their learning goals themselves, as well as to choose the appropriate learning instruments. According to Alonazi (2017), the role of the instructor should be various; that is, the teacher has to act as a guide, as a resource, and as a facilitator to allow students to become more independent. Additionally, the results of Le and Tran (2022), indicated that most EFL students are more engaged when instructed by a teacher who shows a true interest in the process. Students believe that the enthusiasm of the teacher will be turned into higher academic success and engagement in the classroom.

2. **The Tasks:** According to Kemala (2016), tasks have a significant impact on AL activities, and these impacts are either positive or negative to the students. In situations where students are exposed to challenging and stimulating assignments, they are likely to have enhanced intrinsic motivation. On the other hand, students can be dissatisfied whenever they are challenged by repetitive assignments.
3. **The Environment:** Benson (2001), assumed that environmental factors, including situational and social contexts, play an important role in influencing AL. The active involvement of parents, siblings, extended family, friends, and educators enhances the social aspect of education immensely. In contrast, self-directed learners also find social

interaction with other learners very beneficial, and hence enable them to learn in a collaborative setting. Due to this reason, students usually feel easier to collaborate in such a social environment.

Kemala (2016), argued that the motivation to learn increases in students when they actively participate in the group activities, specifically because group activities allow sharing the ideas, learning with each other, and inspiring each other.

2.1.3.4 Challenges of Autonomous Learning

Scholars believed that some people are more likely to become self-sufficient than others. Therefore, educators may have a duty to teach students how to develop the skills needed to achieve autonomy and to support them in their search. It should be noted, though, that students cannot be forced to practice AL. Instead, the focus should be on making it easier for those who want to guide their own language learning and development (Harmer, 2015).

One of the main problems facing AL is the lack of motivation and perseverance on the part of the learners. Even though autonomy might enhance the engagement of a minor group of learners, it may trigger anxiety, procrastination, or diminishing interest in other learners, especially in the presence of a challenging and unclear task. The self-determination theory stated that autonomy has to be complemented by relatedness; in that case, autonomy alone will not be effective in maintaining intrinsic motivation when learners feel that they are incompetent or lonely (Deci & Ryan, 2013)

AL also presents difficulties in terms of limited access to guidance and feedback. Without immediate evaluative feedback by the teachers, or by peers, students can misunderstand, internalise errors, or be unaware of gaps in their understanding. Although the pastor-scholar role of the instructor is unnecessary in case learners are held responsibility for their learning, the facilitator-advisor role of the instructor is indispensable in order to protect the quality and direction of learning (Holec, 1981)

The development of AL is often hindered by contextual and technological constraints. Unequal access to education resources, digital tools, and supportive learning environment puts many learners in an unfavorable position. In addition, dominant cultures in some education systems and settings conform to the teacher-centered teaching method, thus making the transition to learner autonomy awkward or disorienting to the student. Social, institutional, and cultural aspects regulate learner autonomy, which can either enable or hinder the successful execution of learner autonomy (Benson ,2001).

Borg and Al-Busaidi (2012), found the following threats that an educator often has to deal with in an attempt to promote learner autonomy in the process of teaching English:

- The curriculum does not have enough room to learn independently.
- Students are not accustomed to non-directional learning, which makes them unprepared to take initiatives.
- There is an apparent lack of motivation among learners.
- There is excessive dependence of the instructor on students to guide and direct them.
- There is little exposure of the learners to the English language outside the classroom.
- Students give more emphasis on passing exams rather than learning the actual language.
- There is a lack of sufficient materials both to the instructors and to the students.
- Students find it difficult to utilise the learning resources that they have.
- English proficiency of the learners is low, which restricts the practice of autonomous activities among the learners.
- Curricula and resources that are prescribed provide limitations that are not easy to avoid.
- Teacher autonomy is also significantly low, which minimises the ability of the teacher to apply the strategies that are learner-centered.

- Teachers commonly have unrealistic imaginations about the abilities of students, hence compromising the autonomy process.

2.1.3.5 Teachers' and Students' Role in Autonomous Learning

Autonomous learning is a dynamic nucleus comprising teachers and students. The old-fashioned view of the educator as a dispensable source of information has been replaced: modern-day educators are more of facilitators, guides, and scaffolding agents who progressively develop the competencies needed to engage in the study independently (Yan, 2012).

At the same time, students are challenged to play an active role in the learning process. Individuals who become autonomous in their learning process invariably show exhibited initiative, self-drive, and reflective ability as far as their strategies and progress are concerned (Little, 1991). Each role is explained below.

2.1.3.5.1 Teacher's Role in Autonomous Learning

Yan (2012), stated that in leading an autonomous learning process in a classroom, teachers play indispensable roles of facilitator, managers and organisers, counselor, resource provider, and give learners the opportunity to attain independence, but at the same time provide the necessary structure and support. Their roles and responsibilities are listed in a consolidated list below:

- 1. Facilitator:** Voller (1997), explained that educators must take on the role of facilitator to make the progress more flexible and successful. A facilitator offers psycho-social support, as well as technical support. Psycho-social support implies the ability to drive the students and develop their self-awareness. Technical support entails the facilitation of planning and undertaking learning tasks by students, facilitation of self-assessment by the learners, and promotion of skills and knowledge acquisition.

When analysing the role of a teacher as a facilitator of AL, it is clear that autonomous English learning does not literally imply that learners work in isolation. Students who are undergoing the process of acquiring autonomy still need the assistance of teachers in their attempts to acquire the highest possible levels of achievement. Teachers as facilitators must work very hard in order to streamline learning as well as to motivate learners to realise their potential. It involves assisting learners in strategising and engaging in really learning language independently, facilitating the acquisition of knowledge and skills, and encouraging the learners to take and do things actively and on their own. The facilitative process involves encouragement and support by teachers. The teachers motivate commitment among the learners and ensure they overcome uncertainty and anxiety and overcome challenges (Yan, 2012).

2. **Managers and Organisers:** Teachers carefully plan and organise teaching resources and exercises to suit the interests and abilities of learners, and as such, instructions are crystal clear and learner-friendly. They create positive learning environments in classrooms that encourage scholars to take their studies seriously. Therefore, teachers design learning contexts in which students are empowered to explore the process of acquiring knowledge (Alonazi, 2017).
3. **Counselor:** Teacher as a counselor, is a role that is often observed in academic debates on the autonomy of language learning. Overall, it can be generally assumed that a counselor is a person who provides guidance to those who require it. Counseling helps the learners to share their successes, problems, and potential remedies with a positive interlocutor (Kongchan, 2008).

Voller (1997), asserted that counseling is based on the one to one interaction. The role of the counselor is similar to that of the supervisor, who helps the learners to become more self-directed.

Richards and Rodgers (2014), stated that a teacher-counselor should be a competent communicator who will attempt to maximise the engagement of the learners by means of interpretation, confirmation, and feedback. Simply put, when a teacher takes the position of a counselor, he/she gives advice and help learners so that they can be more effective in the way they learn and apply the target language.

4. **Resource Provider:** The teacher, as a resource provider, has a great role in enhancing the conditions of learning since he/she promotes the autonomy of the learners. It is done by helping students identify a wide range of knowledge resources and effective learning strategies. This type of teacher is particularly appropriate to students who study independently but also need instructional support (Voller, 1997).

According to Yan (2012), the teacher is supposed to be the most important language resource whose responsibility is to provide the necessary input. The role of a teacher as a provider of resources exposes interesting pedagogic opportunities. Teachers become builders of activities, constructors of new learning places.

The development of autonomy implies that learners must have access to the relevant resource materials, used either as individuals or in groups. In situations where the roles are played, the educators help in the development of autonomous, motivated, and efficient lifelong learners without losing the balance between teaching and teaching independence (Ravet & Layte, 1997).

2.1.3.5.2 Students' Role in Autonomous Learning

Students are engaged in a process of self-directed learning, in which they will become genuinely independent students. Such metamorphosis is not so instantaneous, but it occurs as the students follow clearly defined phases. They are highly dependent on their teacher, constantly trying to be guided and follow the instructions of the teacher strictly. However, the student learns to appreciate the need to become independent of the teacher, though they also

recognise that individual learning is not enough. Even when working as a team, they still rely on the scaffolding of their teachers or fellow students. At this point, students are explained as interdependent, a stage at which they have to cope in any environment to move to a more advanced form of interaction that makes them be in touch with the world rather than keeping them out of it (Kemala, 2016).

There are seven hallmark traits that have been identified in the literature to describe an autonomous language learner. The first one is to identify the strategies and learning styles used by the learner. Second, they are to be proactive towards learning activities. Third, they are characterised by the readiness to make big risks to enhance their language competence, which includes speaking the target language no matter the conditions. Fourth, they reflect the ability to come up with informed guesses. Fifth, they give an equal concern to form and content, prioritising accuracy and appropriateness. Sixth, they build up a personal reference system in the target language, quickly overruling theories and rules that are untenable. Seventh, they are sociable and approachable in communicating with the native speakers. According to empirical research, learners keep logbooks, self-reports, diaries and assessment sheets, among others, to keep track of their progress (Thanasoulas, 2009).

Similarly Nunan (2014), defined five stages of ensuring student autonomy. The first one has its core on sensitising students to the goals, content, and procedures that form the foundation of the resources they use; this is the first step in the high levels of autonomy. In the second stage, students begin to move beyond mere awareness and to actively participate in the process, choosing between a storehouse of materials and choices of methodology. The third stage encourages them to individualise the learning process through the modification of the goals, materials, and tasks. At the fourth stage, students set their personal goals and design their own materials and design individual learning tasks. Finally, at the fifth stage, the truly autonomous student eventually goes beyond the boundaries of traditional learning

contexts, such as the classroom, self-access center or one-on-one lesson, and continuously builds his/her own learning materials by utilising communal resources, independent of the assistance that is usually offered in a formal education system.

Autonomous learners are therefore those who have the faculty of reflection to measure their learning progress based on an in depth knowledge of the learning continuum, and are those who show interest in the collaborative study. Such learners understand the aim of their study programmes, take personal responsibility for their learning, define learning goals, plan and implement activities by themselves, and continuously assess their learning. Conclusively, modern research confirms that learner autonomy depends on awareness, a good attitude, reflective ability, and a proactive attitude toward self-management and interaction with other people (Najeeb, 2013).

2.2 Related Previous Studies

Considering the importance of cognitive complexity, performance-based learning, and autonomous learning, and their interrelations, it is unfortunate that no studies exist that explore correlations between these variables. However, there is a significant amount of research focusing on at least one of these variables. This review is intended to cover the following aspects:

- Aims
- Samples
- Instruments
- findings

2.2.1 Koné (2015)

This thesis which is entitled as "The Impact of Performance-Based Assessment on University ESL Learners' Motivation" investigated how performance-based assessment influences the motivation of university ESL students. In order to meet the goal of this thesis,

data have been gathered among 21 international ESL students undertaking an intensive oracy course designed to be taken by non-native speakers. Online motivation questionnaires were conducted to assess the emotional and motivational reaction of these students to performance-based assessment, which was an oral presentation project to both the pre implementation and after implementation of the project.

