



**KAMINUZA Y'U RWANDA
KOLEJI Y'UBUREZI
ISHAMI RY'INYARWANDA N'UBUREZI**

**IJORA RY'AMUGA Y'IKORANABUHANGA MU KINYARWANDA.
URUGERO RW'IGITABO "INTORE MU IKORANABUHANGA".**

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**UBUSHAKASHATSI BUMURIKIWE GUHESHA NYIRABWO
IMPAMYABUMENYI Y'UBUZOBERE, IKICIRO CYA GATATU CYA
KAMINUZA, MU ISHAMI RY'IKINYARWANDA N'UBUREZI.**

Umuyobozi w'ubushakashatsi: Prof. NIYOMUGABO Cyprien

Kanama, 2023

UBUHAMYA

Ngewe, **Sibomana François Xavier**, ndahamya ko ibikubiye muri ubu bushakashatsi ari umwimerere. Nta rindi shuri rikuru cyangwa kaminuza bwakorewemo.

Itariki: 21/08/2023

Amazina: Sibomana François Xavier

Umukono:



IKEMEZO CY'UMUYOBOZI W'UBUSHAKASHATSI

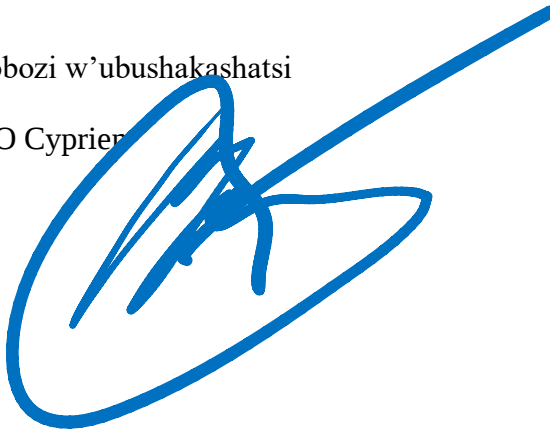
Ngewe, **Prof. Niyomugabo Cyprien**, ndemeza ko ubu bushakashatsi ari nge wabuyoboye nkanatanga uburenganzira bwo kubushyira ahagaragara.

Itariki: 21/08/2023

Amazina n'umukono by'umuyobozi w'ubushakashatsi

Amazina: Prof. NIYOMUGABO Cyprien

Umukono:



ITURA

Abakunzi b'Ikinyarwanda;

Abakunzi b'ikoranabuhanga;

Iki gitabo, ndakibatuye.

GUSHIIMIRA

Mbere na mbere turashimira Imana muri byose.

Tubikuye ku mutima, turashimira by'umwihariko **Prof Niyomugabo Cyprien**. Yatuyoboranye ubwitange anatugira inama z'ingirakamaro cyane. Uburyo yatwihanganiye byatwongereye imbaraga binadutera umwete wo kurushaho gukora ubushakashatsi bugamije guteza imbere Ikinyarwanda. Turamushimira kandi ibitabo, inyandiko zitandukanye n'ubundi bufasha yaduhaye. Ni we dukesha uyu murimo tubamurikiye.

Ndashimira **Dr Uwizeyimana Valentin** na **Dr Bahati Bernard** kuba batumbereye abarimu bakadukundisha iyigandimi nyamudasobwa. Inama zabo zaduteye kunyurwa tugera kuri iyi nyandiko y'ubushakashatsi.

Ndashimira kandi abarimu cyane cyane abo mu gashami k'Ikinyarwanda n'uburezi batahwemye kutwitangira batizigama ngo tubashe gutera intambwe muri ubu buzima. By'akarusho turashimira nyakwigendera **Prof Nkusi Laurent** watubereye umuyobozi w'ubushakashatsi guhera mu kicio cya kabiri cya kaminuza. Ubufasha yaduhaye n'inama ze tubihoza ku mutima. Nakomeze aruhukire mu mahoro ya Nyagasani Imana umugenga w'isi n'ijuru.

Turashimira n'abo mu muryango wacu bagiye batugaragariza urukundo, bakatugoboka mu bihe by'amahina, bakadutera inkunga kugira ngo uyu murimo ukomeye ugere ku ntego zawo wari ugamije.

Turashimira na bagenzi bacu twamaranye igihe dutyaza ubwenge. Batubaniye neza, batugaragariza ubufatanye muri byose babikorana ineza n'urukundo.

.

Sibomana François Xavier

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IMPINE

CD: Compact Disk

CHUK: Centre Hospitalière Universitaire de Kigali

DOT: Digital Opportunity Trust

Dr: Doctor

DVD: Digital Versatile Disk

EMAIL: Electronic Mail

INTERNET: Interconnected Networks

IRST: Institut de Recherche Scientifique et Technologique

ISO: International Organization for Standardization

ITU: International Telecommunication Union

KIE: Kigali Institute of Education

MINEPRISEC: Ministère de l'Enseignement Primaire et Secondaire

MINICT: Ministry of Information Communication Technology and Innovation

MODEM: Modulation Demodulation

N^o: Numéro

Prof: Professor

RALC: Rwandan Academy of Language and Culture

RBM: Result Based Management

RLRC: Rwanda Law Reform Commission

UR: University of Rwanda

WWW: World Wide Web

INSHAMAKE

Ururimi rurigwa kandi runozwa ari uko rukoreshejwe neza mu mvugo ndetse no mu nyandiko. Tuvuga ko ururimi ruteye imbere mu gihe ruba rushobora gusobanurwamo ubumenyi bw'ibihe byose rubifashijwemo n'amuga aboneye. Muri iki gihe, ikoranabuhanga ririfashishwa mu ngeri zose z'ubuzima. Nyuma yo kubona ko abaturarwanda bakeneye gukoresha ikoranabuhanga kandi ibyinshi biryerekeyeho bikaba biri mu Cyongereza, byaduteye gufata ikemezo cyo gukora ubushakashatsi bufite umutwe *“Ijora ry'amuga y'ikoranabuhangamu mu Kinyarwanda”*. Ubu bushakashatsi bufite intego nyamukuru yo kugaragaza no kujora amuga yakoreshejwe mu kwandika igitabo ‘Intore mu ikoranabuhanga’. Kugira ngo ibyo bigerweho hakoze inyigo hanasobanurwa inshoza z'ibanze, hagaragazwa amahame n'amahange byagendeweho muri ubu bushakashatsi. Ku byerekeranye n'iyoboramikorere, mu ikusanyamakuru twakoresheje uburyo bwo gusoma inyandiko no kubaza bifite intego. Ibyo byatumye tugera ku makuru yunganira ari yo yashingiweho imirimo y'isesengura nyamimerere. Ibyavuye mu bushakashatsi bigaragaza ko hari intambwe zatewe mu gukora amuga y'ikoranabuhanga mu Kinyarwanda. Nanone hagaragajwe imiterere y'amuga yagaragajwe, uburyo yahanzwemo, ibisobanuro byayo n'uko yisanisha ku kibonezamvugo k'Ikinyarwanda. Isesengura ry'imbonwa ryagaragaje ko ayo muga afite ibibazo biyashingiyemo yo ubwayo, imihangire yayo, hari ibifatiye ku bisobanuro byayo, inyito n'ibindi. Ubu bushakashatsi bwagaragaje uburyo bwo gukemura ibibazo bigaragara mu muga y'ikoranabuhanga n'ingamba zafatwa ngo amuga aboneye akoreshwa mu ikoranabuhanga yiyongere kugira ngo Ikinyarwanda kibashe gusobanurwamo iby'ubuhanga.

ABSTRACT

A language is learned and improved only when it is well used both in writing and speaking. Frankly, a language is said to be modern, in the technical sense of the terms, when it is capable of expressing the realities of the contemporary world. Today, technology is used in most of all aspects of life. After realigning that, Rwandans are in need of using technology and most of everything concerning it is in English, it has made us taking decision to do this research titled “**Critical analysis of technological terms in Kinyarwanda**”. This study has the main purpose of identifying and analyzing the technological terms used to write the textbook “Digital Smart Citizen”. In order to achieve this, the study has been carried out and the basic concepts have been explained and then the principles and theories based on in this study, have been considered. In terms of research methodology, this study focused on qualitative method. For data collection, both documentary and purposive sampling. After collecting data, there was data presentation, analysis and interpretation. The findings have come out with a set of the great points showing that there was a great achievement in terms of words creation. Again, data analysis revealed that there are some problems encountered concerning the terms as such, the methods used to create them, problems relate to phonology and semantics, etc. This research has come out with a set of perspectives and recommendations that can be based on for the purpose of modernizing Kinyarwanda by improving terms used in technology.

IBISOBANURO BY'AMAGAMBO Y'IFATIZO

Amuga: Amagambo yihariye akoreshwa mu ngeri runaka y'ubuhanga, ubumenyi cyangwa ikoranabuhanga.

Ihange: Urusange rw'amahame cyangwa intekerezo mboneshwabwenge bishingiye ku ngeri y'ubuhanga, ubumenyi cyangwa ikoranabuhanga hagamijwe gushyira mu ngiro ikigamijwe ku buryo bw'uruhererekane bufatiye ku mfatashusho.

Ihangiro: Igishushanyo kigizwe n'inshamake y'imfatashusho (variable) zubakiye ku nsanganyamatsiko y'ubushakashatsi n'isano iri hagati y'izo mfatashusho.

Ijora: Isesengura rishima ibyakozwe neza ndetse rikanenga ibitanoze mu buryo ubu n'ubu, ku ngingo iyi n'iyi.

Ikoranabuhanga: Uburyo bwo gukora wifashishije ubumenyi buhanitse bushingiye ku mpano karemano cyangwa nyigano.

Imfatashusho igengwa (Dependent variable): Imfatashusho igaragaza umusaruro waboneka habaye ikemuka ry'ikibazo.

Imfatashusho igenzura (Extraneous/intervening variable): Imfatashusho iba itarazirikanywe mu ntangiriro y'inyigo y'ubushakashatsi. Iyi mfatashusho idahawe agaciro mu buryo nyabwo yagira inkurikizi ku musaruro ukomoka ku bushakashatsi buba bwakozwe.

Imfatashusho yigenga (Independent variable): Imfatashusho ihagarariye ikibazo kigomba gukemuka n'uburyo cyakemuka.

Imfatashusho: Urusange rw'inshoza ziri mu buryo budafatika hanyuma zigahindurwa mu buryo bufatika kandi zigahinduka zishingiye ku bushakashatsi bukorwa. Iyo umuntu asesenguye neza asanga imfatashusho ari inshamake ishyirwa mu mu gishushanyo cy'urukiramende.

Inkoranabuhanga: Ikomatanyirizo ry'amabwiriza ngengamikorere (Instructions), amakuru (data) na porogaramu ngenamikorere bikoresheye ku buryo buboneye mu kurangiza igikorwa runaka. Inkoranabuhanga kandi ni ijamba ryihariye rikoresheye cyane kuri porogaramu ngenamikorere (Applications), inyandiko cyangwa ibimenyetso

by'ururimi (Scripts) na porogaramu zinyuranye bituma ibikoresho by'ikoranabuhanga bikora neza.

Intore mu ikoranabuhanga:

- a) Igitabo kifashishwa mu kwigisha no kwigisha ikoranabuhanga riciriritse.
- b) Gahunda yo kwigisha ikoranabuhanga riciriritse.
- c) Abigisha cyangwa ibigishwa muri gahunda y'ikoranabuhanga riciriritse.

UMUTWE WA MBERE: INTANGIRIRO RUSANGE

1.1 Intangiriro

Ikoranabuhanga dufite ubu ryatangiranye n’umwaduko w’abakoroni, kuko bazanye ibikoresho bishya ndetse n’inganda mu Rwanda. Mbere yaho, Abanyarwanda bifashishaga ibikoresho gakondo, ari byo byasimbuwe n’iby’ikoranabuhanga. Nk’uko izina ribigaragaza (ikoranabuhanga), rigizwe n’amagambo abiri “gukora n’ubuhanga”. Uko iterambere rigenda ryihuta, ni na ko ridasiga ikoranabuhanga, ku buryo hagenda havuka amuga agendanye na ryo.

Amuga ni amagambo yihariye y’ingeri cyangwa ubumenyi runaka (Niyomugabo, 2021). Iyo umuntu akeneye iryuga rishya mu rurimi, ashobora kuricura agendeye ku rurimi avuga cyangwa se akaritira mu rundi rurimi. Gucura amuga mu rurimi bisaba kuba uzobereye ururimi, ndetse ukaba unazobereye mu ngeri runaka ushaka gucurira amuga. Ibi byumvikanisha ko nta muntu wabyuka ngo ahite abona amuga akoresha, ahubwo bimusaba gufata umwanya ndetse no kwiga, kugira ngo acure amuga atagize ayo abererekera.

U Rwanda ni Igihugu kihuta mu iterambere ridasiga ikoranabuhanga. Ubu hariho uburyo bwinshi bwo kwihutisha serivisi hifashishijwe ikoranabuhanga, dore ko rigabanya igihe ndetse n’imbaraga z’umubiri umuturage yari bukoresha kugira ngo agere kuri serivisi runaka. Aha twatanga urugero nko mu burezi, mu buvuzi, mu buhinzi, mu bworozi n’ahandi. Ikoranabuhanga rimaze kugera hafi kuri buri muturage wese, kuko ryifashishwa mu ngeri zose z’ubuzima. Ni yo mpamvu amuga y’ikoranabuhanga riciriritse cyangwa ryo ku rwego rwo hejuru agomba kubaho, kugira ngo buri muturage wese abashe gusobanukirwa no gukoresha neza ibikoresho by’ikoranabuhanga, bityo ntasigare inyuma mu iterambere.

