Mgbakwụnye Ngwa Nkanụzụ Mmemmadụ (AI) Na Kọrikukum Igbo Maka Nchekwaba Na Nkwalite Mmasị Ụmụakwụkwọ N'ọmụmụ Asụsụ Na Omenala Igbo Na Mahadum
(Integrating AI in Igbo curriculum for preservation and promotion of students' interest in Igbo language and culture in University)
Si n'aka

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Ụmị

Nchọcha a lebara anya na mkpa ọ dị ịgbakwụnye ngwa nkanụụzụ mmemmadụ (AI) na kọrikukum asụsụ Igbo maka nchekwaba na nkwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo na mahadum. Ajụjụ nchọcha abụọ ga- eji mee nchọcha. Onye nchọcha gbasoro usoro nkọwa sọvee wee mee nchọcha ya. Ndị e jiri mee nchọcha kpọm kwem bụ ndị nkuzi asụsụ Igbo na mahadum dị iri asatọ, bụ nke onye nchọcha gbasoro usoro nhọrọ dị ọtụtụ gụnyere usoro nhọrọ nha na usoro nhọrọ ebumnobi wee họpụta. Ngwa e jiri mee nchọcha bụ njụmaza, nke ihe e depụtara na ya dị iri abụọ na abụọ (22) n' ime nkeji abụọ. Ngwa nchọcha a bụ nke ndị ọkachamara lebara anya na ya. Ndị nchọcha lelere ịnọgide n'ọnọdụ nke agbanweghị ngwa nchọcha site n 'iji usoro ntụcha data a na-akpọ Cronbach 's Alpha na Bekee, ma e nwetara akara 0.88. E jiri ntụcha miin na ndịpụ n'izugbe wee nweta ọsịsa njụmaza e ji wee mee nchọcha. Nchọcha e mere gosiri na ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo gụnyere site n'ịgbakwụnye Igbe ọmụmụ asụsụ, Chatibọtị mkparịtaụka, mmụ asụsụ ikuku, ngwa AI mmataolu asụsụ, ngwa AI

mgbanwe asụsụ, ngwa AI ntụgharị asụsụ na ndị ọzọ. Nchọpụta ọzọ, gosiri na etu ịgbakụnye ngwa nkanụzụ mmemmadụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum gụnyere site n' ịhụ na ngwa AI mmụ asụsụ ga- ezipụta ọtụtụ ngwu ngwu ihe ọmụmụ obi ụtọ n'asụsụ na omenala Igbo oge ọbụla n'ọwa ikuku ka onye ọmụmụ họrọ nke ka ya mma na nke gbadoro ụkwụ na mkpa ya na ndị ọzọ. Onye nchọcha tụtara alo mkpa ọ dị ịhụ na ndị otu dị iche iche na- ahụ maka nchekwaba asụsụ na omenala ga- agbambọ ịhụ na- a gbakwụnyere ngwa nkanụzụ mmemmadụ AI ga - eleba anya n' akara njirimara asụsụ epum ọbụla na - anwụ anwụ maka ịdịrị ndị na- etolite etolite mfe inweta ya nakwa inwe nchekwaba ọkpụtọrọkpụ.

Ọkpụrụkpụ okwu: Ngwa nkanụụzụ mmemmadụ(AI), kọrikukum asụsụ Igbo, nchekwaba omenala Igbo, nkwalite mmasị

Mkpọlite

Ngwa nkanụzụ mmemmadụ (AI) agbanyeela mgbọrọgwụ na ngalaba ọmụmụ dị iche iche tinyere na ngalaba ọmụmụ asụsụ maka ịkwalite ụzọ ebimndụ mmadụ. Ngwa nkanụzụ mmemmadụ (*AI -artificial Intelligence)* bụ nke ọ bụ John McCarthy, Marvin Minsky, Nathaniel Rochester, na Claude Shannon, bụ ndị wepụtara ya bụ atụmatụ mgbe ha haziri nchọcha n'oge ezumuike n'ụlọakwụkwọ kọleji Dartmouth (Harry, 2023). Duke (2023) hụtara ngwa mmemmadụ dịka ngwa nkanxzụ ahaziri ịrụ ọrụ mmadụ nwere amamihe nwereike ịrụ dịka ịmụ ihe ọmụmụ, iche echiche, igbomkpa, inwe nhụtara nke onwe, tinyere ntụcha na nhazi asụsụ. Na nkọwa Abushawar na Atwell (2015) nakwa Onyemelukwe (2019), ngwa nkanụzụ AI na- arụ ọrụ pụtara ihe n'ebe asụsụ na omenala dị, site n'ebe ịkwalite adịmnka nọ ruo na inwe mmasị na nhazigharị ụkpụrụ ebimndụ obodo, ma nke a na- enwe mmetụta na nhụtara onwe mmadụ, ụzọ mmekọrịta nakwa ụzọ nhazi akara njirimara. Asụsụ aranne bụ otu ihe mebere omenala, ma bụrụ ngwa nchekwaba amamiihe ọdịnaala, ụkpụrụ ebimndụ na akara njirimara. Asụsụ epum/asụsụ aranne bụ ngwa pụtara ihe e ji ezipụta akara njirimara omenala nke nwere ụkpụrụ ya n' akụkọ ala., mmenammụọ (*spirituality)* na nhụtara ụwa nke ndị obodo. Ma na agbanyeghị ọrụ ndị a asụsụ na- arụ - arụ na mmekọrịta mmadụ na ibe ibe ya na nchekwaba omenala, asụsụ Igbo dịka otu n'ime asụsụ epum nke ndị otu UNESCO hụtara asụsụ Igbo ka ihe na achọ ịnwụ anwụ.