The results indicated that students were positive towards such a project. They were however, different in the motivational and emotional states as time went by depending, on their experiences in the oral presentation, their individual performance, and the cohesiveness of their group.

2.2.2 Moghaddam et al., (2022)

The aim of the current study which is entitled "Impact of Cognitive Complexity of Tasks on EFL Learners' Individual and Collaborative Written Performance", was to question the effects of cognitive task level on the personal and group written-task achievement of Iranian EFL students, with specific attention to the aspects of complexity, accuracy, and fluency. In this respect, seventy intermediate Iranian EFL students, both male and female, undertaking undergraduate studies in Azad University of Arak, were selected purposely through the Oxford Placement Test. The participants were told to undergo a set of writing exercises, both individually and with others, and the researcher assessed the cognitive complexity involved in the writing exercises, as regards to the reasoning requirement and the prior knowledge that is required.

The result of this investigation has a strong pedagogical implication for teachers, syllabus constructors, and curricular developers, which means that a carefully-staged instructional process is required to prepare students with the ability to learn the cognitive process involved in the tasks.

The study therefore finds that these pedagogical suggestions cannot be ignored by teachers, syllabus authors and curriculum writers since they need to structure teaching processes in such a way that enables students to tackle the cognitive challenge that lurks within their tasks.

2.2.3 Yasir (2022)

The aim of the study which is entitled as "The Correlation Between Iraqi EFL Preparatory School Students' Perception of Deductive/Inductive Learning and Autonomy With Their Performance in Receptive Skills", was to examine the perceptions of EFL preparatory school students studying in Iraq in regards to deductive and inductive learning, students' autonomy, and the students' performance in the receptive language skills. It analysed the interrelations of perceptions of deductive/inductive learning, autonomy among students, the performance of their receptive skills, and how these perceptions can be used to describe performance discrepancies that are observed.

The sample composed of 385 students who were selected from the various preparatory schools within the Karbala governorate education directorate and who represented a variety of districts during the 2021/2022 academic year. A questionnaire was used to obtain the data required to measure the perception of students towards deductive and inductive learning, another to measure their independence and a proficiency test that would measure their level of performance in the receptive language skills.

Statistical results revealed that students in Iraqi EFL preparatory schools had negative attitudes towards deductive and inductive learning, had low autonomy, and moderate levels of receptive language proficiency.

2.2.4 Sabah and Kamil (2023)

This study which is entitled as "The Relationship between Iraqi EFL Preparatory Students' Cognitive Load and Reading Comprehension", focused on two main objectives. First, it aimed to determine the cognitive load of the Iraqi EFL preparatory students and their reading comprehension abilities. Second, it explored how these parameters of cognitive loads are interrelated with the results of reading comprehension of the students. In order to achieve these objectives, the research design applies the Cognitive Load Subjective Rating Scale (Pass, 1992; Leppink et al., 2013) and the Reading Comprehension Test (Coleman, 2020). The second preparatory schools in Baghdad of Al-Karkh were randomly chosen as a group of 345 students.

The initial research results indicated that the subjects portray a significant cognitive load along with high reading comprehension. Besides, data showed that the intrinsic and extraneous cognitive load has negative correlation with reading comprehension, but the germane load had a positive association. Such findings highlighted the fact that Iraqi EFL preparatory students report a substantial cognitive load with strong reading comprehension abilities. Also, the research established that an increase in intrinsic and extraneous loads are likely to hinder reading comprehension, and significant increase is observed with a corresponding increase in germane load.

2.2.5 Zhan et al., (2024)

In the research, which is entitled as "Effects of Manipulating writing Task Complexity on Learners' Performance in Completing Vocabulary and Syntactic Tasks", the possibility of English writing as a foreign language to learn a language was explored, using modifications to the complexity of cognitive tasks according to the known models and hypothesis. The 59

Chinese postgraduate EFL students who make up the essay sample of English essays were evaluated based on the writing complexity, accuracy, and fluency .

The results have shown that the level of tasks did not have a critical impact on the lexical complexity of EFL learners; however, it did mediate their syntactic diversification in EFL writing. Such findings indicated that writing task complexity differentiation is a strategy that may be employed in supporting and promoting language learning among EFL students. These results expanded our knowledge of the correlation between EFL writing and language acquisition in an EFL learning environment. EFL writing versus EFL learning is also pedagogically important to the teachers who want to understand how to sequence the tasks in order to maximise language teaching.

2.2.6 Discussion of the Previous Studies

The present study is similar to the works of Yasir (2022), and Sabah and Kamil (2023), to the extent that it is a correlational study aimed at defining the relationship between at least two variables. In contrast, it differs with the experimental studies conducted by Koné (2015), Moghaddam et al., (2022), and Zhan et al., (2024). After reviewing the previous studies, the following conclusions can be drawn.

2.2.6.1 Aims

The current study aims to investigate:

1. EFL university students' level of cognitive complexity, performance –based learning, and autonomous learning
2. The correlation among cognitive complexity, performance –based learning, and autonomous learning

3. The extent to which cognitive complexity, performance –based learning, and autonomous learning contribute to explaining the variation among Iraqi university students studying English as a foreign language.

The current study is similar to the study of Yasir (2022), by concerning the perceptions of learners towards learner autonomy in Iraqi EFL learners. Moreover, it is similar to the study conducted by Moghaddam et al.,(2022), because they both seek to establish the effect of cognitive complexity in tasks on the EFL learners, it is also similar to the study of Sabah and Kamil (2023), in its investigation of cognitive load. Contrary to that, the goals of other studies do not coincide with the current study. As an example Koné (2015), study evaluates the impact of the performance-based assessment on the motivation of ESL learners in the university. Whereas, Zhan et al.,(2024) study dealt with the opportunity offered by writing in English as a foreign language and language acquisition through controlling the complexity of cognitive tasks based on the existing models and hypotheses,

2.2.6.2 Samples

The sample of this study comprises Iraqi EFL university students in 3rd and 4th years at the university level. The studies mentioned above involve a wide range of multipolar and intergenerational students of various cultures. The study by Koné (2015), involves the 21 international ESL students attending an intensive course in orality that is aimed at non-native speakers.

The research by Moghaddam et al., (2022), included 70 male and female EFL Iranian intermediate learners in the sample. Whereas the research by Yasir (2022), is dedicated to the Iraqi EFL students in the preparatory schools, the research conducted by Sabah and Kamil (2023), uses the 345 students at random who were selected at the Al-Karkh 2nd preparatory schools in Baghdad. Meanwhile, the research done by Zhan et al.,(2024), was conducted with 59 Chinese postgraduate EFL students.

2.2.6.3 Instrument

The present study uses three instruments to fulfill the aims of this study: a cognitive complexity questionnaire that was created to measure the cognitive complexity among the students; a performance-based learning questionnaire, which was created to measure the learning performance of the students; and an autonomous-learning questionnaire, which is meant to measure the autonomous learning ability of the students. In comparison, online motivation questionnaires become used in the work of Koné(2015). Moreover, the study by Zhan et al.,(2024), focused on English essays written by 59 Chinese postgraduate EFL students, focusing on writing complexity, accuracy, and fluency. The research conducted by Yasir (2015), used a questionnaire to investigate the perception of the students on deductive versus inductive learning, a second questionnaire used to determine the level of autonomy, and a test to evaluate the performance of students in the area of receptive-skills. Lastly, the Cognitive Load Subjective Rating Scale and a Reading Comprehension Test are utilised as part of the investigation provided by Sabah and Kamil (2023).

2.2.6.4 Findings

In terms of the findings, the fifth studies have some similarities and differences. Moghaddam et al., (2022), and Zahan et al.,(2024), studies both focused on the effects and complexity of the cognitive tasks. The current study found a high level of cognitive complexity among Iraqi EFL university students, , while Zhan et. al. study (2024), found that the tasks did not have a critical impact on the lexical complexity of EFL learners.

On the other hand, Koné's study (2015), investigated how performance-based assessment influences the motivation of ESL university students. The study found that students were positive towards such a project. They were, however different in the motivational and emotional states as time went by, depending on their experiences in the oral presentation, their individual performance, and the cohesiveness of their group.

Meanwhile, Sabah and Kamil (2023), study indicated that the subjects portray a significant cognitive load along with a high reading comprehension. Besides, data showed that the intrinsic and extraneous cognitive load has negative correlation with reading comprehension, but the germane load had a positive association.

The current study differs from Yasir's (2022) study. Yasir's (2022), study found that Iraqi EFL students had low autonomy ,while the current study found that Iraqi EFL university students had high level of autonomy and autonomous learning.

Chapter Three

Methodology

3.0 An Introductory Note

This chapter contains a full overview of the procedures used to meet the aims of the study. It discusses the population and sample selection, as well as the measuring tools utilised and a description of the statistical means employed.

3.1 Research Design

Durrheim and Tredoux (2004), stated that a research design is “a conceptual structure for practice that acts as a link between research objectives and research organisational successes” (p. 29). A study that attempts to discover correlations between two or more variables and measure their causal significance is called a descriptive - correlation study (Fraenkel et al., 2012).

Moreover, a correlational study is a type of research design that seeks a statistically significant relationship between two or more variables. A correlational study is aimed at finding the variables that are related to each other in a manner that a change in one leads to a change in the other (Putri et al., 2025).

The present study used a correlational study design. According to Gaste and Ledford (2014), it is important to keep in mind that correlation coefficients are used to establish correlations between variables.

3.2 Population and Sample of the Study

This section gives a detailed description of the population of the study and the methodology used in sampling.

3.2.1 Population of the Study

According to Creswell and Guetterman (2019), population is defined as a group of people with common characteristics. Similarly, Polit and Hunglar (1999) referred to a population as “a collection or sum of all events, topics, or individuals that fulfill a set of criteria” (p. 37).

The population of this study covers all Iraqi EFL 3rd year university students in the departments of English /Colleges of education (except for Kurdistan Region), enrolled in the academic year 2025-2026. See Table 3.1.

