مجلــة كليــة التربيــة

علمية محكمة ربع سنوية

(السنة الحادية عشرة – العدد الثالث والثلاثون –يناير ٢٠٢٣ الجزء الأول)

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عدد خاص بالمؤتمر القومي الأول لقطاع الدراسات التربوية بعنوان "التعليم والشراكة المجتمعية، ومؤسسات إعداد المعلم وتأهيله في الجمهورية الجديدة"

والذي عُقد ٣-٤ ديسمبر بالقاهرة

جميع البحوث وأوراق العمل مُحكمة، ومُجازة من اللجنة العلمية للمؤتمر ، وتم نشر مُستخلصاتها باللغتين : العربية والإنجليزية بكُتيب المؤتمر وتم عرضها ضمن ندواته ، وجلساته العلمية.

قائمة هيئة تحرير مجلة كلية التربية جامعة العريش

م	الاســـــم	الدرجة والتخصص	الصفة
أولاً - الهيئة الإدارية للتحرير (مجلس الإدارة)			
١	أ.د. السيد كامل الشربيني	أستاذ الصحة النفسية	عميد الكلية - رئيس مجلس الإدارة
٢	أ.د. محمود علي السيد	أستاذ. علم النفس التربوي	وكيل الكلية للدراسات العليا - نائب رئيس مجلس الإدارة
٣	أ.د. زكريا محمد هيبة	أستاذ تربية الطفل بقسم أصول التربية	وكيل الكلية لشؤون التعليم والطلاب - عضو مجلس الإدارة
٤	أ.د. إبراهيم محمد عبد الله	أستاذ تربويات الرياضيات بقسم المناهج وطرق التدريس	وكيل الكلية لشؤون خدمة المجتمع - عضو مجلس الإدارة
٥	أ.د. أحمد عبد العظيم سالم	أستاذ أصول التربية	أستاذ أصول التربية والتخطيط التربوي – عضو مجلس الإدارة
ثانياً- الهيئة الفنية (الفريق التنفيذي) للتحرير			
٦	أ.د. محمد رجب فضل الله	أستاذ المناهج وطرق التدريس	رئيس التحرير (رئيس الفريق التنفيذي)
٧	د. كمال طاهر موسى	أستاذ مساعد (مشارك) – مناهج وطرق التدريس	عضو هيئة تحرير – مسؤول الطباعة والنشر والتدقيق اللغوي
٨	د. محمد علام طلبة	أستاذ مساعد (مشارك)– مناهج وطرق التدريس	عضو هيئة تحرير – مسؤول متابعة أعمال التحكيم والنشر
٩	د. ضياء أبو عاصي	مدرس (أستاذ	عضو هيئة تحرير – مسؤول

	فيصل	مساعد)– بقسم الصحة النفسية	متابعة الأمور المالية
١٠	د. نانسي عمر جعفر	مدرس (أستاذ مساعد)– مناهج وطرق التدريس	عضو هيئة تحرير – مسؤول الاتصال والعلاقات الخارجية
ثالثاً- الهيئة الفنية (المعاونة) للفريق التنفيذي للتحرير			
١١	م.م. أحمد محمد حسن سالم	مدرس مساعد تكنولوجيا تعليم	عضو هيئة تحرير – إدارة الموقع الالكتروني للمجلة
١٢	م.م. ناصر أحمد عابدين مهران	مدرس مساعد بقسم التربية المقارنة والإدارة التعليمية	عضو هيئة تحرير – مساعد لمسؤول متابعة أعمال التحكيم والنشر – تجهيز العدد للنشر
١٣	أ. أسماء محمد الشاعر	أخصائي علاقات علمية وثقافية – باحثة دكتوراه	عضو هيئة تحرير – إداري ومسؤول التواصل مع الباحثين
١٤	أ. أحمد مسعد العسال	أخصائي تعليم – باحث دكتوراه	عضو هيئة تحرير – إدارة الموقع الالكتروني للمجلة
١٥	أ.محمد عربي	مدير سفارة المعرفة بالجامعة	عضو هيئة تحرير – المسؤول المالي
رابعاً - أعضاء هيئة التحرير من الخارج			
١٦	أ.د عبد الرازق مختار محمود	أستاذ المناهج وطرق التدريس	كلية التربية – جامعة أسيوط
١٧	أ.د مايسة فاضل أبو مسلم أحمد	أستاذ علم النفس التربوي	المركز القومي للامتحانات والتقويم التربوي

قائمة الهيئة الاستشارية الدولية لمجلة كلية التربية جامعة العريش

م	الاســـــــــــم	التخصص	مكان العمل وأهم المهام الأكاديمية والإدارية	
١	أ.د إبراهيم احمد غنيم ضيف	أستاذ المناهج وطرق تدريس التعليم الصناعي	جامعة قناة السويس- مصر	نائب رئيس جامعة قناة السويس، وزير التربية والتعليم الأسبق - المستشار السابق للتخطيط الاستراتيجي وجودة التعليم لجامعة نايف العربية للعلوم الأمنية التابعة لجامعة الدول العربية.
٢	أ.د إمام مصطفى سيد محمد	أستاذ علم النفس التربوي	جامعة أسيوط مصر	- رئيس قسم علم النفس التربوي، ووكيل كلية التربية بأسيوط (سابقاً) - مدير مركز اكتشاف الاطفال الموهوبين بجامعة اسيوط – - المستشار العلمي للمركز الوطني لأبحاث الموهبة والابداع بجامعة الملك فيصل - المملكة العربية السعودية.
٣	أ.د بيومي محمد ضحاوي	أستاذ الإدارة التعليمية والتربية المقارنة	جامعة قناة السويس - مصر	وكيل شئون خدمة المجتمع وتنمية البيئة " سابقاً" - مقرر اللجنة العلمية الدائمة لترقية الأساتذة والأساتذة المساعدين في الإدارة التعليمية والتربية المقارنة – المجلس الأعلى للجامعات. مراجع معتمد لدى الهيئة القومية لضمان جودة التعليم والاعتماد.
٤	أ.د حسن سيد حسن شحاته	أستاذ المناهج وطرق تدريس اللغة العربية	جامعة عين شمس مصر	رئيس قسم المناهج وطرق التدريس سابقاً – مقرر اللجنة العلمية الدائمة لترقية الأساتذة تخصص المناهج وطرق التدريس وتكنولوجيا التعليم
٥	أ.د رضا السيد محمود حجازي	أستاذ باحث في المناهج وطرق تدريس العلوم	المركز القومي للامتحانات والتقويم التربوي - مصر	نائب مدير الأكاديمية المهنية للمعلمين – وكيل أول وزارة التربية والتعليم- رئيس قطاع التعليم. نائب وزير التربية والتعليم لشؤون المعلمين " حالياً "
٦	أ.د رضا مسعد ابو عصر	أستاذ المناهج وطرق تدريس	جامعة دمياط مصر	وكيل أول وزارة التربية والتعليم " سابقاً " - أمين اللجنة العلمية لترقيات الأساتذة والأساتذة المساعدين للمناهج وطرق

		الرياضيات		التدريس–رئيس الجمعية المصرية لتربويات الرياضيات" حالياً"
٧	أ.د رمضان محمد رمضان	أستاذ علم النفس التربوي	جامعة بنها مصر	عميد كلية التربية النوعية ببنها-مدير الأكاديمية المهنية للمعلمين " سابقاً " - مدير المركز القومي للامتحانات والتقويم التربوي" حالياً"
٨	أ.د سعيد عبد الله رفاعي لافي	أستاذ المناهج وطرق تدريس اللغة العربية	جامعة العريش مصر	العميد الأسبق لكلية التربية بالعريش- نائب رئيس الجامعة للدراسات العليا والبحوث – قائم " حالياً" بأعمال رئيس جامعة العريش.
٩	أ.د سعيد عبده نافع	أستاذ المناهج وطرق تدريس الاجتماعيات	جامعة الإسكندرية - مصر	نائب رئيس جامعة الإسكندرية، ورئيس جامعة دمنهور الأسبق – خبير التخطيط الاستراتيجي وإعداد التقارير السنوية بالجامعات السعودية.
١٠	أ.د عبد التواب عبد اللاه دسوقي	أستاذ اجتماعيات التربية	جامعة أسيوط مصر	العميد الأسبق لكلية التربية بجامعة أسيوط – مدير مركز تطوير التعليم الجامعي، والمشرف على فرع الهيئة القومية لضمان جودة التعليم والاعتماد – أمين لجنة قطاع الدراسات التربوية بالمجلس الأعلى للجامعات.
١١	أ.د عبد اللطيف حسين حيدر	أستاذ مناهج وطرق تدريس العلوم	جامعة صنعاء اليمن	منسق الاعتماد الأكاديمي، وعميد كلية التربية – جامعة الإمارات " سابقاً" – وزير التربية والتعليم باليمن " سابقاً" – خبير الجودة بمكتب التربية العربي لدول الخليج
١٢	أ.د عنتر صلاح عبد اللاه طليبة	أستاذ مناهج وطرق تدريس اللغة الإنجليزية	جامعة جنوب الوادي - مصر	منسق برنامج تطوير كليات التربية FOER التابع لمشروع تطوير التعليم ERP ، واستشاري التنمية المهنية والمؤسسية POD التابع لمشروع تطوير التعليم ERP (سابقاً). أستاذ زائر بكلية الإنسانيات، بجامعة كالرتون بكندا ٢٠٢٠