Minisiteri y’Ikoranabuhanga na Inovasiyo (MINICT) yasohoye igitabo kitwa “*Intore mu Ikoranabuhanga*” mu mwaka wa 2017 kigaragaramo amuga y’ikoranabuhanga yifashishwa n’abaturage bose mu buzima bwabo bwa buri muni. Aya muga agamiye gufasha Abanyarwanda batagize amahirwe yo kwigishwa amasomo y’ikoranabuhanga

bakiri ku ntebe y'ishuri bakamenya gukoresha cyangwa kwifasha neza ikoranabuhanga mu buzima bwabo nta mbogamizi bahuye na zo. Ku buryo bw'umwihariko, amuga abafasha gukoresha ikoranabuhanga mu rurimi rw'Ikinyarwanda. Ubu bushakashatsi rero bugamije kujora amuga y'ikoranabuhanga agaragara muri iki gitabo hibandwa ku mihangire no ku nyito yahawe; kugaragaza ibibazo bigaragaramo n'ingamba zafatwa kugira ngo amuga yiyongere mu kwiga no kwigisha ikorabuhanga.

1.2 Ihitamo ry'insanganyamatsiko

Ikoranabuhanga ryafunguriye ikiremwa muntu amarembo y'iterambere, ariko kuriyoberamo bikihuta, kubera ko isi y'ikoranabuhanga ari ngari. Bisaba umuntu kubanza kumenya ibiyikorermwamo kugira ngo ashobore gusabana na yo ku buryo bworoshye, kandi arusheho gusobanukirwa uko agomba kubyitwaramo nta bukererewe agize mu mitekerereze, imyifatire, imikorere n'ibindi. Igitekerezo cyo gukora ubushakashatsi ku *“Ijora ry'amuga y'ikoranabuhanga mu Kinyarwanda”* cyakomotse ku murimo w'ubuhinduzi bw'inyandiko y'ikoranabuhanga mu Kinyarwanda wakoze, maze hagenda habonekamo ibibazo bishingiye ku miterere y'amuga y'ikoranabuhanga yifashishijwe.

Ikindi kandi, ikwirakwira n'ikoresha ry'ikoranabuhanga mu nzego hafi ya zose mu Rwanda bisaba guhanga amuga aboneye, kugira ngo abadakoresha indimi z'amahanga babashe kuryitabira nta mbogamizi bahuye na zo mu mikoreshereze y'ibikoresho bitandukanye by'ikoranabuhanga, itumanaho n'isakazabumenyi, ndetse n'inkoranabuhanga zifashishwa muri serivisi iyi n'iyi.

Kuba hari gahunda yo guteza imbere imikoreshereze y'ikoranabuhanga n'ubumenyi burishingeho, mu ihanamakuru, mu ihangamurimo, mu myigire n'imyigishirize, haba mu gihugu imbere cyangwa hanze yacyo, na byo byatumye tugira ubushake bwo gukora ubu bushakashatsi.

1.3 Imiterere y'ikibazo

Ikinyarwanda ni ururimi kavukire rw'Abanyarwanda bakoresha bahana amakuru mu mvugo cyangwa mu nyandiko, ariko rimwe na rimwe rukenera amagambo yihariye

yifashishwa mu gusobanura ibintu bishya byinjira mu mucu bitari bisanzwemo. Mu gushakisha amagambo asobanura inshoza nshya mu Kinyarwanda bishobora guhura n'imbogamizi zinyuranye. Twavugaga nk'imikoreshereze y'indimi mu ikoranabuhanga irangwa n'ubusumbane buturuka ku buryo mu Kinyarwanda bigoranye guhindura cyangwa gucura amuga aboneye yita ku buryo budahusha porogaramu, serivisi n'ibikoresho bishya kandi nta bindi bihuye na byo bisanzwe mu mucu nyarwanda. Uku kubura uko byitwa ku buryo bwuzuye ni byo bitera ubukerererwe ndetse bikaba byanagorana kuba intyozza cyangwa inkwakuzi mu mikorere ishingiyeye ku ikoranabuhanga kuko umuntu aba adashoboye kwiyobora ku mpamvu z'ururimi (Kabagema 2021).

Amuga yahanze akifashishwa mu gitabo "Intore mu Ikoranabuhanga" nta fishi nyamugaga afite. Bivugaga ko nta mwirondoro cyangwa indangamugaga afite. Ibi bituma abayakoresha batamenya neza ifatiro ryayo, uburyo yahanze, inyito zayo, igihe yakoresheye cyangwa yakoresheye, urwego rw'ubuhanga yakoresheye.

1.4 Intego z'ubushakashatsi

Ubu bushakashatsi bwakozwe bufite intego rusange n'intego zihariye.

1.4.1. Intego rusange

Intego rusange z'ubu bushakashatsi ni ukujora amugaga y'ikoranabuhanga yahanze mu Kinyarwanda, imiterere, inyito n'uburyo yacuzwemo/ yahanze.

1.4.2. Intego zihariye

Ubu bushakashatsi bufite intego zihariye zikurikira:

- Gusesengura imihangire y'amugaga y'ikoranabuhanga mu Kinyarwanda agaragara mu gitabo "Intore mu ikoranabuhanga";
- Gusesengura ibibazo biboneka mu mugaga y'ikoranabuhanga mu Kinyarwanda agaragara mu gitabo "Intore mu ikoranabuhanga";
- Kugaragaza ingamba zikwiye gufatwa hagamijwe kongera amugaga y'ikoranabuhanga mu Kinyarwanda

1.5 Ibibazo by'ubushakashatsi

Ubu bushakashatsi bwakozwe kugira ngo bugere ku ntego zabwo, bwashubije ibibazo bikurikira:

- Amuga agaragara yifashishijwe mu kwandika igitabo “Intore mu ikoranabuhanga” yahanzwe ate?
- Ni ibihe bibazo bigaragara mu muga y'ikoranabuhanga mu Kinyarwanda yifashishijwe mu bwanditsi bw'igitabo “Intore mu ikoranabuhanga”;
- Ni izihe ngamba zafatwa kugira ngo amuga y'ikoranabuhanga mu Kinyarwanda yiyongere?

1.6 Inkeko z'ubu bushakashatsi

Uyu murimo w'ubushakashatsi ufite inkeko zikurikira:

- Haba hari amuga y'ikoranabuhanga mu Kinyarwanda yahanzwe ku buryo buboneye n'andi yahanzwe ku buryo butaboneye.
- Haba hari ibibazo biboneka mu muga y'ikoranabuhanga mu Kinyarwanda bishingiye ku buryo ayo muga yahanzwe.
- Umubare w'amuga y'ikoranabuhanga mu Kinyarwanda adahagije ushobora gutuma abatazi indimi z'amahanga badakoreshe neza ikoranabuhanga.

1.7 Akamaro k'ubu bushakashatsi

Umumaro w'ibanze w'ubu bushakashatsi ni ukugaragaza uko amuga y'ikoranabuhanga mu Kinyarwanda yifashishijwe mu gitabo “Intore mu Ikoranabuhanga” ateye, mu rwego rwo kuyongera kugira ngo Ikinyarwanda kigendane n'ibihe tugezemo by'ikoranabuhanga, bityo abarikoreshe bazarusheho koroherwa no kwiyohera mu bikorwa byo kongera ubumenyi hakoreshejwe ikoranabuhanga. Nkusi na Mukama (2019:56) babishimangira bagira bati: *“Ururimi kandi rwakozwemo ubushakashatsi ruraguka kuko rwunguka amagambo n'inshoza bishya rutari rusanganywe; umuco w'abaruvuga ukaboneraho kwivugurura no gukura, kuko nyine 'ubwenge burarahurwa'. Ibyo utari uzi bikwizanira ku mbehe kuko biri mu rurimi rwawe wumva, bikakungura ibitekerezo n'imikorere”*.

Uyu murimo w'ubushakashatsi kandi ugaragaza imirongo migari yifashishwa mu isesengurajora ry'amuga by'umwihariko ay'ikoranabuhanga mu Kinyarwanda, imihangire yayo, uko abonezwa hanyuma akamenyekanishwa ku buryo Ikinyarwanda kirushaho kugendana n'igihe k'iterambere tugezemo kigatuma tunahangana n'ibishaka konona umuco karande. Kuri ibi twakongera ko ari n'umusanzu ukomeye mu bikorwa by'ihangamuga mu Kinyarwanda kuko wakozwe hashingiwe ku mahame, amahange n'ibyerekezo by'iyigandimi.

Ubu bushakashatsi bufite akamaro kuko ari imbarutso y'itunganyandimi n'ishyirwaho rya poritiki y'indimi na yo iha umurongo poritiki y'amuga mu Rwanda. Kubera ko imikoreshereze y'Ikinyarwanda ituma buri mwenerurimi agira ubushobozi bwo gukoresha ihuzanzira rya terefoni cyangwa mudasobwa mu kubyaza umusaruro amakuru yashyizwe kuri murandasi. Ibyo bikamufasha kujyana n'umuvuduko w'impinduramikorere akaniyobora mu nzira z'ihangamurimo nta mbogamizi agize.

Ku ruhande rwacu, ubu bushakashatsi bwadufashije kurushaho gucengera no gusobanukirwa ku buryo bwimbitse ibyerekeye ihangamuga mu ngeri zinyuranye z'ubumenyi harimo n'ikoranabuhanga no gutanga umusanzu wacu mu bikorwa by'igenamuga mu Kinyarwanda.

Mu rwego rw'uburezi, ubu bushakashatsi buzafasha kugira ngo haboneke amuga aboneye asobanura iby'ikoranabuhanga rikoreshe mu burezi. Bushobora kandi kuzagira uruhare mu gutegura no kwandika imfashanyigisho zinyuranye zirimo ibitabo, inkoranyamuga ku ikoranabuhanga.

1.8 Imbibi z'ubushakashatsi

Uwavuga ibirebena n'ikoranabuhanga ntiyabigaragaza byose uko byakabaye. Ni yo mpamvu ubu bushakashatsi bwagarukiye gusa ku kugaragaza no kujora muga y'ikoranabuhanga yifashishijwe mu kwandika igitabo "Intore mu ikoranabuhanga".

1.9 Ibice by'ingenzi bigize ubushakashatsi

Uyu murimo w'ubushakashatsi wubakiye ku mitwe itanu.

Umutwe wa mbere wibanze ku nyigo rusange y'ubushakashatsi igizwe n'ibice bitandukanye birimo intangiriro rusange, ihitamo ry'insanganyamatsiko, imiterere y'ikibazo, inkeko z'ubushakashatsi, intego zabwo, akamaro kabwo, imbibi n'imiterere y'ibikubiye mu bushakashatsi.

Umutwe wa kabiri ugizwe n'ibyanditse bigruka ku nshoza z'ibanze zifashishijwe muri ubu bushakashatsi n'amateka yazo. Twavugamo nk'ihangamuga, ikoranabuhanga n'uburyo bw'ihangamuga.

Umutwe wa gagatu ugaragaramo iyoboramikorere ubushakashatsi bwagendeyeho. Harimo uburyo bw'ikusanyamakuru n'isesenguramakuru.

Umutwe wa kane ugizwe n'ibyavuye mu bushakashatsi, imiterere y'imbonwa, uko zagaragajwe n'isesengurajora ryerekeye amuga y'ikoranabuhanga.

Umutwe wa gatanu ugizwe n'umwanzuro rusange n'ibyifuzo.

1.10 Umwanzuro

Uyu mutwe wa mbere ugaragaramo amakuru yerekeye inyigo y'ubushakashatsi. Umushakashatsi yagaragaje impamvu yamuteye guhitamo insanganyamatsiko yo gukora ubushakashatsi ku ijora ry'amuga y'ikoranabuhanga mu Kinyarwanda. Twagaragaje uko ikibazo giteye, twiha n'intego ndetse tunagaragaza n'ibibazo ubu bushakashatsi bugomba gukemura. Twerekanye kandi akamaro ubu bushakashatsi buzagirira inzego zitandukanye, haba kuri nyirabwo, ku nzego z'ubushakashatsi ku ikoranabuhanga no ku burezi muri rusange.

UMUTWE WA KABIRI: ISOMANYANDIKO KU BUSHAKASHATSI BWAKOZWE MBERE

2.1. Intangiriro

Uyu mutwe wa kabiri ukubiyemo zimwe mu nshoza zifashishijwe muri uyu murimo w'ubushakashatsi hagamijwe kwagura intekerezo ku ngingo zitandukanye kandi zifitanye isano n'insanganyamatsiko. Turagaragaza ibisobanuro byimbitse by'inshoza z'ibanze zidufasha kujora amuga y'ikoranabuhanga mu Kinyarwanda yifashishijwe mu bwanditsi bw'igitabo "Intore mu ikoranabuhanga". Harimo kandi amahange yagendeweho mu gukora uyu murimo n'ihangiro ryawo.

2.2. Intore mu Ikoranabuhanga

Ni gahunda ifite intego yo kongerera Abaturarwanda ubumenyi mu ikoranabuhanga binyuze mu mahugurwa atangwa n'urubyiruko ruba rwarangije kaminuza. Iyi gahunda ya leta ifasha abaturage gushyira mu ngiro imishinga yabo inyuranye ibyara inyungu n'indi yerekeye imibereho myiza yabo.

Intore mu ikoranabuhanga ni gahunda yatangijwe na Minisiteri y'Ikoranabuhanga na Inovasiyo ku bufatanye bw'inzezo za Leta n'iz'abikorera nka DOT.¹

Gahunda y'intore mu ikoranabuhanga ifasha abahugurwa kumenya uburyo bwo gukoresha ikoranabuhanga n'ihuzanzira rya murandasi hagamijwe kwiteza imbere no kujyana n'igihe tugezemo. Uwitabira amahugurwa bimusaba ko aba azi gusoma no kwandika, afite terefoni igendanwa, afite ubushobozi bwo gukurikirana amahugurwa mu Kinyarwanda ndetse n'umwanya w'amasaha abiri ku munsu mu gihe kitari munsu y'ukwezi (Minict, 2017).

Iyi gahunda ifitiye akamaro Abaturarwanda kubera ko ubashije gukurikira ibyigwa byose akabirangiza, aba ashoboye kwitabira gukoresha serivisi za Leta n'izindi zikenera ikoranabuhanga nko gukora akazi k'ubushabitsi bushingiye ku ihangamurimo, gucuruza, kwamamaza, kubitsa, kubikuza, kwakira no kohereza amafaranga. Kuri ibi, hiyongeraho

¹ Digital Opportunity Trust

kunguka ubumenyi bwo kurinda umutekano w'amakuru n'amafaranga bye akoresheje ikoranabuhanga (Minict, 2017).