Asụsụ Igbo bụ asụsụ ndị bi na mpaghara Ọwụwa Anyanwụ Naijiria na- asụ. Ndị na- asụ ya dịka asụsụ epum ha gụnyere Abia, Anambra, Ebonyi, Enugu, Imo, na mpaghara Delta na Crossriver ụfọdụ. Asụsụ Igbo bụ asụsụ ụdaolu, n'ihi nke a, olu e ji kpọpụta mkpụrụokwu bụ ihe dị mkva maka inweta ezi mpụtara okwu ebunuche. N'ihi mkva ọ dị ka e ji enyefe ya n'aka nwafọ Igbo ọbụla bido na nwata ma bụrụkwa ihe e tinyere n'ogo ọmụmụ niile n'ụlọakwụkwọ. Asụsụ Igbo bụ nke a na- amụ alaka ọmụmụ ya dị iche iche gụnyere edemede, ụtọasụsụ, agụmagụ, omenala tinyere ntụgharị n'ụlọakwụkwọ. Asụsụ Igbo ụmụaka na-anata ntọala ya bụ maka inweta nka ọsụsụ ya, iji ya nwee mmekọrịta, tinyere ịkwalite amamihe ha, n'ebe ịmata usoro okwu Igbo dị, dịka o si gbasata mkpọpụta okwu, iwu mmebe mkpụrụ okwu na ahịrịokwu, nka okwu, ụdị nwube e nwere dị ka ntụpọ, mpụtara okwu, ụdaokwu nakwa nkọwa okwu bụ nke gbadoro ụkwụ n'ahịrị ọ nọ na ya, nke ga- eme ka ha zuo oke na nka asụsụ anọ e nwere bụ nke gụnyere nka ọnụnụ/ngere, nka okwukwu, nka ọgụgụ na nka odide. Asụsụ Igbo dịka asụsụ ngwa, bụ ebe a na- agbado ụkwụ maka ụmụaka ịmata usoro isite n'isi ngwa mmebe okwu. Dịka 'ri'- riri, eri, eriela, erighị. Asụsụ Igbo ụmụaka na-anata ntọala ya bụ maka inweta nka ọsụsụ ya, iji ya nwee mmekọrịta, tinyere ịkwalite amamihe ha, n'ebe ịmata usoro okwu Igbo dị, dịka o si gbasata mkpọpụta okwu, iwu mmebe mkpụrụ okwu na ahịrịokwu, nka okwu, ụdị nwube e nwere dị ka ntụpọ, mpụtara okwu, ụdaokwu nakwa nkọwa okwu bụ nke gbadoro ụkwụ n'ahịrị ọ nọ na ya, nke ga- eme ka ha zuo oke na nka asụsụ anọ e nwere bụ nke gụnyere nka ọnụnụ/ngere, nka okwukwu, nka ọgụgụ na nka odide.ụta m Asụsụ Igbo ụmụaka na-anata ntọala ya bụ maka inweta nka ọsụsụ ya, iji ya nwee mmekọrịta, tinyere ịkwalite amamihe ha, n'ebe ịmata usoro okwu Igbo dị, dịka o si gbasata mkpọpụta okwu, iwu mmebe mkpụrụ okwu na ahịrịokwu, nka okwu, ụdị nwube e nwere dị ka ntụpọ, mpụtara okwu, ụdaokwu nakwa nkọwa okwu bụ nke gbadoro ụkwụ n'ahịrị ọ nọ na ya, nke ga- eme ka ha zuo oke na nka asụsụ anọ e nwere bụ nke gụnyere nka ọnụnụ/ngere, nka okwukwu, nka ọgụgụ na nka odide.aghara asụsụ ndị ọzọ. Asụsụ Igbo na omenala bụ nke gbadoro ụkwụ na etu ndị si ebi ndụ ha bụ otu. Mmebere omenala na onwe ya gụnyere asụsụ, akara, ụkpụrụ(values), nsiniwu *(norms*) na atifaks(*artifacts*). N'otu aka ahụ, nkuzi omenala bụ maka ịnata amamiihe ọdịnala, ịdị nka, ịmata akụkọ ala na ụzọ ebimndụ ndị Igbo niile (Eluma, 2020). N'agbanyeghị ọrụ asụsụ Igbo na- arụ na ndụ ndị Igbo, UNESCO (2006) mere ka amata na asụsụ Igbo nakwa asụsụ ndị ọzọ dị nta ga- anwụ n'oge n'adighịanya.

Ime ka asụsụ dị ndụ gbadoro ụkwụ n'ime ka ndị obodo na- asụ ya, ma sonye n'iji ya enwe mmekọrịta na mkpakọrịta. Asụsụ ịdị ndụ gbadokwara ụkwụ n'ikuziri ndị ọhụrụ (*new speakers*) asụsụ ahụ, na iji ya enwe mmekọrịta kwa ụbọchị. Ngwa nkanụzụ AI na- arụ ọrụ pụrụ iche n'ebe mkpọlite na ịchịkọba ihe ọmụmụ dị iche iche gbasara asụsụ na- anwụ anwụ dị bụ nke e kwesiri ịmụ site n'ọwa ikuku nakwa itinye ya na korikulum maka ịkwalite na nchekwaba asụsụ na- omenala tinyere inwe ezi mmekọrịta. Nzeaka na Ehondor (2021) kọwara na ngwa AI na- arụkwa ọrụ n'ichekwaba mgbasaaka asụsụ mba ụwa (*preserving world linguistic diversity)*. Na nkwado echiche a, ka Udoh na Emmanuel (2020) tinyere Okoye (2023) ji kọwaa na e nwere ụdị ngwa AI na- arụkwazị ọrụ dị iche iche n'ebe ịkwalite asụsụ dị. Ụdị ngwa AI dị iche iche na ọrụ ọ na- arụ gụnyere ndị a:

