

THEORETICAL AND APPLIED RESEARCH IN EDUCATIONAL SCIENCES

Editor
Prof. Dr. Rasim Erol DEMİRBATIR



THEORETICAL AND APPLIED RESEARCH IN EDUCATIONAL SCIENCES

Editor
Prof. Dr. Rasim Erol DEMİRBATIR



Theoretical And Applied Research In Educational Sciences

Editor: Prof. Dr. Rasim Erol DEMİRBATIR

Editor in chief: Berkan Balpetek

Cover and Page Design: Duvar Design

Printing : October -2025

Publisher Certificate No: 49837

ISBN: 978-625-8734-06-5

© Duvar Yayınları

853 Sokak No:13 P.10 Kemeraltı-Konak/İzmir

Tel: 0 232 484 88 68

www.duvar yayinlari.com

duvarkitabevi@gmail.com

The authors bear full responsibility for the sources, opinions, findings, results, tables, figures, images, and all other content presented in the chapters of this book. They are solely accountable for any financial or legal obligations that may arise in connection with national or international copyright regulations. The publisher and editors shall not be held liable under any circumstances

TABLE OF CONTENTS

Chapter 11

Vergleichende Analyse der Vermittlung des

Akkusativs in DaF-Lehrwerken

Deniz YEĞİN, Behiye ARABACIOĞLU

Chapter 219

Generative Artificial Intelligence and

Its Acceptance Among University Students

Didem ALSANCAK SIRAKAYA, Mustafa SIRAKAYA

Chapter 332

The Silent Skill Erosion:

Cognitive Offloading in the Age of Educational AI

Mehmet Fatih YİĞİT

Chapter 444

Exploring EMI-Related Disciplines:

CLIL, CBI, ESP, EAP, and EOP

Ecem EKİNCİ, Mithat EKİNCİ

Chapter 1

Vergleichende Analyse der Vermittlung des Akkusativs in DaF-Lehrwerken

Deniz YEĞİN¹, Behiye ARABACIOĞLU²

Zusammenfassung

In der vorliegenden Arbeit werden ausgewählte Kapitel zu spezifischen grammatischen Themen aus den DaF-Lehrwerken „*Menschen A1*“ und „*Berliner Platz 1*“, die für Lernende ohne Vorkenntnisse konzipiert sind, vergleichend analysiert. Das in dieser Studie behandelnde Grammatikthema „Akkusativ“ wird im Zusammenhang des Stockholmer Kriterienkatalogs analysiert, allerdings wird dabei nicht das gesamte, sondern nur der Grammatikteil und Übungsteil behandelt. Dabei wird besonders darauf geachtet, wie das Kapitel eingeteilt ist, welche Fertigkeiten vermittelt werden und in welcher Reihenfolge dies abläuft. Durch die Untersuchung des Kapitelaufbaus der zwei unterschiedlichen Lehrwerke, können Lehrkräfte sich entscheiden, welches sie in ihrem Unterricht verwenden möchten.

Schlüsselwörter: *Lehrwerk, Deutsch als Fremdsprache, Kapitelanalyse, Stockholmer Kriterienkatalog*

¹ Öğr. Gör. 0000-0002-9628-0988

² Doç. Dr. 0000-0002-5868-5319

Yabancı Dil Olarak Almanca Ders Kitaplarında Akkusativ Durumunun Öğretimine İlişkin Karşılaştırmalı Bir İnceleme

Özet

Bu çalışmada daha önce Almanca öğrenmemiş öğrenciler için hazırlanmış olan „Berliner Platz 1“ve „Menschen A1“ isimli yabancı dil olarak Almanca ders kitaplarında belirli bir gramer konusu açısından her bir kitabın birer ünitesi karşılaştırılmış ve analiz edilmiştir. Bu araştırmada ele alınan ismin i- hali (Akkusativ) konusu “Stockholm Kriter Kataloğu” bağlamında dil bilgisi ve alıştırma bölümünün sorularına bağlı olarak incelenmiştir. Bununla birlikte özellikle ünitenin dağılımına, hangi becerilerin öğretildiğine ve bunun nasıl bir sırayla uygulandığı göz önünde bulundurulmuştur. İki farklı ders kitabının birer ünitesi incelenmiş ve öğretmenlere derslerinde kullanacakları kitabı seçme olanağı verilmiştir.

Anahtar sözcükler: *Ders kitabı, Yabancı dil olarak Almanca, Ünite analizi, Stockholm kriterleri*

1. Einleitung

Die Relevanz von Lehrwerken im Fremdsprachenunterricht ist zweifach: Sie erleichtern der Lehrkraft die Organisation und Didaktisierung des Stoffes und bieten gleichzeitig den Studierenden einen strukturierten Mehrwert im Unterrichtsgeschehen. Lehrwerke entlasten die Lehrkraft signifikant, indem sie die kontinuierliche Notwendigkeit zur Neukonzeption unterrichtsbezogener Materialien eliminieren. Durch Hörübungen, Lesetexte, authentische Bilder, Dialogaufgaben, Schreibübungen usw. wird das Lernen effektiver und spannender. Da es unterschiedliche Lehrwerke für den DaF-Unterricht gibt, ist es von großer Bedeutung das richtige Material zu selektieren. Abhängig von der jeweiligen Zielgruppe, mit der der Unterricht durchgeführt wird – sei es mit Kindern, Jugendlichen, Erwachsenen, Anfänger*innen oder Fortgeschrittenen – ist das Lehrwerk so zu wählen, dass es den Lernbedürfnissen und der Lernmotivation in angemessener Weise Rechnung trägt. Die intensive Erklärung der Grammatik im Fremdsprachenunterricht hat im Laufe der Zeit durch die unterschiedlichen Grammatikmethoden an Bedeutung verloren. Der Stellenwert der Grammatik hat sich verändert und steht nun im Hintergrund im Unterricht, wohingegen die kommunikative Methode eingesetzt wird. Das Konzept der kommunikativen Methode ist, dass es Schülerzentriert ist, bei dem die Schüler aktiv am Unterricht teilnehmen, ermutigt werden, ihre Wünsche, Bedürfnisse und Interessen zu äußern, das heißt, dass das Sprechen im Mittelpunkt steht und die Lehrkraft während dieses Lernprozesses nur als Unterstützer am Unterricht beteiligt ist.

Die Analyse von Lehrwerken spielt eine zentrale Rolle in der Fremdsprachendidaktik, da sie ermöglicht, die inhaltliche, methodische und didaktische Qualität eines Lehrbuchs systematisch zu bewerten. Durch eine solche Analyse kann festgestellt werden, inwieweit ein Lehrwerk den Bedürfnissen der Zielgruppe sowie den curricularen Anforderungen entspricht. Es gibt zahlreiche wissenschaftliche Arbeiten zum Thema Lehrbuchanalyse und deren Bedeutung (Neuner & Hunfeld, 1993; Kühn, 2000; Caspari, 2003; Hallet & Königs, 2010; Bohn & König, 2020; Canbulat & Koparan, 2020; Başaran, 2024; Sarkiler, 2025).

In der vorliegenden Studie wird ein Kapitel des Lehrwerks „Berliner Platz 1“ und ein Kapitel des Lehrwerks „Menschen A1“ im Rahmen vom Thema „Akkusativ“ untersucht und Antworten auf die folgenden und weitere Fragen nachgeprüft, wie zum Beispiel: Sind die Texte im Hinblick auf die Grammatik konstruiert? Sind die Texte nach kommunikativen Gesichtspunkten ausgewählt? Werden grammatische Regeln gegeben? Sind die Übungen systematisch aufgebaut? Fördern die Übungen die Zusammenarbeit der Studierenden? Nach

einer Auswertung werden die Stärken und Schwächen des Aufbaus der Kapitel analysiert.

Zunächst wird in der vorliegenden Studie das Forschungsproblem, die Zielsetzung der Untersuchung und ihre Beschränkungen erklärt. Anschließend werden die Methode, das Forschungsfeld und die Datenerhebungsinstrumente dargelegt. Letztendlich werden die Ergebnisse der Analyse der Studie erläutert und zusammengefasst. Es soll eine neue Sichtweise erarbeitet werden, die der Lehrkraft hilft, ein passendes Lehrwerk auszuwählen.

2. Forschungsproblem

Das Forschungsproblem dieser Arbeit bezieht sich auf zwei unterschiedliche Lehrwerke, die in einem Kapitel das gleiche Grammatikthema behandeln, wobei der Aufbau der Kapitel unterschiedlich voneinander ist. Bei der Auswahl eines Lehrwerks ist es wichtig, dass es die vier Fertigkeiten Lesen, Hören, Sprechen und Schreiben fördert und der Unterricht nicht monoton, sondern motivierend, lehrreich und interessant durchgeführt wird. Laut Krashen's (1982) Hypothese zeigt sich, dass ein emotional positives Lernumfeld den Spracherwerb erleichtert. Daher steigt die Nachfrage nach einer ausführlichen Analyse bezüglich eines Lehrwerks.

3. Forschungsabsicht und Relevanz der Studie

Ziel dieser Arbeit ist es, zu untersuchen, welches der ausgewählten Lehrwerke – *Berliner Platz 1* oder *Menschen A1* – das Grammatikthema „Akkusativ“ im Hinblick auf die formulierten Lernziele umfassender und systematischer behandelt. Dabei werden die Kriterien des Grammatikteils und Übungsteils des Stockholmer Kriterienkatalogs berücksichtigt und in dieser Hinsicht analysiert. Obwohl nun nach den neuen Methoden die Grammatik nicht im Vordergrund steht, würde ein Fremdsprachenunterricht ohne diese Kriterien nicht funktionieren. Wichtig ist, dass die Grammatik in die Übungen bzw. Lesetexte eingebettet wird, damit die Lerner intuitiv die Regel finden können. Darüber hinaus ist nicht das Sprachwissen, sondern das Sprachkönnen essenziell und dies ist mit dem Lehrwerk und seines Aufbaus fest verankert.

Der Vergleich der Kapitel ermöglicht darzustellen bei welchem Kapitel die Studierenden anhand der Übungen, Rollenspiele, Partnerarbeit usw. motivierter sind und welches Kapitel die Sprechfähigkeit, Schreibfähigkeit, das Leseverstehen und Hörverstehen fördert. Die Ergebnisse der Analyse sollen den DaF-Studierenden einen Beitrag leisten, wie der Aufbau eines Lehrwerks das Lernen einer Fremdsprache fördert.

4. Beschränkungen

Es sind mehrere Lehrwerke für den Fremdsprachenunterricht vorhanden. Diese Arbeit beschränkt sich jedoch nur mit den Lehrwerken „Berliner Platz 1“ und dessen Kapitel 5 – „Was darf’s sein“ und „Menschen A1“ und dessen Kapitel 6 – „Ich brauche kein Büro“. Unter anderem werden folgende Fragen des Stockholmer Kriterienkatalogs beantwortet:

1. Sind die Texte im Hinblick auf die Grammatik konstruiert?
2. Gibt es im Lehrwerk eine systematische Grammatikübersicht?
3. Werden grammatische Regeln gegeben?
4. Werden alle Fertigkeiten in ausgewogenem Verhältnis geübt?
5. Welche Übungstypen kommen vor?
6. Sind die Übungen systematisch aufgebaut und ermöglichen sie eine schrittweise Einübung nach dem Muster:
 - I. Verstehen (Hören – Lesen)
 - II. Reproduzieren (Sprechen – Schreiben)
 - III. Sprechen und Schreiben in vorgegebenen Rollen und Situationen?
 - IV. Freie Äußerungen (mündlich und schriftlich)?

5. Begriffsbestimmungen

Im Folgenden werden Begriffe erörtert, die in der vorliegenden Studie den Rahmen der Analyse bestimmen.

5.1. Stockholmer Kriterienkatalog³: Der in den 1980er Jahren erschienene Stockholmer Kriterienkatalog (Krumm 1985) ist ein praxisorientierter und damit für die Unterrichtspraxis verwendbarer Kriterienkatalog. Dieser Kriterienkatalog entstand als Ergebnis zweier Seminare zum Thema „Lehrwerkanalyse“ in den Jahren 1983 und 1984. In den 1990er Jahren befasste sich der von Kast und Neuner (1994) herausgegebene Sammelband zur Analyse, Bewertung und Entwicklung von Lehrwerken für den Fremdsprachenunterricht eingehend mit der Problematik von Kriterienrastern (vgl. Maijala, 2007, S. 544).

5.1.1. Lehrwerk: Nach Barkowski und Krumm ist ein Lehrwerk ein strukturierter, publizierter Text und ein Übungsangebot für Unterricht oder Einzelstudium, das auf einem methodisch – didaktischen Gesamtkonzept basiert (Barkowski & Krumm, 2010, S.188). Lehrwerke heutzutage bestehen in der Regel aus einem Lehrbuch, einem Arbeitsbuch, einem Lehrerhandbuch sowie

³ Eine detaillierte Darstellung der Kriterien des Stockholmer Kriterienkatalogs ist im Anhang dieser Arbeit enthalten.

auditiven und visuellen Medien, die systematisch gegliedert sind und die die Interessen und Bedürfnisse der Studierenden vorteilhafter unterstützen können.

5.1.2. Akkusativ: Der Akkusativ wird auch als „Wen/ Was-Fall „bezeichnet. Es ist das direkte Objekt, das im Satz deutlich gemacht wird. Die Frage nach dem Akkusativ lautet „wen?“ oder „was?“.