١٣	أ.د عوشة احمد المهيري	أستاذ التربية الخاصة	جامعة الامارات الإمارات	رئيس قسم التربية الخاصة – مساعد عميد كلية التربية بجامعة الإمارات لشؤون الطلبة.
١٤	أ.د الغريب زاهر إسماعيل	أستاذ تكنولوجيا التعليم	جامعة المنصورة مصر	- مقرر اللجنة العلمية الدائمة لترقية الأساتذة المساعدين في المناهج وطرق التدريس وتكنولوجيا التعليم . - رئيس مجلس إدارة الجمعية الدولية للتعليم والتعلم الالكتروني-مدير أمانة اتحاد جامعات العالم الإسلامي ، ومدير مديرية التربية بمنظمة الإيسيسكو " سابقاً "
١٥	أ.د ماهر اسماعيل صبري	أستاذ مناهج وطرق تدريس العلوم	جامعة بنها مصر	رئيس قسم المناهج وطرق التدريس وتكنولوجيا التعليم " السابق بكلية التربية – جامعة بنها" - رئيس مجلس إدارة رابطة التربويين العرب
١٦	أ.د محمد ابراهيم الدسوقي	أستاذ تكنولوجيا التعليم	جامعة حلوان مصر	نائب مدير الأكاديمية المهنية للمعلمين " سابقاً " – رئيس مجلس إدارة الجمعية المصرية للكمبيوتر التعليمي
١٧	أ.د محمد عبد الظاهر الطيب	أستاذ علم النفس الكلينيكى والعلاج نفسي	جامعة طنطا مصر	العميد الأسبق لكلية التربية بجامعة طنطا- خبير بالهيئة القومية لضمان جودة التعليم والاعتماد بمصر ، وبقطاع كليات التربية بالمجلس الأعلى للجامعات.
١٨	أ.د محمد الشيخ حمود	أستاذ الصحة النفسية	جامعة دمشق - سوريا	خريج جامعة لايبزيغ - ألمانيا –رئيس قسم الصحة النفسية والتربية التجريبية وعميد لكلية التربية جامعة دمشق – سوريا- "سابقاً" – عضو الجمعية الأمريكية للإرشاد النفسي ACA – رئيس التحرير " السابق" لمجلة اتحاد الجامعات العربية للتربية وعلم النفس.
١٩	أ.د مصطفى بن أحمد الحكيم	أستاذ الأصول الدينية للتربية . التربية الأسرية	وزارة التربية الوطنية - المغرب	-خبير تربوي بوزارة التربية الوطنية والتعليم العالي والبحث العلمي بالمغرب - رئيس مجلس إدارة المركز الدولي للاستراتيجيات التربوية والأسرية- بريطانيا

٢٠	أ.د مني محمد ابراهيم غنايم	أستاذ التخطيط التربوي واقتصاديات التعليم	جامعة المنصورة - مصر	العميد السابق لكلية الآداب بدمياط- مدير مركز تطوير التعليم الجامعي بجامعة المنصورة – مقرر اللجنة العلمية لترقية الأساتذة والأساتذة المساعدين في أصول التربية والتخطيط التربوي
٢١	أ.د ناصر أحمد الخوالده	أستاذ مناهج وطرق تدريس التربية الاسلامية	الجامعة الأردنية _ الأردن	عميد كلية الدراسات الإنسانية التربوية بعمان– نائب ثم رئيس جامعة العلوم الإسلامية العالمية " سابقاً" – خريج جامعة نبراسكا – بريطانيا.
٢٢	أ،د نياف بن رشيد الجابري	أستاذ اقتصاديات التعليم وسياسته	جامعة طيبة - السعودية	عميد كلية التربية بجامعة طيبة بالمدينة المنورة" سابقاً" – المشرف العام على البحوث والبيانات بهيئة تقويم التعليم والتدريب بالمملكة – وكيل وزارة التعليم بالسعودية" سابقاً".
٢٣	أ.د يوسف الحسيني الإمام	أستاذ تربويات الرياضيات	جامعة طنطا مصر	الوكيل السابق للدراسات العليا والبحوث بجامعة طنطا – عضو فريق الاعتماد الأكاديمي لكلية التربية بجامعة الإمارات " سابقاً " -

قواعد النشر بمجلة كلية التربية بالعريش

١. تنشر المجلة البحوث والدراسات التي تتوافر فيها الأصالة والمنهجية السليمة على ألا يكون البحث المقدم للنشر قد سبق وأن نشر، أو تم تقديمه للمراجعة والنشر لدى أي جهة أخرى في نفس وقت تقديمه للمجلة.

٢. تُقبل الأبحاث المقدمة للنشر بإحدى اللغتين: العربية أو الإنجليزية.

٣. تقدم الأبحاث – عبر موقع المجلة ببنك المعرفة المصري

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الكترونياً مكتوبة بخط (Simplified Arabic)، وحجم الخط ١٤، وهوامش حجم الواحد منها ٢.٥سم، مع مراعاة أن تنسق الفقرة بالتساوي ما بين الهامش الأيسر والأيمن (Justify). وترسل إلكترونياً على شكل ملف (Microsoft Word).

٤. يتم فور وصول البحث مراجعة مدى مطابقته من حيث الشكل لبنط وحجم الخط ، والتنسيق ، والحجم وفقاً لقالب النشر المعتمد للمجلة ، علماً بأنه يتم تقدير الحجم وفقاً لهذا القالب ، ومن ثم تقدير رسوم تحكيمه ونشره.

٥. يجب ألا يزيد عدد صفحات البحث بما في ذلك الأشكال والرسوم والمراجع والجداول والملاحق عن (٢٥) صفحة **وفقاً لقالب المجلة**. (الزيادة برسوم إضافية). ويتم تقدير عدد الصفحات بمعرفة هيئة التحرير قبل البدء في إجراءات التحكيم

٦. يقدم الباحث ملخصاً لبحثه في صفحة واحدة، تتضمن الفقرة الأولى ملخصاً باللغة العربية، والفقرة الثانية ملخصاً باللغة الإنجليزية، وبما لا يزيد عن ٢٠٠ كلمة لكل منها.

٧. يكتب عنوان البحث واسم المؤلف والمؤسسة التي يعمل بها على صفحة منفصلة ثم يكتب عنوان البحث مرة أخرى على الصفحة الأولى من البحث ، والالتزام في ذلك بضوابط رفع البحث على الموقع.

٨. يجب عدم استخدام اسم الباحث في متن البحث أو قائمة المراجع ويتم استبدال الاسم بكلمة "الباحث"، ويتم أيضاً التخلص من أية إشارات أخرى تدل على هوية المؤلف.

٩. البحوث التي تقدم للنشر لا تعاد لأصحابها سواءً قُبل البحث للنشر، أو لم يُقبل. وتحتفظ هيئة التحرير بحقها في تحديد أولويات نشر البحوث.

١٠. لن ينظر في البحوث التي لا تتفق مع شروط النشر في المجلة، أو تلك التي لا تشتمل على ملخص البحث في أي من اللغتين ، وعلى الكلمات المفتاحية له.

١١. يقوم كل باحث بنسخ وتوقيع وإرفاق إقرار الموافقة على اتفاقية النشر. وإرساله مع إيصال السداد ، أو صورة الحوالة البريدية أو البنكية عبر إيميل المجلة J_foea@Aru.edu.eg قبل البدء في إجراءات التحكيم

١٢. يتم نشر البحوث أو رفض نشرها في المجلة بناءً على تقارير المحكمين، ولا يسترد المبلغ في حالة رفض نشر البحث من قبل المحكمين.

١٣. يُمنح كل باحث إفادة بقبول بحثه للنشر بعد إتمام كافة التصويبات والتعديلات المطلوبة.