Mmataolu asụsụ maka ịkwalite mkpọpụta okwu n'asụsụ epum dịka Amazon Alexa's skill (*AI- powered speech/voice recognition and synthesis for pronunciation improvement of indigenous language).* Ngwa AI a na- enyeaka n'ịmata na ihazi olu asụsụ onye na izipụta ya bụ asụsụ epum n'ezi usoro (*recognize ascent of the native speaker and process*) maka ikepụta olu asụsụ a ga- aghọta. Nke a na- enyere ndị na- amụ asụsụ aranne aka inweta ezi nka ọsụsụ (*speaking skill*) n'asụsụ epum ahụ site n'ịmata usoro esi akpọpụta mkpụrụokwu na nkebiokwu dị n'olundi nke ọma, iji olu asụsụ kwesiri wee kpọpụta ya (*accent)*. N'ebe a, a ga- eji ngwa nkanụzụ AI wee zipụta asụsụ Igbo dịka asụsụ ụdaolu. Nke a ga- enyeaka ịmata mkpụrụ okwu e ji ụdaolu elu akpọpụta, ụdaolu ala na nụda nsụda. N'asụsụ Igbo, ọtụtụ mkpụrụokwu na- enwe otu nsupe mana ọ na- enwekwazi nghọta dị iche iche site n'etu a ga- esi akpọpụta ya. Ịmaatụ - oke, oke, oke, akwa, akwa, akwa, akwa. A ga - ejikwa ya gosipụta ngwa AI na- enyere onye na- amụ asụsụ epum aka inwe mkparịta ụka gbasara ihe ọmụmụ tinyere ịmatakwa ka ọmụmụ si aga nakwa ụdị njikọ etu asụsụ ahụ si nwee mgbarọgwụ n'omenala.

Ngwa AI - based transcription - bụ ngwa e ji atụgharị okwu e kwuru ekwu/ nkwurunaọnụ ka ọ ghọrọ ederede maọbụ tụgharịa ederede ka ọ ghọrọ ekwurekwu ka ọ dị mfe na ntụcha na nchekwaba *(convert Text - to Speech TTS na Speech to - Text STT).* Ngwa AI na- enyere ndị obodo aka ịchịkọba mkpụrụokwu dị iche iche(*vocabularies*), ụtọasụsụ(*grammar*), usoro mkpọpụta mkpụrụokwu(*words)* na nkeji ahịrị(*phrases*), na ndịna omenala pụrụ iche (*cultural nuances).*

Ngwa AI ntụgharị asụsụ (*AI - driven translation tools like Google translate)*. Nke a bụ ngwa e ji enweta nsụabụọ maọbụ karịa, ya bụ ịtụgharị okwu e kwuru n'ọnụ maọbụ nke e ederede site n'otu asụsụ ruo n'ọzọ. Ngwa AI na- atụgharị ederede dị n'asụsụ epum (asụsụ Igbo) ka ọ dị n'asụsụ ka wee zuo ọnụ dịka asụsụ Bekee.

Ngwa nkanụzụ AI ntụcha (*AI- powered analysis and annotation tools)*- maka ịmata etu e si etinye asụsụ Igbo n'ọrụ(usage), nakwa maka nkwalite nka ọsụsụ na nka odide.

Ngwa ngwu ngwu AI mmụ asụsụ (AI - driven language learning applications dịka *Duolingo language courses, Rosetta stone)*: Nke a bụ ngwa AI na- enyeaka ịhụ na onye ọbụla chọrọ ịmụ ihe gbasara asụsụ epum nwere ohere inweta ya na- agbanyeghị ogo afọ onye ahụ dị, ebe maọbụ mpaghara ọbụla onye ahụ nọ(*accessibility*). Ọ na- ahazi ihe ọmụmụ dịka o si gbasata mkpa onye *(needs*) nakwa etu onye ahụ si chọ ya(*progress*). E nwere ngwugwu AI e ji akụzi usoro mkpọpụta okwu, nakwa ihe gbasara ụtọasụsụ dịka usoro okwu/usoro mmebe okwu, iwu odide asụsụ Igbo. Asụsụ Igbo dịka asụsụ ụdaolu nwere ụda elu, ụda ala na ụda nsụda, ma nke a ka e ji ezipụta ndịiche n'etiti okwu abụọ nwere otu nsuve, maọbụ n'etiti ahịrị ajụjụ na ahịrị ntimiwu.

Ndịna ngwa AI a (*gamification elements*) gụnyere qụizi, ngosipụta ụdị ebimndụ ndị obodo iche iche (*diverse life style of communities)*, ihe ọmụmụ mkpakọrịta dị iche iche (*interactive excercises*), nke na- enyeaka ịhụ na onye na- amụ asụsụ ga- enwe ihe omume dị iche iche ma bụkwara nke na- akpalite mmụọ.

Ngwa AI na- enye ndị obodo ohere isonye na mmekọrịta na mmepụta **site n'ọwa ikuku** (***AI - tools platforms for collaboration and co - creation:*** Ime ka asụsụ dị ndụ gbadoro ụkwụ n'ime ka ndị obodo na- asụ ya ma sonyekwa n'iji ya enwe mmekọrịta na mkpakọrịta. N'ihi nke a, ngwa AI a na- enyeaka ime ka ndị obodo nweike isonye, ha na ndị ụlọakwụkwọ, ụlọ ọrụ ngwa nkanuụzụ jikọta aka wee tụọ alo maka nchekwaba asụsụ epum na ịkwalite ngwa nkuzi asụsụ epum e ji akụzi ihe. Ihe ndị ha na- ejikọta aka emepụta gụnyere ụlọ nchekwaba ihe ọkpụ nke ọwa ikuku (*the indigenous language Digital Archive, all indexed and searchable*), e kpọbara gbasara asụsụ epum nke dị n'ụdị nchịkọba ekwuru n'ọnụ(audio), onyonyo (video), ederede (*texts tran*

scriptions and translations) akwụkwọ ọkọwa okwu ikuku (*online dictionary*), akwụ kwọ ọgụgụ (*online textbook)*, imepụta ndịna ihe ọmụmụ nkanụzụ (*multimedia content*). Site n'ụzọ dị etu a mmadụ dị iche iche n'obodo na - enwe ohere izipụta ikikere ha nwere n'ebe asụsụ ha dị. N'ebe a. Ngwa nkanụzụ AI ga- enyeaka n'ịchịkọba okwu ọkpụ Igbo dị iche iche, ụzọ, mmemme dị iche iche na usoro e ji eme nke ọbụla dịka usoro alụm nwaanyị, akwamozu, echichi, iri ji ọhụrụ na ndị ọzọ. AI na- achịkọbakwa akụkọ ifo na akụkọ ọdịnala/akụkọ ọkpụ dị iche iche, ima mbem, ịtụ ikwe na ekwuru ekwu ọnụ ndị ọzọ. Ịmaatụ ụdị ngwa AI a gụnyere DOBES archives, AILLA, first voice n'Amerika, sorosoro programs, ELLA at SOAS- *School of orientation and African studies London*)