2.3. Isobanuranyandiko

Isobanuranyandiko ni ubuhanga bwo kwerekana ibice biyigize, ingingo ziyikubiyemo, icyo uwayanditse yashakaga kuvuga cyangwa ubutumwa yashakaga gutanga (Nkejabahizi, 2018). Abashakashatsi (Goldmann,1965; Zima, 2013) bagaragaje ko harebwa uruhare rw'igitabo mu buzima bw'abantu bagize umuryango wayakiriye, ibijyanye n'ubukungu ndetse n'ingangagaciro z'umuco. Ni ku bw'izo mpamvu iyi ngingo yibanda ku cyo igitabo "Intore mu Ikoranabuhanga" gihishurira abagize umuryango nyarwanda hasesengurwa uruhurirane rw'ubumenyi rufatiye ku muga yifashishijwe tugisangamo.

2.4. Amateka y'ikoranabuhanga

Kuva kera na kare, Abanyarwanda bagira ubuhanga bugaragarira mu bumenyi, ubumenyi ngiro n'ubukusha bafite. Mu mibereho yabo ya buri munsu barangwa no guharanira guteza imbere umuco wo kwigira muri byose. Duhereye kuri ibyo, tubona ko mbere y'umwaduko w'abakoloni mu mwaka wa 1892, mu Rwanda hariho ikoranabuhanga gakondo ryatumye umuco wacu udahinyuka mu ruhando rw'amahanga (Sibomana & Uwineza, 2021).

Ikoranabuhanga gakondo ryakomeje kwifashishwa n'Abanyarwanda mu migirire yabo by'ubwihariko impuguke, abahanga mu myuga itandukanye, ubukorikori n'ubugenzi byabo ku buryo no muri iki gihe hari aho dusanga ibisigisigi byaryo kuko ubumenyi burishingiyeho bwakomeje kuba uruhererekane. Nk'uko ibihe bihora bisimburana, ahayinga umwaka wa 1990, ikoranabuhanga mvamahanga ryinjiye mu buzima bw'Abanyarwanda, kuva ubwo imirimo imwe n'imwe itangira gukorwa banyifashishije. Mu mateka y'isi, umwaka wa 2000 wiswe umwaka w'isandara rya interineti ku isi (Year of internet booming). Leta y'u Rwanda na yo yahise ifata ingamba zo kwihutisha iterambere maze itangira gushyiraho ibigo binyuranye biherekejwe n'ibikorwa remezo, ikoresheya rya mudasobwa na interineti bihinduka iby'ubuzima bwa buri munsu. Ahasaga uyu mwaka wa 2000, hiyongereyeho na telefoni ikoresheya ikoranabuhanga rigezweho (smartphone) maze ubuzima butangira guhinduka uko bwije n'uko bukeye (Habumuremyi, 2021).

Nk'uko tubikesha raporo y'*Ibikorwa bya Guverinoma bijyanye n'ikoranabuhanga (ict) mu bukungu bushingiye ku bumenyi* (2019), hagati y'umwaka wa 2000 n'uwa 2019, ikoranabuhanga ryahinduye byinshi mu Gihugu hanakorwa byinshi hagamijwe iterambere n'imibereho myiza y'abaturage. Ni muri urwo rwego hashyizweho ibyumba mpahabwenge (Service Access Points) hira no hino mu Gihugu ndetse amasezerano yakomeje gushyirwaho umukono yo guteza imbere ikoranabuhanga hagati y'u Rwanda n'ibindi bihugu, ibigo binyuranye, imiryango mpuzamahanga, inzobere mu ikoranabuhanga n'abandi.

Mu mwaka wa 2008 hashyizweho uburyo bw'ikoranabuhanga bukomatanya serivisi cyangwa imiyoboro nk'iyerekeye kunoza imitangire y'akazi (E-recruitment), guhiga no kwesa imihigo (Result Based Management: RBM) no guhamba abakozi (Payroll). Nanone kandi hari zimwe muri serivisi ziboneka hifashishijwe ikoranabuhanga nka serivisi z'uburezi, ingendo, E-Soko, ubuhinzi, ubucuruzi iz'amasoko ya Leta, izo guhererekanya amafaranga, iz'igenamigambi, izo gukemura ibibazo by'abaturage, iz'amatora, irangamimerere, polisi, ubutaka n'izindi (Ngirente, 2019).

Ingero zikurikira zirerekana uko ikoranabuhanga ryagiye ryinjizwa muri serivisi zitandukanye n'umusaruro waryo²:

- Hagiyeho Babyl (ikoranabuhanga rya terefoni igendanwa ryifashishwa n'abantu bakeneye abaganga (doctors), muri 2019 ryifashishwaga n'abagera ku 126 366;
- Abakoresha murandasi bavuye kuri ijanisha rya 7% (2011) bagera kuri 51.6 % (2019);
- Abafatabuguzi ry'imirimu ya terefoni ngendanwa ,33% (2011) na 77.6 (2019);
- Serivisi zitangwa ku Irembo (98%);
- Serivisi zitangwa hifashishijwe ikoranabuhanga binyuze ku zindi mbuga zigera kuri 250,
- Serivisi z'ubucuruzi bwifashisha ikoranabuhanga: hari imbuga zirenga 30;
- Gukora inama hifashishijwe ikoranabuhanga (video conference system): guhera mu wa 2015 kugeza mu wa 2019: habaye inama zisaga 200;

² *Ibikorwa bya Guverinoma bijyanye n'ikoranabuhanga (ict) mu bukungu bushingiye ku bumenyi. 2/12/2019.*

- Kuvuura hifashishijwe ikoranabuhanga. Ibitaro bitandatu (6) byahawe iyi serivisi bifashijwe n’abaganga b’Ibitaro Bikuru bya Kaminuza by’i Kigali (CHUK).

Imirimo mishya yahanze na serivisi z’Irembo (Agents network) irenga 123 670 mu ikoranabuhanga haba mu nzego za Leta cyangwa iz’abikorera (Ngirente, 2019).

Nk’uko tubikesha urubuga rwa Minisiteri y’Ikoranabuhanga na Inovasiyo (2019), Abanyarwanda bakoresheye mudasobwa bafite ubumenyi bw’ibanze ni 8.9%. Muri uyu mwaka kandi hashyizweho gahunda y’Intore mu Ikoranabuhanga mu turere cumi na tubiri (12) hahugurwa abantu 27,000 (Minict, 2017).

Muri Nyakanga 2018, mu Rwanda hatangiye gahunda ya Andela (National Research and Innovation Fund). Uyu mushinga wakoreraga mu mijyi mirongo ine n’itanu (45) ukagira ibigo ijana na mirongo itanu (150) biri hirya no hino ku isi. Ku ikubitiro, abahanga mu ikoranabuhanga bagera kuri magana atanu (500) bahuguwe ku mihangire y’inkoranabuhanga (software development) mu gihe cy’amezi atandatu (6). Iyi gahunda yarakomeje kugeza magingo aya. Ibi bihamye n’uko amashuri ashinzwe kubyigisha yafunguwe mu mashuri y’icyiciro cya kabiri cy’amashuri yisumbuye ndetse no muri kaminuza, amashuri makuru anyuranye n’amashuri makuru y’ubumenyi ngiro dusangamo amashuri yigisha ku buryo bwimbitse iby’ikoranabuhanga n’inkoranabuhanga. Urugero rw’ishuri ryashinzwe mu wa 2019 ni “Rwanda Coding Academy”. Nk’uko tubisanga ku rubuga rwa Minisiteri y’Ikoranabuhanga na Inovasiyo, iri shuri ryatangiye rifite intego nkuru zo guhanga inkoranabuhanga (software development), kwinjiza inkoranabuhanga mu bikoresho by’ikoranabuhanga (Programming) ndetse no guteza imbere umutekano mu by’ikoranabuhanga (Cyber Security) Minict (2022).³

Hamaze kugaragara igisa n’akajagari muri serivisi zitangwa hifashishijwe ikoranabuhanga, leta yashyizeho abayobozi bakuru bashinzwe Ikoranabuhanga (CDOS: Chief Digital Officers) bashinzwe guhuza ibikorwa bya serivisi z’ikoranabuhanga. Nyuma y’iyi gahunda

³ <https://www.minict.gov.rw/news-detail/african-development-bank-signs-grant-agreement-to-support-the-rwanda-coding-academy>

kandi hashyizwe imbaraga mu mushinga wa Connect Rwanda Campaign kugira ngo imiryango igera hafi kuri miriyoni ebyiri n'ibihumbi magana atandatu (2 600 000) ibone terefoni zigezweho (smartphones) kugira ngo guhunda za leta zige zibageraho nta mbogamizi kandi babashe gusaba serivisi bakeneye bifashishije ikoranabuhanga dore ko inyinshi muri zo zashyizwe ku rubuga “ Irembo” no ku mbuga za Minisiteri zinyuranye n'ibigo bizishamikiyeho.

Mu mwaka wa 2018 hari hamaze gutangwa terefoni zigezweho zirenga ibihumbi magana ane (400 000) naho mu mwaka wa 2020, mu Rwanda habarurwaga imiryango miriyoni ebyiri n'ibihumbi magana inani na mirongo inani (2 880 000) mu gihe 78.8% by'Abanyarwanda bayibarizwagamo bari bafite terefoni zigezweho (smartphones).

Mu mwaka wa 2021, ikoresha rya interineti ryaritabiriwe cyane ku buryo abantu barenga miriyari enye na miriyoni magana arindwi (4 700 000 000) bajya kuri interineti buri muni kandi bakanagumaho. Ni ukuvuga abasaga 59% by'abatuye isi. Muri bo abagera kuri 75% bakoresha terefoni zigezweho. Mu Rwanda ho, ibigo bibarura abakoresha interineti byatangaje ko abarenga miriyoni 3.4 bakoresha iryo huzanzira buri muni naho abarenga miriyoni eshanu (5 000 000) bakarikoresha ku buryo buringaniye (Ntirenganya 2021).⁴

U Rwanda rwakomeje kwagura amarembo rugirana amasezerano n'abafatanyabikorwa batandukanye maze haza gushingwa ikigo *Kigali Innovation City (KIC)* gishinzwe guteza imbere ubumenyi bushingiye ku bukungu. Icyo kigo kirimo kampani z'ikoranabuhanga (technology companies), ibigo binini by'ikoranabuhanga (biotech firms) n'iby'ubucuruzi (Minict,2018)⁵. Burya ngo akanyoni katagurutse ntikamenya iyo bweze; kugeza ubu u Rwanda ni umunyamuryango w'urwego rw'Umuryango w'Abibumbye w'Itumanaho “International Telecommunication Union” (ITU) ufite ibihugu by'ibinyamuryango 48 ku isi yose harimo n'ibihugu 13 by'Afurika habariwemo n'Igihugu cyacu (Minict,2018)⁶.

⁴ <https://www.youtube.com/watch?app=desktop&v=obvQQBdvqJU&pp=vgUOI2I3YWN1YnVzaW5lc3M%3D>

⁵ <https://www.minict.gov.rw/news-detail/the-five-milestones-that-shaped-rwandas-ict-sector-in-2018>

⁶ <https://www.minict.gov.rw/news-detail/the-five-milestones-that-shaped-rwandas-ict-sector-in-2018>

Byongeye kandi ku wa 2 Kamena 2021 u Rwanda rwasinyanye amasezerano na Mastercard Foundation kugira ngo habeho impinduramatwara zishingiye ku ikoranabuhanga mu nzego zimwe na zimwe. Si ibyo gusa kuko ku bufatanye n’Umuryango w’Ubumwe bw’Uburayi, muri 2020 hatangijwe umushinga HANGA Hubs mu turere tune ari two: Rubavu, Rusizi, Muhanga na Nyagatare. Uyu mushinga ugamije gufasha ba rwiyezamirimo bakiri bato kwihangira imirimo bafatiye ku ikoranabuhanga (Minict, 2018)⁷. Aho u Rwanda rubereye umunyamuryango wa 54 w’Umuryango uhuza ibihugu bikoresha ururimi rw’Icyongereza “**Commonwealth**” mu Gushyingo 2009, ku wa 20/07/2020 rwaje kugirana ubufatanye na “*Get Safe Online*” hagamijwe guteza imbere umutekano mu by’ikoranabuhanga. Ibi byabaye imbarutso yo gufungura bwa mbere urubuga mu Kinyarwanda ku wa 8/12/2020 (Minict, 2018)⁸.

Kugeza ubu, u Rwanda ni igicumbi cy’impinduramatwara ya kane y’iterambere ry’inganda kubera ko rwageze ku rwego rwo guteza imbere ibikorwa bishingiye ku ikoranabuhanga, ubwenge mpangano (Artificial intelligence), imyigire ya mudasobwa n’ibindi bikoresho by’ikoranabuhanga, itumananaho n’isakazamakuru, ihererekanya ry’amafaranga na gahunda y’ikoranabuhanga rishingiye kuri interineti kuri buri kintu (Internet for things) (Minict, 2020).⁹

Imikoreshereze y’indimi ku buryo bunoze na yo yakomeje kwitabwaho ku buryo bwihariye, Ikinyarwanda na cyo nticyasigaye inyuma. Habumuremyi (2021: 167) agaragaza ko umwaka wa 2004 wabaye intangiriro y’ibinyuzwa kuri interineti mu Kinyarwanda. Ibyo byagezweho kubera ubushake bwa Leta ibinyujije mu mishinga y’ibigo bya Kaminuza y’u Rwanda n’abafatanyabikorwa bazobereye mu by’ikoranabuhanga. Kuva

⁷ <https://www.minict.gov.rw/news-detail/the-five-milestones-that-shaped-rwandas-ict-sector-in-2018>

⁸ <https://www.minict.gov.rw/news-detail/get-safe-online-campaign-an-addition-to-raise-awareness-on-the-importance-of-online-safety-in-rwanda>

⁹ <https://www.minict.gov.rw/news-detail/inside-rwandas-centre-for-fourth-industrial-revolution>

icyo gihe kugeza magingo aya hakomeje kuboneka imbuga ngenamikorere na mbyazwamusaruro ziri mu Kinyarwanda nka “Linux”, “Microsoft”, “Facebook”, “google translator” n’izindi nyinshi. Ibi byerekanye ko ikoranabuhanga ryakwifashishwa kandi rigakora mu Kinyarwanda maze imbuga z’ibigo bimwe na bimwe bya leta, iz’inzego zayo, iz’abikorera n’iz’abantu ku giti cyabo (blog) zigahindurwa mu Kinyarwanda. Aho bidashoboka, ahabanza (Homepage) hakagaragazwa uburyo umuntu yahitamo ururimi ashaka gukoresha (Habumuremyi, 2021).