*Beispiel: Der Mann kauft einen Kasten Mineralwasser. (**Was** kauft der Mann?)
Die Kinder rufen den Lehrer an. (**Wen** rufen die Kinder an?)*

Im folgenden Abschnitt wird die Methodik der vorliegenden Studie, der Ablauf der Datenerhebung, die verwendeten Erhebungsinstrumente sowie die Verfahren der Datenanalyse detailliert erläutert.

6. Qualitative Methode

Qualitative Forschung ist eine wissenschaftliche Methode, die darauf abzielt, verbale Daten zu erheben und anschließend zu analysieren. Dazu gibt es unterschiedliche Methoden wie beispielsweise Einzelgespräche, ein Gruppeninterview, qualitative Inhaltsanalyse und auch die Beobachtung (vgl. Zepke, 2016). Der Forschungsprozess der Arbeit läuft in sechs Schritten ab.

1. Konzeption und Planung
2. Forschungsdesign
3. Datenerhebung
4. Datenaufbereitung
5. Auswertung der Daten
6. Berichtlegung

6.1. Qualitative Inhaltsanalyse

Mayring (1991, S. 209) definiert das Ziel der Inhaltsanalyse als eine systematische und methodisch kontrollierte Auswertung von Kommunikationsmaterial. Dabei muss es sich nicht ausschließlich um Texte handeln; auch musikalische, bildliche, plastische oder andere Ausdrucksformen können Gegenstand der Analyse sein. Entscheidend ist, dass das jeweilige Kommunikationsmaterial in einer nachvollziehbaren Form dokumentiert bzw. protokolliert vorliegt. In dieser Arbeit wird die Methodik der qualitativen Inhaltsanalyse eingesetzt. Die erwähnten Kapitel der zwei Lehrwerke werden ausführlich dargelegt. Wichtig ist dabei sowohl die Auswahl der Übungen und als auch diesbezüglich die Aufgaben, die die Studierenden während oder nach dem Unterricht verarbeiten. Anschließend werden die sechs Fragen des Stockholmer Kriterienkatalogs beantwortet.

7. Forschungsfeld

In der vorliegenden Studie wurden die Lektionen, der Lehrwerke „Berliner Platz 1“ und „Menschen A1“ in der das Grammatikthema „Akkusativ“ gelehrt wird, analysiert. Es wurde dabei berücksichtigt, was die Lernziele des Kapitels sind und wie das ganze Kapitel mit den Übungen, Aufgaben aufgebaut ist. Anschließend wurden die zuvor erwähnten Fragen des Stockholmer Kriterienkatalogs beantwortet. Die Grundlage dieser Arbeit ist einen Vergleich zwischen zwei Lehrwerken, wobei beide sich an die Beschreibungen des Gemeinsamen europäischen Referenzrahmen orientieren, zu ziehen. Anhand der erzielten Ergebnisse wurde ermittelt, welches Lehrwerk die Studierenden zu einer aktiveren und produktiveren Teilnahme motiviert.

8. Datenerhebungsinstrumente

Die Daten dieser Arbeit entstammen durch die fünfte Lektion des Lehrwerks „Berliner Platz 1“ und die sechste Lektion des Lehrwerks „Menschen A1“, indem sie mit Hilfe des Stockholmer Kriterienkatalogs bewertet wurden.

8.1. Lehrwerk „Berliner Platz 1“: Lektion 5 „Was darf’s sein“

Wie bereits erwähnt, wurde bei der Analyse dieser Lektion untersucht, inwieweit die Fragen des Stockholmer Kriterienkatalogs beantwortet werden. Die Fragen lauten folgendermaßen:

1. Sind die Texte im Hinblick auf die Grammatik konstruiert?
2. Gibt es im Lehrwerk eine systematische Grammatikübersicht?
3. Werden grammatische Regeln gegeben?
4. Werden alle Fertigkeiten in ausgewogenem Verhältnis geübt?
5. Welche Übungstypen kommen vor?
6. Sind die Übungen systematisch aufgebaut und ermöglichen sie eine schrittweise Einübung nach dem Muster:
 - I. Verstehen (Hören – Lesen)
 - II. Reproduzieren (Sprechen – Schreiben)
 - III. Sprechen und Schreiben in vorgegebenen Rollen und Situationen?
 - IV. Freie Äußerungen (mündlich und schriftlich)?

Das Lernziel der Lektion besteht darin, Einkaufsdialoge zu verstehen und zu führen, einen Einkaufszettel zu verfassen sowie Kochrezepte zu verstehen. Das grammatische Schwerpunktthema umfasst die Akkusativformen, Verben mit Akkusativ und Mengenangaben. Die Ergebnisse zu diesen Fragestellungen werden im Folgenden der Arbeit der Reihe nach eingehend analysiert und diskutiert.

8.2. Lehrwerk „Menschen A1“: Lektion 6 „Ich brauche kein Büro“

Auch während dieses Prozesses wurden die sechs Fragen des Stockholmer Kriterienkatalogs beantwortet. Die Fragen lauten folgendermaßen:

1. Sind die Texte im Hinblick auf die Grammatik konstruiert?
2. Gibt es im Lehrwerk eine systematische Grammatikübersicht?
3. Werden grammatische Regeln gegeben?
4. Werden alle Fertigkeiten in ausgewogenem Verhältnis geübt?
5. Welche Übungstypen kommen vor?
6. Sind die Übungen systematisch aufgebaut und ermöglichen sie eine schrittweise Einübung nach dem Muster:
 - I. Verstehen (Hören – Lesen)
 - II. Reproduzieren (Sprechen – Schreiben)
 - III. Sprechen und Schreiben in vorgegebenen Rollen und Situationen?
 - IV. Freie Äußerungen (mündlich und schriftlich)?

Das Lernziel dieser Lektion besteht darin, im Kontext des Büros bzw. Arbeitsplatzes Telefongespräche zu führen und zu verstehen sowie E-Mails und SMS-Nachrichten zu rezipieren. Das grammatische Schwerpunktthema dieser Einheit bildet der Akkusativ. Auch die Beantwortung dieser Fragestellungen wird im Folgenden der Arbeit ausführlich behandelt.

9. Befunde

In diesem Abschnitt werden die Fragestellungen des Stockholmer Kriterienkatalogs in zwei getrennten Teilen bearbeitet. Auf der Grundlage der sechs Fragen, die sich auf die Themenbereiche Grammatik und Übungstypologie beziehen, wurden die entsprechenden Lektionen beider Lehrwerke analysiert. Diese Vorgehensweise ermöglicht einen Vergleich, der Aufschluss darüber gibt, welches Lehrwerk didaktisch gehaltvoller und stärker lernendenzentriert gestaltet ist.

9.1. Vergleich der Befunde

Im Folgenden der Studie werden die beiden Lektionen der Lehrwerke „Berliner Platz 1“ (Lektion 5: „Was darf’s sein?“) und „Menschen A1“ (Lektion 6: „Ich brauche kein Büro“) anhand des Stockholmer Kriterienkatalogs miteinander verglichen. Ziel dieser Gegenüberstellung ist es, die grammatikalische Progression, den Übungsaufbau sowie die Integration der Fertigkeiten systematisch zu analysieren. Die Ergebnisse der Analyse sind in der folgenden Tabelle dargestellt.

Tabelle 1: Vergleich der Lektionen im Hinblick auf die Grammatikvermittlung

Nr.	Frage / Kriterium	Berliner Platz 1 – Lektion 5 „Was darf's sein?“	Menschen A1 – Lektion 6 „Ich brauche kein Büro“
1	Sind die Texte im Hinblick auf die Grammatik konstruiert?	Vier Texte (zwei Einkaufszettel, ein Dialog, ein Rezept) dienen der indirekten Einführung des Akkusativs. Die Grammatik wird implizit vermittelt, z. B. durch Sätze wie „Ich kaufe einen Kasten Wasser“. Lernende erkennen durch Markierungsaufgaben die Artikelveränderung und die Funktion des Akkusativs.	In der Lektion gibt es fünf Hörtexte, aber keine Lesetexte. Nur ein Hörtext steht im Zusammenhang mit dem Akkusativ. Der Schwerpunkt liegt eher auf dem Wortschatz; grammatikalische Aspekte werden kaum vertieft.
2	Gibt es im Lehrwerk eine systematische Grammatikübersicht?	Am Ende jeder Lektion steht eine systematische Übersicht mit den wichtigsten Strukturen (Verbkonjugationen, Artikelveränderung).	Ebenso findet sich am Ende der Lektion eine Grammatikübersicht mit Redemitteln und Strukturen der Lektion.
3	Werden grammatische Regeln gegeben?	Es gibt keine expliziten Regeltafeln; Grammatik wird implizit über Übungen vermittelt. Nur eine Aufgabe (Artikel markieren) verdeutlicht die Kasusformen.	Die Grammatik wird in Tabellenform präsentiert, jedoch ohne vertiefende Schreib- oder Sprechübungen. Der Fokus liegt auf dem Wortfeld, nicht auf der systematischen Grammatikvermittlung.
4	Werden alle Fertigkeiten in ausgewogenem Verhältnis geübt?	Alle vier Fertigkeiten (Lesen, Hören, Sprechen, Schreiben) werden ausgeglichen gefördert. Besonders Schreib- und Sprechübungen regen zur Eigenproduktion an (z. B. Einkaufszettel,	Die Lektion fördert primär das Hörverstehen; Leseverstehen kommt kaum vor. Sprechübungen sind kurz und wenig produktiv. Eine ausgewogene

		Rollenspiele, Plakatgestaltung).	Fertigkeitenverteilung ist nicht erkennbar.
5	Welche Übungstypen kommen vor?	Reproduktive, produktive und freie Übungsformen. Drei der vier Hörübungen sind rezeptiv-produktiv. Lesetexte enthalten Zuordnungsaufgaben; Schreib- und Sprechübungen fördern freie Produktion.	Überwiegend geschlossene Hörübungen (Multiple-Choice, Zuordnung). Kaum Aufgaben zur aktiven Förderung von Sprech- und Schreibkompetenz; kein Lesetext vorhanden.
6	Sind die Übungen systematisch aufgebaut (Verstehen → Reproduzieren → Kommunizieren → Freie Äußerung)?	Der Aufbau folgt dem Stockholmer Kriterienkatalog: rezeptive Aufgaben zu Beginn, darauf aufbauend reproduktive und kommunikative Phasen, schließlich freie mündliche und schriftliche Äußerungen.	Die Übungsfolge ist nicht systematisch strukturiert. Mehrere Hörtexte ohne klare Progression; kaum Möglichkeiten für freie Äußerungen. Der Kriterienkatalog wird nicht erfüllt.

Quelle: Eigene Analyse auf Grundlage des Stockholmer Kriterienkatalogs (vgl. Kast & Neuner, 1994).

9.2. Analytische Auswertung

Aus der Gegenüberstellung wird deutlich, dass die Lektion im „*Berliner Platz I*“ eine strukturiertere und lernzielorientiertere Grammatikvermittlung bietet. Die Übungen sind in einem systematischeren Aufbau konzipiert und fördern in begrenztem Maße auch die produktiven Fertigkeiten. Im Gegensatz dazu legt „*Menschen A1*“ einen stärkeren Schwerpunkt auf das Hörverstehen, wobei die Integration der Grammatik in kommunikative Kontexte und die Förderung freier Äußerungen weniger konsequent umgesetzt werden. Insgesamt zeigt sich, dass beide Lehrwerke unterschiedliche didaktische Schwerpunkte setzen, jedoch im Hinblick auf die systematische Einübung grammatischer Strukturen noch Optimierungspotenzial besteht.

10. Schlussfolgerung, Diskussion und Vorschläge

In diesem Teil werden die Ergebnisse dieser Forschung zusammengefasst. Anhand der Analyse von zwei verschiedenen Lektionen von zwei DaF-

Lehrwerken wurde versucht, den Lehrkräften eine neue Perspektive bei der Auswahl eines Lehrwerks zu erschaffen.

Nach der Beantwortung der Fragen des Stockholmer Kriterienkatalogs ist es einsichtig, dass das Lehrwerk „Berliner Platz 1“ im Gegensatz zu dem Lehrwerk „Menschen A1“ üblingsreicher und motivierender ist. Somit haben die Studierenden die Möglichkeit das Gelernte zu verinnerlichen.

„Lehrwerke werden nach bestimmten Lehrmethoden verfasst. An Lehrbüchern kann man die Merkmale von bestimmten Lehrmethoden gut erkennen“ (Neuner&Hunfeld,1993, S. 16). In diesem Zusammenhang kann man erklären, dass die oben erwähnten Lehrwerke auf verschiedene Methoden beruhen.

Der Aufbau der Lektion, die Auswahl der Texte, die Abfolge der Grammatik, die Übungstypen sowie die Lernprogressionen sind die wichtigsten Punkte bei der Bestimmung der Methoden.