Ngwa AI chatịbọt (AI powered chartbots): Ngwa AI a na- ahụ maka mkparịtaụka n'asụsụ Igbo nke e ji egosi mmere na ndụ maka ịkwalite nka asụsụ. Ngwa AI nke a na- enye ohere inwe mkpakọrịta na ndịna asụsụ *(language practice*). Ọ na- enye ohere isite n'ọwa ikuku mụọ ihe gbasara asụsụ na omenala obodo tinyere ịgbasa ihe gbasara akụkọ (*stories*), ọdịnala (*traditions*), na mmeremme omenala (*cultural practices*). Chatịbọt bụ ngwa mmụ asụsụ na- enye ohere onye ọmụmụ inwale ihe ọ na- eme(assessment), ihe o nwetara (*grading*), nakwa nnwale nkọpị (*plagiarism detection*).

Ngwa AI ọmụmụ asụsụ ikuku (AI Virtual language assistant/tutors: Ngwa AI nke a na- enye ohere inwe ngwakọrịta omenala (*cultural exchange)*. Ọ na- enye ohere isite n'ọwa ikuku mụọ ihe gbasara omenala obodo tinyere ịgbasa ihe gbasara akụkọ (stories), ọdịnala (*traditions*), na mmeremme omenala (*cultural practices*).

Ngwa AI e ji emepụta ngwugwu ihe ọmụmụ n'asụsụ Igbo (*AI - generated Igbo language content*) dịka akụkọ (*stories),* abụ(*poems*), mkparịtaụka(*dialogues*) nke na-egosi ịdịmma na abamuru asụsụ Igbo na nkwalite nghọta omenala (*to showcase Igbo beauty and relevance and also promote cultural understanding)*

Ngwa AI maka ime nchọcha n'asụsụ (AI in linguistic research): E nwere ngwa nkanuụzụ AI na - ahụ maka ntụcha na nghọta (*analyzing and understanding*) asụsụ epum ndị dị nta (*minority languages)*. Ngwa AI a na- eme nke a site n'izipụta usoro na nhazi (*pattern and structure*) siri ike n'asụsụ ahụ nke mmadụ nkịtị agaghị ahụtanwu.

Ngwa AI maka Nchịkọba asụsụ: Ngwa nkanụzụ NLP alogrithms (*Natural language processing*), na- enyeaka n'ịchịkọba, ichekwaba na ịhazi nsi na ndịna dị n'asụsụ (*linguistic data*) sitere n'ụzọ dị iche iche dịka mkpụrụokwu, okwu ọkpụ, ụtọasụsụ, ilu, agụmagụ, amamiihe ọ dịnala (mgbarọgwụ na mkpa akwụkwọ na ndị ọzọ ma tinye ya na ngwa nchekwa nke ngere (*audio recording*), nke ederede (text) na nke onyonyo (*videos*).

Ngwa AI maka mmepụta ngwa mmụ asụsụ (*AI for language learning resources*)**.**

- **Ngwa nkuzi na ọmụmụ;** Ngwa nkanuzụ AI na- emepụta ngwa e ji eme nkuzi na ọmụmụ dịka ngwa mkpakọrịta ọmụmụ asụsụ (*interactive language learning apps*), akwụkwọ ọgụgụ ikuku, akwụkwọ ọkọwa okwu ikuku, mgbdo ụkwụ ụtọasụsụ (*grammar rule and guide*), nakwa ụlọ ngwongwo ihe ọkpụ omenala nke ọwa ikuku(*digital achives*) dịka ihe apịrịapị na akpụrụakpụ *(images*), ihe nkiri onyonyo maka mmemme omenala (*vidoes*), nchikọba ngere(*audio recordings*), na ihe ederede (*texts*) na ngwa nkuzi ndị ọzọ e ji echekwaba asụsụ na- anwụ anwụ. Ngwa nkuzi na ọmụmụ ndị a na- eme ka ọ dịrị ndị na- etolite etolite mfe ịmụ asụsụ evum tụmadị asụsụ ndị dị nta na nke na- achọ ịnwụ dịka asụsụ Igbo.

- **Mmepụta akwụkwọ ọkọwa okwu ozugbo/ngwa ngwa** (*Authomated dictionary creation)*. Ngwa AI na- esite ederede nakwa rekọrding ahọpụta/achịkọba mkpụrụokwu na nkọwa ya maọbụ mvụtara ya.

- **Ntụcha ụtọasụsụ (*Grammar Analysis*):** Ngwa AI - a na- akvọ ML alorithms na - atụcha usoro na ndịna asụsụ nke na - enyere ndị mmụ asụsụ(linguist) aka ịghọta na ichekwaba usoro iwu asụsụ, dịka usoro nsupe okwu n' asụsụ Igbo (*grammatical rules of a language)*. Ịmaatụ- Duolingo's AI - *powered language learning platforms*.

Ngwa AI maka nchekwaba Omenala: Ngwa nkanụzụ AI abụghị naanị maka ichekwaba asụsụ kama na ọ na- echekwabazi etu e si eji asụsụ ezipụta omenala nke ọbụla, dịka irekọdụ akụkọ ọdịnala, egwu, ntụaja(*rituals*), iji hụ nay a bụ omenala nọgidere. ịmaatụ, ụlọakwụkwọ ndị living tongue (*Living tongue institute* ji ngwa AI emepụta ngwa ọmụmụ nke nkanụzụ e ji egosivụta mmeremme omenala dị iche iche n'obodo. (*cultural practices of indigenous community*). Ngwa nkanụzụ AI nwere nnukwu mmetụta n'ebe ịhazigharị ọdịnihu nke obodo na akara

njirimara ya maka ịdịnka (*creativity)* inye ohere nsonyere(*inclusivity)*, nkwalite akụkọ ala (*development of storytelling)*, mgbasa asụsụ(*diversity*), na ngosi ụkpụrụ (*representation of ethics*). Dịka o si gbasata omenala, ngwa nkanụzụ AI na- arụ ọrụ ndị a:

Ngwa nkanụzụ AI na ngosi ịdị nka (*AI and creative expression*). Ngwa nkanụzụ AI na- akụzi maka ịdị nka n'ide agụmagụ dịka akụkọ ifo n'asụsụ Igbo (*story telling*), abụ(poem), akụkọ nkenke (*short stories*), egwuregwu(drama) tinyere ederede ndekọ (*collaborative writing*), ịgụpụta egwu (*generating music),* izipụta ederede nka/eserese *(art writing*), na akpụrụ akpụ(*imag ery*). Ịmaatụ,

- Ọwa ikuku AI dịka *Jukedeck, Amper music, Googles majenta project* na- agụ egwu tọrọ atọ (*compose original music track*).
- Ọwa ikuku AI dịka Deep dream na- ezi ezipụta ọrụ nka akpụrụakvụ mara mma a na- ahụ anya (*aesthetic visual art works/imagery*).

Ngwa AI na nnọchianya n'omenala (*AI and representation in popular culture*): AI agbanwela etu e si ahụta ngwa nkanụzụ n'ebe akara njirimara mmadụ dị. Ngwa nkanụzụ AI keagwa (AI character) na- ezipụta ezi nnọchianya dị ka o si gbasata ọnọdụ abụm nwoke na nwaanyị (gender) nakwa agbụrụ (race). Ịmaatụ- Skynet n'egwuregwu onyonyo terminator.

Ngwa AI na omenala njirimara (*AI and cultural identity)*: Ngwa nkanụzụ AI pụtara ihe na mkpokoba ndịna (*content curation*). Ngwa AI na- arụ ọrụ na mkpokoba, nhazi na nchekwaba ihe ọkpụ, ngwongwo ihe ochie dị iche iche dịka apịrịapị, akpụrụakpụ, akparakpa n'ụlọ nchechakwa ihe ọkpụ (*collecting, organizing and maintaining artifacts in cultural room)*.

Nsogbu nchọcha

Asụsụ Igbo bụ otu ihe mebere omenala, ma bụrụ ngwa nchekwaba amamiihe ọdịnaala, ụkpụrụ ebimndụ na akara njirimara ndị Igbo. N'ihi mkpa a asụsụ Igbo dị mere e ji hụta ya ka ntọala kwesiri nwafọ Igbo ọbụla ga - anata nkuzi ya bido n'ezinaụlọ, ruo na ọha obodo nakwa n'ụlọakwụkwọ. Ma na agbanyeghị ọrụ ndị a asụsụ Igbo na- arụ n'ebe mmekọrịta mmadụ na ibe ya dị, n'inweta amamiihe na nchekwaba omenala, ọtụtụ ụmụaka na- eto eto amaghị asụ ya nke ha ji etinye ya

n'ọrụ inwe mmekọrịta na mkpakọrịta tinyere na ha enweghị mmasị ọbụla n'ebe asụsụ Igbo na omenala dị. Ọnọdụ ọjọ a asụsụ Igbo na omenala nọ bụ nke ndị otu UNESCO (2006) mere ka a mata na asụsụ Igbo na- anwụzị anwụ, n' ihi na asụsụ Igbo adịghịzị ire n'ebe ọsụsụ na iji ya nwee mmekọrịta dị. Na - agbanyeghị na ọtụtụ ihe dị iche iche bụ ihe chere ya bụ asụsụ evum akamgba dịka ekpemeke, asụsụ Bekee, nzuruụwa, olilo omenala (*cultural assimilation*), nleghara asụsụ nke na- adị mgbe ndị na- etolite etolite nwere mmasị n'ịsụ asụsụ kacha pụta ihe karịa asụsụ epum/asụsụ aranee (*language shift*), mmepe, enweghị nchịkọba na nchekwaba, enweghị ngwa ikuzi ya na ndị ọzọ, ngwa nkanụụzụ AI na- arụ ọrụ pụtara ihe n'ebe nchekwaba asụsụ na omenala dị. Ka osila dị, oweghị anya ma ọ bụ na ndị nkụzi asụsụ Igbo amaghị ihe gbasara ọrụ ngwa nkanụụzụ AI na nchịkọba, nchekwaba na mgbasa ihe ọmụmụ gbasara asụsụ na omenala maka nkwalite amamihe, adịmnka, inwe mmasị, na nhazigharị ụkpụrụ ebimndụ. N'ihi nke a ka onye nchọcha ji chọọ ileba anya na mkpa ọ dị n'ịgbakwụnye ngwa nkanụụzụ AI na kọrikukum asụsụ Igbo maka nchekwaba omenala na nkwalite mmasị ụmụakwụkwọ mahadum n'ọmụmụ asụsụ na omenala Igbo.

Ajụjụ nchọcha

1. Kedu ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo?
2. Kedu etu ịgbakụnye ngwa nkanụzụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum?

Usoro Nchọcha

Ụdị nchọcha ọmụmụ a bụ usoro sọvee nkọwa. Nworgu (2016) hụtara usoro sọvee nkọwa dịka usoro na- akọwa isiokwu, agwa maọbụ ihe a na-ahụta gbasara ndị e ji eme nchọcha n'usoro n'usoro, n'agbakọnyeghị maọbụ iwepu ihe ọbụla n'ihe a na-ahụta anya oge ahụ a na-eme ya bụ nchọcha. Onye nchọcha hụtara ụdị nchọcha a, dị ka ihe dabara n'isiokwu nchọcha ya, ebe ọ bụ na nchọcha a nwere mmasị n'ịmata ụzọ ịgbakwụnye ngwa nkanụzụ mmeremmadụ AI ga- esi enyeaka na nchekwaba na mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo. Ndị e ji mee nchọcha bụ ndị nkụzi na- akụzi asụsụ Igbo n'ụlọakwụkwọ mahadum na mpaghara Ọwụwa Anyanwụ Naijiriịa. Ndị e jiri mee nchọcha kpọm kwem bụ ndị nkuzi asụsụ Igbo dị iri asatọ na anọ bụ nke onye nchọcha gbasoro usoro nhọrọ dị