2.5. Amateka y’ihangamuga mu Rwanda

Umuryango uwo ari wo wose ugira ubuhanga wihariye mu kwita amazina abantu, ibintu n’ahantu. Guhanga amagambo yihariye y’ingeri iyi n’iyi y’ubumenyi si ibya none kuko no mu Rwanda rwo hambere (mbere y’umwaduko w’abazungu) hahozeho ibikorwa byo gukungahaza ururimi no kurunozwa mu mivugire yarwo. Bizimana (2002) agaragaza uburyo Abanyarwanda bari bakomeye ku mucu n’ururimi byabo byafatwaga nk’ishingiro ry’ubumwe bw’abaturarwanda. Ku byerekeye ururimi, abategetsi barutezaga imbere babinyujije mu marushanwa y’ubuhanzi ku ngeri zimwe na zimwe z’ubuvanganzo nyabami, kurunozwa no kurunononsora binyuze mu mirimo, mu matorero no mu bitaramo byafataga iya mbere ndetse hagakubitiraho no kwihatira kurwungura amagambo cyane cyane igihe hari ibyinjiye mu mucu ubaranga. Abari bahuje umwuga bishyiraga hamwe bagahanga amuga bazajya bifashisha kandi uwo murimo ukagera ku ntego zawo kuko bigaragazwa n’urutonde rw’amuga yakoreshwaga icyo gihe, nubwo amenshi akomeje kugenda ahinduka Urunyacyilima. Rero aho abakoronzi bagereye mu Rwanda ahayinga umwaka wa 1892, Ikinyarwanda ntikitaweho mu nzego z’ubutegetsi (Bizimana, 2002). Bigaragazwa n’uko Abadage bategetse u Rwanda (1898-1916) batigeze bashishikazwa n’Ikinyarwanda ahubwo bitaye ku Giswayire kugira ngo babashe guhuza abaturage bo mu bihugu bakoronizaga. Aba rero nta ngamba bigeze bafata zo kukigisha, kukirengera no kugiteza imbere kuko batashakaga kukimenya no kugikoresha mu buzima bwabo. Nanone kandi, aho Ababiligi basimburiye Abadage mu mwaka wa 1916, na bo nta bikorwa by’ikungahazarurimi bashyize imbere. Baciye Ikinyarwanda mu nyandiko z’ubutegetsi keretse izireba rubanda rwa giseseke, ni zo babangikanyagamo indimi ebyiri ari zo

Igifaransa n'Ikinyarwanda. Ku rundi ruhande, abamisiyoneri bihatiye kwiga no kwigisha ururimi rw'Igihugu, kugira ngo babashe gukora imirimo y'iyogezabutumwa. Bamwe muri bo batangiye no gukora ubushakashatsi bunyuranye maze batangira kwandika inkoranyamagambo n'inkoranyamuga. Imirimo yo kwita ku rurimi yahariwe amadini kugeza mu gihe cya nyuma y'ubukoronzi aho mu mwaka wa 1974 ku nshuro ya mbere, Leta yatangaje amabwiriza y'imyandikire y'Ikinyarwanda. Ubu bushake bwakurikiwe no gusaba ko cyakwitonderwa mu mikoresherezwe yacyo ndetse byaba na ngombwa ko hatirwa amagambo yo mu ndimi z'amahanga hakabanza kurebwa ayo mu ndimi z'ibihugu bidukikije (Bizimana, 1998). Si aho gusa byagarukiye ahubwo imbaraga nyinshi zashyizwe mu guhanga amuga y'ubumenyi bushya bwari bumaze kwinjira mu muco nyarwanda bwiyongera ku bwari busanzwe cyangwa se bwuzuzwa ubwari busanzwe. Mu ivugura ry'amashuri ryabaye mu wa 1979, leta yasabye ko habaho Inama y'Igihugu icura amagambo kugira ngo Ikinyarwanda kigishwemo ubumenyi bw'ingeri zose zariho icyo gihe guhera mu mashuri abanza kugeza muri kaminuza n'amashuri makuru uretse amateka n'iyobokamana (Mineprisec, 1985).

Nkusi (1985: 111-112) agaruka ku ngeri z'ubumeyi zibanzweho ari zo: Ubuhinzi n'ubworozi (Agriculture et élevage), imirimo yo mu rugo (arts ménagers), itumanaho n'isakazamakuru (information), ibinyabuzima (biologie), imibare (calcul), ububaji n'ubwubatsi (menuiserie et construction), ibidukikije/ubumenyi bw'isi (étude du milieu), uburere mboneragihugu (éducation civique), ikibonezamvugo n'iyigandimi (grammaire du Kinyarwanda, linguistique générale), ubutegetsi n'imiyoborere (vie politique), ubukorikori n'ubugeni (arts), siporo n'imikino ngororangingo (sports), umuco (culture). Kabagema (2021: 56) avuga ko mu ngeri z'ubumenyi zinyuranye hahanzwe amuga 15766 mu gihe cyose umushinga w'Urutonde wamaze (1979-1988).

Imirimo yo guhanga amuga ntiyacumbikiwe aho, ahubwo ubushakashatsi bwarakomeje ndetse inzego zimwe na zimwe za Leta zikomeza icyo mirimo, iz'abikorera n'abantu ku giti cyabo. Nkusi (2018) akomeza agaragaza ko mu bushakashatsi bwakoze bukamurikwa mu nama nyunguranabitekerezako ku muga, iyahozwe ari Inteko Nyarwanda y'Ururimi n'Umuco (2014) yakoze uko ishoboye yegeranya amuga agera ku bihumbi makumyabiri na

bitandatu (26 000) ariko isanga hari ingeri z’ubumenyi zasigaye inyuma zikeneye kwitabwaho zirimo n’ikoranabuhanga. Nta gushidikanya rwose ko amuga yakomeje kwiyongera. Uretse imirimo y’ihangamuga yagaragajwe na Nkusi ku buryo burambuye mu 1985, hari n’indi yamuritswe mu rwego rw’inyandiko za gîhaânga (articles), mu mfashanyigisho zinyuranye, mu bitabo bisoza icyiciro runaka cya kaminuza, mu nyandiko z’ubushakashatsi, inkoranyamuga n’inkoranyamagambo. Twavugaga nk’Inkoranya y’Amuga y’ubucamanza (IRST, 2011), Inkoramagambo y’ubutegetsu (Gasimba, 2005), Inkoranya y’Ibinyabuzima (RALC, 2020), Inkoranya y’Amuga y’Amategeko (RLRC, 2021) n’izindi.

2.6. Ijoranyandiko n’ijoramuga

Ijoranyandiko ni uburyo bwo gusesengura inyandiko ureba uburyo umwanditsi yagerageje guhuza imvugo cyangwa se imyandikire n’ikivugwa (Nkejabahizi, 2018) naho ijoramuga ni uburyo bwo gusesengura amuga hashimwa ndetse hanengwa uburyo yahanzwemo, imiterere yayo, inyito yayo n’andi mahame ashingirwaho mu ihangamuga.

2.7. Ikoranabuhanga

Inkoranya ya IRST (2005), isobanura “Ikoranabuhanga” nk’uburyo bwo gukora wifashishije ubumenyi buhanitse. Ikoranabuhanga kandi ni imikorere myiza n’imikoreshereze iboneye y’ibikoresho bigezweho byifashishwa mu kunoza umurimo uyu n’uyu cyangwa mu buhanzi bw’ibintu bishya biganisha ku iterambere riramba (Bizimana na Kayumba, 2011).

2.8. Inkoranabuhanga

Inkoranabuhanga ni ikomatanyirizo ry’amabwiriza ngengamikorere (Instructions), amakuru (data) na porogaramu ngenamikorere bikoreshewa ku buryo buboneye mu kurangiza igikorwa runaka. Inkoranabuhanga kandi ni ijamba ryihariye rikoreshewa cyane kuri porogaramu ngenamikorere (Applications), inyandiko cyangwa ibimenyetso by’ururimi (Scripts) na porogaramu zinyuranye bituma ibikoresho by’ikoranabuhanga bikora neza (Linda Rosencrance, 2023).

Inkoranabuhanga zirimo ibyiciro bibiri by'ibanze ari byo inkoranabuhanga ngenamikorere (Applications software) n'inkoranabuhanga ngenaburyo (System software). Ahayinga umwaka wa 1980, inkoranabuhanga zakorerwaga gusa ubwoko bwihariye ubu n'ubu bwa mudasobwa cyangwa ibindi bikoresho byihariye by'inkoranabuhanga byari biriho icyo gihe kugira ngo bibashe gukora. Nyuma gato y'icyo gihe, uko iterambere ryarushagaho kwiyongera mu rwego rw'inkoranabuhanga ni na ko inkoranabuhanga zagiye zigurishwa hifashishijwe (floppy disk), ibi na byo byakurikiwe no kuzigurishiriza kuri sede (CD) na devede (DVD). Muri iki gihe tugezemo inkoranabuhanga zigurwa binyuze mu nzira nyinshi harimo no kuzipakurura (download) kuri murandasi.

2.8.1. Ingero z'inkoranabuhanga

- Inkoranabuhanga ya mikorosofuti ofisi ifasha benshi mu gutunganya inyandiko zo mu bwoko butandukanye;
- Inkoranabuhanga zikoreshwa mu byerekeye serivisi z'amafoto nka "Instagram" na "snapchart";
- Inkoranabuhanga zifashishwa mu n'amashusho nka "YouTube", "Vimeo", "Vine Mobli", "Keek" n'izindi;
- Inkoranabuhanga zifashishwa muri serivisi z'ihanamakuru nka "WhatsApp", "Viber", "Kik", "BB Messenger", "Skype", "Google Hangouts", "Good meet", "Moodle", "Webex" n'izindi.

2.8.2. Imikorere iboneye y'inkoranabuhanga

Inkoranabuhanga zose zitanga amakuru azerekeyeho kandi zikagaragaza n'inzira (directions) bikenewe kugira ngo abazifashisha bagere ku ntego ziba zigamijwe. Ni ku bw'izo mpamvu tubona ko imikorere iboneye yigaragaza binyuze mu bisabwa byuzuye kugira ngo inkoranabuhanga ibashe gukora. Bimwe muri ibyo biyifasha kunonosora igikorwa dusangamo amakuru arambuye ya tekini (technical details), ikusanyamakuru n'itunganyamakuru (data manipulation and processing), kubara cyangwa ikindi gikorwa

icyo ari cyo cyose kigaragaza icyo uwifashisha inkoranabuhanga cyangwa umukoresharubuga agamije kugeraho mu mikorere ye (Rosencrance, 2021)¹⁰.

Abahanga inkoranabuhanga bagomba guhoza ku mutima ko inkoranabuhanga igomba kuba nta makosa ayo ari yo yose yateza ahubwo ikaba ishobora gukosora ku buryo buboneye ibyo itegerejweho mu mikorere (corrective). Igomba guhora ivugururwa ikajyanishwa n'igihe kugira ngo abayikoreshe boroherwe no kuyifashisha nta ngorane kandi ikaba ikorana n'ibikoresho by'inkoranabuhanga bigezweho (adaptive). Igomba kandi kuba ikora neza ku rwego rwo hejuru hagamijwe kunoza umurongo w'uyikoresha mu nyungu z'imikorere myiza (Perfective) no kuba ishoboye kurinda no kubika amakuru ku buryo atononekara cyangwa ngo isobwe mu mirimo yifashishwamo kabone n'ubwo yahura n'ibitero mu by'inkoranabuhanga (preventive) (Rosencrance, 2021)¹¹.

2.8.3. Uturango tw'inkoranabuhanga iboneye

Umushakashatsi (Rosencrance, 2023) abinyujije ku rubuga rwagaragajwe haruguru, yasobanuye tumwe mu turango tw'inkoranabuhanga iboneye ni utu dukurikira:

- Kuba ishobora kwifashishwa na buri muntu yaba afite ubumuga cyangwa atabufite, umuntu ku giti cye cyangwa itsinda ry'abantu (accessibility);
- Kuba ishobora gukoreshwa ahantu hatandukanye, mu bikoresho by'inkoranabuhanga binyuranye ndetse n'imbuga nyifashisho (compatibility);
- Kuba ishobora gukora neza nta gutakaza imbaraga nyinshi z'ubwenge, umutungo, igihe cyangwa amafanga (Efficiency);
- Kuba ifite ubushobozi bwo gukora neza ikarangiza neza imirimo yahawe (functionality);

¹⁰ <https://www.techtarget.com/searchapparchitecture/definition/software>

¹¹ <https://www.techtarget.com/searchapparchitecture/definition/software>

- Kuba ifite ubushobozi bwo gushyirwa mu bikoresho by'ikoranabuhanga bitandukanye(installibility);
- Kuba ishobora guhindurwa mu ndimi nyinshi zishoboka cyangwa igakoreshwamo ibindi bimenyetso nyandimi hakurikijwe uduce cyangwa imiryango indimi zibarizwamo (Localization);
- Kuba ishobora kuvugururwa ku buryo bworoshye hagamijwe kuyongerera ubushobozi mu mikorere yayo (Maintainability);
- Kuba ifite ubushobozi bwo kwihuta muri kamere yayo nta kuzariza (performance);
- Kuba yifitemo ubushobozi n'imiterere bituma yimurirwa ahantu hatandukanye mu bikoresho by'ikoranabuhanga kandi ntiteze imbogamizi mu mikorere (Portability);
- Kuba yizewe neza ko imikorerere yayo nta ntege irimo (Reliability);
- Kuba yifitemo igipimo kigaragaza ubushobozi bwo kwihuta mu cyangwa kugabanya (Scalability);
- Kuba yifitemo ubushobozi bwo kurinda imikoreshereze itemewe igihe umuntu azimiriye mu nzira zimuganisha ku ntego y'icyo ashaka kugeraho, kwinjirirwa mu mabanga, ubujura bw'amakuru no kuyatakaza cyangwe se ikarinda ibyonnyi (security);
- Kuba yoroheye buri wese igihe iri kugeragezwa mbere yo kuyishyira ahabona ndetse no mu rwego rw'ubushakashatsi ikaba yakwifashishwa (Testability);
- Kuba yifitemo inzira zorohera buri wese uyikoresha (Usability).