Literaturverzeichnis

- Aydın, Ç.P. (2019). *Aktivitäten in den regionalen und überregionalen Lehrwerken an den Beispielen Schritt Für Schritt Deutsch und Logisch*. Masterarbeit. Ankara: Hacettepe.
- Barkowski, H. & Krumm, H.-J. (2010). *Fachlexikon Deutsch als Fremd- und Zweitsprache*. Tübingen: A. Francke Attempto Verlag.
- Başaran, B. (2024). Rethinking AI in Education: A Comparative Study of Custom and External Systems. In 2024 6th International Workshop on Artificial Intelligence and Education (WAIE) (pp. 16–28). IEEE. <https://doi.org/10.1109/waie63876.2024.00011>
- Bohn, H. & König, K. (2020). Lehrwerkanalyse und Lehrwerkwahl im DaF-/DaZ-Unterricht. In H.-J. Krumm, C. Fandrych, B. Hufeisen, & C. Riemer (Hrsg.), *Handbuch Deutsch als Fremd- und Zweitsprache* (2. Aufl., S. 1408–1418). Berlin: De Gruyter.
- Canbulat, M. & Koparan, B. (2020). Yabancı dil olarak türkçe öğretiminde türk kültür öğelerinin aktarımına yönelik bir durum çalışması. *Araştırma ve Deneyim Dergisi*, 5(2), 40-57. <https://doi.org/10.47214/adeder.756667>
- Caspari, D. (2003). Lehrwerkanalyse und Lehrwerkforschung. *Fremdsprache Deutsch*, (29), 4–11.
- Evans, S., Pude, A. & Specht, F. (2012). *Menschen Deutsch als Fremdsprache AI*. Ismaning: Hueber Verlag GmbH.
- Hallet, W. & Königs, F. G. (Hrsg.). (2010). *Handbuch Fremdsprachendidaktik*. Seelze: Kallmeyer/Klett.
- Hyben, L. (2016). *Lehrwerkanalyse in der Auslandsgermanistik. Aspekte neu. Mittelstufe Deutsch Lehrbuch 3 mit DVD C1*. München: GRIN Verlag.
- Kast, B. & Neuner, G. (Hrsg.) (1996). *Zur Analyse, Beurteilung und Entwicklung von Lehrwerken für den Fremdsprachlichen Unterricht*, Berlin: Langenscheidt.
- Kaygusuz, D. (2019). *Eine Untersuchung zum Verhältnis von Sprachhandlungen und Grammatik In Regionalen DaF-Lehrwerken*. Masterarbeit. Ankara: Hacettepe.
- Krashen, S. (1982). *Principles and practice in second language acquisition*. Pergamon.
- Kühn, P. (2000). *Lehrwerke im Fremdsprachenunterricht: Kriterien für Auswahl und Bewertung*. München: Hueber.
- Lemcke, C., Rohrmann, L. & Scherling, T. (2009). *Berliner Platz I Neu*. Berlin und München: Langenscheidt KG.

- Maijala, M. (2007). Was ein Lehrwerk können muss – Thesen und Empfehlungen zu Potenzialen und Grenzen des Lehrwerks im Unterricht Deutsch als Fremdsprache. *InfoDaf*, 6, 543-561.
- Mayring, P. (2010). Qualitative Inhaltsanalyse. G. Mey. und K. Mruck (Ed.). In: *Handbuch Qualitative Forschung in der Psychologie* (S. 601-613). Weinheim: Beltz Verlag.
- Neuner, G. & Hunfeld, H. (1993). *Methoden des fremdsprachlichen Deutschunterrichts, Eine Einführung*. Kassel: Langenscheidt.
- Sarkiler, Y.A. (2025). *Evaluating DaF Textbooks: Structure, Teaching Practice and CEFR*. In S. Demir Başaran (Ed.), *Theoretical and applied approaches in educational sciences* (pp. 24-36). Duvar Yayınları.
- Turon, N. (2015). *Deutschlehrwerke in Finnland Lehrwerkanalysen der Lehrwerkreihen „Genau“ und „Panorama Deutsch“*. Pro-Gradu Arbeit. Finnland: Universität Oulu.
- Zepke, G. (2016): *Lust auf qualitative Forschung! Eine Einführung für die Praxis*. Wien: TSO Verlag. <https://www.scribbr.de/methodik/qualitative-inhaltsanalyse/> (letzter Zugriff: 30.09.2025)

ANHANG 1

Liste der Kriterien des Stockholmer Kriterienkatalogs nach Kast, Bernd, & Neuner, G. (Hrsg.) 1996: Zur Analyse, Beurteilung und Entwicklung von Lehrwerken für den Fremdsprachlichen Unterricht, Berlin: Langenscheidt.

Stockholmer Kriterienkatalog

a. Aufbau des Lehrwerks

Es sollen unbedingt vorhanden sein:

- Textteil
- Arbeitsteil/Arbeitsbuch
- Grammatikteil (im Textbuch oder besonderes Grammatikbuch)
- Wörterverzeichnis (im Textbuch mit phonetischen Angaben, wo nötig)
- Tonband/Kassette

Gibt es zusätzlich noch...?

- Lehrerhandbuch mit zusätzlichem Material wie Bilderserien, Spiele, Tests, Liedertexte etc.

- Bildmaterial (Folien, Dias)
- Zusätzliche Tonaufnahmen (authentische Texte, Lieder, ...)
- Lösungen zu den Aufgaben
- Tests

b. Layout

- Ist die äußere Aufmachung ansprechend?
- Ist die Gestaltung der Lektionen und Lehrbuchseiten übersichtlich?
- Ist die graphische Gestaltung (Fotos, Zeichnungen) motivierend?
- Sind die Materialien gut verarbeitet und haltbar?
- Sind Bild und Text pädagogisch aufeinander abgestimmt?

c. Übereinstimmung mit dem Lehrplan

- Entspricht die Konzeption des Lehrwerks den Anforderungen des Lehrplans (z.B. übergreifende Lernziele, kommunikative Lernziele)?

d. Inhalte – Landeskunde

Soweit entsprechende Texte und Informationen im Lehrwerk vorhanden sind, ist zu fragen, ob sie

- sachlich richtig sind
- altersgerecht sind
- ausgewogen sind
- problemorientiert sind
- unterhaltend sind
- abwechslungsreich gestaltet sind
- und ob kulturkontrastive Aspekte berücksichtigt werden

1. Die Menschen, die im Lehrwerk vorkommen

- Gibt es Personen, mit denen sich die Schüler identifizieren können?
- Gibt es Personen, für die sich die Schüler interessieren könnten?
- Tauchen männliche und weibliche Personen zu ungefähr gleichen Anteilen im Lehrwerk auf?

- Werden Rollenklischees (z.B. Frau nur als Hausfrau) vermieden?

2. Der Alltag im Lehrwerk

- Wird das Leben in der Stadt und auf dem Land vorgestellt?
- Wird das Leben in Familie, Schule, bei der Arbeit und in der Freizeit thematisiert?

- Tauchen Menschen aus verschiedenen sozialen Schichten auf?

- Wird das Alltagsleben in allen deutschsprachigen Ländern behandelt?

3. Geographie und Wirtschaft

- Enthält das Lehrwerk Karten und Fotos zur Darstellung von Geographie und Wirtschaft (Vielfalt der Landschaftstypen, Industrie etc.)

4. Die Gesellschaft (politische, wirtschaftliche und gesellschaftliche Verhältnisse)

- Werden die verschiedenen politischen Systeme der deutschsprachigen Länder vorgestellt?

- Werden die verschiedenen wirtschaftlichen Systeme und Lebensbedingungen in den deutschsprachigen Ländern behandelt?

- Enthält das Lehrwerk aktuelle Bezüge, z.B. Fragen der Umwelt, der Arbeitswelt (Arbeitslosigkeit), der Computergesellschaft, der Handelsbeziehungen zwischen den deutschsprachigen Ländern und dem Heimatland?

5. Kultur

- Werden Feste, Sitten und Gebräuche vorgestellt?

- Wie weit werden Kunst, Musik, Theater und Film etc. einbezogen?

- Werden auch Jugend- und Alternativkultur angesprochen?

6. Literatur

- Werden im Lehrwerk auch literarische Texte (Gedichte, Kurzgeschichten etc.) vorgestellt?

7. Geschichte

- Werden auch wichtige geschichtliche Informationen vermittelt? (z.B. solche, die die Beziehungen zwischen den deutschsprachigen Ländern und dem Heimatland beeinflusst haben)

8. Darstellung des eigenen Landes

- Bietet das Lehrwerk die Möglichkeit

- A. die besonderen Beziehungen deutschsprachigen Ländern zu eigenem Land zu verhandeln?

- B. über Verhältnisse im eigenen Land, z.B. Sitten und Bräuche, Wirtschaft, soziale Sicherung sich auf Deutsch zu äußern?

e. Sprache

- Orientiert sich das Lehrwerk an der Standardsprache?

- Bietet das Lehrwerk Beispiele für die sprachliche Vielfalt, z.B. Umgangssprache, Jugendsprache, Werbesprache, Fachsprache, literarische Sprache?

- Ist die Sprache im Lehrwerk der Situation angemessen, und ist ein Kontext angegeben?

- Enthält das Lehrwerk eine Vielfalt an Textsorten (Dialoge, erzählende Texte, Sach-/Fachtexte, Zeitungsartikel usw.)

- Enthält das Lehrwerk genügend Material zur

Rezeption (Hören und Lesen) und Produktion (Sprechen und Schreiben) von Sprache?

- Ist die Sprache authentisch oder wirkt sie künstlich (Lehrbuchsprache)?

- Ist die Sprache für die jeweilige Lernstufe zu schwierig (zu viele neue Wörter, komplexer Satzbau) oder zu leicht (langweilig)?

- Sind zusammenhängende Lesetexte vorhanden (ausgewogenes Verhältnis zwischen Lang- und Kurztexten)?

- Werden wichtige Redesituationen in Dialogen vorgeführt?

- Werden unterschiedliche Sprechfunktionen verdeutlicht?

- Regen die Lehrbuchtexte zur kreativen Weiterarbeit an (Diskussionen, eigene Texte schreiben, Dramatisieren und Rollenspiele)?

- Führen die Texte auch die emotionalen Ausdrucksmöglichkeiten der Sprache vor? (Dazu gehört auch das Vorhandensein von Spielen, Liedern, Reimen, aber aus Ausdrücken für Freude, Wut, Angst etc.)

- Werden Wörter und Ausdrücke genügend erklärt?

- Werden sprachliche Verwandtschaften zur Lernerleichterung ausgenutzt?

- Werden kulturell-sprachliche Unterschiede berücksichtigt (z.B. Du-Sie-Konventionen)?

1. Aussprache und Intonation

- Werden Fragen der Aussprache und Intonation systematisch behandelt?

- Werden die kontrastiv schwierigen Laute besonders berücksichtigt?

- Werden Intonationshilfen (z.B. Farbe, Fettdruck, Pfeile) gegeben?

2. Tonbänder/Kassetten

- Klingen die Aufnahmen authentisch?

- Werden auch Sprachvarianten vorgeführt (z.B. verschiedene Sprecher, eventuell dialektale Färbung)?

f. Grammatik

- Sind die Texte im Hinblick auf die Grammatik konstruiert?
- Sind die Texte nach kommunikativen Gesichtspunkten ausgewählt?
- Gibt es eine systematische Behandlung (Progression) der Grammatik im Laufe des Lehrwerks? Wird auch die pragmatisch-kommunikative Grammatik berücksichtigt?
- Ist die Progression flach oder steil?
- Werden die grammatischen Probleme wiederholt und dabei vertieft („konzentrische Progression“)?
- Gibt es im Lehrwerk eine systematische Grammatikübersicht (vor allem für die Grundstufe)?
- Verweist das Lehrwerk auf eine umfassendere grammatische Darstellung?
- Werden die Strukturen im Deutschlehrwerk so beschrieben und analysiert wie im Unterricht der Muttersprache? (Welche Grammatiktheorie, welches Grammatikmodell liegt zu Grunde?)
- Wird dabei eine grammatische Terminologie benutzt, die den Schülern schon bekannt ist?
- Werden die grammatischen Begriffe erklärt, wenn sie zum ersten Mal erwähnt werden?
- Werden grammatische Regeln gegeben? Mit Beispielen und Vergleichen zur Muttersprache?
- Regen die Lehrbuchtexte zur kreativen Weiterarbeit an (Diskussionen, eigene Texte schreiben, Dramatisieren und Rollenspiele)?

g. Übungen

1. Arbeitsanweisungen

- Sind die Arbeitsanweisungen eindeutig?
- In welcher Sprache sind die Arbeitsanweisungen formuliert?
- Wie werden die Lernenden angesprochen (Du/Sie-Anrede, Ton)?
- Geben die Arbeitsanweisungen Hinweise auf die (Sprech-)Situation (Regieanweisungen)?

2. Fertigkeiten

- Werden alle Fertigkeiten in ausgewogenem Verhältnis geübt?

3. Übungstypen

- Welche Übungstypen kommen vor?
- Sind die Übungen systematisch aufgebaut und ermöglichen sie eine schrittweise Einübung nach dem Muster:
 1. Verstehen (Hören – Lesen)

2. Reproduzieren (Sprechen – Schreiben)
3. Sprechen und Schreiben in vorgegebenen Rollen und Situationen?
4. Freie Äußerungen (mündlich und schriftlich)?

4. Übungsformen

- Variieren die Übungsformen?
- Werden kreative Übungen betont, z.B. altersgerechte Spielübungen?
- Fördern die Übungen die Zusammenarbeit der Schüler? Gibt es Partnerübungen und Übungen, die für (Klein-)Gruppen geeignet sind?
- Fordern die Übungen selbstständiges Lernen?

5. Zusammenhang

- Besteht ein sprachlicher und thematischer Zusammenhang zwischen Textteil, Grammatik und Übungsteil?

6. Differenzierung

- Gibt es genügend und verschiedenartige Übungen, um eine Differenzierung innerhalb heterogener Gruppen zu ermöglichen?

7. Wiederholung

- Gibt es systematische Wiederholungen?
- Gibt es ein ausreichendes Angebot an Übungen?

h. Die Perspektive der Schüler

Anschließend sollte gefragt werden, wie das Lehrmaterial von den Schülern aufgefasst wird.