١٤. في حالة قبول البحث يتم رفعه على موقع المجلة على بنك المعرفة المصري ضمن العدد المحدد له من قبل هيئة التحرير ، ويُرسل للباحث نسخة بي دي أف من العدد ، وكذلك نسخة بي دي أف من البحث (مستلة).

١٥. يمكن – في حالة الحاجة – توفير نسخة ورقية من العدد ، ومن المستلات مقابل رسوم تكلفة الطباعة ، ورسوم البريد في حالة إرسالها بريدياً داخل مصر أو خارجها.

١٦.يجدر بالباحثين (بعد إرسال بحوثهم ، وحتى يتم النشر) المتابعة المستمرة لكل من:

–موقع المجلة المربوط ببنك المعرفة المصري

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–وبريده الالكتروني الشخصي لمتابعة خط سير البحث عبر رسائل تصله تباعاً من إيميل المجلة الرسمي على موقع الجامعة J_foea@Aru.edu.eg

١٧. جميع إجراءات تلقي البحث، وتحكيمه، وتعديله، وقبوله للنشر، ونشره ؛ تتم عبر موقع المجلة ، وإيميلها الرسمي، ولا يُعتد بأي تواصل بأية وسيلة أخرى غير هاتين الوسيلتين الالكترونيتين.

محتويات العدد (الثالث والثلاثون)

تقديم
التعليم والشراكة المجتمعية،
ومؤسسات إعداد المعلم وتأهيله
في الجمهورية الجديدة

بقلم: هيئة التحرير

نظمت لجنة قطاع الدراسات التربوية بالمجلس الأعلى للجامعات مؤتمرها القومي الأول تحت عنوان التعليم والشراكة المجتمعية، ومؤسسات إعداد المعلم وتأهيله في الجمهورية الجديدة، وذلك يومي السبت ،والأحد الموافقين: ٣، ٤/ ١٢ / ٢٠٢٢م بقاعة المؤتمرات بـنادي حرس الحدود،الزمالك ،القاهرة

ولما كانت لجنة قطاع الدراسات التربوية من اللجان المنبثقة عن المجلس الأعلى للجامعات المصرية، ومعنية مثل غيرها من اللجان بتقديم المشورة والدعم العلمي والتعليمي والتربوي لتصلح من شأن إعداد المعلم وتأهيله لمجتمع المعرفة وإنتاجها وتخزينها وتوزيعها وتسويقها .ويأتي – في إطار مهام اللجنة – العمل على تطوير التعليم والوقوف على مشكلاته وكيفية المساهمة في حلها وتعمل اللجنة – أيضًا – على تطوير مؤسسات إعداد المعلم، وتأهليه وتقديم الخبرات العلمية والفنية اللازمة لكليات إعداد المعلم ، لذا جاء هذا المؤتمر لدعوة المجتمع المصري كله بكل قطاعاته للنظر في التعليم، واحتياجاته والنظر في حال مؤسساتنا التعليمية، وما تحتاجه من إصلاح وتطوير.

ولقد تحددت أهداف المؤتمر فيما يلي:

١. توجيه نظر المجتمع للمساهمة بكل قطاعاته وأفراده في ضرورة وحتمية النظر للتعليم كمدخل طبيعي لتقدم كل قطاعات المجتمع الأخري .
٢. دراسة وتحديد مشكلات التعليم المصري، ودور قطاعات المجتمع في المساهمة في حلها.

٣. اقتراح آليات وتصورات لمواجهة المشكلات التي تواجه المجتمع من خلال التعليم ومناهجه وبرامجه.
٤. رفع المستوى المهني والعلمي للمعلم والقائمين على العملية التعليمية في مؤسساتنا التعليمية.
٥. توجيه النظر إلى حتمية تطوير التعليم (تطوير المناهج والبرامج، وتطوير اللوائح، وتطوير برامج الإعداد للمعلمين، وتطوير برامج التدريب قبل وأثناء الخدمة، وتطوير كل عناصر العملية التعليمية، والبنية التحتية، والإمكانات المعملية، والاتاحة التعليمية

وتحددت محاور المؤتمر في ثلاثة محاور عن : المجتمع والتعليم: ، و مؤسسات إعداد المعلم وتأهيله:، والشراكة الفاعلة بين كليات التربية، ووزارة التربية والتعليم: مديرياتها، ومدارسها.

وقد رأت هيئة تحرير المجلة – أن أوراق العمل والبحوث التي تلقاها المؤتمر، وتم تدقيقها من خلال لجنة علمية عالية المستوى ، ثم تم تحكيمها وفقاً لمعايير تماثل معايير التحكيم المعتمدة لدى المجلة ، وتم تعديلها ، وعرضها بالمؤتمر، وتنقيحها وفقاً لما ورد بشأن كل منها من تعقيبات ومناقشات – رأت هيئة التحرير أنها جديرة بالنشر فيها.

وقد حظيت المجلة بموافقة لجنة قطاع الدراسات التربوية بالمجلس الأعلى للجامعات على نشر أوراق العمل والبحوث التي تم قبولها في مؤتمرها القومي الأول.

وخصصت هيئة تحرير المجلة هذا العدد الخاص لهذا الإنتاج العلمي التربوي المتميز ، مخ خالص الشكر للجنة القطاع رئيساً ، وأميناً ، وخبراء ، وعمداء على تفضلهم بهذا ؛ تقديراً منهم لمجلة كلية التربية بجامعة العريش

والله الموفق

هيئة التحرير

بحوث ودراسات محكمة

البحث التاسع

Artificial Intelligence in Language Education: Implementations and Policies Required

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Abstract

This paper tackles the concept of AI, its justification, and its applications in the field of education in general, and in the field of teaching/learning English Language, in particular. The paper focuses specifically on the incorporation of artificial intelligence (AI), which includes a wide range of technologies and methods, such as machine learning, adaptive learning, natural language processing, data mining, crowdsourcing, neural networks or an algorithm, into foreign language learning and teaching. First, the paper is concerned with changes brought to education in general and foreign language education specifically through the application of AI-powered tools and discusses ICALL (intelligent computer assisted language learning) as a subset of CALL. Second, it delineates the implementation of AI in the field of ESL/EFL. Third, it summarizes the consequences of applying AI-powered tools for foreign language education. Fourth, it discusses the benefits and challenges that the AI implementation entails. Finally, it puts forward a number of guidelines and recommendations for education policy-makers targeting the basic requirements for AI implementation.

Key Words: Artificial Intelligence, Language Education, Implementations, Policies

الذكاء الاصطناعي في تعليم اللغة: متطلبات التطبيق وسياساتها

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الملخص

تتناول ورقة العمل مفهوم الذكاء الاصطناعي وتطبيقاته في المجال التربوي عامة وفى مجال تدريس اللغة الإنجليزية على وجه الخصوص. وتركز الورقة على كيفية دمج الذكاء الاصطناعي الذي يشمل مجال واسع من التقنيات والطرق المستخدمة في مجال تعليم وتعلم اللغة الإنجليزية مثل التعلم الآلي والتعلم التكيفي ومعالجة اللغة الطبيعية والتنقيب في البيانات وشبكة الخلايا العصبية والخوارزميات. وتسلط الورقة الضوء أولا على التغيرات التي احدثتها تطبيقات الذكاء الاصطناعي في التربية ككل ثم في تعليم وتعلم اللغة الإنجليزية كلغة ثانية أو أجنبية بصفة خاصة. وتفرد الورقة بشيء من التفصيل لتعليم وتعلم مهارات اللغة الإنجليزية. وفى الجزء الثالث تبرز الورقة اثار تطبيق الأدوات المرتكزة على الذكاء الاصطناعي في تدريس اللغة الإنجليزية. وتناقش الفوائد المرجوة من تلك التطبيقات من ناحية والتحديات التي تجابهها من ناحية أخرى. واخيرا تضع الورقة عددا من الارشادات والتوصيات لصناع القرار في مجال التربية فيما يخص السياسات المنشودة ومتطلبات التنفيذ.

الكلمات المفتاحية: الذكاء الاصطناعي، تعليم اللغة، متطلبات التطبيق، السياسات

Introduction

Digitalization has been one of the main drivers of change in education generally and instructional practices in the classroom, in particular in the past decade. While most innovations in the past decade related to an increased use of computers and the internet in the classroom, the next wave will be based on artificial intelligence (AI), or on combinations of AI and other technologies. In education, artificial intelligence is embedded in many technological transformations that provide learning analytics, recommendations and diagnosis tools in various ways and for various purposes. In many cases, Pokrivcakova, (2019) assures that AI applications are still budding and used in experimental and local contexts rather than at scale at the system level. There are, however, many examples of promising uses that foreshadow how AI might transform education in the next decades, both in the classroom and at the system levels, and address different stakeholders: students, teachers, administrators, parents, as well as policy makers.