2.9. Ihangamuga mu ikoranabuhanga

Uko iterambere rirushaho kwihuta, ni na ko ubumenyi bukomeza gutera imbere ku muvuduko wo ku rwego rwo hejuru. Imwe mu nzira yifashishwa ni imikoreshereze y'ikoranabuhanga mu buzima hafi ya bwose bw'ikiremwa muntu. Uru rwego rw'ubumenyi

rwadukanye ibintu bishya bisaba gushakirwa amuga n'amagambo abivuga ku buryo nyabwo cyangwa bwuzuye, budahusha inshoza cyangwa ikintu kinjiye mu muco w'abakiriye ubwo bumenyi bushya. (Nikuze, 2021; Niyomugabo, 2021).

L'homme (1998:67) agaragaza ko imirimo y'ihangamuga mu ikoranabuhanga yatangiye ahayinga umwaka wa 1960. Kuva icyo gihe kugeza magingo aya ihangamuga rishingira ku bushake bw'abantu ku giti cyabo, amatsinda n'imiryango (Création spontanée ou volonté personnelle). Hari kandi n'ihangamuga rigengwa na Leta ishingiyeye kuri poritiki y'indimi ari yo iha ireme poritiki y'amuga (Création délibérée).

Abashakashatsi banyuranye mu iyigandimi bashyizeho akabo basesengura ihangamuga nk'igice cy'ururimi kibanda ku gucura amagambo yerekeye ingeri y'ubumenyi ubu n'ubu. Umurimo wo guhanga amuga ni uw'impuguke mu ngeri zinyuranye z'ubumenyi cyangwa se imyuga itandukanye (Nikuze, 2021; Niyomugabo, 2021; Ntakirutimana, 2021). Abenshi mu bacengerandimi basobanura ihangamuga nk'ingeri y'ubuhanga ikungahaza ururimi aho ruva rukagera kubera ko ribonera ururimi amuga ari na yo shingiro mu kwita ku buryo bwuzuye kandi budahusha iby'ubumenyi mvamahanga biba byinjiye mu muco w'abakiriye ubwo bumenyi bushya. Mu ihangamuga, iryuga rirasobanurwa ndetse rikaba intero mu rutonde rw'amuga cyangwa inkoranyamuga. Guhanga amuga bishingira ku rwego abarizwamo (Sager, 1990:39) kandi akaba ashingira ku mumaro wayo mu ngeri y'ubumenyi ubu n'ubu no ku nshoza. Amuga ni ikirango (étiquette) gihabwa inyito hitawe ku byifuzo by'abayakoresha (Depecker, 2002). Iryuga ricuze neza akenshi rigira inyito imwe (Béjoint, 1989) kugira ngo hirindwe urujijo (ambiguïté) igihe rikoreshwa n'abanyamwuga. Mu ikoranabuhanga, iryuga ryemerwa bahereye ku bwereranywe (convention) bw'ibyo abahanga muri iyi ngeri, inzobere n'abagana uru rwego rw'ikoranabuhanga bemeye kandi bumvikanyeho (Thoiron, 2009). Akenshi inshoza ni yo irema ishusho nyurabwenge y'igitekerezo ngirafato cyangwa mburafato mu bikorwa byo gucura amuga cyangwa imvugo nshya mu ikoranabuhanga.

2.10. Amuga

Hari abahanga mu iyigandimi nka Saussure (1916), Dubois (2007), Urujeni (2007) bagiye basobanura iryuga nk'ikinyabumwe nyarurimi kigizwe n'ijambo rimwe cyangwa urujyano rw'amagambo kiranga intekerezo zihariye zo mu gitsibo iki n'iki. Abashakashatsi banyuranye nka IRST (2005), DIKI- KIDIRI (1981), Rondeau (1984), Uwamariya (2009) n'abandi na bo bagiye basobanura iyi nshoza bagaragaza ko amuga ari amagambo yihariye y'ubumenyi ubu n'ubu, ubuhanga n'ubugeni yifashishwa n'abenerurimi mu kwita ibikorwa by'ingeri runaka n'ibijyanye na yo byose. Imiterere y'amuga akenshi igaragaza ko amuga ashobora kuba ijambo rimwe, urujyano rw'amagambo cyangwa se impine.

Uhanga amuga ntagendera ku marangamutima kandi akenshi haba hari amuga yo kwitondera cyane. Nk'igihe umuntu ahanga iryuga yibanda ku gisobanuro cya nyacyo (fond) kubera ko iyigankomoko yaryo (Etymologie) ishobora kubeshya. Urugero: Facebook: igitabo cy'amasura. Kuri ibi twakongeraho ko amuga akenshi agira igisobanuro kiziguye (portée philosophique). Mu mirimo y'ihangamuga hari ubwo ijambo risanzwe rishobora guhabwa inyito nshya kandi yihariye maze rigakoreshwa nk'iryuga. Ni ku bw'iyi mpamvu usanga abahanga mu gucira amagambo bashobora gufata iryuga bakarihindurira inyito cyangwa bakaryongerera igisobanuro cyangwa se kabarigabanyiriza inyito (Nkusi, 1998).

Ikigega cy'amagambo y'ururimi runaka kiba kigizwe n'ibice bitatu bikurikira: Igice cya mbere (hejuru) kirimo amagambo akoreshwa cyane (mots fréquents) naho igice cya kabiri(hagati) kikaba kibarizwamo amagambo akoreshwa ku buryo bukinganiye (Mots disponibles) mu gihe igice cya gatatu (indiba) kirangwamo amagambo akoreshwa gake gashoboka cyangwa se atagikoreshwa mu rurimi ari yo yitwa urunyakirima (archaïsme). Mu ihangamuga, iryuga ritandukanye n'ijambo kubera ko iryuga rigira ifishi nyamuga igaragaza iryuga n'amakuru aritangwaho naho ijambo nta makuru aritangwaho nta n'ifishi rigira (Nikuze,2022; Ntakirutimana,2021).

2.11. Uburyo bw'ihangamuga mu Kinyarwanda

BIZIMANA (1998) avuga ko iyo mu rurimi hadutse ikintu cyangwa inshoza bidasanzwe, bishakirwa ijambo. Iryo jambo rishya rishobora gukomorwa ku rindi risanzwe mu rurimi, cyangwa ku muzi, cyangwa se ku rujyano rw'amagambo, ndetse rimwe na rimwe no ku mpine. Ijambo rishya rishobora no gucurwa cyangwa gutirwa. Ibi abihuriraho n'abandi bashakashatsi nka Nkusi (2019), Nikuze (2021) ndetse na Ntakirutimana (2021). Uburyo bwifashishwa bushingira ku buzobere bw'abahanga mu ngeri y'ubumenyi, n'amahange anyuranye y'iyigandimi, ariko byose bigahuriza ku buryo bunozwe bwo kubonera ururimi amuga y'indatwa. Bumwe muri ubwo buryo ni **itira**, uburyo mvanshoza cyangwa uburyo bw'**ikomoranshoza** (démarche onomasiologique) n'uburyo mvanyito cyangwa uburyo bw'**ikomoranyumvo** (démarche sémasiologique).

2.11.1. Uburyo bw'itira

Itira ni uburyo bwiganje mu ihangamuga y'ikoranabuhanga kubera ko imico y'amahanga ari yo ikomeje guhahwamo ubumenyi n'imikorere ya gîhaânga. Gutira ni ukwinjiza mu rurimi imvugo nshya ikomowe mu rundi rurimi ariko igahabwa imisusire nk'iy'imvugo y'ururimi yinjijemo. Abahanga mu iyigandimi bavuga ko indimi zose zitira, kabone n'ubwo zidatira ku rwego rumwe (Niyomugabo, 2021). Iyo ururimi rutiye ijambo rurarigumana rikaba iryarwo. Dufashe urugero rw'amagambo "**Twita**", "**Gugo**" tubona ko yatiwe uko yakabaye mu rurimi mpero.

2.11.2. Uburyo mvanshoza cyangwa uburyo bw'ikomoranshoza

Ubu buryo mvanshoza cyangwa uburyo bw'ikomoranshoza buhera ku nshoza y'ikintu gifatika (ikimenyetso, ishusho igaragara, ikintu gifatika kandi kiboneka) hagashakwa ijambo cyangwa iryuga riboneye.

Ingero:

Nyuma yo kwinjira mu muco no gukoreshwa mu buzima busanzwe bwa buri muni, **computer** yiswe **mudasobwa**; **network** iba **ihuzanzira**; **wireless** iba **inziramugozi** naho **internet** yitwa **murâandasî**.

Umudage Wüster (1976) avuga ko inshoza (concept) ari ishingiro (point de départ) ry'umurimo uwo ari wo wose w'ihangamuga. Uyu mushakashatsi abihuriraho na Antia

(2000:84) aho agira ati: “Inshoza ni urufunguzo rw’ihangamuga.” Dufatiye kuri ibi bivugwa haruguru, ubu buryo bw’ikomoranshoza burifashishwa ku rwego rwo hejuru mu nzego zinyuranye z’ubuzima harimo n’ikoranabuhanga.

2.11.3. Uburyo mvanyito cyangwa uburyo bw’ikomoranyumvo

Ubu buryo mvanyito cyangwa uburyo bw’ikomoranyumvo bwifashishwa igihe dufite ijamba tugashaka icyo rishushanya mu bwenge. Abahanga amuga bakunda kwifashisha ubu buryo mvanyito koko bushingira ku iyigandimi ngiro. Iyi nzira isaba ubuhanga buhanitse kuko iba yita ikivugwa kinjijwe mu rurimi kabone n’ubwo cyaba kidasanzwe mu mucu.

Ingero: *Ikivejuru* (Alliens) ni ijamba ryinjiye mu Kinyarwanda nyamara icyo rishushanya mu bwenge ntikigaragarira buri wese. Nanone ijamba “ ***Korovanirusi***” ryaramenyekanye cyane mbere y’uko icyorezo gisakara mu isi yose.

Ihangamuga rishingira ku nyito, abacuramuga bashobora guhanga iryuga bashingiye ku nyito mbonera (sens dénotatif) cyangwa inyito mumaro (sens connotatif). Kuri ibi twakongeraho ko amuga y’ikoranabuhanga agaragaza ubwiza mu iyigandimi iyo afite umwihariko wo kuba asobanutse nta rurijjo ateje, akaba yihariye atakwiranywa n’ayo mu zindi ngeri z’ubumenyi. Amuga kandi ahora mu ntekerezo z’inzobere maze iricurano rigahura n’inshoza; ikindi ni uko agomba kuba afite imiremerwe igendanye n’amahame nyandimi akanagira uturango tw’iyigandimi (Nkusi, 2018).

Mugemana (1981) agaragaza ubundi buryo cumi na butandatu (16) bwifashishwa hahangwa amagambo mashya mu Kinyarwanda. Bumwe muri bwo ni ubu : uburyo bw’umukanayago/ igongana cyangwa se inyunge (*le télescopage*); uburyo bw’ihina cyangwa gukoresha impine (*le brachylogie*); uburyo bw’iyegamira/isobanura (*l’apposition*); uburyo bw’isano ngira (*l’autonymie*); uburyo bw’izina bwite (*nom propre*); uburyo bw’izinura (*antonomase*); uburyo bw’iyiganajwi (*onomatopéisation*); uburyo bw’iyita nsesenguzi(*la dénomination descriptive*); uburyo bw’iyita nyamumaro(*la dénomination utilitaire*); uburyo bw’iyita mfashisho (*la dénomination référentielle*);

uburyo bw'ihwanisha (*la métaphorisation*); uburyo bw'iyitirira (*la métonymie*), uburyo bw'iyaguranyito (*la synecdoque*); uburyo bw'inonera (*l'euphemisme*); uburyo bw'ikabya (*l'hyperbole*); uburyo bw'itebeza (*l'ellipse*), n'uburyo buhera ku busa cyangwa mburafato (*La création d'ex-nihilo*). Kuri ubu buryo hiyongeraho uburyo bw'ikomora n'uburyo bw'ingobe.

Mu icukumbura rye, Nkusi (1983: 5) aragira ati: “Mu gihe cyo kurema ijambo, Ikinyarwanda gishobora kugenekereza, kigakoresha amagambo afite isano mu bisobanuro kuko ajya gusa cyangwa yibukiranya”.

2.12. Amahange yifashishijwe

Ubu bushakashatsi bwagendeye mu muyoboro w'amahange abiri, ari yo ihange nyamujora (Critical Theory), n'ihange nyamiterere (Structuralism). Stephen (2009), mu gitabo ke yise “*The Power of Critical Theory: Liberating Adult Learning and Teaching*”, tugenekereje twavugaga ko ari “imbaraga z'ihange nyamujora: kubohora abantu bakuze, bakiga ndetse bakigisha”. Yavuze ko ihange nyamujora ari uburyo bwo kwitegereza, gutekereza ku byakozwe, kubisesengura byimbitse maze ukagira ibyo ushima n'ibyo unenga. Iri hange rero ryadufashije gutekereza cyane ku byo abashakashatsi ba mbere bise amuga y'ikoranabuhanga mu Kinyarwanda. Nyuma yo kuyasesengura, twabonye ko hari amuga yahanze mu ikoranabuhanga akwiye kwitwa amuga n'andi akwiye gucenshurwa akabonezwa ku buryo yakwifashishwa mu kwiga, mu kwigisha no kwandika imfashanyigisho zitandukanye mu Kinyarwanda zivugaga ku ikoranabuhanga n'inkoranabuhanga zinyuranye.