Stellen Sie sich aus der Sicht der Schüler folgende Fragen:

- Werde ich überfordert durch insgesamt zu schwierige Inhalte, Sprache oder Aufgabenstellungen?
- Sind die Anforderungen insgesamt zu gering (keine Herausforderung, Langeweile) im Hinblick auf Inhalt, Sprache oder Aufgabenstellungen?
- Bieten die Inhalte, Textsorten, Übungen genügend Abwechslung?
- Geben die Inhalte Möglichkeiten und Anstöße zu eigenständiger Weiterarbeit?
- Habe ich die Möglichkeit, meine eigenen Gedanken und Erfahrungen einzubeziehen, die eigene Perspektive zur Sprache zu bringen? Kann dies den Lernprozess beeinflussen (z.B. im Hinblick auf Auswahl von Themen, Texten)?
- Sind für mich Lernziele und Lernfortschritte erkennbar?
- Kann ich eigenständig Stoff nachholen und ohne direkte Hilfe durch den Lehrer Lücken auffüllen?
- Bin ich am Lernprozess beteiligt?

Chapter 2

Generative Artificial Intelligence and Its Acceptance Among University Students

Didem ALSANCAK SIRAKEYA¹, Mustafa SIRAKEYA²

INTRODUCTION

Although the concept of artificial intelligence (AI) has its historical foundations dating back to the mid-20th century (McCarthy, 2007), it has gained remarkable popularity particularly in recent years. Developments in internet technologies and the availability of massive data enabled by widespread digital use have made AI a pervasive technology influencing almost every aspect of daily life. However, the question “Can machines think?” has long been a subject of human curiosity (Cave et al., 2018). The first concrete attempt to answer this question was perhaps given through the simulation game known as the Turing Test. Developed by Alan Turing in 1950, this test evaluates a machine’s ability to exhibit intelligence equivalent to—or indistinguishable from—that of a human being.

In 1955, the term artificial intelligence was first introduced by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon during The Dartmouth Summer Research Project on Artificial Intelligence (McCarthy et al., 1955; Moor, 2006). Beyond merely coining the term, this project discussed the idea that learning or other features of intelligence could be simulated by machines within the context of AI (McCarthy et al., 1955).

Etymologically, the term may be defined as the human-made version of the thinking capacity unique to human beings. Conceptually, artificial intelligence refers to machine-based systems that, in alignment with human-defined objectives, perform predictions, recommendations, or decisions that influence real or virtual environments. More broadly, it can be described as the study of agents that receive commands and inputs from their surroundings and act accordingly (Russell & Norvig, 2021). Most of these and similar definitions

¹ Assoc. Prof. Dr.; Kırşehir Ahi Evran Vocational School of Technical Sciences, Department of Computer Technologies, alsancakdidem@gmail.com ORCID No: 0000-0002-1821-5275

² Assoc. Prof. Dr.; Kırşehir Ahi Evran Vocational School of Technical Sciences, Department of Computer Technologies, mustafasirakaya@gmail.com ORCID No: 0000-0002-7964-4399

emphasize the simulation and augmentation of human intelligence (Jiang, Li, Luo, Yin & Kaynak, 2022).

In this context, AI can perform functions such as data analysis, classification, and prediction by executing cognitive tasks like learning, problem-solving, decision-making, and pattern recognition (Ouyang & Jiao, 2021; Zawacki-Richter, Marín, Bond & Gouverneur, 2019). Artificial intelligence can therefore be defined as a collection of systems that imitate human cognitive processes—such as thinking, learning, and problem-solving—and make inferences and decisions based on data. From this perspective, AI is not merely a technology that replicates human cognition but also a transformative tool that redefines the production of knowledge.

As seen, AI encompasses a broad and multifaceted definition. Generative artificial intelligence operates as a subfield within AI. The key characteristic of generative AI lies in its ability to produce new and original content based on the datasets it has learned from—that is, generation is the core principle of this technology.

Generative AI applications hold the potential to redefine students' roles and responsibilities in the learning process (Sirakaya & Alsancak Sirakaya, 2024a). However, the concept of “generation” that defines generative AI may be perceived differently by students. For those possessing creative thinking skills, generative AI can become a tool that enables the creation of more unique and diverse works. For others, it may represent a concern that stifles creativity and hinders the production of original work. The misuse of generative AI can also lead to adverse outcomes in learning processes. Therefore, determining students' acceptance levels of generative AI technologies has a significant impact on the potential use of such technologies in educational contexts (Alsancak Sirakaya & Sirakaya, 2024a).

It is understood that further research is needed to examine students' acceptance of generative AI tools and applications (Karaoğlu Yılmaz, Yılmaz & Ceylan, 2023). The aim of this study is to examine the differences in university students' acceptance of generative artificial intelligence based on various variables. In this context, the following sub-research questions were addressed:

1. Do university students' acceptance levels of generative artificial intelligence show a significant difference according to gender?
2. Do university students' acceptance levels of generative artificial intelligence show a significant difference according to grade level?
3. Do university students' acceptance levels of generative artificial intelligence show a significant difference according to whether they have received AI education?

4. Do university students' acceptance levels of generative artificial intelligence show a significant difference according to their frequency of daily AI use?
5. Do university students' acceptance levels of generative artificial intelligence show a significant difference according to their belief in the accuracy of AI-generated responses?

METHOD

Research Method

The study employed the survey method. In survey research, data are generally collected from a larger number of participants compared to other research methods (Fraenkel & Wallen, 2006). The main objective is to capture and describe the existing situation as it is—essentially taking a “snapshot” of the current state (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2008).

Study Group

The study group consisted of 108 university students enrolled at a public university. The participants were selected using the convenience sampling method. In forming the study group, the researchers aimed to reach the required number of participants by starting with those who were easily accessible (Büyüköztürk et al., 2008). The distribution of participants according to their demographic characteristics is presented in Table 1.

Table 1. Distribution of Participants According to Demographic Characteristics

Category	Classification	f	%
Gender	Male	75	69.4
	Female	33	30.6
	Total	108	100
Grade Level	1st Year	73	67.6
	2nd Year	35	32.4
	Total	108	100
AI Education Experience	Yes	26	24.1
	No	82	75.9
	Total	108	100
Daily Use of AI	Several times a day	42	38.8
	Once a day	22	20.4
	Once every 2–3 days	33	30.6
	Once a week	6	5.6
	I do not use AI	5	4.6
	Total	108	100
Perceived Accuracy of AI Responses	Provides partially correct answers	54	50.0
	Provides correct answers	47	43.5
	Provides completely correct answers	7	6.5
	Total	108	100

According to Table 1, 69.4% of the participants were male and 30.6% were female, indicating that the majority of the participants were male students. In terms of grade level, 67.6% of the participants were first-year students, while 32.4% were second-year students, showing that most of the participants were in their first year of study.

Regarding prior experience with artificial intelligence (AI) education, 75.9% of the participants reported that they had not received any AI-related training before, whereas 24.1% stated that they had received such training.

When examining the frequency of daily AI use, 38.8% of the students reported using AI several times a day, 30.6% once every two to three days, 20.4% once a day, and 5.6% once a week. Additionally, 4.6% of the participants indicated that they did not use AI in their daily lives.

Concerning the perceived accuracy of AI-generated responses, 50% of the participants stated that AI “provides partially correct answers,” 43.5% believed that it “provides correct answers,” and 6.5% thought that it “provides completely correct answers.”

Data Collection Tools

Personal Information Form: Demographic information about the participants was collected using the Personal Information Form developed by the researchers. This form included questions regarding participants’ gender, year of study, daily duration of AI use, and their level of trust in the accuracy of AI-generated responses.

Generative Artificial Intelligence Acceptance Scale: The Generative Artificial Intelligence Acceptance Scale, developed by Karaoğlu Yılmaz, Yılmaz, and Ceylan (2023), consists of 20 items and 4 factors. The scale was developed based on data collected from 627 university students. The Cronbach’s Alpha coefficient of the scale was reported as 0.97, and the test–retest reliability coefficient was 0.95. These results indicate that the Generative Artificial Intelligence Acceptance Scale has high validity and reliability and can be considered a robust measurement instrument.

Data Analysis

The data were analyzed using descriptive statistics, the independent samples t-test, and one-way analysis of variance (ANOVA) for independent samples. To determine whether the data followed a normal distribution, the Kolmogorov–Smirnov test was applied, as the sample size was greater than 50 (Büyüköztürk, 2007). The test results indicated that the normality values were not statistically significant ($p > .05$), confirming that the data were normally distributed.

FINDINGS And RESULTS

Variation of Generative Artificial Intelligence Acceptance by Gender

An independent samples t-test was conducted to determine whether university students’ acceptance of generative artificial intelligence differed according to gender. The findings obtained from the analysis are presented in Table 2.

Table 2. Variation of Generative Artificial Intelligence Acceptance by Gender

Gender	N	Mean ($\bar{X}$)	SD (S)	df	t	p
Female	33	64.58	22.90	106	.264	.793
Male	75	65.77	18.76			

When Table 2 is examined, it is observed that although the mean acceptance score of female students ($X = 64.58$) is slightly lower than that of male students ($X = 65.77$), the difference between the two groups is not statistically significant ($t(106) = .793, p > .05$). This finding indicates that the gender variable does not have a significant effect on students' acceptance levels of generative artificial intelligence. In other words, it can be stated that male and female students exhibit similar attitudes toward generative artificial intelligence.

Variation of Generative Artificial Intelligence Acceptance by Grade Level

An independent samples t-test was conducted to determine whether university students' acceptance of generative artificial intelligence differed according to their grade level. The findings obtained from the analysis are presented in Table 3.

Table 3. Variation of Generative Artificial Intelligence Acceptance by Grade Level

Grade Level	N	Mean ($\bar{X}$)	SD (S)	df	t	p
1st year	73	61.37	18.91	106	-	.003
2nd year	35	73.83	19.87		3.097	

When Table 3 is examined, it is observed that the mean acceptance level of 2nd-year students ($X = 73.83$) is higher than that of 1st-year students ($X = 61.37$). The results of the independent samples t-test indicate that this difference is statistically significant ($t(106) = -3.10, p < .05$). This finding demonstrates that grade level has a significant effect on students' acceptance of generative artificial intelligence. In other words, upper-year students show higher levels of adoption and acceptance of generative AI technologies compared to lower-year students.

Variation of Generative Artificial Intelligence Acceptance by AI Education Experience

An independent samples t-test was conducted to determine whether university students' acceptance of generative artificial intelligence differed according to whether they had received AI-related education or training. The findings obtained from the analysis are presented in Table 4.

Table 4. Variation of Generative Artificial Intelligence Acceptance by AI Education Experience

AI Education	N	Mean ($\bar{X}$)	SD (S)	df	t	p
Yes	26	73.62	19.60	106	2.452	.019
No	82	62.80	19.54			

When Table 4 is examined, it is observed that the mean acceptance level of students who have taken a course or training related to artificial intelligence ($\bar{X}$ = 73.62) is higher than that of students who have not received such education ($\bar{X}$ = 62.80). The results of the independent samples t-test indicate that this difference is statistically significant ($t(106) = 2.45$, $p < .05$). This finding suggests that receiving AI education increases students' acceptance levels of generative artificial intelligence. In other words, students who possess knowledge and experience in artificial intelligence tend to exhibit more positive attitudes toward adopting and using these technologies.

Variation of Generative Artificial Intelligence Acceptance by Frequency of Daily AI Use

A one-way analysis of variance (ANOVA) was conducted to determine whether university students' acceptance of generative artificial intelligence differed according to their frequency of daily AI use. The results of the ANOVA test are presented in Table 5.

Table 5. Variation of Generative Artificial Intelligence Acceptance by Frequency of Daily AI Use

Frequency of Daily AI Use	N	Mean ($\bar{X}$)	SD (S)
Several times a day	42	65.90	21.26
Once every 2–3 days	33	65.85	21.16
Once a day	22	64.09	17.42
Once a week	6	66.00	14.21
I do not use AI	5	63.40	25.13

Source of Variance	Source of Variance	Source of Variance	Source of Variance	Source of Variance	Source of Variance
Between Groups	77.19	4	19.30	0.046	0.999
Within Groups (Error)	42,776.88	103	415.32		
Total	42,854.07	107			

According to the results obtained, there was no significant difference in students' scores on the Generative Artificial Intelligence Acceptance Scale based on their frequency of daily AI use ($F(4,103) = 0.046$, $p > .05$). This finding indicates that the frequency of AI use does not have a statistically significant effect on students' acceptance levels of generative AI technologies.

Variation of Generative Artificial Intelligence Acceptance by Level of Belief in AI Responses

A one-way analysis of variance (ANOVA) was conducted to determine whether university students' acceptance of generative artificial intelligence differed according to their level of belief in the accuracy of AI-generated responses. The results of the ANOVA test are presented in Table 6.

Table 6. Variation of Students' Overall Attitudes Toward Generative Artificial Intelligence by Level of Belief in AI Responses

Belief in AI Responses		N	Mean ($\bar{X}$)		SD (S)
Provides completely incorrect answers		0	0.00		0.00
Provides incorrect answers		0	0.00		0.00
Provides partially correct answers		54	63.04		21.66
Provides correct answers		47	69.72		16.01
Provides completely correct answers		7	54.71		26.56
Source of Variance	Source of Variance	Source of Variance	Source of Variance	Source of Variance	Source of Variance
Between Groups	1,979.32	2	989.66	2.542	0.084
Within Groups (Error)	40,874.76	105	389.28		
Total	42,854.07	107	—		

When Table 6 is examined, it is observed that there is no statistically significant difference in students' generative artificial intelligence acceptance levels according to their perceptions of the accuracy of AI-generated responses ($F(2,105) = 2.54, p > .05$). Although the students who selected the option "provides correct answers" ($\bar{X} = 69.72$) had slightly higher acceptance levels, this difference was not statistically significant. Additionally, the options "provides incorrect answers" and "provides completely incorrect answers" were not selected by any participants. This indicates that students generally perceive AI responses as correct or partially correct, and that this perception does not lead to a meaningful difference in their acceptance levels of generative artificial intelligence.