Table 3.1

Population of the Study

Universities	Number of Students	Universities	Number of Students
Mosul	178	Wasit , Al-Kut and College of Imam Al-Kadhum	518
Kirkuk	131	Qadisiyah	107
Tikrit	116	Kufa	114
Diyala	112	Thi-Qar	141
Anbar	100	Al-Muthanna	90
Baghdad	175	Basrah	115
Al-Hamdaniya	110	Misan	100
Karbala	502	Samarra	112
Total			2721

3.2.2 Sample of the Study

Creswell and Guetterman (2019), defined a sample as a small part of a target population that researchers plan to study, after which they can assume that the findings will be applicable to this population. Donald et al., (2010), also used the term sample to refer to a subset of people chosen among a population to conduct a research, usually in a way that the sample represents the entire population to which it is sampled.

The sample of the present study includes 316 students from the 3rd year college students randomly selected from the departments of English in the colleges of education at three universities in Wasit governorate: University of Wasit, College of Imam Al-Kadhum, and University of Al-Kut, as indicated in Table 3.2.

According to Faul et al., (2009), a sample of 5-10 percent of a population of several thousand people is recommended. The total population used in the current study was 2,464 students; the sample size was 316 students (11.6%), thus exceeding the minimum sample size, which gave a sufficient sample size to perform the correlational studies.

Table 3.2

Sample of the Study

University	Sample	Percentage
University of Wasit	150	61%
College of Imam Al-Kadhum	86	
University of Al-Kut	80	
Total	316	

3.3 Instruments of the Study

The instruments used in the current study include three measures: Cognitive Complexity Questionnaire, Performance Based-Learning Questionnaire, and Autonomous Learning Questionnaire.

3.3.1 Cognitive Complexity Questionnaire

The Cognitive Complexity Questionnaire is constructed by the researcher after consulting a group of experts (see appendix E), reviewing the relevant literature, conducting, and implementing the open questionnaire. This questionnaire comprises 20 items (see appendix A) that are grouped under four categories: Cognitive Differentiation (item 1-5), Cognitive Integration (item 6-10), Perspective-Taking and Meta-Cognition (item 11-15), and Cognitive Flexibility (item 16-20).

Each item is scaled using a five-point Likert scale strongly agree, agree, neutral, disagree, strongly disagree, and assigned the following scores respectively: 5, 4, 3, 2, and 1. The application of the questionnaire has been started, on the study sample, from 7th of December, 2025 to 8th of December, 2025.

3.3.2 Performance-Based Learning Questionnaire

The performance-based learning questionnaire is developed by the researcher after consulting a group of experts (see appendix E), reviewing the relevant literature, conducting, and implementing the open questionnaire. It consists of 45 items (see appendix B) and it is separated into 7 different categories: authenticity of learning tasks (item 1-6), application and transfer of learning (item 7-12), performance assessment and awareness of learning criteria (item 13-19), collaboration and communication in performance tasks (item 20-26), self-regulation and learning autonomy in performance tasks (item 27-33), competency

development and mastery orientation (item 34-40), and reflection and continuous improvement (item 41-45)

The items are rated by respondents on a five-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree), with scores of 5, 4, 3, 2, and 1, respectively. The application of the questionnaire has been started, on the study sample, from the 7th of December, 2025 to the 8th of December , 2025.

3.3.3 Autonomous Learning Questionnaire

The Autonomous Learning Questionnaire is developed by the researcher after consulting a group of experts (see appendix E), reviewing the relevant literature, conducting and implementing the open questionnaire. This questionnaire consists of 35 items (see appendix C), the items fall into seven domains; Motivation and self-initiative (items 1-5); Learning planning and goal setting (items 6-10); Self-monitoring and metacognition (items 11-15); Learning strategy utilisation (items 16-20); Resource management and help-seeking (items 21-25); Attitudes toward autonomous learning (items 26-30); and behavioral indicators of autonomy (items 31-35).

The respondents will answer each item on a five-point Likert scale, which is strongly agree to strongly disagree. The categories of responses given the ordinal rating of 5, 4, 3, 2, 1, respectively, are assigned numerical ratings. The application of the questionnaire has been started, on the study sample, from the 7th of December, 2025 to the 8th of December , 2025.

3.4 Psychometric Properties of the Instruments

Psychometric properties refer to the reliability and validity of a measurement tool. A comprehensive evaluation of a research instrument is fundamental prior to claiming that it has psychometric qualities that are both good and dependable (Watkins, 2009).

3.4.1 Validity of the Study Instruments

Validity is one of the cornerstones when it comes to studying design and the choices of research tools. It is an evaluation of the effectiveness of a research instrument to achieve the intended purpose (Mills &Gay, 2019).

Fraenkel et al.,(2012), defined a research instrument as a legitimate instrument when it measures the construct it claims to measure. According to Taherdoost (2016), validity in its turn, refers to the degree of correspondence of the collected data to the phenomenon of interest .

The most generalised principle of test validity is generally expressed as the need to measure what is supposedly meant to be measured (Field, 2005).

The concept of validity has a number of different forms; face validity, construct validity, and content validity were discussed in the current study.

3.4.1.1 Face Validity

Face validity of an instrument or test, according to McNamara (2009), is the degree to which an instrument meets expectations of the parts involved in its use, such as instrument designers, administrators, educators, and examinees.

In order to determine face validity, as defined by Rasmussen (2007), the instrument should be tested by analysts who have a lot of knowledge on the relevant research field and therefore, will offer constructive criticism and observations that will guide the research activity.

Each instrument is designed carefully to achieve face validity. regarding its relevance and suitability to the research aims. The cognitive complexity questionnaire is developed to

assess how much the students are able to think in an integrated and differentiated way in processing academic and language learning tasks. The performance-based learning questionnaire measures the degree to which the participation of students in authentic and task-based learning activities involves the practical use of knowledge and skills. The autonomous learning questionnaire is one that measures students control of their own learning process.

The face validity of the three instruments of the study was established by exposing them to the experts in the ELT and Linguistics fields, to measure the suitability of the instruments and to examine the aims of the study. The instruments are revised and improved based on feedback provided by these experts as needed.

In general, face validity of the study instruments is guaranteed with the support of an intensive development and review cycle, which incorporates the opinion of experts. This assists in making sure that the instruments measure the accurate measurement of interest and yield good and valid data to the study.

3.4.2 Construct Validity

Construct validity can be described as the extent to which a given study instrument measures the trait, theoretical capability, or construct that it is supposed to measure (LI, 1996). Construct validity is how well a construct is represented by a set of variables under assessment (De Souza et al., 2017).

All instruments are tested in their construct validity, with the help of the item analysis that involves item discrimination, item difficulty, item-total correlation, the correlation between the item scores and their productive components, and the internal correlation matrices.

3.4.3 Content Validity

Content validity refers to the extent to which an instrument adequately represents all aspects of the construct it is intended to measure. It ensures that the items of the instrument are relevant, clear, and representative of the content domain of the variables under investigation (Creswell & Guetterman, 2019).

To establish the content validity of the instruments used in the present study, the three questionnaires, namely the Cognitive Complexity Questionnaire, the Performance-Based Learning Questionnaire, and the Autonomous Learning Questionnaire, were submitted to a panel of experts in ELT and linguistics. Experts were requested to examine each item in terms of its relevance to the construct being measured, clarity of wording, linguistic accuracy, appropriateness for Iraqi EFL university students, and the suitability of the response format.

Based on the experts' feedback, several modifications were made to improve the questionnaires. These modifications included rewording some items for greater clarity, revising ambiguous expressions, correcting linguistic inaccuracies, and making minor adjustments to ensure the appropriateness of the instruments. Items that received the approval of at least 80% of the panel members were retained, while those requiring revision were modified in accordance with the experts' suggestions.

Accordingly, the three questionnaires were judged to possess satisfactory content validity and were considered appropriate for the study sample.

3.5 Reliability

One of the key characteristics of an effective measurement tool is reliability, which is defined as the consistency or the stability of scores given by an instrument (Bruton et al., 2000).

The two different types of reliability that the current research study is based on are test-retest reliability and internal consistency. Reliability refers to the extent to which the same students get consistent results when administered on different occasions. The test can be considered reliable when the scores of the subject do not vary over time; when the scores are frequently variable, then it is unreliable (Fosgerau & Karlström, 2010).

3.5.1 Test-Retest

A test-retest technique, as defined by Berchtold, 'is the degree to which the scores of an instrument are consistent across time' (Berchtold ,2016, p. 184). Test-retest measurement means that the responses given by the respondents should be consistent and the results are repeatable, in case the same respondents take the test once more (Aldridge et al., 2017).

As regards to the present study, the scales were administered to a sample of 85 participants, both males and females, who were randomly chosen among EFL 3rd year students at the Colleges of Education for human sciences University of Wasit, College of Imam Al-Kadhum, and University of Al-Kut. The same is repeated on the same sample after two weeks. The findings of the Pearson correlation coefficient to the measure of reliability of responses are as follows: cognitive complexity questionnaire has a value of 0.91, performance-based learning questionnaire value is 0.81, and autonomous learning questionnaire value is 0.88, which indicates of good reliability.

3.5.2 Internal Consistency

The second type of measurement scale reliability considered in this study is the internal consistency of the items of the measurement scale. The alpha coefficient of Cronbach is a commonly used tool for assessing the internal consistency of the test (Tang et al., 2014).

Overall, internal consistency allows a test to be described as a set of repeated measures, with each one of the items possibly being viewed as a single measure (Paulsen & BrckaLorenz, 2017). The alpha of Cronbach's is the degree of how well internal consistency is met, may take the values between 0.00 and 1.00. A coefficient value of 0.65 up to 0.80 or even greater is considered adequate in the human-dimension work (Brown, 2002). In turn, the three scales have revealed sufficient internal consistency: the cognitive complexity scale ($r = .87$), the performance-based learning scale ($r = .90$), and the autonomous learning scale ($r = .79$).

3.6 Pilot Administration

According to McDonough (2011), pilot administration is a methodological apparatus used to glean adequate data on the working properties of items on the test to construct the test or scale form, or to resolve any practical issues related to the use of the test prior to its formal administration.

A random sample of 50 participants is selected from the 3rd year EFL students at the Colleges of Education, University of Wasit, College of Imam Al-Kadum, and University of Al-Kut, who are not included in the study sample, to serve as the pilot study. The test of the pilot sample was administered on the 9th of November 2025 at University of Wasit, the 11th of November 2025 at College of Imam Al-Kadum, and the 13th of November 2025 at University of Al-Kut . The pilot administration in this study has been carried out to:

1. The clarity of items and directives in the questionnaires.
2. Determine the time spent in answering the instruments.

However, the instrument items did not report any ambiguity. Students took between thirty and forty-five minutes to fill out all the questionnaires.

3.7 Statistical Analyses of the Research Instruments

Statistical analysis refers to the systematic study of summarised data so as to establish its latent patterns, trends, or salient outcomes. It entails the use of stringent statistical procedures. Two major fields are identified in the literature: descriptive statistics and statistical inference (Holden et al., 1985).