Based on existing reviews related to AI in language learning, there has been a focus on developing tutoring systems, writing assistants, virtual reality environments, chatbots, and other types of adaptive learning systems/software. The main intent of these tools has been to generate personalized and customizable learning experiences for the purposes of optimizing language learning by increasing autonomy, motivation, engagement, and effectiveness For instance, NLP-based tutoring systems are designed to provide tailored feedback, recommendations, and materials. Recently, with the rapid development of AI, these tools can meticulously adapt content in real-time to the learning pace, preferences, and needs (e.g., cognitive, affective, social) of each user (Jackson et al, 2019).

Artificial Intelligence Defined

The origin of Artificial Intelligence (AI) can be traced to John McCarthy's research in 1955. Various scholars have defined the concept of Artificial Intelligence (AI). According to Wang (2018), AI refers to devices' or systems' ability to think as human beings, having the power and skills to learn, perceive, and decide rationally and intelligently. Benhamou and Janin (2018) state that AI includes a collection of technologies that enable machines to act with a very high level of intelligence similar to humans. Tredinnick (2017) describes AI as a cluster of technologies, and various computing science approaches to make flexible rational decisions that align with unpredictable environmental conditions.

One group of definitions see AI as machines, computers or computer systems that imitate cognitive functions that are normally associated with the human mind, such as learning and problem solving (Russell & Norvig, 2010). Another group of definitions consider AI as a specific set of skills of computers, e. g. Baker and Smith (2019, p. 10) define AI as "computers which perform cognitive tasks, usually associated with human minds, particularly learning and problem-solving". Other group of definitions see AI in a much broader context, as a science, e. g. Stone at al. (2016) says that "artificial intelligence (AI) is a science and a set of computational technologies that are inspired by—but typically operate quite differently from—the ways people use their nervous systems and bodies to sense, learn, reason, and take action." (Stone et al., 2016).

Artificial intelligence (AI) is therefore, the imitation of human intelligence processes such as speech and visual recognition, translation of the languages and virtual decision-making by machines and robots. The ability of machine to think

and behave like human beings, has given AI a special place in all fields. AI is present everywhere in various aspects of our lives starting from intelligent sensors to personal assistants.

Changes brought by AI in Education and Instruction

Baker and Smith (2019) divide AI tools used in education into three groups: a) learner-facing, b) teacher-facing, and c) system-facing ones. A. Learner-facing AI tools are software that students use to learn a subject matter. b. Teacher-facing systems are used by teachers with the purpose to reduce their workload and make their output more effective in specific automating tasks, such as administration, assessment, feedback, and plagiarism detection. c. System-facing AI tools provide information for administrators and managers on the institutional level, for example, they help monitor attrition patterns across faculties or colleges.

Current AI educational systems incorporate either adaptive or intelligent operations or both. Adaptive educational systems (AES) are designed to adapt some of the key functional characteristics (e.g. content, sequence of activities, or navigation support) to the learner needs. This may happen thanks to "building a model of the goals, preferences, and knowledge of each individual student and using this model throughout the interaction with the student in order to adapt to the needs of that student" (Brusilovsky & Peylo, 2003, p. 156). An adaptive system thus "operates differently for different learners, taking into account information accumulated in the individual or group learner models" (Magnisalis, Demetriadis, & Karakostas, 2011). Intelligent educational systems (IES) incorporate and perform "some activities traditionally executed by a human teacher - such as coaching students or diagnosing their misconceptions"(Brusilovsky & Peylo, 2003, p. 156). They aim to provide learner-tailored support through implementing "extensive modelling of the problem-solving process in the

specific domain of application" (Magnisalis, Demetriadis, & Karakostas, 2011).

In this respect ,the most influential changes were mentioned by Baker and Smith (2019), OECD (2020) , Sharma (2021) and Schmid, Blanc, and Toepel (2021) It focused on a number of AI applications widely used in education specifically, personalization of learning, accommodating special needs learners , and supporting system and school management:

Personalizing learning: with AI in terms of instruction, AI's biggest promise lies in the personalization of learning and learning materials. Personalized learning is an educational approach aimed at customizing learning based on students' individual needs and strengths. AI applications can identify pedagogical materials and approaches adapted to the level of individual students, and make predictions, recommendations and decisions about the next steps of the learning process based on data from individual students. AI provides adaptive educational systems shape students' learning path through appointed learning materials. Some AI powered tools can customize learning materials for a specific learner, course or school and create, for example, personalized textbooks. Personalized learning materials are an alternative to traditional textbooks and materials which represent the so-called "one-size-fits-all" approach to schooling in which teachers provide all students in each class or course with only one type of learning materials.

Supporting students with special needs: AI systems have already shown their effectiveness to help students with disabilities, e.g. visual or hearing impairments or impairments in social skills (language and communication), to benefit from education. For example, wearables using AI can help visually impaired students to read books and recognize faces, and thus to learn and socialize within their communities.

AI applications for system and school management: The algorithmic power of AI is also used to create predictive and diagnosis models to support decisions and generate feedback at the establishment (school, university, etc.) or education system level (district, region, country, etc.).

The customization of the academic curriculum can be done by AI powered machines. AI tools can make global classrooms possible including people who are visually or hearing impaired. This can also help students who cannot attend classes due to illness.

Admissions and enrollment processes can also be done with AI in the future and its full potential is yet to be out.AI can help students in their homework or test preparations at home. AI in the near future will be able to respond to a range of learning styles. It is all thanks to Artificial Intelligence that tutoring and studying programs are becoming more advanced. AI applications such as AI mentors for learners are being developed for education.

The Intelligent Tutoring System is used to stimulate one-to-one personal tutoring. Depending on the neural networks, algorithms they can make a decision against an individual student. Students are already being exposed to the vast number of possibilities for higher education with the help of AI.

AI can totally bring advanced changes in the field of education. Robots can increase the grammatical strength and create digital content. The classrooms had already started digitalized teaching. The wave of investments and the increased interests in artificial intelligence will impact the universities in the times to come.

Automation of Tasks: There are many mechanical activities like attendance handling, books dispatch or inventory

management, etc. AI can handle such tasks faster and without errors.

Location-based Technologies: With the help of IoT and sensors, we can locate our students and then dispatch the necessary help in the form of content or books or other materials wherever they are located.

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Automated assessment/grading is considered supervised learning. Marked training data is fed into a learning algorithm so that the algorithm can reliably identify the correct solution to a problem and give the student appropriate feedback and/or an appropriate grade.

Learning (predictive) analytics and educational data mining (EDM): Learning analytics refers to the constant measurement, collection, analysis and reporting of data on students and their activities in order to better understand and optimize learning in the various digital learning environments. Wherever learning management systems (LMSs), MOOC platforms, social media or other digital tools are used, clicks, navigation patterns, search queries, exercise, and test completion times and the quantity and quality of interactions and communication activities can be documented and analyzed against competency and achievement levels. Information resulting from the use of learning applications can be supplemented with data generated by sensors or video cameras such as eye and head movements, vital signs (heart rate, blood pressure), facial expressions (expression analytics), brainwaves, etc. This data basis can be used to generate didactic interventions

and incentives as well as personalized learning paths, assistance and learning objectives. EDM thus helps drive the development of learning theories in educational psychology and educational studies.

Adaptive learning and recommendation systems refers to intelligent teaching methods that allow learning tasks and resources to be presented in such a customized fashion that they meet the student's individual needs (abilities, competencies, expectations, etc.) as effectively as possible. Adaptive learning settings automatically present lessons (exercises, tests, etc.) that, judging from certain indicators (e.g. academic achievement, competency level, test scores, academic performance, learning objectives), are appropriate for the student's needs, are the right level of difficulty and appear in the right order.

On the same line, Neha (2021) stated that AI has influentially helped the educational process in general. AI can automate basic activities in education, like grading. It is currently potential for academics to alter grading for nearly every kind of multiple alternative and fill-in-the-blank testing and automatic grading of student writing might not be so much behind. AI tutors can support students and teach them at least the basic and fundamental skills. In addition, AI-driven programs can give students and educators helpful feedback. They could also change the teachers' role and data powered by AI that can change how schools find, teach, and support students. Smart data gathering, powered by intelligent computer systems, is already making changes to how colleges interact with prospective and current students. From recruiting to helping students choose the foremost effective courses, intelligent computer systems are helping make every neighborhood of the faculty experience more closely tailored to students' needs and goals (P. 306-307).