ọtụtụ gụnyere usoro nhọrọ nha na usoro nhọrọ ebumnobi wee họpụta. Ngwa e jiri mee nchọcha a bụ njụmaza bụ nke ihe e depụtara na ya dị iri atọ na otu (31) n' ime nkeji abụọ. Onye nchọcha lelere ịnọgide n'ọnọdụ nke agbanweghị agbanwe site n'iji usoro ntụcha data a na-akpọ Cronbach's Alpha na Bekee, ma e nwetara akara 0.77. E jiri ntụcha miin na ndịpụ n'izugbe wee nweta ọsịsa nchọcha. Ihe e guzobere maka ịnweta ihe nchọcha bụ nke gbadoro ụkwụ n'usoro liketị ma ihe mpụtara ya bụ nke a KKI – kwere kwesie ike, KE – kwere ekwe, JA – jụrụ ajụ, JKK – jụrụ kpam kpam bụ nke e nyere akara 4,3,2,1. Ọsịsa ọbụla e nwetara pekarịrị 2.50 gosiri ekweghị ekwe, ebe ọsịsa nke ruru akara 2.50 maọbụ karịa gosiri ịguzosi ike kwem maọbụ kwere ekwe bụ nke gbadoro ụkwụ etu e si wee hazie ajụjụ nke ọbụla.

Nchọpụta

Ihe e nwetara site na nchọcha ka e zipụtara na tebul abụọ dịka o si gbasata ajụjụ nchọcha abụọ onye nchọcha guzobere.

Ajụjụ nchọcha 1: Kedu ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo?

Tebul 1: Mini echiche ndị nkuzi n'ịmata ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala.

S/N	Ndịna	Miin	Ndịpụ n'Izugbe	Mkpebi
	Ụzọ AI ga- esi akwalite ma chekwaba asụsụ na omenala Igbo			
1.	Igbe ọmụmụ asụsụ (*language learning App)*	2.90	.76	Kwere ekwe
2	Chatibọtị mkparịtaụka mmerenandụ n'asụsụ Igbo (*AI chatbots for conversational practice and feedback in Igbo language through real life scenarios for promoting language skills*).	2.63	.50	Kwere ekwe
3	Enyemaka mmụ asụsụ ikuku (*Virtual reality (VR)/ language assistant/ tutors*)	2.58	.49	Kwere ekwe

4	Ngwa mmemmadụ AI Mmataolu asụsụ/enyemaka olu(*AI- powered speech/voice recognition/assistant and synthesis for pronunciation)*	2.91	.71	Kwere ekwe
5	Ngwa mmemmadụ AI mgbanwe asụsụ (*AI - based transcription)*	2.86	.65	Kwere ekwe
6	Ngwa AI ntụgharị asụsụ (*AI - driven translation tools like Google translate)*	2.83	.60	Kwere ekwe
7	Ngwa AI maka mmepụta ngwa mmụ asụsụ (*AI for language learning resources)*	2.93	.78	Kwere ekwe
8	Ngwa AI maka nchikọba omenala Igbo((*AI - curated digital archives of Igbo cultural resources/artifacts)*.	3.00	.79	Kwere ekwe
9	Ngwa AI maka nchịkọba asụsụ: Ngwa nkanụzụ NLP alogrithms(*Natural language processing*)	2.85	.66	Kwere ekwe
10	Ngwa AI Mmepụta akwụkwọ ọkọwa okwu ngwa ngwa (*Authomated dictionary creation*).	2.57	.45	Kwere ekwe
11	Ngwa AI e ji emepụta ngwugwu ihe ọmụmụ n'asụsụ Igbo (*AI - generated Igbo language content*)	2.52	.64	Kwere ekwe
12	Ngwa nkanụzụ AI ntụcha (*AI- powered speech and cultural analysis and annotation tools)*	3.00	.82	Kwere ekwe
13	Ngwa AI maka ime nchọcha n'asụsụ (*AI in linguistic research)*	2.65	.65	Kwere ekwe
14	Ngwa AI mmepụta ihe nkiri:(*AI-generated videos, podcasts, and social media content)*	2.77	.66	Kwere ekwe
15	Ngwa nkanụzụ AI maka nkwalite ịdị nka (*AI and Igbo language creativity).*	2.83	.73	Kwere ekwe
16	Ngwa nkanụzụ AI mgbado ụkwụ asụsụ(*language modeling)*	2.64	.50	Kwere ekwe

17	Ngwa mmemmadụ AI graftị amamihe omenala(*AI- powered cultural knowledge gragh).*			
18	Ngwa mmemmadụ AI ọwa ntụziaka (*AI-recommendation system)*			

Mkpoko Miin - 2.70

Tebul nke mbụ a, gosipụtara echiche ndị nkụzi n' ịmata ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo. Ihe e depụtara maka ajụjụ nchọcha nke a dị iri na isii nke bidoro 1 – 18. Akara miin e nwetara n'ajụjụ nke ọbụla tinyere mkpoko miin bụ 2.70 karịrị kraiteriọn miin bụ 2.50, ma nke a gosiri na ihe ndị a niile e depụtara bụ ụzọ a ga-esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo.

Ajụjụ nchọcha 2: Kedu etu ịgbakụnye ngwa nkanụzụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum?

Tebul 2: Mini echiche ndị nkuzi n' etu ịgbakụnye ngwa nkanụzụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum.