In order to perform a statistical analysis of the tools used in this study, the three tools were given to a random sample of 316 Iraqi EFL university students. The sample was selected randomly across the three educational departments of three universities, namely: University of Wasit, College of Imam Al-Kadhum, and University of Al-Kut .

3.7.1 Statistical Indicators of the Research Instruments

Based on scientific literature, the moderate distribution nature that is determined using two main indicators, the arithmetic mean and the standard deviation, is a statistical property that is expected to characterise any measurement. The sum of the values of the degrees over the number of values is called the arithmetic mean. The degree of variation between the values of a variable and the arithmetic mean is known as the standard deviation; a standard deviation that is close to zero implies that the values of the distribution scores are homogeneous or convergent (Ferguson, 1981).

Frequency distributions have skewness and kurtosis; the coefficient of skewness requires the level of frequency concentration at different values, and the coefficient of kurtosis requires the level of frequency concentration in a given region of the frequency distribution. Distribution may be distinguished on the basis of skewness and kurtosis, which are usually quantified by statistical measures. The value of skewness and kurtosis coefficients approaching zero with either a positive or a negative sign indicate that the frequency

distribution looks like a normal distribution. The frequency distribution is said to be symmetrical when the mean, median, and mode are equal and skewed, either negatively or positively, when the three are not equal (Creswell & Guetterman, 2019).

The Statistical Package of the Social Sciences (SPSS) is used in calculating statistical indicators.

3.7.1.1 Cognitive Complexity Questionnaire (CCQ)

The values of the statistical indicators of the CCQ are shown in Table 3.3.

Table 3.3

The Values of the Statistical Indicators of the Cognitive Complexity Questionnaire Items

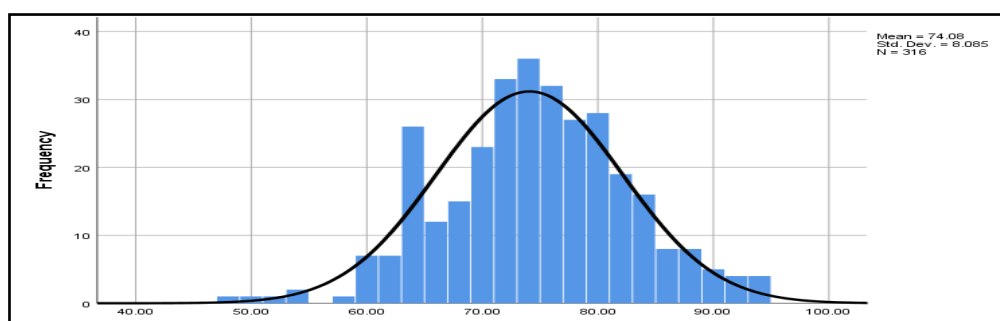
No.	Statistical Indicators	Values
1	Mean score	74.07
2	Median	74.00
3	Mode	73.00
4	Standard deviation	8.08529
5	Variance	65.372
6	Skewness	-.105
7	Kurtosis	0.200

As shown by the table above, the scores derived using the CCQ have a frequency distribution that is similar to that of normal distribution. The congruence of the mean and the mode confirms this, and so does the fact that the coefficients of skewness and kurtosis are close to zero. Overall, when the skewness and kurtosis coefficients are close to zero, regardless of the direction of their value, the frequency distribution of the scores is expected to have the shape of a normal distribution (Horn, 1993).

The following figure shows the distribution of the scores obtained in the cognitive complexity questionnaire.

Figure 3.1

Normal Distribution Curve of Cognitive Complexity Questionnaire



3.7.1.2 Performance –Based Learning Questionnaire(PBLQ)

The values of the statistical indicators of the PBLQ are shown in Table 3.4.

Table 3.4

The Vale of the Statistical Indicators of the Performance –Based Learning Questionnaire

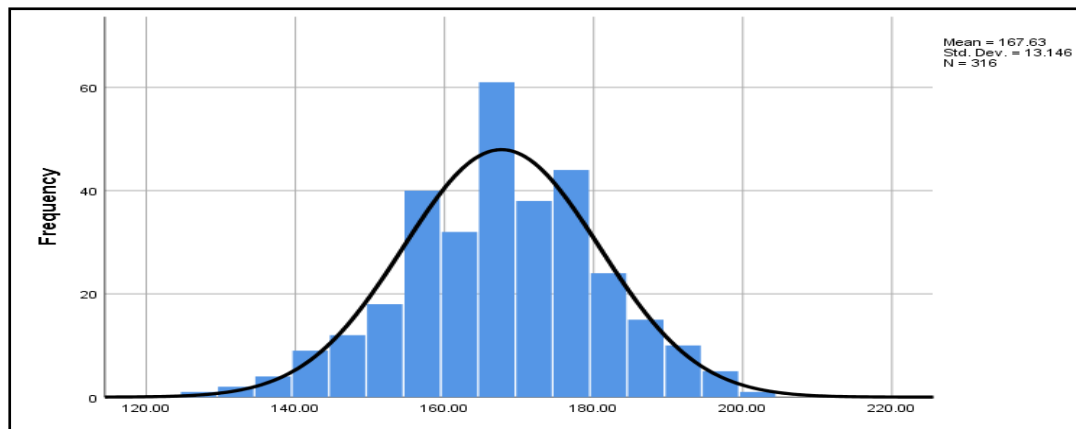
Items

No.	Statistical Indicators	Values
1	Mean score	167.62
2	Median	168.00
3	Mode	175.00
4	Standard deviation	13.146
5	Variance	172.81
6	Skewness	0.163
7	Kurtosis	0.060

The scores given by the PBLQ demonstrate an approximate normal distribution due to the close proximity of mean, mode, and also due to the close values of skew and kurtosis coefficients that are nearly equal to zero. The distribution of the scores under this scale is shown in the following figure.

Figure 3.2

Normal Distribution Curve of Performance-Based Learning Questionnaire



3.7.1.3 Autonomous Learning Questionnaire(ALQ)

The values of the statistical indicators of the ALQ are shown in Table 3.5.

Table 3.5

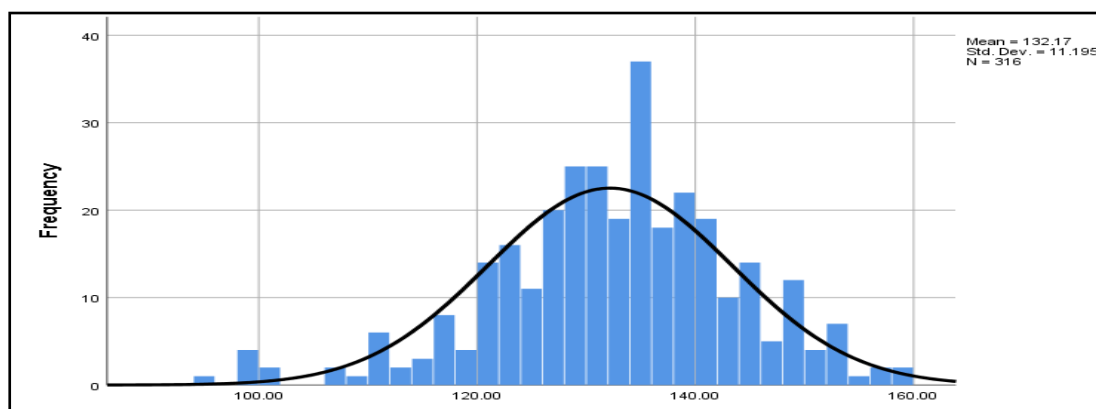
The Vales of the Statistical Indicators of the Autonomous Learning Questionnaire Items

No.	Statistical Indicators	Values
1	Mean score	132.174
2	Median	133.000
3	Mode	134.00
4	Standard deviation	11.1954
5	Variance	125.338
6	Skewness	0.451
7	Kurtosis	0.666

The distribution of the scores in the ALQ is more or less similar to normal distribution with the close relation between the mean and the mode, and with skewness and kurtosis values are near zero. The frequency distribution of the autonomous learning scale scores is shown in the figure below.

Figure 3.3

Normal Distribution Curve of Autonomous Learning Questionnaire



3.8 Discrimination Power of Items (DPI)

Discriminating power or item discrimination refers to the ability of test items to differentiate high and low performing test takers in a testing situation. In cases where high students perform well in a particular exercise compared to their low achieving counterparts, it is considered exemplary and therefore, serves the useful purpose of separating those who are competent and those who are not. The discrimination index is calculated on this premise. The capacity to distinguish the students who achieve high performance and those who do not is termed as item discriminating capacity (Heaton, 1988).

The assessment of the level at which items distinguish between examinees with higher and those with less knowledge, skill, and aptitude are among the crucial consideration in item selection in different examinations (Crocker & Algina, 2008).

After scoring the sample students' responses to the questionnaires, the scores of the sample members of each instrument are organised in descending order from the highest to the lowest. Two distinct groups are discovered; each represents 27% of the total sample. Accordingly, the number of students in each group is 85 students.

3.8.1 Discrimination Power of the Cognitive Complexity Questionnaire

Item discrimination is estimated using the extreme groups method. This involves comparing the highest and lowest scoring 27% of respondents. A t-test for independent samples is then used to determine if the difference between the mean scores of these two groups is statistically significant. The calculated t-value of all the items is higher than the critical one 1.976 at a degree of freedom 168 and level of significance 0.05 which shows that all the items are statistically significant, as illustrated in the Table3.6 :

Table 3.6

Item Discrimination Power of the Cognitive Complexity Questionnaire

Items No.	Upper Group		Lower Group		calculated t- Value	The Critical Value	Statistically Significant
	Mean Score	Standard Deviation	Mean Score	Standard Deviation			
1	4.54	0.52	4.01	0.61	6.08	1.976	Significance 0.05
2	4.31	0.69	3.94	0.94	2.88		
3	4.52	0.55	3.99	0.70	5.50		
4	4.59	0.50	4.19	0.63	4.62		
5	4.19	0.61	3.12	0.97	8.63		
6	4.21	0.66	3.02	1.05	8.87		
7	4.49	0.55	3.69	0.89	7.07		
8	4.00	0.74	2.84	0.96	8.85		
9	4.14	0.58	2.64	0.84	13.56		
10	4.15	0.73	3.31	0.89	6.79		
11	4.24	0.63	3.16	0.88	9.09		
12	4.56	0.50	3.79	1.02	6.28		
13	3.60	0.82	3.56	0.78	0.29		
14	3.61	0.86	2.28	0.96	9.51		
15	3.61	0.76	2.33	0.96	9.69		
16	3.55	0.78	2.20	0.80	11.18		
17	3.67	0.75	2.46	0.96	9.20		
18	4.19	0.61	3.45	0.88	6.39		
19	4.07	0.59	3.26	0.80	7.49		
20	4.09	0.57	3.21	0.90	7.63		