In the field of education Ahmad et al (2021) indicated that researchers have shown that AI applications have three main

categories in education: personal tutors, collaborative learning, and virtual reality .Online collaboration needs to be moderated. Through intelligent virtual reality, students could be engaged and guided in a game-based environment of learning and reliable virtual reality, where the work of teachers, facilitators, etc. could be performed by virtual agents in remote virtual labs. AI not only facilitates the process of education and learning through virtual rooms but it can also be used in assessment, especially where there are large amounts of student data. It can generate a just-in-time assessment and feedback, unlike the traditional way of stop-and-test. Through AI applications, students' learning accomplishments can be recorded and analyzed from time to time. It has algorithms for the prediction of students' progress, chances of grades to be obtained, and assignment concerns with a high probability.

Changes brought by AI in the Teaching and Learning of English as a Second or Foreign Language (TESL/TEFL)

In educational context during the outbreak of COVID-19 pandemic, especially in learning/ teaching of English in Higher Schools, lecturers use the software facility of artificial intelligence application to carry out the English learning process. This application helps students improve English language skills and is important to students developing their skills in writing English. Artificial intelligence is "a simulation of human intelligence on machine programmed to think like a human and imitate its actions" (Vasiljeva et al., 2021). Students learn grammar, spelling, word matching, and sentences construction by artificial intelligence application. It can detect students' mistakes in writing and give them feedback. Mozgovoy (2011), states that "grammar examination is important in text writing and language learning". Artificial intelligence provides feedback on students' assignments that they can make improvements. This can affect student learning activities. They will be motivated to learn if the

mistakes they made in grammar, diction, or sentence construction are corrected and the corrections are returned to students. Mistakes in writing can also be traced by the application of artificial intelligence. Cotos (2011) said that students get feedback from artificial intelligence, then reread and improve their writing and practice to become independent learners (Miller, 2019).

It seems to be of relevance to specify the following general AI key concepts in terms of AI-powered language learning Schmidt and Strasser (2022):

Natural Language Processing *(NLP)* is an area that combines AI and linguistics in general and is concerned with the automated processing of human language. It addresses the generation and analysis of written and spoken language, though speech processing is often regarded as a separate subfield. NLP can be seen as the applied side of computational linguistics, the interdisciplinary field of research concerned with formal analysis and modeling of language and its applications at the intersection of linguistics, computer science, and psychology (Meurers 2012, 817)

Machine Learning *(ML)* a type of AI that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so. Machine learning "helps us find solutions to many problems in vision, speech, recognition, and robotics" (Alpaydin 2014, 3). Furthermore, it can be claimed that ML refers to "programming computers [and their corresponding applications & software] to optimize a performance criterion using example data or past experience" (P. 3). Most of the data used in education is generally personal data (such as individual achievement data, class grades, test grades, etc.) that requires particularly high levels of data privacy and **data security.** Hence, example data must be categorized in order to use it for NLP purposes.

Deep Learning *(DL)* is a subfield of AI that uses Artificial Neural Networks (computing systems resembling specific neural networks of a human's brain) to learn from extensive data sets (Schmidhuber, 2015, 86). Deep Learning mainly focuses on vision-based categories (e.g. distinction of images), but can also be used for NLP purposes.

AI based systems provide language learners with the environment where they can choose their own path and pace of learning, and where learners can take more control over their own learning. AI powered systems facilitate development of learner´s decision-making skills and lead to their learning autonomy. Students can digitally connect with native speakers around the world or to use IA-powered conversational tools (e. g. chatbots) to intensify their learning without a teacher´s personal involvement. Language learners have more opportunities to be more active participants in the learning process rather than passive recipients of knowledge. Teaching becomes more learner-centered, since learners are expected to be able to make their own decisions and become responsible for their work more independently. The teacher, on the other hand, abandons his/her previous position of the only authority and decision-maker, to become rather a facilitator and supporter of learners (Pokrivcakova, 2019; Bancheri, 2006; Rilling et al., 2005).

AI has provided unprecedented help to the ESL/EFL field (Sharma, 2021). Following are some computer programs, platforms, and applications that have greatly enhanced the teaching and learning of the English language:

Machine translation *(MT)* is the process when computer software is employed to translate a text (written or spoken) from one natural language to another. For a long time, using MT tools for language learning purposes has been limited due to a questionable quality of their outputs. Artificial intelligence technologies like neural machine translation have improved the

quality of machine translation considerably and free-access web-based MT services resulted in millions of users using services such as Google Translator, Translator Online, Foreign Word, Web Trance for their work or study every day. MT can be a useful aid to language learning (Cook, 2010; Garcia, & Pena, 2011; Lee, 2020; Myers, 2000; Niño, 2009; Rogers, 1996; Steding, 2009; White & Heidrich, 2013); however, foreign language teachers tend to regard the use of MT as a learner´s failure, disruption or even breakage of academic honesty (Case, 2015; Niño, 2008; Steding, 2009).

AI writing assistants (based on NLP and machine learning) help users through various steps of the writing process (augmented writing). Using AI systems, they correct grammatical errors within a written text (via conducting a continual error analysis), provide recommendations for later improvements and provide additional resources for further study. In foreign language classrooms, these systems help learners to go through the writing process individually, correct themselves, and think about the process itself. Using AI in this way facilitates learner´s self-regulation and autonomy. The examples of AI writing assistants are Grammarly, ProWriting Aid, Textio, AI Writer, Textly AI and Essaybot.

Chatting robots (chatbots) Chatbots are communication tools that represent one example of human-machine interaction. A human user and a computer (robot) are engaged in informal chat (in a written or spoken form) using a natural language. Chatbots are most frequently utilized in marketing communication; however, they may be used effectively in foreign language classrooms as well (Dargan, 2019; Jia, 2008; Kerly, Hall, & and Bull, 2007). Learners can learn through the process of direct communication with a robot. In addition, chatbots can provide customized answers in response to learners´ messages, grade their performance, and provide tips on what learners need

to improve. The research conducted by Fryer and Carpenter (2006) showed that most students enjoyed using the chatbots and they generally felt more comfortable conversing with the bots than a student partner or teacher, which might seem a surprising finding. Jia and Chen (2008) in their study investigated how a chatbot could be used to motivate learners to practice English. Results revealed that students felt comfortable and believed that the approach could help them with language learning. However, as Lotze (2018) argues, AI dialogic systems still need to meet some key criteria (especially spontaneity, creativity and shared knowledge) before they can serve as substitutes for a real-life language teacher.

AI-powered language learning software (platforms and apps) When it comes to language learning, online platforms are increasingly becoming the norm. Cloud-based online platforms incorporating NLP, crowdsourcing, gamification elements, automatic speech recognition, automatic speech generation and AI writing assistant applications belong to the most popular learning aids used by young users. Examples: Duolingo, Busuu, Speexx, Babbel, Memrise, Magiclingua and many others. In addition, AI provides with several resources to people who speak different languages or have hearing or visual difficulties. Presentation Translator provides subtitles in real-time mode, which is an AI based system application. For example, with the help of google translator students can read and hear in their national language.

Intelligent tutoring systems (ITS) have enormous potential, especially in large-scale distance teaching institutions, which run modules with thousands of students, where human one-to-one tutoring is impossible" (Zawacki-Richter et al., 2018, p. 5). It is one of the sophisticated ways of information presented to the students. Like a teacher, it teaches each student according to his or her knowledge level and priorities ITS initially, teaches

and presents theory, etc. with examples. IT then asks questions from the students. It has the ability to understand the answers provided by the students and to determine their knowledge, which affects what should be presented and asked from the student. The student can also ask questions and the system has the ability to answer or solve the problems in the specific knowledge domain. (Schmid, Blanc and Toepel 2021).

More specifically, AI applications and tools have been enhancing ESL/EFL learners' language skills. The section below exemplifies these effects on the teaching and learning foreign language.

Implementing AI in Language learning

In order to implement AI in language learning a number of Tools and policies have to be in place. In this section tools available for implementing AI in the ESL/EFL contexts are delineated. Woo and Choi (2021) synthesized information on AI tools that were developed between 2017 and 2020. A majority of these tools utilized machine learning and natural language processing, and were used to identify errors, provide feedback, and assess language abilities. They reported a number of tools based on AI and the impact of these tools on language leaning (Ai, 2017; Choi, 2019; Huang, Lee, Kown, & Kim, 2017, Kannan & Munday, 2018; Khalifa, Kato & Yamamoto, 2019; Lee, 2020; Tai & Chin, 2020; & Woo & Choi, 2021b).