DISCUSSION And RECOMMENDATIONS

This study analyzed university students' scores on the Generative Artificial Intelligence Acceptance Scale in connection to several demographic characteristics. The analyses assessed the impact of gender, grade level, AI educational experience, frequency of daily AI usage, and perceived accuracy of AI-generated responses on students' acceptance levels of generative artificial intelligence.

The independent samples t-test results indicated that gender did not significantly influence the acceptance of generative artificial intelligence. The lack of a gender-based disparity indicates that generative AI technologies have comparable accessibility and usability prospects for both male and female students. This finding aligns with the research conducted by Sirakaya and Alsancak Sirakaya (2025) and Alsancak Sirakaya and Sirakaya (2024a), which indicated that university students' overall opinions towards AI were not influenced by gender. Similarly, the outcome corresponds with Alsancak-Sirakaya and Sirakaya (2024b), who identified no notable gender disparities in AI literacy levels.

The results indicated that second-year students exhibited much greater acceptance levels of generative AI compared to first-year students, based on grade level. This disparity may be attributed to the fact that upper-year students, possessing greater academic and technological knowledge, assimilate AI tools with greater ease. The addition of more specialized or field-specific courses in the second year may also motivate these students to utilize generative AI techniques more actively for academic research, analysis, or problem-solving. However, Alsancak Sirakaya and Sirakaya (2024a) obtained divergent findings, indicating that grade level did not significantly influence students' opinions towards AI.

The examination of AI educational experiences revealed that students who participated in AI-related courses, workshops, or training demonstrated elevated levels of generative AI adoption. The beneficial influence of AI education on acceptance indicates that knowledge and awareness are essential in determining adoption behavior. As students get a deeper comprehension of the operational mechanisms, constraints, and ethical ramifications of AI systems, they are inclined to cultivate more educated and positive perspectives toward these technologies. On the other hand, Alsancak Sirakaya and Sirakaya (2024b) found that getting AI education did not make a big effect.

The one-way ANOVA performed for the frequency of daily AI usage indicated no significant differences among the groups. In the same way, the study assessed how students felt about the correctness of AI responses showed no major changes in acceptance levels. The lack of substantial variances among these variables indicates that students' acceptance of AI technologies has attained a rather steady state, irrespective of individual usage frequency or their perceived accuracy of AI responses.

In line with the findings of this research, the following recommendations are proposed to enhance and better understand university students' acceptance of generative artificial intelligence:

- It could be a good idea to hold awareness seminars, hands-on workshops, and training programs on generative AI, especially for younger students, to help them get used to and confident in utilizing these technologies.
- Adding elective courses like "AI Literacy" or "Applications of Generative Artificial Intelligence" to university programs could help students learn more about technology and improve their acceptance habits.
- Urging faculty to incorporate generative AI technologies into their curricula for educational reasons can assist students in cultivating more deliberate, ethical, and efficient technology use practices.
- Future investigations ought to use larger and more heterogeneous samples, including students from various faculties, departments, and universities, to enhance the generalizability of the results.
- Additional research may investigate the distinctions between formal AI education (e.g., courses, seminars) and informal learning experiences (e.g., online courses, self-directed learning), yielding enhanced understanding of how various educational pathways affect AI acceptance.
- Examining the correlations between generative AI adoption and students' ethical awareness, critical thinking, and problem-solving abilities may enhance the knowledge of AI application in education.
- The absence of notable differences based on daily usage frequency indicates that subsequent research should investigate the categories of AI utilization (e.g., for educational, recreational, or investigative purposes) to comprehend behavioral variations.
- Employing qualitative research methodologies (e.g., focus group discussions or in-depth interviews) may facilitate a more comprehensive assessment of students' perspectives, experiences, and ethical attitudes about generative AI.
- Interdisciplinary comparative studies may elucidate disparities in generative AI acceptance among diverse academic disciplines. • Longitudinal studies could monitor fluctuations in students' AI acceptance levels over time, allowing researchers to evaluate the sustainability and enduring effects of educational interventions.

REFERENCE

- Alsancak-Sırakaya, D., Sırakaya, M. (2024a) Önlisans Öğrencilerinin Yapay Zekâya Yönelik Genel Tutumlarının Çeşitli Değişkenler Açısından İncelenmesi. Eğitim Bilimlerinde Aktüel Yaklaşımlar (Ed. Bayar, A. & Bayar, M.), Duvar Yayınları, İzmir/Türkiye.
- Alsancak-Sırakaya, D., Sırakaya, M. (2024b) Üniversite Öğrencilerinin Yapay Zekâ Okuryazarlığının İncelenmesi, II. International Marmara Scientific Studies Congress'da sunulmuş tam metin bildiri, İstanbul, Türkiye.
- Büyüköztürk, Ş., Akgün, Ö. E., Demirel, F., Karadeniz, Ş., & Çakmak, E. K. (2015). *Bilimsel araştırma yöntemleri*. Pegem Yayıncılık.
- Cave, S., Craig, C., Dihal, K., Dillon, S., Montgomery, J., Singler, B., & Taylor, L. (2018). Portrayals and perceptions of AI and why they matter.
- Fraenkel R.J. & Wallen E.N. (2006) *How to Design and Evaluate Research in Education*. McGraw-Hill, New York.
- Jiang, Y., Li, X., Luo, H., Yin, S., & Kaynak, O. (2022). *Quo vadis artificial intelligence?*. Discover Artificial Intelligence, 2(1), 4.
- Karaoglan Yılmaz, F.G., Yılmaz, R., & Ceylan, M. (2023). Generative artificial intelligence acceptance scale: a validity and reliability study. *International Journal of Human-Computer Interaction*.
- McCarthy, J. (2007). *From here to human-level AI*. Artificial Intelligence, 171(18), 1174-1182.
- McCarthy, J., Minsky, M., Rochester, N., & Shannon, C. (1955). *A proposal for the Dartmouth summer research project on artificial intelligence*.
- Moor, J. (2006). The Dartmouth College artificial intelligence conference: The next fifty years. *AI magazine*, 27(4), 87-87.
- Ouyang, F., & Jiao, P. (2021). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence*, 2, 100020.
- Russell, S., Norvig, P., Popineau, F., Miclet, L., & Cadet, C. (2021). *Intelligence artificielle: une approche moderne* (4^e édition). Pearson France.
- Sırakaya, M., & Alsancak Sırakaya, D. (2024a). Eğitim Ortamlarında Yapay Zekâ Kullanımı. III. International Canakkale Scientific Studies Conference'da sunulmuş tam metin bildiri. Çanakkale, Türkiye.
- Sırakaya, M., & Alsancak Sırakaya, D. (2024b). Examining Artificial Intelligence Anxiety: Associate Degree Sample. III. International Canakkale Scientific Studies Conference'da sunulmuş tam metin bildiri. Çanakkale, Türkiye.
- Sırakaya, M., Alsancak-Sırakaya, D. (2025) Yapay Zekâya Yönelik Tutumun Üniversite Öğrencileri Arasında İncelenmesi, VI. International

Mediterranean Scientific Research Congress’da sunulmuş tam metin bildirisi, Girne, Kuzey Kıbrıs Türk Cumhuriyeti.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—where are the educators?. *International Journal of Educational Technology in Higher Education*, 16(1), 1-27.

Chapter 3

The Silent Skill Erosion: Cognitive Offloading in the Age of Educational AI

Mehmet Fatih YİĞİT¹

Abstract

This chapter explores the impact of artificial intelligence (AI) on cognitive offloading in educational contexts and its implications for skill development. AI enables students to delegate complex cognitive tasks—such as problem-solving, reasoning, and content generation—to external systems, offering efficiency and personalized support. While moderate use of AI can enhance learning by freeing cognitive resources for higher-order thinking, excessive reliance fosters dependency, reduces active engagement, and gradually erodes essential skills, a phenomenon known as skill erosion. The chapter examines how AI accelerates this process by substituting personal cognitive effort, potentially undermining critical thinking, creativity, and independent problem-solving. To address these risks, practical strategies are proposed, including promoting productive struggle, designing process-oriented assessments, and using AI as a scaffolding tool rather than a replacement for human cognition. Ultimately, the chapter advocates for a balanced approach that allows students to benefit from AI while preserving the fundamental cognitive competencies essential for effective and sustainable learning.

Keywords: Artificial intelligence, AI, education, cognitive offloading, skill erosion

¹ The Department of Educational Sciences, Faculty of Education, Hakkari University, Hakkari, Türkiye.
ORCID: 0000-0002-3476-7619, mehmetfatihyigit57@gmail.com

1. Introduction

Human history shows a continuous drive to extend its capacities for accomplishing tasks through the use of various tools and technologies (Rackley, 2015). In the early centuries, people primarily relied on physical strength to cultivate land, construct buildings, and sustain daily life. Over time, however, humans recognized the limitations of a lifestyle dependent solely on physical effort, which propelled a persistent pursuit of more convenient ways of living. In this context, the Industrial Revolution represented a pivotal turning point, as machines gradually began to replace human labor, alleviating many of the heavy physical burdens previously shouldered by people (Rinta-Kahila *et al.*, 2023). Subsequently, technological innovations such as electricity, mechanization, and automation became increasingly integral to everyday life, fundamentally transforming how routine tasks were performed.

In contemporary society, human life extends beyond the demands of physical labor to encompass activities that require substantial cognitive effort. Whereas earlier technological revolutions primarily aimed to lessen the burdens of physical work, modern digital tools are predominantly focused on reducing cognitive demands (Rinta-Kahila *et al.*, 2023). Historically, individuals relied on their memory, reasoning abilities, and problem-solving skills to perform tasks such as decision-making and knowledge production. The advent of artificial intelligence (AI), however, has begun to transform this dynamic, altering long-established cognitive habits (Farkaš, 2024). Just as machines once supplanted human physical strength, AI today functions as a tool that not only supports but, in certain cases, can fully replace human cognitive functions.

AI can be broadly described as computer systems designed to carry out tasks that usually require human intelligence, such as learning from data, identifying patterns, making decisions, and processing natural language (Kutlucan & Seferoğlu, 2024). With its inherently transformative nature, AI has become so deeply embedded in daily life that it increasingly conveys the impression of leaving virtually no domain untouched (Yiğit, 2025). In this context, AI manifests itself across a wide spectrum of everyday practices: recommendation systems that personalize entertainment and shopping experiences, virtual assistants that organize daily tasks, translation technologies, and interactive platforms such as ChatGPT that allow individuals to inquire and seek guidance on almost any subject (Gerlich, 2025). Collectively, these applications provide unprecedented levels of convenience, efficiency, and personalization, rendering AI an indispensable component of contemporary life.

Another domain in which the influence of AI has been increasingly evident is, without doubt, education. Intelligent tutoring systems are capable of adapting

instruction to the individual needs of learners; automated assessment tools provide students with rapid and continuous feedback; and AI-based platforms assist learners in locating, synthesizing, and organizing information with ease (Yiğit, 2025). Moreover, from the perspective of educators, AI reduces administrative burdens while simultaneously offering new opportunities for personalized and inclusive teaching practices (Ahmad *et al.*, 2022). In this regard, AI carries the potential to render educational processes considerably more efficient and effective for both students and instructors.

Focusing solely on the advantages of AI while neglecting its drawbacks would represent a biased and incomplete perspective. As with many prior technological revolutions, AI is not devoid of risks and can aptly be described as a double-edged sword. From the standpoint of learners, AI undoubtedly provides substantial conveniences and plays a functional role in advancing educational processes. Yet, while facilitating learning, AI simultaneously exposes challenges that may undermine certain skills education is designed to cultivate. A key concern in this regard, frequently highlighted in the literature, is the phenomenon of cognitive offloading—the tendency to delegate tasks that would ordinarily require one’s internal cognitive resources to external aids (Gerlich, 2025; Shukla *et al.*, 2025). When exercised in moderation, such offloading can actually be beneficial, as it liberates critical cognitive resources such as memory and attention, thereby enabling deeper engagement with learning tasks (Grinschgl, Papenmeier, & Meyerhoff, 2021). However, as current patterns of AI use among students illustrate, excessive reliance on AI tools can hinder the acquisition of essential skills, lead to the gradual erosion of those already developed, and ultimately prevent learners from attaining the independence and self-sufficiency that education seeks to foster (Gerlich, 2025; Sridevi, 2025).

Building on the discussions outlined above, this chapter aims to critically examine the interplay between AI and cognitive offloading within an educational context. The chapter begins by explaining the catalytic role of AI in facilitating cognitive offloading. It then addresses the concept of skill erosion, highlighting how this phenomenon can lead to a gradual decline in students’ cognitive abilities. The final section presents practical recommendations for mitigating the risks associated with this phenomenon and for safeguarding students’ fundamental cognitive skills during interactions with AI tools. In this way, the chapter seeks to provide a comprehensive understanding of both the opportunities and the potential challenges presented by AI in educational settings, thereby contributing to a more balanced and informed approach to future pedagogical practices.