Ọnụọgụ	**Ndịna**	**Miin**	**Ndịpụn'izugbe**	**Mkpebi**
	Etu ịgbakụnye ngwa nkanụzụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum.			
19	Igbakwụnye ngwa AI mmụ asụsụ ga-ezipụta ọtụtụ ngwu ngwu ihe ọmụmụ obi ụtọ (d*ifferent fun engaging packages)* n'asụsụ na omenala Igbo oge ọbụla ka	2.81	.60	Kwere ekwe

	onye ọmụmụ họrọ nke ka ya mma*(personalize learning)*.			
20	Ngwu ngwu ihe ọmụmụ a dị iche iche n'asụsụ na omenala Igbo ga- adị n'ọwa ikuku na- enye obi ụtọ maka ndị ọmụmụ na- enweta ya ebe ọ bụla ha nọ.	2. 67	.52	Kwere ekwe
21	Igbakwụnye ngwa AI a ga- enye onye ọmụmụ ọbụla ohere ịhọrọ ihe ọmụmụ gbadoro ụkwụ na mkpa ya (*needs)*.	2.57	.65	Kwere ekwe
22	Igbakwụnye ngwa nkanụzụ AI n'ihe ọmụmụ Asụsụ na omenala Igbo ga- enye onye ọmụmụ ọbụla ohere ịnwale mmụta ya (*feedback)*.	2.73	.62	Kwere ekwe
23	Ngwa mmemmadụ na- enye ndị ọmụmụ inwe ohere mme mmeghari ihe ọmụmụ *(practice)* tinyere nhụta ndịna asxsụ na omenala Igbo (*language and cultural insight)*.	2.71	.60	Kwere ekwe
24	ịgbakwụnye ngwa nkanụzụ AI na- akwalite mmụọ onye ọmụmụ n'inweta nka n' enyere ndị ọmụmụ aka ịdị nka n'ụdị ederede icheiche.	2.64	.72	Kwere ekwe
25	Igbakwụnye ngwa AI ga- akwalite mmụọ ndị ọmụmụ itinye asụsụ Igbo n'ọrụ oge ọbụla.	2.59	.61	Kwere ekwe
26	Ịgbakwụnye ngwa AI n'ikuzi ihe n'ọwa ikuku ga- akwalite mmasị ndị mmadụ nwere gbasara omenala Igbo na ọdịnala dị iche iche.	2.83	.76	Kwere ekwe
27	Ọ na- akwalite mmasị ndị mmadụ n'inwe mmekọrịta n'obodo dị iche iche n'ala Igbo.	2.75	.64	Kwere ekwe

28	ntụcha data: iji ngwa AI tụcha ihe achịkọbara na- enyeaka na- akwalite mmụọ ndị ọmụmụ ịmata usoro nhazi (*patterns*) na ụdị mmekọrịta *(relationship*) asụsụ na omenala Igbo.	2.68	.65	Kwere ekwe
29	Iji ngwa mmeremmadụ ọwa ikuku gosi mmere na ndụ (virtual reality) na- akwalite mmụọ ndị ọmụmụ site site n'izipụtara ha amamihe dịka o si dị na gburugburu omenala na ọdịnala Igbo.	2.59	.68	Kwere ekwe
30	Ngwa mmemmadụ ntụgharị na- akwalite mmụọ ndị ọmụmụ site n'ime ka mmụta na nghọta dịrị onye ọbụla mfe na mba ụwa.	3.01	.73	Kwere ekwe
31	Nchịkọba data: ichikọba data n'akwụkwọ ọgụgụ Igbo(text), ngwa ngere (audio na ngwa nlele onyonyo tinyere ihe ọkpụ omenala (*cultural artifacts*) na- akwalite mụọ ndị ọmụmụ.	2.56	.51	Kwere ekwe

Mkpoko Miin - 2.72

Tebul nke abụọ a, gosipụtara echiche ndị nkụzi n' etu ịgbakụnye ngwa nkanụzụ mmemmadụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum. Ihe e depụtara maka ajụjụ nchọcha nke a dị iri nke bidoro 19 – 31. Akara miin e nwetara n'ajụjụ nke ọbụla tinyere mkpoko miin bụ 2.72 karịrị kraiteriọn miin bụ 2.50, ma nke a gosiri na ihe ndị a niile e depụtara bụ ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo.

Mkparịtaụka

Ịgbakwunye ngwa nkanụzụ mmemmadụ (AI) na korikulum ọmụmụ asụsụ Igbo na omenala bụ otu ụzọ pụtara ihe a ga- eji kpọlite, kwalite ma chekwaba asụsụ Igbo na omenala na akara njirimara. Site n'ijikọta ọnụ ngwu ngwu ihe ọmụmụ dị iche iche aga eji ngwa AI akụzi n'asụsụ na omenala Igbo, ọ ga- enyere ndị ọmụmụ aka inwe ihe ọmụmụ gbadoro ụkwụ na mkpa ha oge ọbụla, inwe mkpakọrịta

gbasara amamihe dị n' asụsụ na omenala, ikwalite nghọta n'ihe gbasara omenala bụ nke na- akwalite mmasị ụmụakwụkwọ. Ịgbakwụnye ngwa AI abụghị naanị ikpolite, ịkwalite na nchekwaba asụsụ na omenala Igbo kama na ọ ga-akwalitekwa omenala na akara njirimara na Naijiria. Ihe a chọpụtara gosiri na ụzọ a ga- esi gbakwụnye ngwa nkanụzụ mmemmadụ (AI) na kọrịkulum Igbo maka nchekwaba asụsụ na omenala Igbo gụnyere: site n'ịgbakwụnye Igbe ọmụmụ asụsụ, Chatibọtị mkparịtaụka mmerenandụ n'asụsụ Igbo, enyemaka mmụ asụsụ ikuku, ngwa AI Mmataolu asụsụ, ngwa AI mgbanwe asụsụ, ngwa AI ntụgharị asụsụ, ngwa AI maka mmepụta ngwa mmụ asụsụ, ngwa AI maka nchikọba omenala Igbo, ngwa AI maka nchịkọba asụsụ, ngwa AI Mmepụta akwụkwọ ọkọwa okwu ngwa ngwa, ngwa AI e ji emepụta ngwugwu ihe ọmụmụ n'asụsụ Igbo, ngwa nkanụzụ AI ntụcha, ngwa AI maka ime nchọcha n'asụsụ, ngwa AI mmepụta ihe nkiri, ngwa AI mmepụta ihe nkiri, na ngwa nkanụzụ AI na- ezipụta olu ndị na- asụ asụsụ Igbo. Nchọcha a yitere nchọcha Haque (2019) na Harrison (2023) bụ ndị gbadoro ụkwụ na ime ka asụsụ dị ndụ gbadoro ụkwụ n'ime ka ndị obodo na- asụ ya, ma sonye n'iji ya enwe mmekọrịta na mkpakọrịta, tinyere na asụsụ ịdị ndụ gbadokwara ụkwụ n'ikuziri ndị ọhụrụ (new speakers) asụsụ ahụ, na iji ya enwe mmekọrịta kwa ụbọchị, ma ngwa nkanụzụ mmemmadụ AI dị iche iche na- arụ ọrụ pụrụ iche n'ebe mkpọlite na ịchịkọba ihe ọmụmụ dị iche iche gbasara asụsụ na- anwụ anwụ dị bụ nke e kwesiri ịmụ site n'ọwa ikuku nakwa itinye ya na korikulum maka ịkwalite na nchekwaba asụsụ na- omenala .