3.8.2 Discrimination Power of the Performance-Based Learning Questionnaire

The extreme groups method, in which the two groups from the extremes (the upper and lower 27%) are compared, is used to estimate item discrimination. The significance of the variance between the two groups is determined using the t-test for two independent samples after calculating the mean score and standard deviation of the two groups. The calculated t-value of all the items is higher than the critical one 1.976 at a degree of freedom 168 and level of significance 0.05, which shows that all the items are statistically significant, as illustrated in the Table 3.7 :

Table 3.7

Item Discrimination Power of the Performance-Based Learning Questionnaire

Items No.	Upper Group		Lower Group		calculated t- Value	The Critical Value	Statistically Significant
	Mean Score	Standard Deviation	Mean Score	Standard Deviation			
1	4.51	0.61	4.02	0.62	5.127	1.976	Significance 0.05
2	4.24	0.80	3.00	1.03	2.010		
3	4.47	0.65	4.08	0.73	3.677		
4	4.62	0.51	4.26	0.62	4.184		
5	4.11	0.74	3.14	0.98	7.252		
6	4.14	0.68	3.02	0.96	8.759		
7	4.49	0.59	3.76	0.90	6.273		
8	3.96	0.81	2.94	0.94	7.597		
9	3.94	0.73	2.76	0.90	9.393		
10	4.09	0.73	3.45	0.93	5.028		
11	4.21	0.69	3.19	0.93	8.130		
12	4.59	0.56	3.85	1.02	5.876		
13	3.61	0.83	3.58	0.76	0.288		
14	3.49	0.92	2.39	1.01	7.447		
15	3.60	0.86	2.36	0.84	9.447		
16	3.39	0.85	2.27	0.76	9.047		
17	3.53	0.83	2.58	0.94	7.010		
18	4.13	0.72	3.51	0.93	4.875		
19	4.01	0.65	3.34	0.84	5.841		
20	4.13	0.55	3.31	0.89	7.270		

21	4.33	0.59	3.44	0.82	8.163		
22	4.41	0.70	3.59	0.94	6.484		
23	4.28	0.63	3.31	0.91	8.119		
24	4.04	0.75	3.07	1.01	7.082		
25	4.46	0.59	3.99	0.76	4.500		
26	4.40	0.66	4.02	0.86	3.208		
27	4.48	0.67	4.07	0.83	3.574		
28	4.61	0.49	4.26	0.77	3.552		
29	3.98	0.89	3.22	0.93	5.402		
30	4.12	0.73	3.33	1.05	5.678		
31	4.48	0.59	3.81	0.87	5.901		
32	3.92	0.85	3.26	0.87	4.985		
33	3.93	0.69	3.31	0.83	5.332		
34	4.06	0.79	3.74	0.90	2.440		
35	4.09	0.80	3.21	0.90	6.766		
36	4.29	0.77	3.72	1.00	4.226		
37	4.87	0.70	3.55	0.73	2.330		
38	3.84	0.80	2.87	1.16	6.303		
39	3.48	0.63	2.49	0.89	8.331		
40	3.45	0.78	2.53	0.91	7.073		
41	3.69	0.67	2.74	1.05	7.053		
42	4.07	0.55	3.45	1.05	4.838		
43	3.95	0.67	3.39	0.80	4.975		
44	3.94	0.68	3.55	0.78	3.463		
45	4.26	0.60	3.58	0.82	6.179		

3.8.3 The Discrimination Power of Autonomous Learning Questionnaire

The extreme groups method, in which the two groups from the extremes (the upper and lower 27%) are compared, is used to estimate item discrimination. The significance of the variance between the two groups is determined using the t-test for two independent samples after calculating the mean score and standard deviation of the two groups. The calculated t-value of all the items is higher than the critical one 1.976 at a degree of freedom 168 and level of significance 0.05 which shows that all the items are statistically significant, as illustrated in the Table 3.8 :

Table 3.8*Item Discrimination Power of the Autonomous Learning Questionnaire*

Items No.	Upper Group		Lower Group		calculated t- Value	The Critical Value	Statistically Significant
	Mean Score	Standard Deviation	Mean Score	Standard Deviation			
1	4.54	0.52	4.01	0.61	6.082	1.976	Significance 0.05
2	4.31	0.69	3.94	0.94	2.877		
3	4.52	0.55	3.99	0.70	5.498		
4	4.59	0.50	4.19	0.63	4.618		
5	4.19	0.61	3.12	0.97	8.633		
6	4.21	0.66	3.02	1.05	8.870		
7	4.49	0.55	3.69	0.89	7.075		
8	4.00	0.74	2.84	0.96	8.849		
9	4.14	0.58	2.64	0.84	13.564		
10	4.15	0.73	3.31	0.89	6.792		
11	4.24	0.63	3.16	0.88	9.092		
12	4.56	0.50	3.79	1.02	6.282		
13	3.60	0.82	3.56	0.78	0.288		
14	3.61	0.86	2.28	0.96	9.514		
15	3.61	0.76	2.33	0.96	9.693		
16	3.55	0.78	2.20	0.80	11.177		
17	3.67	0.75	2.46	0.96	9.199		
18	4.19	0.61	3.45	0.88	6.392		
19	4.07	0.59	3.26	0.80	7.489		
20	4.09	0.57	3.21	0.90	7.632		
21	4.32	0.56	3.39	0.86	8.343		
22	4.46	0.59	3.52	0.97	7.641		
23	4.28	0.61	3.20	0.88	9.295		
24	4.00	0.79	3.01	0.98	7.241		
25	4.49	0.61	3.95	0.62	5.759		
26	4.21	0.82	3.42	0.86	2.210		
27	4.39	0.71	4.15	0.76	2.082		
28	4.52	0.57	4.28	0.70	2.403		
29	3.87	0.86	3.38	0.91	3.641		
30	3.95	0.74	3.36	0.97	4.437		
31	4.25	0.71	3.93	0.91	2.543		
32	3.84	0.86	3.27	0.93	4.115		
33	3.93	0.72	3.12	0.85	6.713		
34	4.18	0.71	3.79	0.85	3.240		
35	4.13	0.84	3.49	0.95	4.623		

3.9 Item-Total Correlation (Internal Consistency of the Research Instruments)

The correlation between the score of the individual items and the total score of the instrument is determined by using item-total correlation. Pearson correlation coefficient is used to establish the correlation between the score of an item and the total score. The association of an item, and an internal or external test is one of the measures of validity of an item and in the absence of an appropriate external test the overall score of the participant is considered to be the most reliable internal test to determine this association (Anastasi & Urbina, 1997).

3.9.1 Internal Consistency of the Cognitive Complexity Questionnaire

In order to find out the correlation between the items' scores and the total score for the 316 students, Pearson correlation coefficient is used, and the statistical analysis of items reveals that all the correlation coefficient values are statistically significant when compared to the critical value, which is 0.111 at a degree of freedom 314 and level of significance 0.05, as shown in the Table 3.9 :

Table 3.9

Correlation Coefficients between Item Score and the Total Score of the Cognitive Complexity Questionnaire

Items No.	Pearson Correlation Value	Items No.	Pearson Correlation Value
1	0.234	11	0.180
2	0.290	12	0.209
3	0.204	13	0.228
4	0.266	14	0.245
5	0.179	15	0.717
6	0.786	16	0.326
7	0.214	17	0.345
8	0.156	18	0.281
9	0.233	19	0.235

10	0.232	20	0.179
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3.9.2 Internal Consistency of the Performance-Based Learning Questionnaire

In order to find out the correlation between the items' scores and the total score for the 316 participants, Pearson correlation coefficient is used and the statistical analysis of items reveals that all the correlation coefficient values are statistically significant when compared to the critical value, which is 0.111 at a degree of freedom 314 and level of significance 0.05, as shown in the Table 3.10 :

Table 3.10

Correlation Coefficients between Item Score and the Total Score of the Performance-Based Learning Questionnaire

Items No.	Pearson Correlation Value	Items No.	Pearson Correlation Value
1	0.993	24	0.229
2	0.339	25	0.319
3	0.249	26	0.487
4	0.450	27	0.349
5	0.331	28	0.713
6	0.791	29	0.489
7	0.245	30	0.912
8	0.189	31	0.491
9	0.451	32	0.33
10	0.452	33	0.119
11	0.781	34	0.341
12	0.721	35	0.245
13	0.381	36	0.340
14	0.481	37	0.912
15	0.381	38	0.291
16	0.927	39	0.389
17	0.381	40	0.298
18	0.238	41	0.918
19	0.387	42	0.283

20	0.387	43	0.397
21	0.371	44	0.389
22	0.991	45	0.487
23	0.269		

3.9.3 Internal Consistency of the Autonomous Learning Questionnaire

In order to find out the correlation between the items' scores and the total score for the 316 participants, Pearson correlation coefficient is used, and the statistical analysis of items reveals that all the correlation coefficient values are statistically significant when compared to the critical value, which is 0.111 at a degree of freedom 314 and level of significance 0.05, as shown in the Table 3.11 :

Table 3.11

Correlation Coefficients between Item Score and the Total Score of the Autonomous Learning Questionnaire

Items No.	Pearson Correlation Value	Items No.	Pearson Correlation Value
1	0.939	19	0.371
2	0.487	20	0.719
3	0.189	21	0.465
4	0.481	22	0.671
5	0.947	23	0.917
6	0.481	24	0.381
7	0.813	25	0.198
8	0.501	26	0.718
9	0.358	27	0.381
10	0.671	28	0.381
11	0.741	29	0.481
12	0.381	30	0.918
13	0.481	31	0.481
14	0.183	32	0.491
15	0.381	33	0.618
16	0.381	34	0.819
17	0.723	35	0.481

18	0.481		
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3.10 Statistical Means

The statistical tools that have been utilised in the present study to analyse the collection are, as follows:

1. **T-test for one Sample:** It is used to determine the significance between the mean scores and the theoretical mean of learner empowerment and critical writing.
2. **Two Independent Samples t-test:** It is used to estimate the discrimination power for the three questionnaires of the study.
3. **Alpha Cronbach Formula:** It is used to calculate the internal consistency of the three questionnaires of the study.
4. **Standard Deviation:** It is used as a second step to reach the final t-value score.
5. **Discrimination Power:** It is used to measure the discrimination power of the three questionnaires of the study items.
6. **Pearson correlation coefficient:** It is used to find out the internal consistency and correlations of the three questionnaires of the study.

Chapter Four

Data Analysis and Discussion of Results

4.0 An Introductory Note

This chapter includes a presentation of the results reached by the researcher and their interpretation. It consists of two parts. The first part, is dedicated to the collected data that have been analysed statistically in order to achieve the aims of the study. The second part is concerned with the discussion of the obtained results.