2. AI as a Catalyst of Cognitive Offloading

As highlighted above, humans have consistently shown a tendency to outsource the burdens of physically demanding tasks to external tools and systems in an effort to reduce or eliminate such loads (Staccioli & Virgillito, 2021). The invention of the wheel, for instance, alleviated many of the challenges associated with transportation; agricultural machinery took over labor-intensive processes once performed manually; and industrial technologies automated production systems that previously relied solely on human effort. These examples of offloading primarily relate to physical labor, enabling individuals to conserve their physical energy and redirect it toward more complex and demanding tasks.

Initially, offloading initiatives were confined solely to the physical domain; however, as societies sought to advance more rapidly, it became necessary for individuals to delegate certain cognitive tasks as well, leading to the gradual inclusion of the cognitive domain into offloading practices. For example, the proliferation of printed books and libraries made it possible to store vast amounts of information outside the human mind, thereby facilitating knowledge preservation by reducing reliance on individual memory. The subsequent emergence of calculators diminished the need for manual arithmetic computation, computers greatly facilitated the processing of information, and digital search tools allowed instantaneous access to knowledge, thereby significantly alleviating the cognitive burden associated with memorizing information for long-term retention. Each of these developments, collectively referred to in the literature as cognitive offloading, illustrates how humans, in parallel with technological advancements, have progressively shifted portions of their mental workload onto external supports, fundamentally reshaping the ways in which information is stored, accessed, and utilized.

Cognitive offloading is defined as the process by which individuals delegate cognitive tasks to external aids rather than relying solely on their internal mental processes, thereby reducing cognitive load (Risko & Gilbert, 2016; Sweller, 1988). As noted in the preceding paragraph, technological developments such as books, calculators, computers, and digital search tools continually reshape the balance between what individuals accomplish through their own mental effort and what they can delegate to external resources. As these technologies and the opportunities they provide have evolved, humans have been able to accomplish tasks with progressively less cognitive effort, as these external tools effectively serve as a "second brain".

Today, the technology that most enables individuals to engage in cognitive offloading is, unsurprisingly, AI (Grinschgl & Neubauer, 2022). Indeed, as its very name implies, AI occupies a more prominent and distinct position in the

domain of cognitive offloading compared to previous technologies. This is due to the exceptional breadth and depth of cognitive support that AI provides. While books, calculators, and search engines have long served as external aids to human cognition, AI represents a distinct advancement. Unlike its predecessors, which were largely limited to storing information or performing specific functions, AI engages directly with traditional human cognitive processes such as reasoning, problem-solving, and content generation. In this respect, AI is considerably closer to human cognitive functioning than earlier tools and thus assumes a more central role in facilitating the offloading of mental tasks. Consequently, AI systems should not be regarded merely as another tool for cognitive offloading; rather, they function as instruments that expand, accelerate, and catalyze the practice of cognitive offloading itself.

There are numerous clear examples of how AI contributes to the phenomenon of cognitive offloading in daily life. AI-powered applications can summarize lengthy texts according to user specifications, generate original content, perform language translations, and provide detailed responses to complex queries. Humans, of course, are capable of performing these tasks as well; however, what distinguishes AI is its ability to automate and accomplish all of these functions within seconds (Gerlich, 2025). In this context, tasks that once required sustained concentration, effort, deliberation, and time can now be completed almost instantaneously through AI tools. Moreover, AI has expanded the scope of cognitive offloading: it now encompasses far more than rote memorization or mechanical calculations, extending into highly complex cognitive processes such as analysis, synthesis, and even the generation of creative ideas.

The catalytic role of AI in cognitive offloading is also evident in the educational domain (Singh *et al.*, 2025). Today, students frequently rely on AI tools when completing assignments or solving various instructional problems. As the capabilities of AI tools continue to advance, students' reliance on them correspondingly increases. But why do students delegate these tasks to AI rather than completing them through their own efforts, and why is the number of students doing so rising steadily? Among the primary reasons is AI's ability to perform these tasks in an exceptionally short amount of time, allowing students to allocate time saved from tedious assignments to activities they find more enjoyable. Another contributing factor is the perception that AI-generated work often surpasses the quality of students' own efforts. Additionally, the increasing normalization of AI use has rendered the preparation of assignments with AI tools less stigmatized or ethically questionable than it once was.

When used in moderation, the cognitive offloading facilitated by AI tools can indeed be beneficial for students (Gerlich, 2025; Jose *et al.*, 2025). By delegating

routine or time-consuming tasks to AI, students can redirect their cognitive resources toward higher-order thinking, problem-solving, and creative activities. However, the capabilities of these tools are often so compelling that maintaining restraint in their use proves difficult, resulting in frequent overreliance. This, in turn, substantially reduces students' engagement in tasks that are intended to require direct cognitive involvement (Koos & Wachsmann, 2023). For example, if a student solves a mathematics problem using an AI application that provides a step-by-step solution, they do not internally engage with the problem-solving process. As a result, they are deprived of the stepwise reasoning that deepens learning. Similarly, if a student relies on AI to produce a polished text instead of organizing and developing their own ideas, they miss opportunities to practice skills such as constructing arguments, refining their writing style, or generating original ideas (Santiago *et al.*, 2023).

In summary, AI represents a critical turning point in terms of cognitive offloading, particularly within the educational domain. As students increasingly delegate complex tasks to AI tools instead of completing them through their own efforts—and gradually make this a habitual practice—they inadvertently weaken their cognitive development in a silent yet profound manner (Ahmad *et al.*, 2023). This phenomenon, referred to in the literature as skill erosion, is examined in detail in the following section.

3. Skill Erosion in the Age of AI

Historically, offloading practices first emerged in the physical domain. In this context, humans were able to relieve themselves of bodily labor through the integration of machines, tools, and subsequently, automation systems into everyday tasks. While this transformation was revolutionary, it posed relatively little risk to human development, as few would argue that lifting heavy loads or manually plowing fields is indispensable for individual growth. Furthermore, muscular development is not a primary life priority, and even for those who are motivated or curious, supporting muscle growth through physically demanding labor is generally not the preferred approach.

Conversely, the extension of offloading into the cognitive domain represents a far more critical turning point. While most individuals can outsource physical strength with minimal adverse effects—or even with net benefits—cognitive skills such as reasoning, memory, creativity, problem-solving, and critical thinking lie at the very core of education and human development (Zhai, Wibowo, & Li, 2024). Accordingly, outsourcing mental processes carries a significantly greater risk, as these capacities develop only through direct personal engagement and tend to atrophy otherwise (Giray, 2024). Continuously delegating them to

external resources can, over time, lead to the erosion of intellectual capacities (Grinschgl, Papenmeier, & Meyerhoff, 2021).

As noted in the previous section, cognitive offloading has become particularly salient today through the use of AI tools. By its very nature, AI has opened significant avenues for individuals to engage in cognitive offloading. This issue has also become highly critical and warrants close attention in the context of students. A substantial proportion of students exhibit a tendency to delegate learning tasks—intended to strengthen their own cognitive development—to AI tools. While this may initially appear highly advantageous from the students' perspective, in the long term, it actually marks the onset of a problem referred to in the literature as skill erosion (Altun, 2024; Zhai, Wibowo, & Li, 2024).

Skill erosion refers to the gradual loss of previously acquired cognitive or practical skills due to insufficient use or excessive reliance on external tools. Skill erosion is a silent and incremental process, and it is particularly insidious because its effects do not manifest immediately or in readily observable ways (Ahmad *et al.*, 2023). Much like a toxin that slowly undermines human health, often going unnoticed until significant damage has occurred, AI tools—if not used carefully and in moderation—pose a subtle but persistent risk to students' cognitive well-being, gradually eroding their intellectual capacities over time. Neuroscience also supports this: just as unused muscles weaken, neural pathways deteriorate without effort. When students offload excessive reasoning to AI, reduced cognitive exertion gradually weakens brain connections (George, Baskar, & Srikanth, 2024).

One might argue that, since excessive use of AI tools undermines students' skill development, the solution would be for them to simply reduce or stop their use. However, this is not easily achievable for individuals who have become accustomed to these tools. In this context, dependency emerges as a phenomenon linked to AI use and closely related to skill erosion. Indeed, AI tools can foster dependency over time among frequent users. Just as individuals may become addicted to substances, digital entertainment, or social media for instant gratification, students can increasingly rely on AI tools that effortlessly provide correct solutions and well-crafted outputs (Giray, 2024). The efficiency and fluency afforded by AI can make the complete bypassing of personal effort appealing, creating a cycle in which students habitually turn to technology even for tasks they could accomplish independently. Over time, this dependency carries the risk of cultivating a form of cognitive passivity (Gerlich, 2025), whereby learners come to undervalue the use of their own mental effort.

As noted, the capabilities of AI tools can foster dependency among students, which over time may result in their cognitive skills either stagnating or even

declining (Grinschgl, & Neubauer, 2022; Krullaars *et al.*, 2023). Students may believe that by using AI to complete learning tasks, they are fulfilling their own workload. However, what they fail to realize is that in doing so, they are not only offloading the workload itself but also the cognitive processes essential for genuine learning. While certain tasks in life can be delegated to external resources for efficiency and effectiveness, the learning tasks assigned to students for the purpose of developing their own cognitive abilities may represent an important exception. Cognitive skill development occurs only through personal effort, engagement, and the exertion and fatigue that may initially seem disadvantageous. Yet, rather than confronting these challenges themselves, students increasingly prefer to let AI handle them, which contributes to skill erosion and, consequently, hinders the development of important competencies such as personal growth and independent thinking (Sridevi, 2025).

In summary, research indicates that when students habitually delegate cognitive tasks to AI tools, this can, over the long term, lead to dependency on these tools, an inability to function independently, a perception of being incapable without their assistance, a sense of personal inadequacy, and a gradual decline rather than development of their skills. Therefore, it is critical to implement preventive measures and take timely action regarding the use of AI tools. In this context, rather than remaining passive as students' cognitive abilities deteriorate due to uncontrolled dependency, educators and policymakers must develop balancing strategies that allow students to benefit from the advantages AI offers for learning while safeguarding their fundamental cognitive skills. The following section addresses practical approaches for mitigating skill erosion and explores methods aimed at ensuring AI serves as a complement to human learning rather than a replacement.

4. Mitigating Skill Erosion: Practical Strategies for Preserving Skills

With the integration of AI into education, cognitive offloading behaviors have become excessively prevalent, which has consequently given rise to the problem of skill erosion in learning contexts. Nevertheless, it is essential to acknowledge that these risks are not inevitable and can indeed be addressed. Through well-designed pedagogical strategies and policies, it is possible for students to take advantage of the benefits AI brings to education without sacrificing their cognitive capacities (Sridevi, 2025). What must be emphasized here is that AI should not be perceived as an adversary to learning, but rather as a partner that can support it (Jose *et al.*, 2025). The critical task, therefore, is to pursue ways of utilizing AI in the most effective and least risky manner. In other words, the core principle behind mitigating the issue of skill erosion lies in ensuring that, even as

students employ AI tools, their active engagement in the learning process is preserved. Building on this premise, the following paragraphs will discuss practical strategies to address the problem of skill erosion and to ensure that AI functions not as a substitute for human learning, but as its complement.

Arguably, one of the most crucial ways to prevent the use of AI tools from contributing to skill erosion is to encourage students to engage in productive struggle. This concept is vital for learning, as it involves confronting challenges and striving to overcome them rather than avoiding difficulties. The permanence and quality of learning is closely tied to how this process unfolds: when students actively engage with problems, grapple with difficulties, and sometimes even endure frustration, each of these experiences serves as an added layer of reinforcement that strengthens the durability of their learning. The short-term effort and discomfort ultimately yield more robust and enduring knowledge. Indeed, learning and skill acquisition demand that students themselves actively exert effort and persist in their learning endeavors. In contrast, certain achievements in life may not require personal effort and can sometimes be accomplished through the efforts of others. However, when it comes to learning or acquiring cognitive skills, this is not the case: if a student is to develop these competencies, the effort must come from the student themselves, rather than being outsourced to someone else.

However, although effort and struggle are acknowledged as essential components of the learning process, AI deprives students of this challenge by providing rapid and flawless solutions. As a result, students no longer need to wrestle with problems, and many of their cognitive skills fail to develop—or worse, gradually deteriorate over time. To counteract this, educators must design learning tasks in such a way that, even when AI tools are used, the crucial portions of the work are still completed by the students themselves, ensuring that the primary cognitive effort originates from the learner rather than from AI (Altun, 2024). In short, throughout the process, students should remain as cognitively active as possible by engaging in productive struggle.

Another approach to mitigating AI-induced skill erosion is to reconsider assessment practices. Traditional assessment methods tend to focus primarily on product-oriented tasks, such as essays or problem sets, which inadvertently invite the misuse of AI. Therefore, it is crucial to redesign student assessments to emphasize the learning process rather than solely the final product. In this context, incorporating elements such as oral defenses, in-class problem-solving activities, and collaborative assignments can make it more difficult for students to delegate all effort to AI, requiring them to remain cognitively engaged

throughout the process. This approach ultimately ensures that the targeted cognitive skills are genuinely acquired through the assessment activities.

As noted above, the aim is not to entirely remove AI from learning processes but to use it as a supportive and scaffolding partner. Just as training wheels help beginners gain balance and confidence until they can ride independently, AI should provide temporary support until learners achieve cognitive independence. For example, an AI math assistant can offer step-by-step hints that guide the student toward the solution instead of providing the final answer outright, allowing the student to engage with the problem-solving process. As the student progresses in internalizing these processes, the external support from AI can be gradually reduced. Similarly, in a writing assignment, AI need not generate an entire essay from start to finish; it can be used for drafting and correcting grammatical errors, while critical components such as argument development and evidence integration remain the student's responsibility. Over time, the AI support can be further scaled back, ensuring that the student eventually completes the entire writing task independently.