Nchọpụta nke ikpeazụ gosiri n' etu ịgbakụnye ngwa nkanụzụ mmemmadụ AI na korikulum asụsụ Igbo si akwalite mmasị ụmụakwụkwọ n'ọmụmụ asụsụ na omenala Igbo n'ụlọakwụkwọ mahadum. gụnyere site n' ịhụ na ngwa AI mmụ asụsụ ga- ezipụta ọtụtụ ngwu ngwu ihe ọmụmụ obi ụtọ n'asụsụ na omenala Igbo oge ọbụla ka onye ọmụmụ họrọ nke ka ya mma, inweta ihe ọmụmụ dị iche iche n'ọwa ikuku na- agbanyeghị ebe ọbụla ha nọ, inye onye ọmụmụ ọbụla ohere ịhọrọ ihe ọmụmụ gbadoro ụkwụ na mkpa ya na ndị ọzọ. Nchọpụta a dabara na nke Nasir, Ali na Kulsoom (2022) na Udoh (2022) bụ ndị gbadoro ụkwụ na ngwa nkanụzụ AI na- arụ ọrụ pụtara ihe n'ebe ịkwalite mmasị ndị ọmụmụ n'ebe asụsụ na- anwụ anwụ dị ma mee ka ọ dị ndụ, tinyere inyere ha aka n'ịdị nka ruo na nhazigharị ụkpụrụ ebimndụ obodo.

Mmechị

Ngwa nkanụzụ mmemmadụ (AI) bụ nke na- enwetazi mgbanwe dị egwu n'ebe mkpọlite na nchekwaba asụsụ epum n'anwụ anwụ dị mana arụkwazị ọrụ pụrụ iche n'ebe nchekwaba omenala na akara njirimara obodo dị. Site n'echiche na ụzọ ọgbara ọhụrụ dịka nchekwaba asụsụ, ngwa ngwungwu ọmụmụ, (learning app), mmaolu asụsụ, na nsonyere ndị obodo, ngwa nkanụzụ mmemmadụ AI na- enyere ndị obodo aka n'inweghachite (reclaim), n'ịkpọlite(revatilize) nakwa inwe ọñụ n'ebe akara njirimara na asụsụ ha dị (celebrate their linguistic heritage). Ịgbakwụnye ngwa nkanụzụ mmemmadụ AI a n'ebe ọmụmụ asụsụ Igbo dị bụ nke a ga- asa aka n'anya wee mee, were nsọpụrụ maka ezi nghọta na ezi nchekwaba ọdịbendị tinyere iwepụ akamgba chere ndị obodo ọbụla gbasara asụsụ na omenala ha n'ihu. Site na njikọta aka ọnụ(collaboration), nsonyere(inclusivity), na nkwanyere ọdịbendị ugwu (ethical consideration), ngwa nkanụzụ mmemmadụ AI a dị iche iche ga- enyeaka kwado nkuzi na ọmụmụ asụsụ na omenala Igbo site na nchikọba ihe ederede, irekọdị ekwurunọnụ, tinyere ihe nchikọba ihe nkiri onyonyo dịka ndịna asụsụ Igbo niile(Igbo language features), dịka izipụta asụsụ Igbo dịka asụsụ ụdaolu tinyere ihe mgbasaka dị n'ụtọasụsụ Igbo dịka usoro mmebe okwu n'asụsụ Igbo, iwu odide/nsụpe n'asụsụ Igbo, nke bụ ihe mgbakwadoụkwụ inweta ezi usoro mkvakọrịta, mmekọrịta na nghọta, tinyere akara njirimara, usoro na ụkpụrụ ebimndụ na mmemme ndị Igbo niile, chekwaba ya maka ndị na- etolite etolite.

Ịtụ alo

N'ihi ihe ndị a chọpụtara n'elu, onye nchọcha tụtara alo ndị a:

1. Ndị otu dị iche iche (stakeholders) na- ahụ maka nchekwaba asụsụ ga- agbambọ ịhụ na- a gbakwụnyere ngwa nkanụzụ mmemmadụ AI ga - eleba anya n' akara njirimara asụsụ epum ọbụla na - anwụ anwụ na Naịjirịa na ihe ndị na- eburu ya aka mgba maka mkpọlite na nchekwaba ha.
2. Ndị nkwado ọmụmụ asụsụ ga- agba mbọ mepụta ngwa mmemmadụ (AI) nwere ọwa ọmụmụ asụsụ Igbo nke a ga- agbakwụnye ihe gbasara ndịna omenala na mmeremme mkparịtaụka.
3. Ndị nhazi ọmụmụ ga- agba mbọ hụ na- ejiri ngwa mmemmadụ mepụta ngwa ọmụmụ asụsụ na omenala Igbo ma tinye ya na korikulum.

4. Ndị na- ahazi ihe ọmụmụ ga- agba mbọ hụ na e nwere njikọta aka na nrụkọta ọrụ ọnụ n'etiti ndị na- empụta ngwa mmeremmadụ AI, ndị nkuzi asụsụ Igbo, ndị obodo, ndị ọkaibe na otu na- akwalite asụsụ na omenala Igbo.
5. A ga- enwe nyocha na nwale mgbakwụnye ngwa mmemmadụ AI kwamgbe kwamgbe, iji mata etu ngwa AI a si akwalite ọmụmụ asụsụ na omenala Igbo.
6. A ga- arụpụta ụlọ ezumezu nchọcha ebe ngwa mmemmadụ AI ga na- eme nchọcha n'ihe gbasara asụsụ Igbo na omenala.

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