Ihange nyamiterere ni ihange risobanura ko mu kwiga no kumenya ibigize ikintu runaka, ugomba kwita ku miterere yacyo uhereye ku bice bito bikigize. Mu iyigandimi, ihange nyamiterere rivugaga ko umunyandimi asesengura imiterere y'ururimi ahereye ku miterere y'amajwi urwo rurimi rufite, imiterere y'amagambo n'intego zayo, interuro n'ibindi. Iri hange ryatubereye umuyoboro ukomeye muri ubu bushakashatsi kuko ryadufashije gushaka imiterere y'amuga y'ikoranabuhanga mu Kinyarwanda hagamijwe kumenya amuga akwiye kwitwa amuga no gutahura andi atujuje ibisabwa ngo yitwe amuga.

2.13. Icyuho mu byasomwe

Umushakashatsi yihatiye cyane gusoma inyandiko zinyuranye zirimo ibitabo, inyandiko z'ubushakashatsi, inkoranya byerekeye amuga y'ikoranabuhanga mu Kinyarwanda. Imirimo yose yakozwe muri iyi ngeri yerekeye imihangire y'amuga y'ikoranabuhanga twayisanzemo icyuho gishingiye ku buryo amuga yahanzwemo, imiterere yayo, insobanuro zayo n'ibindi. Nta sesengurajora ryigeze rikorwa ku muga y'ikoranabuhanga yahanzwe kandi asobanura iby'ubuhanga, ubumenyi n'ibikoresho byifashishwa mu buzima bwa buri munsu bw'Abanyarwanda. Kuri izi ngingo twakongeraho n'icyuho mu igenamuga rishingira ku kubura poritiki y'amuga ifatira ku y'indimi itarahabwa umurongo uboneye mu Rwanda. Nanone byiciro bitandukanye by'uburezi dusangamo icyuho ku byerekeye amuga yifashishwa mu kwigisha, kwigisha no gutegura imfashanyigisho ziboneye z'ibyiciro bitandukanye by'uburezi mu by'ikoranabuhanga. Kuri izi ngingo twakongeraho ko nta n'itegeko ry'uburezi rigena imikoreshereze y'indimi mu mashuri afite ibyo agenerwa byihariye nko mu burezi bw'abakuzwe (adult education), ibigo bihugura abantu mu gihe cyagenwe biba bigamije guteza imbere ubumenyi bushingiye ku ikoranabuhanga (digital literacy). Ikiyongera kuri ibyo ni uko nta nkoranyamuga y'ikoranabuhanga yamurikiwe abenerurimi b'Ikinyarwanda ngo ishingirwaho imirimo y'isesengurajora. Nta nzego ziriho zihariye zishinzwe guteza imbere ihangamuga n'igenamugamu Kinyarwanda.

2.14. Ihangiro ry'ubushakashatsi

Ihangiro ni igishushanyo kigizwe n'inshamake y'imfatashusho (variable) zubakiye ku nsanganyamatsiko y'ubushakashatsi n'isano iri hagati y'izo mfatashusho. Ihangiro ni igice k'ibanze kigaragaza uburyo imfatashusho zuzuzanya mu nzira zose ubushakashatsi bukorwamo hagamijwe gukemura ikibazo, kugaragaza umusaruro ukomoka ku nyigo yose y'ubushakashatsi ndetse n'inzego zigira uruhare muri byose nk'uko umushakashatsi agenda abisobanura.

Imfatashusho ni urusange rw'inshoza ziri mu buryo budafatika hanyuma zigahindurwa mu buryo bufatika (Nkusi&Mukama, 2019) kandi zigahinduka zishingiye ku bushakashatsi bukorwa. Iyo umuntu asesenguye neza asanga imfatashusho ari imvugo

ihinye(incamake) ishyirwa mu mu gishushanyo cy'urukiramende. Abahanga (Frankfort na Nachmias,2008) bagaragaje amoko atatu y'imfatashusho zubakirwa n'ihangiro ry'ubushakashatsi.

- a) **Imfatashusho yigenga (independent variable):** ni imfatashusho ihagarariye ikibazo kigomba gukemuka n'uburyo cyakemuka.
- b) **Imfatashusho igengwa (dependent variable):** imfatashusho igaragaza umusaruro waboneka habaye ikemuka ry'ikibazo.
- c) **Imfatashusho igenzura (extraneous/intervening variable):** imfatashusho iba itarazirikanywe mu ntangiriro y'inyigo y'ubushakashatsi. Iyi mfatashusho idahawe agaciro mu buryo nyabwo yagira inkurikizi ku musaruro ukomoka ku bushakashatsi buba bwakozwe.

Imfatashusho zigenga

Amuga y'ikoranabuhanga mu Kinyarwanda:

- Ubushobozi n'ubumenyi by'abacuramuga n'abahinduzi
- Ikoranabuhanga

Imfatashusho zigengwa

Imihangire y'amuga y'ikoranabuhanga:

- Uburyo yahanzwemo
- Inzira z'ihangamuga
- Ibisobanuro by'amuga
- Ibonezamuga n'itangazwa ryayo

Imfatashusho igenzura

- Poritiki y'indimi
- Poritiki y'amuga
- Leta y'u Rwanda
- Inteko y'Umuco
- Minisiteri y'Uburezi
- Minisiteri y'Ikoranabuhanga na Inovasiyo

Ihangiro ry'ubu bushakashatsi rigaragaza uko amuga y'ikoranabuhanga agira uruhare mu mikoreshereze y'Ikinyarwanda mu ikoranabuhanga. Amuga yifashishijwe mu bwanditsi bw'imfashanyigisho "Intore mu ikoranabuhanga", ubushobozi n'ubumenyi by'abacuramuga n'abahinduzi ni imfatashusho zigenga. Ku rundi ruhande dufite imfatashusho zigengwa zirimo imihangire y'amuga y'ikoranabuhanga ibarirwamo uburyo bw'imihangire, inzira z'ihangamuga, ibisobanuro by'amuga byagaragajwe, ibonezamuga n'itangazwa ryayo. Poritiki y'indimi, poritiki y'amuga, Leta y'u Rwanda, Inteko y'Umuco, Minisiteri y'Uburezi, Minisiteri y'Ikoranabuhanga na Inovasiyo ni imfatashusho igenzura cyangwa mfasha.

Ubushobozi n'ubumenyi by'abacuramuga n'abahinduzi byitaweho urwego rw'ikoranabuhanga rwakunguka amuga nyayo yakwifashishwa mu kwandika imfashanyigisho z'ingego zinyuranye no gusobanura iby'ubumenyi n'ubumenyi ngiro byinjira kandi bidasanzwe mu muco. Uburyo bw'ihangamuga, inzira zaryo, ibonezamuga n'itangazwa ryayo bigaragaza urwego rw'ihangamuga n'igenamuga. Ibyo byose bigerwaho ari uko bifashijwe na poritiki y'indimi na yo igashingirwaho na poritiki y'amuga.

2.15. Umwanzuro

Muri uyu mutwa wa kabiri, twagaragajemo ibyanditswe ku nsanganyamatsiko y'ubu bushakashatsi tugenda tugaragaza amateka n'ibisobonura by'inshoza z'ibanze zigenda zishingirwaho ibyerekeye ikoranabuhanga n'amuga aryifashishwamo. Nanone twasobanuye ihange nyamujora ubu bushakashatsi bwagendeyeho ndetse n'ihangiro ryabwo.

UMUTWE WA GATATU: IYOBORAMIKORERE RY'UBUSHAKASHATSI

3.1. Intangiriro

Ubushakashatsi ni ingenzi mu buzima bw'abatuye isi. Prabhat & Mishra (2015) bavuga ko ubushakashatsi ari igikoresho k'ingenzi kandi gifite ingufu zo kugeza umuntu imbere heza kandi ko budakozwe neza, habaho igwingira. Kothari (2004) we avuga ko ubushakashatsi ari ubugenzuzi bwimbitse bukubiyemo gushaka amakuru y'umwimerere y'ikibazo cyangwa ingingo runaka, mu ngeri y'ubumenyi yagenwe. Ubushakashatsi rero ntabwo buhimbwa, ahubwo buhera ku bisanzwe biriho. Ikindi ni uko buba bugamije kubona igisubizo k'ikibazo cyangwa inkeneragihamya iba yashyizweho.

Uyu mutwe ugizwe n' iyoboramikorere ubushakashatsi bwubakiyeho. Iri yoboramikorere rigaragaramo uburyo bw'ikusanyamakuru, ubwoko bw'amakuru, isesenguramakuru, imbogamizi n'imyandikire y'amakuru.

3.2. Uburyo bw'ikusanyamakuru

Umushakashatsi ashaka uburyo bwiza azakoresha (research design), kugira ngo abone amakuru afatika kandi yizewe kugira ngo ubushakashatsi buzabe buhamye. Ikindi kandi, umushakashatsi agomba gusobanura impamvu yahisemo gukoresha ubwo buryo. Muri ubu bushakashatsi, uburyobw'ikusanyamakuru twifashishije ni ugusoma inyandiko ziri mu buryo bw'ikoranabuhanga n'izifatika zirimo ibitabo, inyandiko ngufu z'ubushakashatsi n'izindi. Ubu buryo bwafashije umushakashatsi kugera ku ntego ze kandi bunamuyobora mu isesengura yifashishije amahange anyuranye. Nanone, hakoreshejwe uburyo bw'ibaza bushingiye ku mpamvu. Ababajijwe ni abafite inararibonye mu mirimo y'ihangamuga n'igenamuga mu Rwanda kubera ko ari bo bafite amakuru akenewe kandi yizewe.

3.3. Ubwoko bw'amakuru

Ubushakashatsi iyo buva bukagera bwubakira ku makuru ari mu bwoko butandukanye kandi bushobora kuzuzanya mu nyigo imwe. Ubusanzwe amakuru abamo ubwoko bubiri ari bwo amakuru y'ibanze ndetse n'amakuru yunganira. Amakuru y'ibanze ni ayo umushakashatsi yishakira ku giti ke, akayahabwa n'itsinda nkeshwamakuru aba yatoranyije rishobora kuba rigizwe n'ibiremwa bitandukanye nk'abantu, inyamaswa,

inyandiko n'ibindi mu gihe amakuru yunganira ari ayo akura mu nyandiko zivuga ku bushakashatsi bwakozwe n'abandi bujyanye n'igitekerezo shingiro cyangwa ikibazo arimo gukoraho ubushakashatsi (Mukama na Nkusi, 2019). Nyuma y'ibi bisobanuro byatanzwe n'abashakashatsi b'inzobere, ubu bushakashatsi bwubakiye ku makuru yunganira abandi bita ay'inyongera. Twayavomye mu nyandiko ziriho kandi zasesenguwe. Inyandiko yakuwemo amakuru twayihisemo kubera ko ari yo igaragaramo amuga menshi y'ikoranabuhanga ikanifashihwa n'abaturarwanda benshi ugereranyije n'izindi nyandiko biri mu bwoko bumwe.

3.4. Uruhare rw'umushakashatsi mu gukusanya amakuru

Mu gukusanya amakuru, umushakashatsi yafashe umwanya wo kwegeranya inyandiko, arazisoma, azirobanuramo amakuru yifashishishwe muri ubu bushakashatsi. Ikindi kandi ni uko yaganiriye n'abahanga bake bazobereye igenamuga mu Kinyarwanda, bamwunguye ibitekerezo byashingiweho ku ngingo zimwe na zimwe zagarutseho muri ubu bushakashatsi.

3.5. Uburyo amakuru yasesenguwe

Iyo umushakashatsi amaze gukusanya amakuru, akena n'uburyo bwo kuyasesengura ashingiye ku bwoko bwayo. Abashakashatsi (Mukama na Nkusi, 2029) basobanura ku buryo bwumvikana uburyo bw'isesenguramakuru bwifashishwa mu bushakashatsi bwa gihanga burimo isesengura nyamimerere n'isesengura nyamubaro. Hitawe ku bwoko bw'amakuru, twakoresheje isesengura nyamimerere kugira ngo ibibazo by'ubushakashatsi bisubizwe mu buryo buboneye. Byongeye kandi, hakoreshejwe amahange atatu ari yo ihange nyurabwenge, mpanamakuru na nyamujora hashingiwe ku ngingo ijora ry'amuga ryibandaho muri ubu bushakashatsi.

Umushakashatsi agendeye ku mahame ariho kandi yubahirizwa mu igenamuga, yasobanuye inyandiko yavomwemo amuga yajowe, imiterere y'amuga, inzira zifashishijwe mu mihangire yayo, imiterere y'ibisobanuro, inyito zayo, ukwisanisha kwayo ku kibonezamvugo k'Ikinyarwanda. Byongeye kandi twisunze amahange kugira ngo tubone uko byakozwe twibanda ku byanogejwe n'ibitanzwe. Byatumye tubona ibibazo biri mu

muga y'ikoranabuhanga mu Kinyarwanda, impamvu zibitera n'ingamba zafatwa ngo amuga akoreshwa muri iyi ngeri yiyongere.

3.6. Imbogamizi z'ubushakashatsi

Mu mirimo y'ubushakashatsi ntihaburamo imbogamizi zishingiye ku ngingo zinyuranye. Imbogamizi ya mbere umushakashatsi yahuye na yo ni ukutabona umubare uhagije w'amuga y'ikoranabuhanga ari mu Kinyarwanda. Mu gusesengura inyandiko hari aho yasanze inyandiko ikoresha amuga menshi ari mu Cyongereza ku buryo bitatworohye kubaruro ari mu Kinyarwanda. Indi mbogamizi ishishiye ku ikusanyamakuru. Uretse kuba iyi ngeri ari nshya, nta nyandiko zihagije twabonye ngo zitwunganire mu kunoza uyu murimo w'ubushakashatsi.