Furthermore, one approach to prevent students' skills from eroding is to raise awareness about the potential risks that AI tools may pose to their own cognitive development (Morales-Garcia *et al.*, 2024). While students are encouraged to use AI tools, they should simultaneously be cautioned to ensure that their skills do not deteriorate. In other words, students need to understand that AI tools should be perceived not as a replacement for their own efforts but as supportive instruments, and act accordingly (Al-Khresheh, 2024). For example, students could be encouraged to first attempt learning tasks independently before seeking assistance from AI. Alternatively, at certain intervals, students could be asked to refrain entirely from using AI and rely solely on their own efforts, thereby actively challenging and strengthening their cognitive skills.

In summary, mitigating the issue of skill erosion in the AI era does not involve rejecting the technology, but rather rethinking how it is integrated into education. If students are guided to view AI as a supportive tool rather than a substitute, encouraged to engage in productive struggle, and monitored through process-oriented assessments that reward genuine effort, the risks of cognitive dependency can be significantly reduced. Ultimately, the goal is to enable students to sustainably benefit from the advantages offered by AI without compromising the core skills of education, such as reasoning, creativity, and independent problem-solving.

References

- Ahmad, S. F., Alam, M. M., Rahmat, M. K., Mubarik, M. S., & Hyder, S. I. (2022). Academic and administrative role of artificial intelligence in education. *Sustainability*, 14(3), 1101.
- Ahmad, S. F., Han, H., Alam, M. M., Rehmat, M., Irshad, M., Arraño-Muñoz, M., & Ariza-Montes, A. (2023). Impact of artificial intelligence on human loss in decision making, laziness and safety in education. *Humanities and Social Sciences Communications*, 10(1), 1-14.
- Altun, E. (2024). Yapay zekâ ve pedagoji: Eğitimde fırsatlar ve zorluklar. *Dijital Teknolojiler ve Eğitim Dergisi*, 3(1), 80-95.
- Farkaš, I. (2024). Transforming cognition and human society in the digital age. *Biological Theory*, 1-13.
- George, A. S., Baskar, T., & Srikanth, P. B. (2024). The erosion of cognitive skills in the technological age: How reliance on technology impacts critical thinking, problem-solving, and creativity. *Partners Universal Innovative Research Publication*, 2(3), 147-163.
- Gerlich, M. (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies*, 15(1), 6.
- Grinschgl, S., & Neubauer, A. C. (2022). Supporting cognition with modern technology: Distributed cognition today and in an AI-enhanced future. *Frontiers in Artificial Intelligence*, 5, 908261.
- Grinschgl, S., Papenmeier, F., & Meyerhoff, H. S. (2021). Consequences of cognitive offloading: Boosting performance but diminishing memory. *Quarterly Journal of Experimental Psychology*, 74(9), 1477-1496.
- Jose, B., Cherian, J., Verghis, A. M., Varghise, S. M., S, M., & Joseph, S. (2025). The cognitive paradox of AI in education: Between enhancement and erosion. *Frontiers in Psychology*, 16, 1550621.
- Koos, S., & Wachsmann, S. (2023). Navigating the impact of chatgpt/gpt4 on legal academic examinations: Challenges, opportunities and recommendations. *Media Iuris*, 6, 255-270.
- Krullaars, Z. H., Januardani, A., Zhou, L., & Jonkers, E. (2023). Exploring initial interactions: High school students and generative AI chatbots for relationship development. In *Mensch und Computer 2023-Workshopband*.
- Kutlucan, E., & Seferoğlu, S. S. (2024). Eğitimde yapay zekâ kullanımı: ChatGPT'nin KEFE ve PEST analizi. *Türk Eğitim Bilimleri Dergisi*, 22(2), 1059-1083.
- Morales-García, W. C., Sairitupa-Sanchez, L. Z., Morales-García, S. B., & Morales-García, M. (2024). Development and validation of a scale for

- dependence on artificial intelligence in university students. *Frontiers in Education*, 9, 1323898.
- Rackley, J. (2015). *Tools and technologies* (pp. 103-117). Apress, Berkeley, CA.
- Rinta-Kahila, T., Penttinen, E., Salovaara, A., Soliman, W., & Ruissalo, J. (2023). The vicious circles of skill erosion: A case study of cognitive automation. *Journal of the Association for Information Systems*, 24(5), 1378-1412.
- Risko, E. F., & Gilbert, S. J. (2016). Cognitive offloading. *Trends in Cognitive Sciences*, 20(9), 676-688.
- Santiago, C. S., Jr., Embang, S. I., Conlu, M. T. N., Acanto, R. B., Lausa, S. M., Ambojia, K. W. P., Laput, E. Y., Aperoch, M. D. B., Malabag, B. A., & Balilo, B. B., Jr. (2023). Utilization of writing assistance tools in research in selected higher learning institutions in the philippines: A text mining analysis. *International Journal of Learning, Teaching and Educational Research*, 22(11), 259-284
- Shukla, P., Bui, P., Levy, S. S., Kowalski, M., Baigelenov, A., & Parsons, P. (2025). De-skilling, cognitive offloading, and misplaced responsibilities: Potential ironies of AI-assisted design. In *Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems* (pp. 1-7).
- Singh, A., Taneja, K., Guan, Z., & Ghosh, A. (2025). *Protecting human cognition in the age of AI*. Retrieved September 17, 2025, from <https://arxiv.org/pdf/2502.12447>
- Sridevi, C. M. (2025). Cognitive erosion or extension? The psychological impact of outsourcing thinking to AI. *World Conference on Emerging Science, Innovation and Policy 2025*.
- Staccioli, J., & Virgillito, M. E. (2021). The present, past, and future of labor-saving technologies. In *Handbook of labor, human resources and population economics* (pp. 1-16). Cham: Springer International Publishing.
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257-285.
- Yiğit, M. F. (2025). What drives student adoption of AI in education? Unpacking the key factors and practical strategies. M. Sırakaya (Ed). *Theory, context, and practice in educational sciences* (Chapter 6, pp. 121-132). Duvar Yayınları, İzmir.
- Zhai, C., Wibowo, S., & Li, L. D. (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: A systematic review. *Smart Learning Environments*, 11(1), 28.

Chapter 4

Exploring EMI-Related Disciplines: CLIL, CBI, ESP, EAP, and EOP

Ecem EKİNCİ¹, Mithat EKİNCİ²

INTRODUCTION

The medium of instruction is the language that is used in the process of teaching and learning. According to Bosco and Komba (2015), the language of instruction (LOI) is used to impart knowledge in the education system. On the other hand, UNESCO (2003) propounds that LOI in or out of school refers to the language used to teach the educational system's primary curriculum, and it is usually selected by the country's government to meet the demands of knowledge growth and expansion dynamics. As stated by Tsui and Tollefson (2007), internationalization has profoundly influenced language-in-education planning, necessitating and shifting the medium of instruction used in higher education institutions. There has been a significant movement, especially in European higher education institutions, away from their own national languages and toward an Englishization of instructional practices (Smit & Dafouz, 2012). The adoption of exchange programs and international protocols further contributed to the Englishization of higher education institutions. As Wächter and Maiworm (2008) state, English has become the primary medium of instruction in universities worldwide.

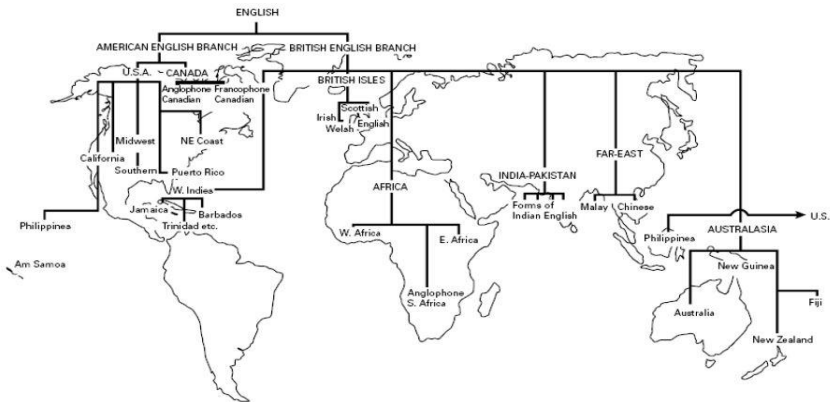


Figure 1. Spread of English according to Strevens (1977)

¹ Instructor, Dr., Osmaniye Korkut Ata University, Orcid: 0000-0003-4559-6218

²Instructor, Osmaniye Korkut Ata University, Orcid: 0000-0003-1330-8234

With the global use of English as the medium of education, several sub-disciplines emerged from English Medium education practices. Despite sharing certain similarities with each other, these sub-disciplines possess their own characteristics and practices. Considering the popularity of these approaches towards learning and the potential for confusion between them, this study provides definitions, similarities and unique characteristics of the related concepts.

EMI-Related Disciplines: CLIL/CBI/ESP/EAP/EOP

The growing popularity of English worldwide has led to increased use of EMI across educational levels, especially in universities. Using English as the primary means of knowledge transfer has been welcomed by governments, educational institutions and other stakeholders. As a result, EMI gained prestige and attracted many researchers. Its growing reputation has made it necessary to identify EMI implementation, its benefits, and other critical points. To this end, one of the most important considerations is to exhibit its similarities and differences from other related approaches such as content and language integrated learning (CLIL), content-based instruction (CBI), English for specific purposes (ESP), English for academic purposes (EAP) and English for occupational purposes (EOP).

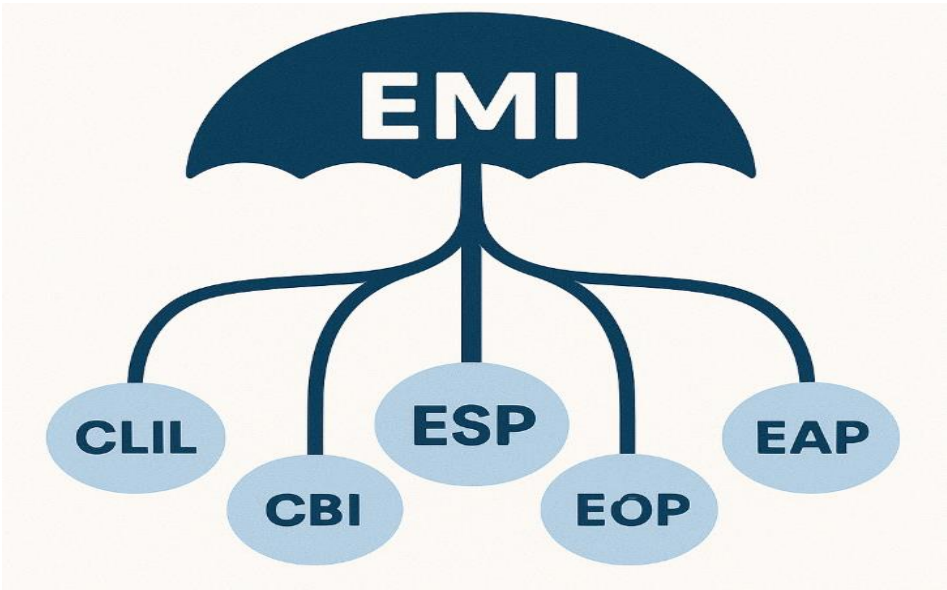


Figure 2. EMI Related Disciplines

Content and Language Integrated Learning (CLIL)

Content and language integrated learning (CLIL) is a method in which students learn a subject and a second language simultaneously. It is defined by Coyle, Holmes and King (2009) as an instructional strategy in which language and content are simultaneously mastered. Dalton-Puffer (2011) refers to CLIL as an educational setting in which a language other than the students' mother tongue is used as the medium of instruction. On the other hand, Coyle, Hood, and Marsh (2010) state that CLIL is an educational approach that integrates both content and language learning, allowing students to develop subject knowledge and language competence simultaneously. It is a versatile pedagogical strategy that targets the introduction of academic content and the acquisition of a foreign language. Marsh (2006) argues that CLIL is innovative because it goes beyond traditional methods by combining subject and language teaching, which are generally done separately in traditional foreign language teaching approaches. Although the language is not specified in any of the CLIL definitions above, English is the most popular language to be used in its integration.

CLIL has strong relationships with content-based instruction, English for specific purposes, English for academic purposes, and English-medium instruction. However, it has its unique characteristics to consider during its implementation. Dalton-Puffer (2011) summarized the distinctive features of CLIL utilized in many parts of the world as follows:

- In CLIL classrooms, a lingua franca or foreign language is used as the primary medium of teaching rather than a second language.
- English is frequently used as the primary CLIL language.
- In most cases, CLIL instructors are not native speakers of the target language.
- Lessons taught using the CLIL framework are typically referred to as content lessons.
- Nearly half of the lessons in the curriculum are delivered in the language of instruction.
- CLIL is often implemented when a student has reached a certain level of literacy in their mother language (p. 183-184).

The employment of CLIL in the classroom offers various advantages for students. CLIL enables students to engage in higher-order thinking and, in multicultural classrooms, to develop a sensitivity towards foreign cultures. As proposed by Rasgen (2020), CLIL helps students express themselves in multicultural environments, boosts their intercultural communicative

competence, and increases their motivation through high levels of communication among students and teachers.