4.1 Results Related to the First Aim

To find out Iraqi EFL university students' cognitive complexity level, a questionnaire is directed to the study sample. Participants' responses are statistically manipulated. It is found that the arithmetic mean of the participants' scores is (74.07) with a standard deviation of (8.08) degrees.

For the purpose of recognising the significance of the difference between the arithmetic mean and the theoretical mean, which is (60), the findings showed that the t-value of 30.947 is higher than the critical t-value (1.968) at a significant level of 0.05 and a degree of freedom of 315. In turn, these results indicate a statistically significant difference, which indicates that the sample is characterised by a strong degree of cognitive complexity, as shown in Table 4.1 and Figure 4.1.

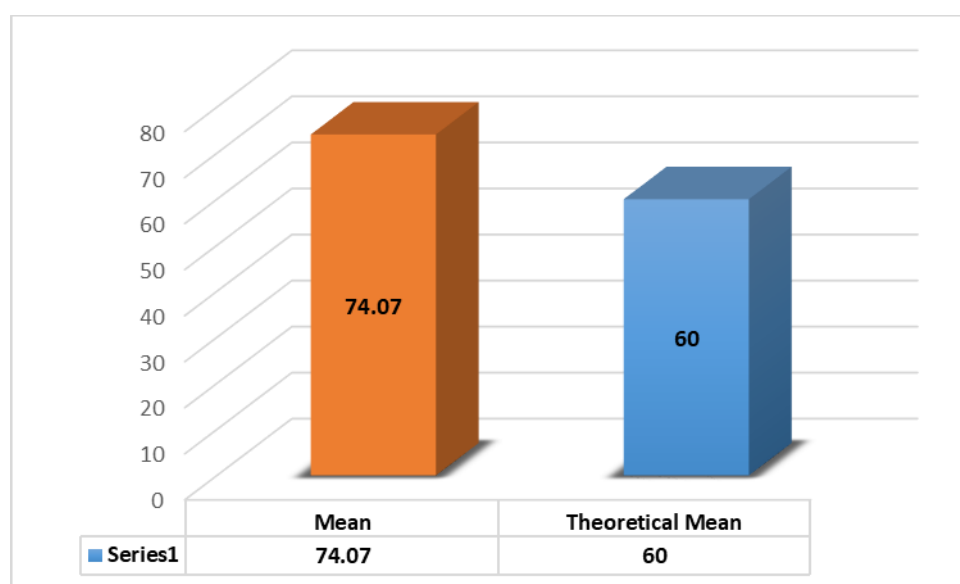
Table 4.1

Mean Score, Standard Deviation, and T-Value of the Cognitive Complexity Questionnaire

Group	No. of students	Mean	SD.	Theoretical Mean	T-Value		DF	Sig.
cognitive complexity	316	74.07	8.08	60	Calculated	Critical	315	Level of Sig. 0.05
					30.947	1.968		

Figure 4.1

The Arithmetic and Theoretical Means of the Cognitive Complexity Questionnaire



4.2 Results Related to the Second Aim

To find out Iraqi EFL university students' performance-based learning, a questionnaire is directed to the study sample. Participants' responses are statistically manipulated. It is found that the arithmetic mean of the participants' scores is (167.62) with a standard deviation of (13.14) degrees.

The calculated t-value is (0.252), which is smaller than the critical value of (1.968) at a significance level (0.05) and (315) degree of freedom. This indicates that the research sample has a commendable performance-based learning, as shown in Table 4.2 and Figure 4.2.

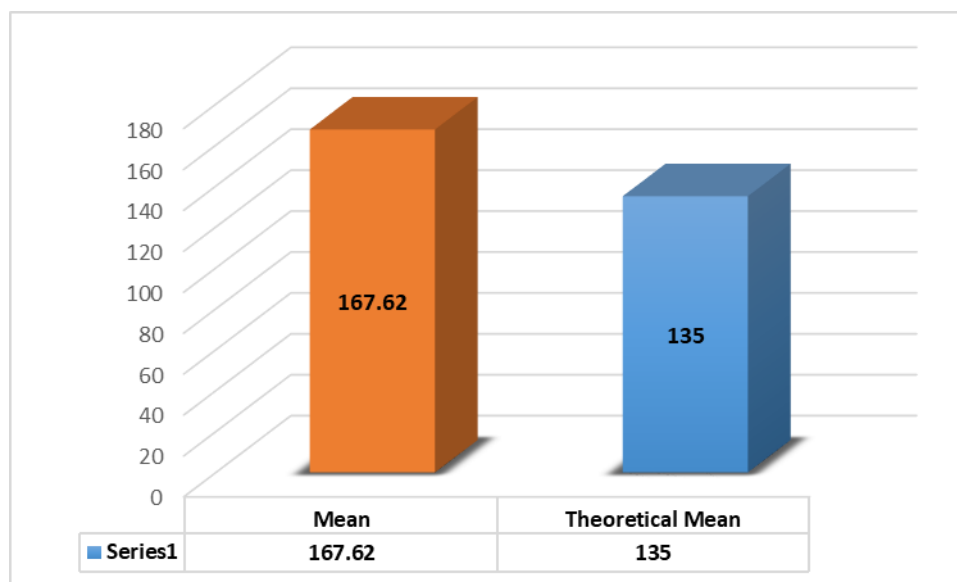
Table 4.2

Mean Score, Standard Deviation, and T-Value of the Performance –Based Learning Questionnaire

Group	No. of students	Mean	SD.	Theoretical Mean	T-Value		DF	Sig.
performance-based learning	316	167.62	13.14	135	Calculated	Critical	315	Level of Sig. 0.05
					0.252	1.968		

Figure4.2

The Arithmetic and Theoretical Means for The Performance -Based Learning Questionnaire



4.3 Results Related to the Third Aim

To find out Iraqi EFL university students' autonomous learning level, a questionnaire is directed to the study sample. Participants' responses are statistically manipulated. It is found

that the arithmetic mean of the participants' scores is (132.17) with a standard deviation of (11.19) degrees.

For the purpose of recognising the significance of the difference between the arithmetic mean and the theoretical mean, which is (105), the findings showed that the t-value of 43.148 bigger than the critical t-value (1.968) at a significant level of 0.05 and a degree of freedom of 315, which implies that the sample has significantly positive attitudes to autonomous learning. These results are shown in Table 4.3 and Figure 4.3.

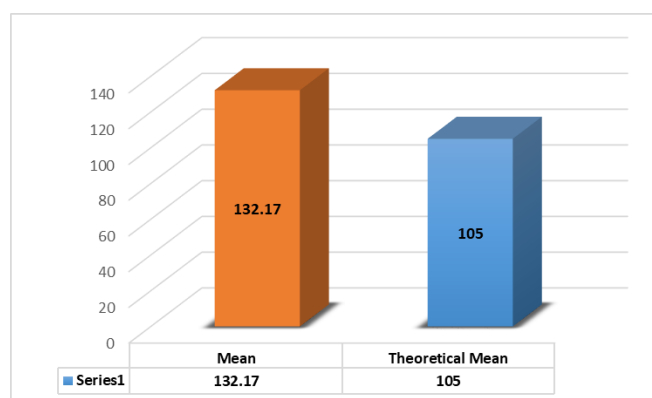
Table 4.3

Mean Score, Standard Deviation, and T-Value of the Autonomous Learning Questionnaire

Group	No. of students	Mean	SD.	Theoretical Mean	T-Value		DF	Sig.
autonomous learning	316	132.17	11.19	105	Calculated	Critical	315	Level of Sig. 0.05
					43.148	1.968		

Figure 4.3

The Arithmetic and Theoretical Means of the Autonomous Learning Questionnaire



4.4 Results Related to the Fourth Aim

To find out the correlation among Iraqi EFL university students' cognitive complexity, performance-based learning, and autonomous learning, Pearson correlation formula is used. The results show that the R-values of the correlation coefficient between the cognitive complexity and performance-based learning is (0.996), between cognitive complexity and autonomous learning is (0.991), and between performance-based learning and autonomous learning is (0.994), which is greater than the critical value of 0.111 at a significance level of 0.05 and a degree of freedom of 314. The results indicate a positive and strong correlation among the cognitive complexity, performance-based learning, and autonomous learning of Iraqi EFL students (see table 4.4).

Table 4.4

Correlation Value Between Cognitive Complexity, Performance-Based Learning and Autonomous Learning Questionnaires

Variables	Sample	Pearson Correlation Value	Critical Value	Sig.
Cognitive Complexity - performance -based learning	316	0.996	0.111	Sig. 0.05
Cognitive Complexity – autonomous learning		0.991		Sig. 0.05
performance -based learning - autonomous learning		0.994		Sig. 0.05

4.5 Discussion of Results

The current study aimed to investigate the correlation among cognitive complexity, performance-based learning, and autonomous learning among EFL Iraqi university students. The results of the Cognitive Complexity Questionnaire (CCQ), Performance-Based Learning

Questionnaire (PBLQ), and Autonomous Learning Questionnaire (ALQ) were valuable in understanding these constructs and their relationships with one another in the context of Iraqi EFL.

The study results showed that the Iraqi EFL university students exhibited a high degree of cognitive complexity. The finding indicates that the students have the capacity to participate in the higher-order thinking processes that include analysis, evaluation, synthesis, and the integration of various perspectives. Cognitive complexity is the ability to systematise, interpret, and reorganise knowledge in meaningful ways and is regarded as an essential element of higher-order thinking in learning settings (Bloom et al., 1956; Anderson & Krathwohl, 2001). The comparatively good level of cognitive complexity, which is found to be presented in the present study, can be explained by various factors such as those associated with the cognitive complexity of the university level education, the exposure to other linguistic and academic materials, and the methods of teaching that promote critical thinking and analytical involvement in EFL classrooms.

The findings also found that there was a high level of performance-based learning among the Iraqi EFL university students. This realisation implies that there is an active involvement of students in putting their linguistic knowledge to practice using authentic and real-life tasks like presentations, projects, and task-based classroom activities. The performance-based learning focuses on practical usage of the knowledge and encourages learning by participation or practice. This finding supports the postulate of the experiential learning theory that underlines that knowledge is built on the basis of direct experience, reflection, and involvement in meaningful activities (Kolb, 1984). Thus, the performance-based learning high rates in this study could be the indicators of the growing popularity of interactive and student-centered teaching methods in the modern EFL classrooms.