Umushakashatsi ntiyarenza amaso izindi mbogamizi zikomeye zagaragaye muri ububushakashatsi zishingiye ku ihinduranyandiko. Bisanzwe bizwi ko guhindura inyandiko mu ndimi zitandukanye ari ubuhanga bwigwa kandi bugira amategeko abugenga (Kabagema,2021). Mu gukora ubushakashatsi, inyandiko nyinshi zabaga ziri mu ndimi z'amahanga nk'Igifaransa ariko cyane cyane icyongereza. Ibi byafasha igihe kitari gito ariko hakaniyongeraho ubuzobere buke mu ihinduranyandiko umushakashatsi yahuze na bwo.

3.7. Imyandikire y'ubushakashatsi

Amakuru yose akubiye muri iyi nyigo agomba kugira uko yandikwa kandi bigendanye n'amabwiriza ariho kandi agenda inyandiko nk'iyi y'ubushakashatsi. Umushakashatsi yagerageje kwandika amakuru agendeye ku mabwiriza agenga imyandikire yemewe y'Ikinyarwanda afite numero **001/2014 yo ku wa 08/10/2024**. Si aya mabwiriza yonyine umushakashatsi yandeyeho mu kwandika iyi nyandiko kubera ko yanashingiye ku mabwiriza agenga inyandiko z'ubushakashatsi ateganywa na Kaminuza y'u Rwanda. Umushakashatsi kandi yanditse akurikiranya ibice byose biteganywa ko bigomba kugaragara mu nyandiko nk'iyi y'ubushakashatsi. Uretse ibice bibanziriza umutwe wa mbere, inyuma y'umutwe wa gatanu haragaragazwa umugereka ugizwe n'urutonde rw'amwe mu muga y'ikoranabuhanga yifashishijwe mu gitabo "Intore mu ikoranabuhanga"

3.8. Umwanzuro

Uyu mutwe wa gatatu w'iyoboramikorere ugaragaramo isomanyandiko n'ibaza rishingiye ku mpamvu nka bumwe mu buryo bwifashishijwe mu gukusanya amakuru. Ibi byatumye tubona amakuru yunganira ari yo yahereweho hakorwa isesesengura nyamimerere. Hagaragajwe ko imyandikire, amabwiriza agenga inyandiko z'ubushakashatsi n'uko ibice bikurikirana ari zo nzira zatugejeje ku myandikire y'ibikubiye mu bushakashatsi bwakozwe.

Intore mu ikoranabuhanga ni inyandiko igamije guteza imbere ubumenyi, ubumenyi ngiro n'ubukesha bishingiye ku ikoranabuhanga n'inkoranabuhanga hifashishijwe ibikoresho bitandukanye by'ikoranabuhanga ry'igihe tugezemo. Iyi nyandiko iri mu bwoko bw'imfashanyigisho zanditse igenera umwanya uwigisha n'uwigishwa hakubakwa ubushobozi buba bugamijwe kubera ko ibyigwa bigenda bibangikana n'amashusho cyangwa amafoto abisonabura ku buryo bworohera buri wese gutahura no kumenya ikivugwaho.

4.2.1. Igenantekerezo y'inyandiko

Bisanzwe bizwi neza ko umurimo wose w'ubwanditsi uba ufite icyo urenguriraho. Ni yo mpamvu mu nyigo yakozwe, ubushakashatsi bwagaragaje ko igenantekerezo (philosophie) y'inyandiko ari ugutuma Abanyarwanda bagira ijisho rikangutse bakagurira amarembo ubumenyi, ubuhanga n'ikoranabuhanga mu migirire yabo ya buri muni bakisanzurana n'imico itandukanye ariko batibagiwe umurage gakondo wabo. Byongeye kandi tugendeye ku izina ry'inyandiko, ntabwo umuntu wese urangije amasomo ayikubiyemo aba intore isanzwe mu muco ahubwo aba ari umuntu wiyobora neza mu byerekeye ubuzima bwa buri muni yifashishije ikoranabuhanga.

4.2.2. Ingano y'ubugeni bwifashishijwe

Uburebure bw'inyandiko yasesenguwe bugaragaza ko ari igitabo kigizwe n'amapaji ijana na mirongo itatu n'atandatu (136) ubara uherye ku gifuniko kigaragara (front cover) kugeza ku gifuniko kiri inyuma (behind cover). Mu kumurika ibyigwa hakoreshejwe imvugo isanzwe n'imvugo ihanitse kandi isobanurwa mbere yo kuyikoresha maze uwigisha n'abigishwa bakabyumva neza nta gutegwa. Hari kandi ubugeni bwo kubangikanya amagambo asobanura ibyigwa n'amafoto ahura neza n'ikivugwa. Ibi byabaye urugero rwiza rw'ibigabanya ubukerererwe bushingiye ku rurimi rukoresha no gufata ku buryo bwa burundu ibyigwa.

Urugero:

Ishusho ya kabiri: Ubugeni bwo kubangikanya amagambo n'amafoto ahura neza n'ikivugwa

AMOKO YA MUDASOBWA- IBISOBANURO

Hano ushobora kubona amoko atandukanye ya mudasobwa, harimo musomyi ya mediya, simatifone, taburete. Ibi bikoresho bifite imimaro runaka itandukanye. Bikoze ku buryo bigira amashusho n'ingano bitandukanye kugirango binogera abantu batandukanye bikanagira imimaro itandukanye.

Mudasobwa yo ku meza (Desktop PC)

Ubu bwoko bwa mudasobwa bwitwa Desktop personal computer cyangwa PC (Pisi). Ushobora kuyikoresha mu rugo cyangwa ku kazi. Yitwa Desktop (Desk = ameza ; top= Hejuru) kuko isanduku ya mudasobwa/system unit akenshi iba iteretse ku meza. Nubwo hari amasanduku ya mudasobwa manini bashobora gutereka hasi.



Mudasobwa rukomatanyo (All-in-One PC)

Ubu bwoko bwa mudasobwa bwitwa "All-in-One PC". Mudasobwa rukomatanyo ziba zifite isanduku ya mudasobwa ifatanye na Mugaragazi. Isanduku ya mudasobwa iba iri inyuma cyangwa ku ifatizo (hasi) rya mugaragazi. Ibi bisobanuye ko mudasobwa rukomatanyo (All-in-One PC) zitwara umwanya muto ugereranyije na mudasobwa yo ku meza (PC)



Mudasobwa igendanwa (Laputopu)

Iyi ni mudasobwa ntoya ushobora kugendana . Ushobora kuyikoresha iri ku bibero (mu cyongereza ikibero ni Lap) byawe — ari na yo mvano y'izina Laptop (Lap=ikibero ; top = hejuru) Ifite ibice byose bya mudasobwa nini , ariko byose bikubiye mu gasanduku kamwe.



Rimwe na rimwe havita Laputopu (Laptop) cyangwa

Inkuro: Intore mu ikoranabuhanga, urupapuro rwa 20

4.2.3. Imitwe n'ingingo zikubiye mu nyandiko

Inyandiko yasesenguwe yubakiye ku mitwe itanu (5) na yo igenda igaragaza imitwe mito y'ibyigwa byateganyijwe. Mu kugaragaza urutonde rw'ibyigwa bya buri mutwe, habanza umutwe hagakurikiraho ijambo "ibisobanuro" hakajyaho urutonde rw'ibyigwa hanyuma hakajyaho umukoro uvuga ku ngingo zitandukanye z'ibyzwe muri uwo mutwe. Mu migaragarire ni uko umutwe umwe wandikwa kabiri: hari umutwe w'ibyigwa n'umutwe w'umukoro. Dore uko imitwe ikurikirana:

Umutwe wa mbere: Iby'ibanze kuri mudasobwa, ibisobanuro n'umukoro w'ibyizwe.

Umutwe wa kabiri: Intangiriro ku bijyanye na desktop (biro), ibisobanuron'umukoro w'ibyizwe.

Umutwe wa gatatu: Intangiriro ku nyandiko, ibisobanuro n'umukoro w'ibyizwe

Umutwe wa kane: Intangiriro ku rubuga rwa murandasi, ibisobanuro n'umukoro w'ibyizwe

Umutwe wa gatanu: Itumanaho , ibisobanuro n'umukoro w'ibyizwe

Hari kandi n'igice gisoza inyandiko cyahariwe umukoro wa nyuma w'intore mu ikoranabuhanga/Digital Citizen. Nk'uko byigaragaza ni umukoro ukomatanya ubumenyi n'ubumenyi ngiro byo mu mitwe yose iba yarizwe.

4.2.4. Imitangirwe y'ibygwa bikubiye mu nyandiko

Ubushakashatsi bwacu bwagaragajwe ko ibygwa byari bigenewe abiga byatanzwe mu mvugo ziri mu nzego zitandukanye. Ubusanzwe tugira imvugo ihanitse, imvugo isanzwe n'imvugo ikocamye (Niyomugabo, 2021). Mu gusesengura inyandiko, byagaragaye ko habayemo kuvanga inzego z'imvugo bikabera abiga urusobe. Nanone byaragaragaye ko mu myandikire habayemo kubangikanya indimi ku bw'amaburakindi. Twakwibukiranya ko mu masomo y'ubumenyi, ubuhanga n'ikoranabuhanga si ngombwa ko abaturage bose baba bakoresha ururimi rw'iyi ngeri. Ibangikanyandimi ryatewe n'inzira zicibwamo higwa ikigwa nunaka ndetse n'ibikoresho by'ikoranabuhanga bikoresha amagambo atari mu Kinyarwanda. Ibyo rero biduha ubwoko butandukanye bw'ibangikanyandimi: Ibangikanyandimi nyamuntu, ibangikanyandimi nyamuryango n'ibangikanyandimi nyagihugu.

4.2.5. Ingano y'amuga yifashishijwe mu nyandiko

Ikoranabuhanga ni ingeri ngari ikubiyemo ibitsibo byinshi kandi bigenda byuzuzanye uhareye ku bikoresho byifashishwa ndetse n'inkoranabuhanga. Umurimo wo gukoranya amuga yifashishishwe mu bwanditsi bw'inyandiko wabanje kwiga imiterere y'amuga. Ubushakashatsi bwagaragaje ko iryuga rishobora kuba ijamba rimwe, urwuge

rw'amagambo, ibimenyetso, impine na forumire (Formule). Hatabariwemo ibimenyetso byinshi bigenda bigaragara mu ruhererekane rw'ibyigwa n'ibiri kuri mwandikisho, twasanze ari amuga ayingayinga ijana na mirongo itatu (130) atandukanye kandi agenda akoreshwa mu mitwe yose igize inyandiko uko ari itanu. Urutonde rwayo ruragaragara mu migereka y'ubu bushakashatsi.

4.3. Imiterere y'amuga y'ikoranabuhanga mu Kinyarwanda

Imiterere y'amuga yakorewe isesengurajora yagaragajwe mu buryo bubiri : ubwa mbere bugendeye ku gisobanuro cy'iryuga naho ubwa kabiri bugendeye ku migaragarire ishingiye ku nzira zo kubonera ururimi amuga.

- Tugendeye ku buryo bwa mbere bushingira ku gisobanuro k'iryuga aho ubushakashatsi bugaragaza ko iryuga rishobora kuba ijamba rimwe, urwuge rw'amagambo, ibimenyetso, impine na forumire (Formule).

Ingero z'amuga agizwe n'ijamba: Mwandikisho (keyboard), kumadika (pinning), imeri (email)...

Ingero z'amuga agizwe n'urwunge rw'amagambo: Ubwonko bwa mudasobwa (CPU), intemberezwantoki(backspace), mutesenguranyandiko (word), igenamitere (setting)...

Ingero z'ibimenyetso:  ,  ,  , @...

Ingero z'amuga akomoka ku mpine: sipiyu (CPU:Central processing Unit), imeri (email: Electronic- mail), urubuga mpuzamahanga (w.w.w.: World Wide Web), modemu (modem: Modulation demodulation), interineti (internet: Interconnected Networks)...

Nta forumire zakoreshejwe mu nyandiko yasesenguwe kubera ko ivuga ku ikoranabuhanga riciriritse.

Muri ubu bushakashatsi, twabonye ko amuga y'ikoranabuhanga mu Kinyarwanda yashyirwa mu nzego enye hagendewe ku migaragarire ishingiye ku nzira zo kubonera ururimi amuga.

Urwego rwa mbere ni urwego rukubiyemo amuga gakondo atarigeze ahinduka akagumana umwimerere wayo. Sibomana (2011) atanga ingero z'amuga akoreshwa muri muzika nyamajwi nka : *ikinimba, intwatwa, umushayayo, umuduri* n'andi menshi. Mu nyandiko yajowe, nta muga gakondo yagaragaye mu itonde ryayo.

Urwego rwa kabiri rurimo amuga y'amacurano. Haseguriwe mu nzira n'uburyo amuga yacuzwemo, tubona ko umurimo w'ihangamuga umaze gufata intera ishimishisha muri iyi ngeri y'ikoranabuhanga. Kugeza magingo aya hari amuga menshi yacuzwe n'abahanga akaba yarifashishijwe mu kwandika igitabo « Intore mu Ikoranabuhanga ». Ibi byatanze umusaruro ufatika mu kugaragaza ubumenyi, ubumenyi ngiro n'ubukesha byifuzwaga kugezwa ku bagenerwabikorwa nta mpungenge.

Ingero:

- Ijambo « **icon** » ryacuriwe iryuga ryaryo mu Kinyarwanda, ari ryo «**agashushondanga**».
- Ijambo « **screen** » ryacuriwe iryuga ryaryo mu Kinyarwanda, ari ryo «**mugaragaza** ».
- Ijambo « **attachment** » ryacuriwe iryuga ryaryo mu Kinyarwanda, ari ryo «**Umushandiko**».

Urwego rwa gatatu rukubiyemo amuga y'ikoranabuhanga yatiwe mu ndimi z'amahanga zitandukanye zikoreshwa kuri uyu mubumbe. Amenshi muri ayo muga yigaragaza mu kwerekana inkoranabuhanga zifashishwa n'inzira zazo ngenamikorere cyangwa nyoboramikorere, ibikoresho by'ikoranabuhanga n'ibindi. Aya muga y'amatirano afite intêgo ishusha nk'iyi mu rurimi yatiwemo. Twakongeraho ko n'imivugirwe yayo yakomeje kuba nk'iy'ururimi mpero. Abahanga mu by'iyigandimi basobanura ko amuga yatiwe aba ayo mu rurimi rwayakirirye rukayagira ayarwo. Abenerurimi bayakoresha uko bwije n'uko bukeye mu mirimo yabo nta mpungenge.