Content-Based Instruction (CBI)

The goal of content-based instruction (CBI) is to link the study of a target language with a specific content area to facilitate the acquisition of the target language on a theoretical basis (Brinton, Wesche & Snow, 2003). According to Brinton, Snow, and Wesche (1989), content-based instruction is a method that blends language education with content instruction, allowing the content to define the nature and sequence of the linguistic syllabus. The concept of content-based instruction is founded on the idea that students may efficiently learn a foreign language subconsciously while actively investigating the content-based lessons that capture their interest (Özçelik & Kent, 2014). It is a useful method of teaching English as a second language, as CBI allows students to improve their language skills while gaining access to new academic information through relevant material.

The CBI gained notoriety in the United States throughout the 1980s, when approaches were required to facilitate concurrent subject and language acquisition for an increasing population of English language learners in educational institutions (Schleppegrell, Achugar & Oteiza, 2004). Since then, it has been profitably exploited for its potential to provide alternative program models for language development. It has been applied to design English curricula and programs in schools and higher education institutions in EFL countries (Chalapati, 2007).

Content-based instruction has many benefits for the language-learning process and provides solid pedagogical support for the provision of disciplinary knowledge. Brinton et al. (1989) state that CBI offers a relevant framework for language formation. It builds on the students' previous learning experiences and their current needs and interests, and considers the ultimate goal for which they will need the language. According to Adamson (1990), CBI incorporates a significant amount of cooperative learning. Besides, CBI presents an intrinsically stimulating incentive for students. In this regard, CBI is supposed to increase student motivation to learn the target language through academic knowledge.

CBI shares the same essential properties as CLIL. They both focus on language learning and academic knowledge provision. CBI and CLIL refer to programs that teach academic content through a second or additional language. However, Martinez and Hernandez (2003) note that though CBI is one of the critical methodologies that has dramatically contributed to CLIL, it varies since CBI is restricted to students with limited English proficiency. In addition,

Crandall (1999) believes that CBI is more prone to be used in second-language environments in which the national language of the country is not the students' first language. CLIL, on the other hand, is utilized most frequently in contexts involving the study of foreign languages in environments where the official language of the country is not the language of instruction.

English for Specific Purposes (ESP)

The term English for specific purposes does not have a long history. As Dudley-Evans and St John (1998) specified, the ESP movement started to blossom due to improvements in the global economy in the 1950s and 1960s. How language instruction is presented has undergone numerous profound changes due to the new advancements in science, technology, and business during the 20th century. Many traditional techniques that prioritize language forms over the requirements of learners have been replaced by more modern ones that put students and their unique needs at the center of the teaching and learning process (Todd, 2003). In addition, as stated by Kırkgöz and Dikilitaş (2018), recent technological and economic advances have given rise to a new type of student with a specialized set of reasons and goals for learning English. This learner has come to the forefront of the English language learning community. These changes spawned a new field of language instruction called English for Specific Purposes (ESP). Hutchinson and Waters (1987) noted that ESP arose as a result of the language requirements of learners based on their professions or jobs.

ESP refers to language programs created for groups or explicitly designed for individuals (Johnson & Johnson, 2003). It is defined as a language teaching design that first attempts to determine the learners' specific needs in a particular context (Stevens, 1977). English for Specific Purposes (ESP) is a linguistic methodology designed to equip learners with specific objectives and the requisite language components necessary for professional efficacy. Paltridge and Starfield (2013) assert that ESP denotes the instruction and acquisition of English as a second or foreign language, with the objective of enabling learners to utilize English within a specific domain. According to Coffey (1984), usefulness is a key term in language teaching in the ESP context, and that is why learners' needs should be carefully analyzed first. In short, it can be stated that ESP is an instructional design where the content is appropriate to meet the specific language needs of the learners.

Consideration of learner requirements is one of the most crucial factors in ESP applications. Dudley-Evans and St. John (1998) place the analysis of the unique demands of language learners at the top of their list of priorities for defining ESP. As stated by Flowerdew (2012), the initial stage in constructing an ESP course is

needs analysis, followed by curriculum design, selecting appropriate materials, methodology, assessment, and evaluation. West, Moore and Barry (2015) assert that a needs analysis should be carried out by determining the following: 1) the language that learners want to learn; 2) the language skills that learners want to acquire; and 3) the circumstances, functions or tasks that learners want to grasp. Considering the references from the literature, ESP can be regarded as an approach upon which the syllabus, materials, and assessment are all determined according to the learners' needs.

ESP as an approach toward language learning has some sub-disciplines to consider. ESP can be broken down into two primary sub-branches: English for academic purposes (also known as EAP) and English for occupational purposes (also known as EOP). This division is because ESP encompasses various academic and professional sectors (Hutchinson and Waters, 1987).

English for Academic Purposes (EAP)

English for Academic Purposes (EAP), a subset of English for Specific Purposes (ESP), concentrates on the language utilized in academic fields. It focuses on instructing and strengthening academic and communicative competencies that enable non-native learners to execute diverse tasks, including communication and research in the target language (Flowerdew, 2001). Jordan (1997) emphasizes that EAP involves analyzing learners' academic needs and designing courses that support their ability to function effectively in academic study through English. Through this platform, students may get the skills to go beyond just being able to communicate effectively in English to use that information in their specific academic fields. Paltridge and Staefield (2013) stated EAP courses provide the requisite English language proficiency for individuals engaged in research and academic assignments conducted in English. As Hyland and Hyland (2006) illustrate, EAP mainly focuses on supporting learners' study techniques or conducting research in the target language.

EAP's primary goal is learning how to communicate effectively in various academic and social settings (Hyland & Hamp-Lyons, 2002). Since it helps students with their studies, it improves language (Flowerdew, 2001). To reach this aim, it is necessary to recognize the communication requirements in these contexts and to decide the material that must be addressed (Todd, 2003). According to Hamp-Lyons (2001), English for Academic Purposes (EAP) encompasses a range of language skills and academic competencies, including reading academic texts, writing research papers, listening to lectures, participating in seminars, and developing study skills necessary for success in higher education contexts. Therefore, EAP serves as a comprehensive framework

that not only enhances students' linguistic proficiency but also equips them with the academic literacy and communicative competence required to succeed in diverse educational settings.

An essential aspect of English for Academic Purposes (EAP) course development involves a thorough analysis of learners' academic needs and expectations to ensure that instruction is both purposeful and effective. The first step in developing new EAP classes and programs is to carefully describe the specific requirements and preferences of the EAP students taking those classes and programs. Within the framework of the proper EAP courses, EAP course designers should investigate and try to identify these specific demands to better cater to the needs of the learners they serve (Flowerdew, 2001).

English for Occupational Purposes (EOP)

English for Occupational Purposes (EOP) constitutes a distinct sub-discipline of English for Specific Purposes (ESP). The demand for English for occupational purposes (EOP) is anticipated to rise in accordance with the overall necessity for professionals skilled in English within their specific domains of competence. As a result, the teaching and learning of EOP began to be included in higher education programs that aim to provide students with practical skills. As stated by Johnson and Johnson (2003), EOP deals with English in a workplace setting in a specific job. Coffey (1984) stated that learners may need to learn English to manage their jobs in their careers. In this case, EOP can be utilized as an instrument to answer these learners' needs. Learners in this model are engaged in practicing the language in occupational tasks. They may also be trained for job application procedures. Cummins (2007) stated that regular communication with friends and coworkers is another goal of EOP learners. On the other hand, Koester (2021) describes EOP as a branch of ESP that focuses on English used for workplace communication and job-related interactions across professional fields. The use of EOP as a learning approach helps learners develop language skills, adopt communication strategies and learn related terminology that are expected from the members of certain occupations in various disciplines such as medicine, tourism, business and engineering.

Belcher (2009) identifies sub-branches of EOP, suggesting potential combinations of EOP and EAP. Belcher (ibid.) posits that the subcategories of English for Occupational Purposes (EOP) may arise due to the diversity of occupational varieties, further citing English for Business Purposes (EBP), English for Legal Purposes (ELP), and English for Medical Purposes (EMP) as examples of EOP categories. Therefore, EOP can be viewed as a dynamic and

adaptive field that evolves in response to the diverse linguistic and communicative needs of various professional domains.

CONCLUSION

In conclusion, the exploration of English-Medium Instruction (EMI) and its related disciplines—CLIL, CBI, ESP, EAP, and EOP—reveals the complex yet complementary nature of approaches that combine content learning and language development. Despite the fact that all these frameworks share the fundamental goal of promoting linguistic competence through meaningful engagement with subject matter, each of them possess unique pedagogical and contextual perspectives. It is obvious that a comprehensive understanding of these interconnected disciplines not only enhances the effectiveness of English-Medium Instruction but also contributes to the development of more inclusive, purposeful, and context-sensitive language education practices in diverse academic and professional settings.

REFERENCES

- Adamson, H. D. (1990). *Academic competence: Theory and classroom practice*. New York: Longman.
- Belcher, D. (2009). *English for specific purposes in theory and practice*. Ann Arbor, MI: University of Michigan Press.
- Bosco, S., & Komba, S. C. (2015). The medium of instruction in Tanzania: Reflections on policy and practice. *Journal of Education and Practice*, 6(9), 1–8.
- Brinton, D. M., Snow, M. A., & Wesche, M. B. (1989). *Content-based second language instruction*. New York: Newbury House.
- Brinton, D. M., Wesche, M. B., & Snow, M. A. (2003). *Content-based second language instruction* (2nd ed.). Ann Arbor: University of Michigan Press.
- Chalapathi, S. (2007). Content-based instruction in EFL contexts. *Asian EFL Journal*, 9(1), 1–15.
- Coffey, B. (1984). *ESP — English for specific purposes*. London: Longman.
- Coleman, J. A. (2006). English-medium teaching in European higher education. *Language Teaching*, 39(1), 1–14.
- Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL: Content and language integrated learning*. Cambridge: Cambridge University Press.
- Crandall, J. (1999). Content-based instruction (CBI). In B. Spolsky (Ed.), *Concise encyclopedia of educational linguistics* (pp. 292–296). Oxford: Elsevier.
- Cummins, J. (2007). Rethinking monolingual instructional strategies in multilingual classrooms. *Canadian Journal of Applied Linguistics*, 10(2), 221–240.
- Dalton-Puffer, C. (2011). Content-and-language integrated learning: From practice to principles? *Annual Review of Applied Linguistics*, 31, 182–204.
- Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for specific purposes: A multi-disciplinary approach*. Cambridge: Cambridge University Press.
- Flowerdew, J. (2001). Attitudes of journal editors to non-native speaker contributions. *TESOL Quarterly*, 35(1), 121–150.
- Flowerdew, L. (2012). *Corpus and language education*. London: Palgrave Macmillan.
- Hamp-Lyons, L. (2001). English for academic purposes. In R. Carter & D. Nunan (Eds.), *The Cambridge guide to teaching English to speakers of other languages* (pp. 126–130). Cambridge: Cambridge University Press.
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centred approach*. Cambridge: Cambridge University Press.

- Hyland, K., & Hyland, F. (2006). *Feedback in second language writing: Contexts and issues*. Cambridge: Cambridge University Press.
- Johnson, K., & Johnson, H. (2003). *Encyclopedic dictionary of applied linguistics*. Oxford: Blackwell.
- Jordan, R. R. (1997). *English for academic purposes: A guide and resource book for teachers*. Cambridge: Cambridge University Press.
- Kırkgöz, Y., & Dikilitaş, K. (2018). Key concepts in ELT: ESP. *ELT Journal*, 72(1), 70–73.
- Koester, A. (2021). English for occupational purposes. In C. A. Chapelle (Ed.), *The Encyclopedia of Applied Linguistics* (pp. 1–6). Wiley.
- Marsh, D. (2006). *CLIL/EMILE — The European dimension: Actions, trends and foresight potential*. Brussels: European Commission.
- Martinez, A., & Hernandez, T. (2003). Integrating content and language in the EFL classroom: An analysis of CBI and CLIL. *TESL-EJ*, 7(2).
- Özçelik, H., & Kent, A. (2014). The role of content-based instruction in EFL teaching. *Journal of Language and Linguistic Studies*, 10(1), 15–26.
- Paltridge, B., & Starfield, S. (2013). *The handbook of English for specific purposes*. Malden, MA: Wiley-Blackwell.
- Rasgen, A. (2020). CLIL and intercultural competence development. *International Journal of Applied Linguistics*, 30(4), 402–419.
- Schleppegrell, M., Achugar, M., & Oteíza, T. (2004). The grammar of history: Enhancing content based instruction through a functional focus on language. *TESOL Quarterly*, 38(1), 67–93.
- Smit, U., & Dafouz, E. (2012). Integrating content and language in higher education: An introduction to English-medium policies, concepts and research. *AILA Review*, 25, 1–12.
- Stevens, P. (1977). Special-purpose language learning: A perspective. *Language Teaching and Linguistics Abstracts*, 10(3), 145–163.
- Todd, W. (2003). Content-based instruction and the ESP curriculum. *English Teaching Forum*, 41(4), 44–49.
- Tsui, A., & Tollefson, J. (2007). *Language policy, culture, and identity in Asian contexts*. Mahwah, NJ: Lawrence Erlbaum.
- UNESCO. (2003). *Education in a multilingual world*. Paris: UNESCO.
- Wächter, B., & Maiworm, F. (2008). *English-taught programmes in European higher education: The picture in 2007*. Bonn: Lemmens.
- West, R., Moore, S., & Barry, B. (2015). Needs analysis in English for specific purposes: A re-evaluation. *English for Specific Purposes Journal*, 38, 27–39.