Equally, the results indicated that the Iraqi EFL university students exhibited high autonomous learning. This implies that students can be in a position to be responsible for their own learning processes by formulating learning objectives, choosing the right strategies, tracking their progress as well as assessing their results. Student autonomy is largely accepted as an essential ingredient that is a determinant in successful language acquisition and specifically in higher education where independence in learning is highly promoted (Holec, 1981). The very high degree of autonomy of the students can suggest that the university students are slowly acquiring the skills necessary to be able to organise their learning in the academic context.

Additionally, the study outcomes showed that there is a positive correlation between cognitive complexity, performance-based learning, and autonomous learning, which was found to be strong and significant. This observation indicates that those students who exhibit greater degrees of cognitive complexity are prone to be more inclined to confront autonomous learning as well as enjoy the benefits of performance-based instructional practices. A possible explanation for this relationship is the fact that cognitively complex students have higher cognitive and metacognitive levels of skill that allow them to plan, monitor, and regulate learning processes, in a better way. These skills are important elements of independent learning, and they lead to the ability of students to be active participants in meaningful learning activities.

Theoretically, this relationship may be understood within the frame work of self-regulated learning theory, which emphasises the importance of cognitive and metacognitive processes that contribute to the development of student autonomy. Students who have a higher order of cognition are in a better position to deconstruct learning activities, choose the correct strategies, analyse their performance, and modify their learning behaviors in relation to the

performance analysis. Consequently, the students are more likely to be more independent and responsible when it comes to controlling their learning processes.

The results of the current study are, to a certain degree, consistent with the prior studies. As an example, the findings are consistent with other researchers, such as Koné (2015), who found that students are usually positive towards performance-based practices of assessment. Equally, the results are aligned with those of Zhan et al.(2024), who opined that the different degrees of task complexity during writing activities can support language acquisition and amplify student interest in EFL learning environments. Such studies support the idea that performance-based learning and cognitively challenging instructional practices may have a significant role in enhancing the process of deeper language learning and student engagement.

Yet, the outcomes of the present study do not coincide with certain past findings. As an example, Moghaddam et. al. (2022) highlighted that the acquisition of cognitive processing skills is based on well-organised instructional processes so that students can perform complex tasks successfully. Furthermore, the results are opposite to those of Yasir (2022), who has also indicated that the levels of student autonomy and receptive language proficiency were relatively low and moderate among the students of the Iraqi EFL preparatory schools. Such inconsistency can be attributed to differences in the level of education since university students have more academic experience and independence than learners in preparatory schools.

The findings also do not coincide with the findings obtained by Sabah and Kamil (2023), who found that there is a negative correlation between intrinsic and extraneous cognitive load and reading comprehension, and a positive correlation between the germane cognitive load and comprehension. The discrepancy between these results and those presented by the

present research could be explained by the divergence in the topics of research, variables under consideration, and the learning situations peculiar to the studies.

Generally, the results of this research are relevant to the enhancement of the analysis of the interaction between cognitive complexity, performance-based learning, and autonomous learning within the context of the Iraqi EFL situation. They emphasise the need to encourage cognitively demanding learning conditions and performance-based approaches to instruction to ensure that student autonomy increases and language learning performance is improved among students of the university.

Chapter Five

Conclusions, Recommendations, and Suggestions for Future Studies

5.0 An Introductory Note

This chapter consists of three sections. The first section deals with conclusions based on the results of the study. The second section deals with recommendations, whereas the third one is concerned with suggestions for further studies.

5.1 Conclusions

The results of the current investigation gave rise to the following conclusions:

1. The findings show that Iraqi EFL university students have high cognitive complexity. This result indicates that students have the mental capability to analyse, organise and combine linguistic information efficiently, that allow the students to process language in more advanced forms and to think at higher orders when going through the language learning process.
2. The study indicates that the learning performance of the students in the EFL Iraqi university is high. This implies that students can be able to use their linguistic skills and knowledge in real learning activities, classroom activities, projects, and communicative activities. The great extent of performance-based activities indicates the capacity of the students to develop theoretical knowledge into a significant language application.
3. The results indicate that students exhibit high autonomous learning. This implies that the students can be in charge of their own learning through the establishment of learning goals, the strategies that they employ in their learning, tracking their progress, and assessing their results. This autonomy demonstrates the attainment of autonomous learning patterns that are paramount in learning a language at the university level.

4. Moreover, the study findings indicate that there exists a strong and positive relationship between cognitive complexity and performance-based learning. The implication of this relationship is that students with higher cognitive complexity are more likely to achieve better performances in learning tasks that engage them actively, demand problem-solving, and the practical use of knowledge.
5. Besides, the results indicate that there is a positive correlation between cognitive complexity and autonomous learning, which is significant. This means that the students of greater cognitive complexity are more prone to show the tendencies of self-directed learning and increased independence in the control of the learning process.
6. A positive correlation was established in the study, indicating the existence of a strong relationship between performance-based learning and autonomous learning. This implies that those students who are engaged in performance-based activities tend to have a greater degree of learner autonomy because performance-based activities allow students to be more proactive, make choices, and be responsible towards their learning.

5.2 Recommendations

Based on the results and conclusions obtained in the present study, it can be recommended as follows:

1. It is recommended that EFL instructors should adopt the use of educational strategies that lead to high degrees of cognitive complexity, including exercises that require analysis, evaluation, synthesis, and reflection. They are helpful in promoting more complex processing of the language and in developing advanced thinking capabilities, and they lead to more effective language acquisition.
2. The university EFL programme is supposed to supplement the use of performance-based learning activities such as projects, presentations, debates, and role-plays, as well as portfolio work. Such activities provide students with a chance to apply their linguistic

competencies in the context of significance, thus contributing to the process of cognitive complexity development and autonomous learning.

3. The autonomy of the students is to be actively stimulated by affording the students the chances to plan, monitor, and evaluate their own learning processes. This can be achieved by teachers who assist students in practicing the learning strategies, self-appraisal tools, and resources of independent study ,and thus, promote responsible and self-directed learning.
4. Training programmers in EFL-teaching should be focused on preparing EFL teachers with the skills that will enable them to develop cognitive complexity, adopt performance-based learning strategies, and encourage the autonomy of students. Continued professional learning may help teachers to put into practice new teaching methods that are appropriate as per current EFL pedagogy.
5. It is also suggested that the principles of cognitive complexity, performance-based learning, and autonomous learning should be specifically reflected in the objectives, content, and learning activities in university EFL programs. Integration of this nature can make sure that there is a match between the instructional goals and the classroom practices, hence increasing the overall effectiveness of the language educational objectives, which in turn improve the effectiveness of learning in general.
6. The assessment methods must also be expanded to include performance-based assessments, formative feedback systems, and reflective assessment tools that assess the capability of students to think on a higher order and learn independently. Such assessment practices provide a more detailed description of the linguistic skills and developmental patterns of students.
7. Universities ought to provide sufficient learning tools, technology, and conducive academic settings that can motivate students to undertake performance-based exercises

and independent learning. The cognitive and autonomous learning abilities of the students can be further enhanced by providing them access to digital platforms, language learning centers, and learning support services.

5.3 Suggestions for Further Studies

The findings of this study advocate for further exploration of the relationship between cognitive complexity, performance-based learning, and autonomous learning, which can greatly contribute to the literature and instructional techniques in this area. As a result, the following suggestions are made:

1. It is suggested that future researchers use experimental or quasi-experimental designs in order to examine the cause-effect relationships between cognitive complexity, performance-based learning, and autonomous learning. These types of designs would give more information on the effect of these variables on each other and would enable the identification of the effectiveness of instructional interventions to improve these variables.
2. Future studies can be conducted using subjects with different educational backgrounds, including secondary school students, preparatory school students, or post-graduate students, to determine whether there are the same trends in relationships among the variables across different levels of language acquisition.
3. It is suggested that comparative studies in various universities, regions, or even in various cultural settings will be required to determine possible contextual variations in the associations between cognitive complexity, performance-based learning, and autonomous learning. These studies may help in deepening the knowledge about the effect of educational settings on these variables.
4. Future studies can also investigate how technological tools and online learning platforms as well as digital learning environments, can enhance cognitive complexity and autonomy

in students. As technology becomes more and more integrated in the learning process, studying its effects on the process of language learning may shed light into the contemporary EFL educational practice.

5. Further research might be done on how specific teaching techniques or teaching models like task-based learning, project-based learning, or blended learning may affect the process of cognitive complexity, performance-based learning, and independent learning of EFL students.

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Appendix A

Cognitive Complexity Questionnaire

Please respond to each item separately in your mind from each other item. Choose your answers thoughtfully and make your answers as true for you as you can.

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I realise that there can be more than one correct way to understand or solve a language problem.					
2	Before accepting an idea about learning English, I think about it from different perspectives.					
3	I compare different explanations before deciding which one makes the most sense to me.					
4	I try to understand the reasons behind other people's opinions, even when they are different from mine					
5	I combine ideas from different subjects to better understand English.					
6	I distinguish between facts and opinions when learning new information in English.					
7	I connect new information with what I already know to develop a deeper understanding.					
8	I can relate theoretical models of second language learning to my own learning experiences.					
9	I try to understand how grammar, vocabulary, pronunciation, and communication work together.					
10	I enjoy analysing complex language tasks that require critical thinking.					
11	I think about the reasons why I succeed or struggle in learning English.					
12	I reflect on how my own experience of learning English influences the way I approach learning new language skills.					
13	I can connect new English knowledge with what I have learned in other courses or previous					

	experiences.					
14	I evaluate my learning by considering feedback from different sources, such as my teachers and colleagues.					
15	I actively seek feedback from others to improve my English learning and performance.					
16	When one learning method does not work, I am willing to try another one.					
17	I can adapt my thinking when I face new or unexpected learning situations.					
18	I change my opinion when I find stronger evidence or more convincing explanations.					
19	I believe that learning English requires looking at problems from different points of view.					
20	I am comfortable dealing with unclear or incomplete information while learning English.					

Appendix B

Performance-Based Learning Questionnaire

Please respond to each item separately in your mind from each other item. Choose your answers thoughtfully and make your answers as true for you as you can.

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I complete English learning tasks that are similar to situations I may face in real life.					
2	I create meaningful products, such as presentations, reports, projects, or portfolios, as part of my English learning.					
3	I learn English through activities that reflect authentic situations.					
4	The tasks I complete help me prepare to use English outside the classroom.					
5	I work on English tasks that require more than one possible solution.					
6	I believe the tasks I perform will help me use English effectively in the future.					
7	I apply what I learn in English classes to real-life situations.					
8	I apply knowledge learned in one course to activities in another academic field.					
9	I combine knowledge from different subjects when completing English assignments.					
10	I use English concepts learned in class to solve practical problems.					
11	I use the skills that I have acquired during my course work when facing new challenges.					
12	I use what I have learned in one task to complete different types of English tasks.					
13	Before starting a performance task, I understand how my work will be evaluated.					