The main aim of teaching English is to develop communicative competence, which is achieved through knowing how to use language elements and vocabulary to develop the skills of listening, speaking, reading, and writing. It also includes how to use language to produce texts, and how to use it to understand reading passages

Thus, it is necessary to use AI applications such as simulation and communication programs to simulate real life situations for conversation and communication in English, introduce practical training in language skills, and educational games based on language. Communication tools based on AI help design situations for practicing the accurate pronunciation of letters and words through sound drills and visual media. Such tools provide exercises for describing and interpreting images and everyday situations, for listening, and for practicing guided pronunciation. They also allow learners to practice language skills and provide feedback for guidance. Some programs have language drills that give training in communication through using language skills to guarantee that learners reach proficiency levels (Barnes et al, 2016, p. 6).

In response to the question, 'What types of AI tools have been developed for various target language skill areas?', Woo and Choi (2021), Chew and Chua (2020), Lee and Cho (2020) and Kao (2020) provided an overview of the tools that have been developed for each of the skill areas (speaking, listening, writing, pronunciation, grammar, vocabulary, and reading) with the type of tool (e.g., robots, mobile applications, and virtual assistants) and AI technology.

Speaking and Listening are made better by the help of Al tools that include a. Intelligent personal assistants like Alexa by examining comprehensibility, usability, and improvements in listening comprehension, speaking proficiency, and willingness , b. programmable robots were used in group conversations , c. neural network (NN)-based dialogue system was used for free conversation practice and d. An NN-based multimodal dialog system was also developed to holistically assess spoken language in terms of delivery, content, vocabulary, and grammar.

With these tools, the learners became more confident, willing, and less anxious about speaking in English. The learners

also demonstrated gains in listening and speaking in terms of pragmatics, cohesion, word concreteness, and use of grammatical patterns. Regarding perceptions, the learners indicated that the tools were easy to use, authentic, comprehensible, and useful for language learning. (Choi, 2019 & Lee, 2021).

Writing has been enhanced, thanks to the tools included machine translators, software for free-form writing, and a blended course with automated feedback on self-correcting tasks. There were also specialized systems focused on citations and referencing, and classifying sentences into rhetoric categories.

With these tools, the learners were able to reduce plagiarism, increase editing/revising time, and correct rhetorical function, lexical, and grammatical errors. After using a feedback system, the learners also demonstrated significant improvements in their essay drafts in terms of the organization, structure, coherence, supporting ideas, and conclusion.

Furthermore, regarding perceptions, the learners stated that these tools were effective, easy to use, and useful/helpful for language learning (Wang, Petrina & Feng, 2017).

Pronunciation has been promoted due to the use of **Deep learning algorithms**. Pronunciation diagnosis, training, and evaluation systems were developed using the attention mechanism and various types of NN (e.g., convolutional, long-short term memory). For instance, a multimodal system illustrating speech features, and an interactive tool generating personalized voice models have recently been developed.

These tools helped the learners improve their fluency, comprehensibility, tone, and pronunciation accuracy. With regard to perceptions, the learners described these tools as interesting, easy to use, and helpful for fluency, intonation, and tone training (Kao, 2020).

Grammar utilized a number of AI tools that reduced many challenges learners faced in this respect. Tools included games, applications, immersive environments, and intelligent systems that utilized NN, ML, and NLP. For example, to create customized study plans, NN modeling was used to predict grammatical challenges that learners may encounter based on their first language.

For the applications and systems, word segmentation, syntactic parsing, and the finite state transducer in NLP were used to generate feedback.

By using these tools, the learners were able to use English articles more accurately and experience a greater sense of immersion, presence, and realism while learning. In regard to perceptions, the learners viewed these tools as effective, efficient, accurate, enjoyable, satisfactory, and easy to use (Lee and Cho, 2020).

Vocabulary*:* AI tools for vocabulary included systems, platforms, robots, games, and mobile applications that have been developed using ML (e.g., conditional random field models) and NLP. For instance, in an ICALL platform, part-of-speech (POS) annotation and syntactic parsing in NLP were used to visually enhance targeted vocabulary items by automatically generating multiple-choice gaps.

After using these tools, the learners demonstrated gains in emotion, word use, and semantic knowledge of phrasal verbs. In regard to perceptions, the learners generally viewed these tools as interesting, easy to use, useful, and helpful for language learning (Li, Chang, and Wu, 2020).

Reading*:* Machine learning was used to diagnose reading problems and push appropriate resources. Additionally, an ML model was developed to identify pedagogical factors

distinguishing high-achieving from low-achieving readers to improve ESL reading instruction (Chew & Chua, 2020).

Based on the reviewed studies, it is clear that various AI tools targeting the speaking, listening, writing, pronunciation, grammar, vocabulary, and reading areas have been developed. After using these tools, learners have demonstrated improvements in their language skills/knowledge and perceived these tools to be useful for language learning.

For this implementation to effectively influence the teaching profession, we need to prepare teachers for this new environment.

Preparing teachers for ICALL is a subset of CALL teacher training which has been addressed by multiple publications and research articles. If the general aim of CALL teacher training is "to equip current and future language teachers with the knowledge and skills, both technical and pedagogical, to incorporate technology effectively into their classes" (Hubbard, 2008, p. 180), The aim of ICALL teacher training is, parallelly, to inform current and future language teachers about latest AI-powered educational tools, and provide them with the knowledge and skills needed for effective integration of these AI tools into their classes.

If teachers have an appropriate training for using AI technologies and positive AI-related experience, they will be more likely to implement ICALL in their own classrooms. A fundamental condition of success is to help them feel well prepared and confident to act in AI technology-enhanced environments. A number of previous researches (Abdelhalim, 2016; Kim, 2002; Lam, 2000; Liaw, Huang, & Chen, 2007; Russel & Bradley, 1997; Sabzian, & Gilakjani, 2013) have revealed that foreign language teachers generally support CALL and welcome modern technologies in their classrooms, however,

some (and probably most of them) are reluctant to use ICT extensively.

Consequences of AI in education (AIEd)

AI has a strong repercussion on education. Research like that of Lehlou and Brigui (2021), Lotze (2018), Sharma (2021), Wang (2019), and Woo and Choi (2021), has indicated a number of consequences of AI in education, some of which are listed below:

Teachers may find themselves with more time. AI systems that take over record keeping and grading would free up additional time for teachers to devote to students.

Parents will assume greater responsibility in children's education. AI Ed means parents may have to take on additional roles as coaches, curators, and guardians as their kids navigate new tools and platforms.

A teacher's instincts might conflict with sensor data. Artificial intelligence-powered facial recognition can provide learning systems with emotional data, further customizing machine teaching systems.

Students may miss out on the valuable non-academic contributions of teachers. Beyond academics, teachers lead the development of critical "21st century skills" like problem solving and critical thinking.

Customized learning could accelerate natural inequalities. Today's education system focuses on standardization to reduce the achievement differences between students. AI tutoring systems that tailor their lessons to different children's needs would undo this standardization, with some students naturally progressing faster than others.

AI could make today's schoolhouses obsolete. Modern schools promote one-size-fits-all classes and learning at a fixed

pace. AI learning systems allow for customized curriculum that reduces the need for classrooms and lecturers. Traditional schools might evolve into smaller, distributed structures and specialized learning centers.

Textbooks will take on a new form. There are AI systems that use a teacher's syllabus to assemble a custom textbook for a particular class or subject area.

Creating materials that are tailored to the learner's needs: According to the learners' responses make while learning, some AI-powered tools can personalize learning materials for a particular learner, course, or school, resulting in customized textbooks.

Online platforms are gradually becoming the standard when it comes to language learning. The most common learning aids are cloud-based online platforms with NLP, crowdsourcing, gamification elements, automatic speech recognition, automatic speech generation, and AI writing assistant applications. Duolingo, Busuu, Memrise, Magiclingua, and many others are only a few examples.

Benefits and Challenges

Nobody can deny the **benefits** that AI-powered education (AIEd) "offers the possibility of learning in more personalized, flexible, inclusive, and engaging environment. It can provide teachers and learners with the tools that allow them to respond not only to what is being learnt, but also to how it is being learnt, and how the student feels. It can help learners develop the knowledge and skills that employers are seeking, and it can help teachers create more sophisticated learning environments than would otherwise be possible. For example, AIEd that can enable collaborative learning, a difficult task for one teacher to do alone, by making sure that the right group is

formed for the task-at-hand, or by providing targeted support at just the right time" (Luckin et al., 2016, p. 11).

Radwan (2017, p. 2) indicates that AI can be used to overcome many of the difficulties of teaching/learning English: ▪ Using Information Retrieval techniques to build the ability to comprehend reading passages. ▪ Employing Machine Translation to develop students' translation skills. ▪ Using Automatic Speech Recognition techniques to learn correct pronunciation. ▪ Using Text-to-Speech techniques for blind and visually impaired students. ▪ Using open digital language dictionaries to enrich the student's vocabulary. ▪ Using intelligent programs to augment speaking skills for English learners. ▪ Employing a writing evaluation technique to teach paragraph and essay writing.

Applying AI in foreign language education provides learners with immediate and highly individualized support, which is a fundamental building stone for personalized learning as one of the ideal standards of contemporary pedagogy. In this aspect, AI-powered tools are ahead of human teachers who simply do not have capacity to continually analyze each and every learner´s outputs, diagnose their individual learning needs, adapt the learning content accordingly and give learners well-grounded feedback in the span of several seconds – and that all in the class of twelve or more students. AI-powered tools are, on the other hand, able to collect massive amounts of data on learner´s learning progress, on their basis to model their personal learning curves and to adapt learning content accordingly. Moreover, they enhance learners´ progress through the functionality of small consequential steps and immediate feedback. Therefore, these programs and applications can be used by teachers as very effective supporting tools because they are able to free teachers from tiring, energy- and time-consuming activities such as grammar or pronunciation drills.

Other expected benefits of ICALL include: learner´s own pace of progress; instant feedback as a strong motivational factor; individualized repetition of topics and emphasizing activities where a learner has had weaker output; quick and objective assessment of learner´s progress; better understanding of learner´s learning preferences and strategies; predicting learner´s future performance with a high probability; quick and objective assessment of teaching tools (texts, lectures, assignments, tests, etc.).

Artificial intelligence provides a good learning environment for interactive English learning. Through the connection and logical analysis of information such as graphics, sound and text in intelligent system, English learning becomes more stereoscopic and visual. Students communicate with AI through man-machine interface, which not only increases the authenticity of the language environment, but also corrects the errors in the dialogue in time, so that students can learn English in a relaxed and pleasant atmosphere.

AI can provide a real simulation dialogue platform for English teaching and learning. Let students better use and improve the comprehensive abilities of English words, spoken English and English writing. Not only that, the cultural and customs knowledge of different English-speaking countries collected in AI can be used to communicate and interact with students, but also can greatly enhance students' interest in English learning. (Wang, 2019)

Daniels (2015cited in Lehlou and Brigui 2021) explains that Chatterbots or Artificial Conversational Ethics is one example of AI in that human are able to communicate through a machine. It holds intelligent conversation using a keyword matching technique. For instance, if a human asks the Chatterbots, 'What is your name?' the AI then will reply accordingly to the question based on the records of answers in its

database. Hence, the assessment of speech can be made possible with the use of AI.

Moreover, such new technologies have been applied in the Digital Game Based Language Learning and Teaching (DGBLLT). Digital games are considered as primary components within the field of Computer Assisted Language Learning (CALL) (Cornille et al., 2012; Reinhardt et. al, 2014), just like the traditional games are regarded as part of Second Language Acquisition (SLA) (Wright et al., 1984; Ersoz, 2000). CALL software packages have so far provided small digital games such as hangman, puzzle and sentence production device to teach vocabulary and grammar in addition to various materials and activities to develop language skills (see Tell Me More; Einblicke Multimedia Language Trainer, etc.). Furthermore, web and mobile versions of these kinds of stand-alone games are developed and some of them are integrated into foreign language learning process. (Browne & Culligan, 2008; Kocaman & Kizilkaya Cumaoglu, 2014b, Cited in Lehlou & Brigui, 2021).

On the other hand, the AI implementation in education in general and ESL/EFL in particular, has encountered a number of **challenges** that should be taken into consideration.

Along with external factors (lack of material equipment, insufficient technical support, inflexible curriculum, time stress), this reluctance to apply CALL is determined by many internal factors, such as: • lack of information and ICT skills, • lack of experience with ICT as a learner, • lack of motivation, • struggle to integrate ICT with teacher´s existing learning style and practices, • feeling like being out of their comfortable zone, • fear of losing a dominant position in the classroom, • fear of a weakening control over students, • as well as losing students´ respect.

These are the factors the ICALL teacher trainers need to take into consideration. It is probably too soon to define sets of

specific skills of ICALL teachers or to propose models of ICALL teacher training but, undoubtedly, they will be created soon.

Despite the immense potential of AI in language learning, there have been concerns regarding insufficient privacy, information, and teacher preparation. Foremost, as data collection is essential to AI development, there is a need to reinforce privacy policies and informed consent practices. Also, to address the lack of evidence verifying the language learning effectiveness of AI, efforts should be made to acquire information on the pedagogical effects and learner perceptions of AI-based language learning tools. With this information, teachers can gain a deeper awareness of available AI-based tools which will enable them to facilitate the use of these tools effectively and appropriately.

OECD (2020) raises a number of challenges for applying AI in education: A first challenge concerns creating and maintaining trust in AI systems. Transparency and accountability of AI systems in education are important aspects of this challenge, especially given the critical role of education in people's subsequent employment and life opportunities. A second challenge consists of ensuring the use of AI systems to serve human-centered values in protecting and securing (personal) data.

Kengam (2020) adds that despite of the huge opportunities AI offers there might also be some potential risks with it. AI is likely to become either the best or the worst thing that might happen to humanity. AI could support teaching and learning but new ethical implications and risks emerges with the development of AI applications in higher education.

If the usage of AI in education increases, there might be chance that personal interactions get decreased and students get technology addicted and sometimes this may hurt the learners instead of helping them. The faculty members, student counsellors, teaching assistants, and administrative staff might

get feared that the Intelligent Tutor System which is application of AI might replace them.

AI system require a huge amount of data including information of students and staff which is confidential and it heads to serious privacy issues. When compared to the cost of installation, maintenance and repair AI is highly expensive. Only the heavily funded educational organizations can allow themselves to enjoy such high technology.

Educational Policies required to promote the use if AI in our Institutions

A number of **policies, requirements, and recommendations** -based on the research done by the Congressional Research Service (2021) European Commission (2019) and Madiega (2019) and OECD (2022) should be taken into account in order to establish a robust application of the AI in education.

Trustworthy AI has three components, which should be met throughout the system's entire life cycle.

1. it should be lawful, complying with all applicable laws and regulations;

2. it should be ethical, ensuring adherence to ethical principles and values. This means that we develop, deploy and use AI systems in a way that adheres to the ethical principles of: respect for human autonomy, prevention of harm, fairness and explicability; and

3. it should be robust, both from a technical and social perspective, since, even with good intentions, AI systems can cause unintentional harm. (OECD, 2022 P.10)

In general, the report recommends that the development, deployment and use of AI systems meets the seven key requirements for Trustworthy AI: (1) human agency and oversight, (2) technical robustness and safety, (3) privacy and data governance, (4) transparency, (5) diversity, non-discrimination and fairness, (6) environmental and societal well-being and (7) accountability.

- AI applications and tools should prioritize safety. Technology-related risks must be counteracted by risk mitigation strategies, which should be integrated into AI decision-making.
- Promote transparency .Introduction of any AI technology must be sufficiently transparent that it can be criticized, by the public or by internal review mechanisms.
- Safeguard privacy by taking the necessary measures to prevent leakage of identifiable information.
- Institute regular challenge and review. This may be necessary due to software erosion, changes in context over time and changes in the AI technology itself as it continues to learn from new data.

The context in which the AI technology will be used specific requirements are due:

- Assess whether the AI technology is necessary and appropriate in each educational setting. For example, whether the AI technology offers advantages over what is currently offered and fills a gap, compare the risks and benefits of the AI technology with those of current technology and ensure the necessary infrastructure for use of the AI technology. Ensuring Trustworthy AI is not

about ticking boxes, but about continuously identifying and implementing requirements, evaluating solutions, ensuring improved outcomes throughout the AI system's lifecycle.

- Foster research and innovation to help assess AI systems and to further the achievement of the requirements; disseminate results and open questions to the wider public, and systematically train a new generation of experts in AI ethics.

- Communicate, in a clear and proactive manner, information to stakeholders about the AI system's capabilities and limitations, enabling realistic expectation setting, and about the manner in which the requirements are implemented.

Policy Guidance on AI for Children (2021), recommend that governments, policymakers and businesses that develop, implement or use AI systems meet the nine requirements for child-centered AI, listed in no order of prioritization:

- Support children's development and well-being, Let AI help me develop to my full potential.
- Ensure inclusion of and for children, include me and those around me.
- Prioritize fairness and non-discrimination for children, AI must be for all children.
- Protect children's data and privacy ensure safety for children, ensure my privacy in an AI world.
- Provide transparency, explainability, and accountability for children, I need to know how AI impacts me. You need to be accountable for that.