14	I know the criteria for producing high-quality work before I begin a task.					
15	I enjoy completing tasks that allow me to demonstrate what I know and what I can do.					
16	Feedback from my instructors helps me improve my performance.					
17	I plan how I will complete a performance-based task before I begin working on it.					
18	I use my instructors' feedback to improve my future work.					
19	I demonstrate my learning through different types of assessments, such as presentations, reports, projects, or demonstrations.					
20	I work with my colleagues to complete challenging English tasks.					
21	Working with others helps me produce better work.					
22	I share my ideas confidently during group activities.					
23	I feel confident when presenting my work to others.					
24	I actively contribute to group discussions and assignments.					
25	Working with colleagues improves my English learning.					
26	Group activities improve my communication skills.					
27	I demonstrate my English abilities better through performing tasks than through traditional written tests.					
28	I monitor my progress while performing academic tasks.					
29	When my learning strategy is not effective, I change it to improve my performance.					
30	I look for additional learning resources when performing tasks become more challenging.					
31	I identify the skills I need to perform better.					
32	I organise my time and learning effectively when performing long-term tasks.					
33	I take responsibility for the quality of my work.					
34	Performance-based learning helps me develop English skills I need.					
35	I can recognise the skills I develop through performance-based tasks.					

36	I focus on improving my English skills rather than only earning good grades.					
37	I feel confident using my English skills in academic and real-life situations.					
38	Performance-based tasks allow me to demonstrate what I have learned.					
39	I actively look for opportunities to improve my English skills.					
40	Performance-based tasks increases my exposure to professional practice.					
41	After completing a performance-based task, I reflect on what I have learned.					
42	I analyse my mistakes to improve my future performance.					
43	I identify the learning strategies that helped me perform well.					
44	I use what I learn from reflection to improve my future assignments.					
45	I regularly evaluate how my English skills are improving over time.					

Appendix C

Autonomous Learning Questionnaire

Please try to respond to each item separately in your mind from each other item. Choose your answers thoughtfully and make your answers as true for you as you can.

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I explore English topics beyond the course requirements because I enjoy learning.					
2	I search for English learning materials on my own without being asked by my teachers.					
3	I set personal English learning goals in addition to the course requirements.					
4	I look for opportunities to develop English skills that are not directly taught in my courses.					
5	I learn English to improve my knowledge and abilities, not only to earn good grades.					
6	I prepare a study schedule to organize my English learning during my courses.					
7	I set clear and achievable goals for each English study lecture.					
8	I regularly review and adjust my study plan according to my learning progress.					
9	I manage my study time effectively to achieve my English learning goals.					
10	I decide which English learning tasks should be completed first based on their importance and deadlines.					
11	I regularly check my understanding while studying English and review topics I do not understand well.					
12	I can identify my strengths and weaknesses in learning English.					
13	I reflect on whether my study strategies are helping me learn effectively.					
14	I know when I need additional help or learning resources to improve my understanding.					
15	I review feedback on my assignments and examinations to improve my future performance.					
16	I use different learning strategies, such as note-taking, summarising, and self-testing, to improve my English learning.					
17	I connect new English knowledge with what I have learned before.					

18	I divide difficult English topics into smaller parts to make them easier to understand.					
19	I make use of questioning strategies where I ask questions such as why, how, and so on to enhance my understanding and encourage critical thinking.					
20	I regularly review previously learned English materials to strengthen my learning.					
21	I use additional learning resources, such as books, videos, or articles, to improve my English.					
22	I make use of available learning resources, such as libraries, online platforms, or language learning applications.					
23	I work with my classmates when collaboration helps me learn more effectively.					
24	When I have difficulty understanding something, I seek help from my teachers or colleagues.					
25	I use digital tools and educational applications to support my English learning.					
26	I believe taking responsibility for my own learning is important for academic success.					
27	I am confident in my ability to learn on my own.					
28	I enjoy having the freedom to decide how and when I study English.					
29	I learn more effectively when I am given the freedom to make my own learning decisions.					
30	I learn better in environments that give me autonomy rather than strict instructions.					
31	I regularly review my English lessons even when I do not have an upcoming test.					
32	I believe independent learning prepares me for future academic and professional success.					
33	I monitor my progress toward achieving my English learning goals throughout the course.					
34	I take responsibility for my learning and try to improve after making mistakes.					
35	I prepare my next lesson without needing reminders.					

Appendix D

A Letter to Jury Members

University of Wasit

College of Education for Human Sciences/ Department of English

A Letter to Jury Members

Dear Sir/ Madam

The researcher intends to conduct a study entitled " **Iraqi EFL University Students' Cognitive Complexity, Performance-Based Learning, and Autonomous Learning: A Correlational Study** ". The study aims to identify Iraqi EFL university students' level of cognitive complexity , performance-based learning, and autonomous learning . In addition, to identify the correlation between Iraqi EFL university students' cognitive complexity and performance-based learning with autonomous learning.

The sample of the study includes Iraqi EFL 3rd year University students at the Colleges of Education for Human Sciences at University of Wasit, College of Imam Al-Kadim, and University of Al-Kut during the first course of the academic year 2025/2026.

. To achieve the aims of the study, the researcher plans to use the following data instruments:

1. Cognitive Complexity Questionnaire (CCQ).
2. Performance-Based Learning Questionnaire (PBLQ).
3. Autonomous Learning Questionnaire (ALQ).

As an ELT specialist, I kindly ask you to look over the attached instruments and let me know your thoughts on their appropriateness for this study. Your feedback and recommendations will be truly appreciated and carefully considered.

Thank you in advance for your kind assistance and generous cooperation.

Best Regards.

The Researcher

Israa Sadiq Jaffar

The Supervisor

Prof. Qasim H. Al-Ibadi, (PhD)

Appendix E

Academic Ranks, Names, and Locations of The Jury Members.

No.	Academic Rank	Name	Field	College
1.	Prof. PhD	Chasseb Fanookh Al jubouri	ELT	Open Educational College/ Al-Qadisiyah Study Center
2.	Prof. PhD	Dhea Mizhir Krebt	ELT	College of Education/lbn Rushd, University of Baghdad.
3.	Prof. PhD	Faris Kadhim Al-Atabi	ELT	College of Education for Human Sciences/ University of Wasit
4.	Prof. PhD	Liqaa' Habeeb Abood	ELT	College of Education for Human Sciences/ University of Diyala.
5.	Prof. PhD	Nadia Majeed Hussein	ELT	Technical Instructors Training Institute/ Middle Technical University.
6.	Prof. PhD	Saadiya Wudaa Al-Quraishy	ELT	College of Education for Human Sciences/ University of Al-Qadissiya
6.	Prof. PhD	Salam Hamid Abbas	ELT	College of Education/lbn Rushd, University of Baghdad.
7.	Prof. PhD	Shaima'a Abdulbaqi Al Bakri	ELT	College of Education/lbn Rushd, University of Baghdad.
8.	Prof. Ph.D.	Sundus A.J. Kamil	ELT	College of Education/lbn Rushd, University of Baghdad.
9.	Asst. Prof. PhD	Ahmed Rwdan	ELT	College of Education for Human Sciences/University of AL-Mustaqbal
10.	Asst. Prof. PhD	Mais Flaieh Hasan	ELT	College of Basic Education/ University of Babylon
11.	Asst. Prof. PhD	Mohammed Abid Salah	ELT	College of Education for Human Sciences/ University of Wasit

12.	Asst. Prof.	Hussien Gumar Karam	ELT	College of Education for Human Sciences/ University of Wasit/
13.	Asst. Prof.	Mohammed Nasser Abdulsada	Linguistics	College of Education for Human Sciences/ University of Wasit
14.	Asst. Prof.	Noor Hameed Majeed	ELT	College of Education for Human Sciences/ University of Wasit.

المستخلص

يعد التعقيد الادراكي والتعلم القائم على الأداء والتعلم الذاتي من العوامل التي لها دورًا محتملاً في تعلم اللغة الإنجليزية كلغة أجنبية لدى طلبة الجامعات العراقيين. تهدف هذه الدراسة إلى تقصي العلاقة الارتباطية بين هذه المتغيرات. وبشكل أكثر تحديداً، تسعى الدراسة إلى تحقيق الأهداف الآتية: (١) تحديد مستوى التعقيد المعرفي لدى طلبة الجامعات العراقيين الدارسين للغة الإنجليزية كلغة أجنبية. (٢) تحديد مستوى التعلم القائم على الأداء لدى طلبة الجامعات العراقيين الدارسين للغة الإنجليزية كلغة أجنبية. (٣) تحديد مستوى التعلم الذاتي لدى طلبة الجامعات العراقيين الدارسين للغة الإنجليزية كلغة أجنبية. (٤) تحديد العلاقة الارتباطية بين التعقيد الادراكي والتعلم القائم على الأداء والتعلم الذاتي. تعتمد الدراسة المنهج الارتباطي. وتتكون عينة الدراسة من (٣١٦) طالباً وطالبة من طلبة المرحلة الثالثة في كليات التربية في كل من جامعة واسط، وكلية الإمام الكاظم (عليه السلام)، وجامعة الكوت، وذلك خلال العام الدراسي ٢٠٢٥-٢٠٢٦. وقد استخدمت ثلاث أدوات لجمع البيانات، وهي: استبانة التعقيد الادراكي، واستبانة التعلم القائم على الأداء، واستبانة التعلم الذاتي. وتم التحقق من صدق الأدوات وثباتها قبل تطبيقها. وتوصلت الدراسة إلى أن طلبة الجامعات العراقيين الدارسين للغة الإنجليزية لغة أجنبية في المرحلة الثالثة يمتلكون مستوى مرتفعاً من التعقيد الادراكي والتعلم القائم على الأداء والتعلم الذاتي. كما أظهرت النتائج وجود علاقة ارتباطية إيجابية قوية ذات دلالة إحصائية بين التعقيد الادراكي والتعلم القائم على الأداء والتعلم الذاتي لدى الطلبة. وبناءً على النتائج والاستنتاجات، تم تقديم مجموعة من التوصيات والمقترحات.



جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة واسط

كلية التربية للعلوم الانسانية

قسم اللغة الانكليزية

التعقيد الادراكي والتعلم القائم على الاداء والتعلم الذاتي لدى طلبة الجامعة العراقيين الدارسين اللغة
الانكليزية لغة اجنبية: دراسة ارتباطية

رسالة مقدمة

الى مجلس كلية التربية للعلوم الانسانية، جامعة واسط

وهي جزء من متطلبات نيل درجة الماجستير في التربية (طرائق تدريس اللغة الانكليزية/لغة اجنبية)

تقدمت بها الطالبة

إسراء صادق جعفر

بإشراف

أ. م. قاسم حمادي داود العبادي