- Ensure safety for all children, I need to be safe in the AI world.
- Empower governments and businesses with knowledge of AI and children's rights, you must know what my rights are and uphold them.
- Prepare children for present and future developments in AI, if I am well prepared now, I can contribute to responsible AI for the future.
- Create an enabling environment, make it possible for all to contribute to child centered AI

In a guidance for **policy makers** published by UNESCO (2021) a Seven-point recommendations for implementing AI in education were presented:

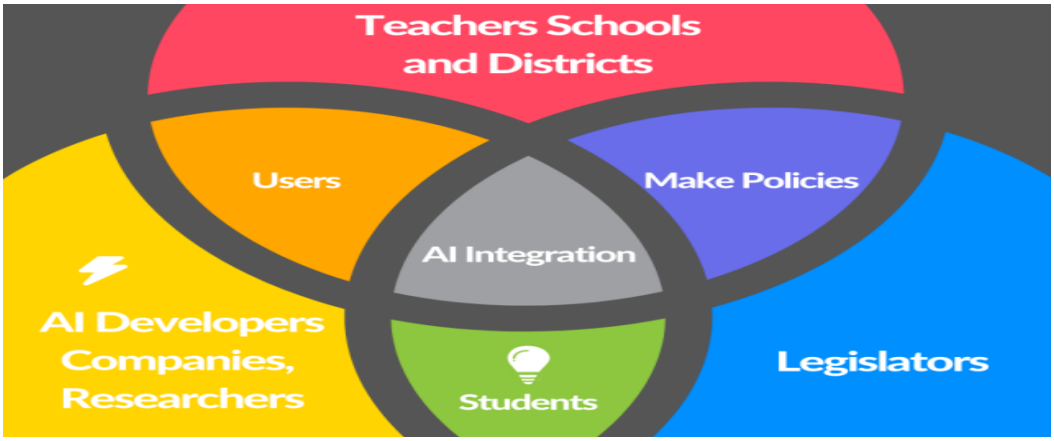
- A system-wide vision and strategic priorities.
- Overarching principle for AI and education policies. Adopt a humanistic approach as an overarching principle for AI and education policies.
- Interdisciplinary planning and inter-sectoral governance Mobilize multistakeholder expertise to inform policy planning and build the capacities of policy-makers. Set up inter-sectorial governance and coordination mechanics.
- Policies and regulations for equitable, inclusive, and ethical use of AI. Set out cross-cutting strategic objectives, and plan regulations and programs to ensure the equitable and inclusive use of AI in education.
- Master plans for using AI in education management, teaching, learning, and assessment. Leverage AI to boost and upgrade education management and delivery. Cultivate; learner-centered use of AI to enhance learning and assessment.

- Pilot testing, monitoring and evaluation, and building an evidence base. Build a trusted evidence base to support the use of AI in education. Strengthen research and evaluation in the field of AI and education.
- Fostering local AI innovations for education. Promote the local development of AI technologies for education.

In a seminal work, Jackson, et al (2021) established a number of school policies and recommendations to delineate areas that require educator attention around AI so they are empowered to develop recommendations that support literacy on AI that work within their contexts. In this context, they define literacy as general competency around how AI works, the types of data it collects, and how that data can be used. By doing so, they provided useful guidance to build additional knowledge and skills, including the ethical and unbiased decisions by educators in selecting and using AI systems and technologies in classroom environments.

Recommendations based on identification of different stakeholders, their responsibilities, and the actions they can take as a part of the policy-making process are briefly extracted from Jackson, et al (2021, PP. 4-9). The following policies and recommendations are meant to encourage various stakeholders to enhance AI Implementation in education to improve equity and student outcomes.

Figure: 1 Various Stakeholders in Enhancing AI Implementation in Education



Legislators are encouraged to: Pass legislations to create a regulatory agency that will govern and provide safeguards for both the companies and consumers.

AI developers and companies are encouraged to employ a diverse team of developers and seek feedback from diversity auditors. Document and share underlying pedagogical approach (to allow for appropriate classroom application and alignment)

AI Researchers are encouraged to: I. Partner with AI developers to advise on a variety of research strands: A. Evaluate Products and their application. B. Development of product based on ethical guidelines C. Impact of scale and reach II. Disseminate their findings by: A. Connecting with the education practitioners to communicate innovative practices and research findings B. Developing accessible blogs, newsletters, and reports or partnering with research communications professionals to do this work

Districts and schools are encouraged to: I. Create and enforce policies to provide teachers, students, and families with reasonable protections from predatory practices II. Allocate training dollars to incorporate continuous professional development for teachers to better understand and inform them about AI systems, ethical practices, risks, and benefits

Teachers are encouraged to: I. Understand the appropriate use for AI technology II. Receive ongoing trainings as technology advances III. Understand how to evaluate if the technology is promoting equitable educational practices IV. Integrate it appropriately and effectively V. Be supported by administrators and districts in the process VI. Know whose and what types of data are being captured, stored, used, and shared.

A number of **recommendations** were concluded by Xiaoyan (2019) for sound and safe implementation of AI in educational institutions:

1. A mechanism should be established to ensure the engagement of teachers and students. It should be noted that innovation must stimulate the teachers and students to participate, and a certain mechanism should be established to ensure that the participation of local teachers and students is taken as the basic strategy of the program, and that the voices of children, teachers and other relevant interest groups are heard.
2. Continuous support should be given to teachers. The opinions of front-line teachers are very important to the application of informatized education products. To gain the support of front-line teachers, such informatized education products must be products that can solve educational problems and help teachers or students improve their teaching and learning efficiency and quality, rather than products that add burden to them.
3. Attention should be paid to the changes of mindset of relevant stakeholders during the popularization of innovations. During the popularization of innovations, there must be various problems, one of which would be the outdated mindset of relevant stakeholders that stops them from accepting innovative concepts.

4. Attention should be paid to ethical issues in innovation. Innovation also involves some ethical issues. For example, disputes would arise from the use of some new technologies in educational informatization.
5. The systematic design of the program should be strengthened.

Schmid, Blanc, and Toepel (2021) study concludes with three strategic recommendations for the future:

1. ***Educational innovation process with room for experimentation*:** To advance that goal, this study's first recommendation is to drive didactically oriented innovation processes and create new space and opportunities to experiment with smart applications. This could be done by establishing special "AI innovation schools", for example.
2. ***Establish co-teaching and assisted learning as core strategies:*** Education scholars broadly agree that AI systems should support and supplement teachers in face-to-face learning settings, not replace them (co-teaching and assisted learning in hybrid learning arrangements and flipped classroom settings, etc.).
3. ***Broaden teacher training and establish AI as a classroom tool:*** Being a future base technology, AI urgently belongs in school syllabi and specialized classes. At the same time, teachers must be trained, whether in their initial programs or through continuing education, to think (critically) about AI-based learning technologies and use them in an educationally appropriate manner.

Conclusions

AI has over shadowed many of the teaching and learning traditions and traditional processes and practices. AI is used in grading system where teachers can automate grading for certain type of questions. It will be more useful in adaptive and individualized learning which satisfies the needs of the students. AI helps the teachers to know the understanding capacity of the students on their lectures and enable them to provide the relevant hints for students. It acts as a tutor for the students and helps them to learn. Artificial intelligence driven programs offers helpful feedback for both students and teachers. It helps the teachers to monitor the performance of the students and enable them improve the instruction that they provide for the students. AI systems in schools have changed the way students find and interact with integrated technology. This has an effect to change teachers as facilitators by providing students interactive learning experience. Students can learn by the trial and error method without fear as AI supports in their learning and provide assistant for their improvement. Artificial intelligence systems acquired data will change the way the schools find, teach and support students. If goes beyond the reach it make even replace teachers in certain instance. It has become a learning companion that assists students in their learning process.

Grand challenges for artificial intelligence in Education as proposed by Woolf, et al., (2013) include virtual mentors for every learner in which omnipresent support that integrates user modeling, social simulation and knowledge representation, assists learners with self-direction, self-assessment, teamwork and more, bring together the vast amounts of data about individual learning, social contexts, learning contexts, and

personal interests, increase the inter connectedness and accessibility of classrooms worldwide and taking learning outside of the classroom and into the learner life outside of school. The role that Artificial intelligence plays in education is remarkable in this technological world and it is expected to advance learning experience more and more in the near future.

In order to safeguard the application of AI in education it should be lawful, complying with all applicable laws and regulations; it should be ethical, ensuring adherence to ethical principles and values; and it should be robust, both from a technical and social perspective, since, even with good intentions, AI systems can cause unintentional harm.

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