Ingero: Sipamu, modemu, taci, cati, imeri n'ayandi.

Urwego rwa kane rukubiyemo amuga y'ikoranabuhanga yaburiwe uko yitwa mu Kinyarwanda agikoreshwa uko ateye mu rurimi mpero. Ni ukuvuga ko atujuje uturango tw'amazina y'amatirano. Ibi biterwa n'uko ubumenyi n'ubuhanga bikomeje kwisukiranya

mu mucu nyarwanda hanyuma ku bw'amahitamo ya mbuze uko ngira hagakoreshwa iryuga uko rimeze nta buhinduzi bubayeho cyangwa se ngo habeho kugenekereza mu Kinyarwanda.

Ingero : Windows 10, Blu-ray, re n'ayandi.

4.4. Uburyo amuga y'ikoranabuhanga yahanzwemo cyangwa yacuzwemo

Ururimi rufite ukuntu rugenda rwunguka amagambo mashya cyangwa amuga bitewe n'uko rukenera kwita ibintu bishya byinjira mu mucu kandi bitawusanzwemo. Mu isesengura ry'amuga y'ikoranabuhanga yahanzwe mu Kinyarwanda akifashishwa mu bwanditsi bw'inyandiko "Intore mu Ikoranabuhanga", ubushakashatsi bwagaragaje ko hari uburyo bwinshi butandukanye bwifashishijwe mu guhanga cyangwa mu gucura amuga atandukanye.

4.4.1. Uburyo bw'inyunge

Abashakashatsi benshi bagiye basobanura ubu buryo n'uko bukoreshwa. Uburyo bw'inyunge bushingiye ku ikomatanya ry'amagambo abiri cyangwa arenzeho asanzwe yigenga mu rurimi hanyuma agakurwamo iryuga rimwe (Urujeni, 2007). Twavuga ko uburyo bw'inyunge ari uburyo bushingira ku kungikanya amagambo arenze rimwe kandi afite inyito zitandukanye akabyara iryuga rifite inyito nshyashya ugeraranyije n'izari zisanzweho. Mu gucura amuga y'ikoranabuhanga mu Kinyarwanda ubu buryo bwagaragaje cyane kuko usanga bene aya muga ari yo yiganjemo .

Ingero: Imbaramibare (excel), inyoboranyandiko (cursor), impuzamiyoboro (network)...

4.4.2. Uburyo bw'igereranya

Uburyo bw'igereranya ni uburyo bwigaragaza cyane cyane iyo bacura amuga maze bakifashisha icyungo gifite inyito yo kugereranya "nka" kugira ngo igisobanuro kirusheho kumvikana.

Urugero: Kubika nka (save as).

4.4.3. Uburyo bw'integeko

Uburyo bw'integeko ni bumwe mu buryo bw'ibanze bukoreshwa mu murimo w'ihangamuga cyane cyane muri iyi ngeri y'Ikoranabuhanga. Ubu buryo bwarakoreshejwe cyane mu gucura amuga aranga ibikorwa bitandukanye bivugwa bihita bikorwa. Aha igikorwa kiba kiri mu ngiro. Amuga yahanze hifashishijwe ubu buryo ni menshi.

Ingero: Tangira (start), funga (close), bika (save) , agura (maximize), kanda unyereza (click and drag), kanda wungikanya (double click), ...

4.4.4. Uburyo bw'ikomora

Uburyo bw'ikomora ni uburyo shingiro kandi bwibandwaho mu murimo w'ihangamuga mu Kinyarwanda. Gukomora ni ukurema ijambo hafatiwe ku muzi w'inshinga, ku mazina, kuri ntera, ku mugeraka, inyigana n'andi moko y'amagambo atandukanye aba asanzwe mu rurimi. Abashakashatsi banyuranye (Patick na Urujeni, 2007) bagaragaje ko ikomora ari uburyo bwo kurema ijambo hongera uturemajambo imbere n'inyuma y'igice mbumbanyito k'ijambo. Mu rwego rw'ikoranabuhanga, dusangamo amuga atari make yacuzwe hashingiwe ku buryo bw'ikomora.

Ingero: Mwandikisho (kwandika), mucapya (gucapa), umushandiko (gushandika), ububiko (kubika)...

4.4.5. Uburyo bw'ingobe

Uburyo bw'ingobe ni uburyo bushingiye ku gufata ijambo bakarigobeka inyuma y'irindi ngo ririsobanure. Ubu buryo ni bwo bwiganje mu gucura amuga y'ikoranabuhanga yasesenguwe.

Ingero: Urusobe mpuzamirongo (Network Internet Access), imbuganyuma yijimye (selection), umurongo ndangamikorere (status bar), ...

4.4.6. Uburyo mburafatiro

Ubu buryo twakwita mburafatiro (**Ex-nihilo**), Diki Kidiri (1981) na Mugenamana (1981) basobanura ko ubu buryo butagira icyo bushingiraho kuko hashingirwa ku gukomatanywa

ibimenyetso nyarurimi hagamijwe kurema ikinyabumwe gihabwa igisobanuro runaka. Mu ikoranabuhanga, ubu buryo burashoboka cyane. Amuga ahangwa muri ubu buryo akenshi amuga aba ashobora kuburirwa inkomoko bitewe no kwibagirana cyangwa ikaba itazwi.

Urugero: Murandasi.

Urugero rudafatiye ku muga y'ikoranabuhanga: gaze

4.4.7. Uburyo bw'iyungikanya

Ubushakashatsi bugaragaza ko uburyo bw'iyungikanya (**Télescopage**) ari uburyo bwunga amagambo abiri ariko hakabaho kugabanya amagambo abiri agakora ijambo rimwe. Buri jambo ritakaza igice kimwe hanyuma ibice bibiri bigakora iryuga rimwe (Mugemana,1981). Ubushakashatsi bwakozwe bugaragaza ko amuga agaragara mu itonde yaremwe hifashishijwe ubu buryo ariko bibera mu rurimi mpero hanyuma yinjizwa mu Kinyarwanda uko yakabaye.

Ingero: Imeri (email: electronic- mail), modemu (modem: modulation demodulation), interineti (internet: interconnected networks) ...

Urugero rudafatiye ku ikoranabuhanga: *Inyamwinyo* ni ijambo ryahanzwe rivuye ku *nyamunwa* n'*inyamenyo*.

4.4.8. Uburyo bw'igerura

Uburyo bw'igerura (**Brachylogie**) ni uburyo bugabanya igice cya nyuma k'ijambo. Hasigara igice kitumvikana neza kubera ko icyuzuzo kiba cyageruwe kiba kitazwi (Mugemana,1981). Ubushakashatsi bwakozwe bugaragaza ko ubu buryo na bwo bwifashishijwe nk'uko bigaragazwa n'ingeri zitandukanye:

-**Taci** (touch screen) ni ijambo ryageruweho “screen”.

- **Ihuuza** (link) ni ijambo ryageruweho irindi rishobora kuba “umurongo”.

4.4.9. Uburyo bw'iyita nyamumaro

Uburyo bw'iyita nyamumaro (**Dénomination utilitaire**) ni uburyo bushingira ku ngiro, ibikoresho, ubugeni, ubukorikori, tekini, ibikoresho by'ikoranabuhanga, inkoranabuhanga, inzira ngenamikorere n'ibindi

Ingero: Mushakisha (search), agace nyerekana(slide), musesenguranyandiko (word).

4.4.10. Uburyo bw'iyita nsensenguzi

Uburyo bw'iyita nsensenguzi/ nyamiterere (**Dénomination descriptive**) bwita inshoza hashingiwe ku misusire mboneshwajisho (ingano, ibara) na mboneshwabwenge (imbamutima,imikorere) (Mugemana, 1981). Mu gusesengura amuga y'ikoranabuhanga, umushakashatsi yasanze ubu buryo na bwo bwarifashishijwe ku muga amwe n'amwe.

Ingero: Mugaragaza (screen), Agatebo (recycle bin), isanduku ya mudasobwa (system unit), imbeba (mouse),

4.4.11. Uburyo bw'iyita mfashisho

Uburyo bw'iyita mfashisho (**Dénomination référentielle**) bushingira ku guhuriza ku nyito imwe (Mugemana, 1981:50). Habaho gufatira ku ijamba risanze mu rurimi.

Urugero: *Power point* ni ijamba rifite uko ryitwa ku buryo butandukanye bahereye ku byo rirenguriraho biba bikenewe. Zimwe mu nyito zakoreshejwe ni izi: **Imbonerahamwe nyanziga** na **nyamigongo**.

Impugukirwa:

Hari imwe mu minozanganzo yagaragajwe n'ubushakashatsi ko na yo yashingiweho mu guhanga amuga y'ikoranabuhanga yifashishijwe mu nyandiko "Intore mu ikoranabuhanga". Mu Kinyarwanda, hari iminozanganzo itatu iza ku isonga mu mirimo y'ihangamuga ari yo ihwanisha, ikabya n'iyitirira.

4.4.12. Uburyo bw'ihwanisha

Abashakashatsi Guern (1972:87) na Mugemana (1981:50-53) basobanura ko uburyo bw'ihwanisha (Métaphorisation) ari uburyo bwo guha iryuga inyito cyangwa igisobanuro hashingiwe ku igereranya nyurabwenge. Ihwanisha rigaragaza isano iri hagati y'ibivugwa cyangwa rigafatira ku bice bigize umubiri w'umuntu cyangwa ikindi kiremwa.

Ingero:

- Murandasi: Inkoni n'inzi ramugoyi.
- Imbeba: Akanyamaswa n'igice cya mudasobwa.
- Ubwonko: Ubwonko bwa mudasobwa n'ubwonko bw'umuntu

4.4.13. Uburyo bw'ikabya

Dubois n'abandi (1981:246) basobanura ko ikabya (**hyperbole**) ari umunozanganzo ushingira ku gukubiriza ikivugwa hifashishijwe imvugo cyangwa iryuga risobanura ibirenze intekerezo za muntu.

Ingero: Mudasobwa *rukomatanya*, ibyuma *kabuhariwe*, imashini *rutura*, ...

4.5. Ibisobanuro by'amuga

Abashakashatsi mu by'iyigandimi bagaragaje ibikwiye kwibandwaho kugira ngo amuga abe aboneye. Gusobanura iryuga ni umurimo w'imena mu igenamuga. Igisobanuro ni akarango k'ibanze iryuga ryubakiraho. Bizimana (2002) yagaragaje tumwe mu turango tw'igisobanuro agira ati: *"Igisobanuro kigomba kuba mu mvugo yoroshye, ikoresha amagambo azwi, igenda izibukira inshoberamahanga kandi yirinda amagambo ashobora kumvikana ukundi."* Amuga ashobora gusobanurwa mu rurimi rumwe, mu ndimi ebyiri cyangwa se mu ndimi nyinshi. Amuga ashobora kandi no gusobanurwa n'ayo bihije igitsibo k'inyito dusanga mu zindi ndimi (Nikuze, 2022).

Igisobanuro kigira umwanya ntagereranywa mu mirimo y'ihangamuga n'igenamuga. Iryuga ntirishobora kuramba ridasobanuwe uko bikwiye mu gihe ijamba risanzwe atari

ngombwa kurisobanura hagaragazwa n'imikoreshereze yaryo. Gusa ijambo riboneka mu gisobanuro rigomba kuboneka mu nkoranya. (Sager, 1990) agaragaza ko igisobanuro gikoreshwa ku ryuga gikwiye kuba cyumvikana neza kandi kikaba ari cyo gikoreshwa mu nkoranya kigahura n'inshoza, ikivugwa cyangwa ikimenyetso.

Hari tumwe mu turango tw'ibisobanuro byiza nk'uko byagaragajwe na ISO (2000) twashingirwaho isesengura.

- Igisobanuro kiza kivuga inshoza icyo ari cyo;
- Igisobanuro kiza ntigihakana;
- Igisobanuro gitanga amakuru akenewe ntikivuga inshoza mu magambo menshi;
- Igisobanuro kiza ntikigarura ijambo cyangwa iryuga;
- Igisobanuro kiza kiba kiri mu mvugo yoroshye kandi cyumvikana;
- Igisobanuro kiza kiba kigendanye n'igihe;
- Igisobanuro kiza gisubiza ikibazo "Ni iki?"

Twakongeraho ko igisobanuro kiza kigomba kuba ari ndangamiterere aho kuba ndondorangingo. Mu kwandika ibisobanuro hari ingingo zigomba kwitonderwa harimo nk kuba igisobanuro cyandikwa mu nteruro mbonezamvugo yoroheje isozwa n'akabago. Ikindi ni uko igisobanuro gitangizwa inyuguti nkuru kandi kigatangizwa ijambo riri mu bwoko bw'amagambo bumwe.

Amuga y'ikoranabuhanga mu Kinyarwanda yasesenguwe hanibandwa ku bisobanuro byayo kugira ngo hasuzumwe amoko yabyo, ko byuzuye cyangwa se bitaboneye. Ibisobanuro bifututse bituma inshoza zumvikana kandi zigafatwa vuba.

Bisanzwe bizwi neza ko mu iyigandimi ibisobanuro bishyirwa mu moko hashingiwe ku ngingo nyinshi ariko mu z'ibanze twavugaga nk'igitsibo nyanshoza (champ notionnel), igitsibo nyarutonde (champ lexical) n'igitsibo nyanyito (champ sémantique). Abashakashatsi banyuranye bagiye bagaragaza amoko atandukanye y'ibisobanuro ariko

ay'ibanze ni abiri akurikira: igisobanuro ndangamiterere (intensional definition) n'igisobanuro ndondorangingo (extensional definition) (Musabeyezu,2022; Nkusi,2018). Nk'uko tubikesha urubuga rwa interineti¹², Noah (2019) agaragaza ubwoko butandukanye bw'ibisobanuro. Tugiye kwibandaho kuri bimwe muri byo.

4.5.1. Igisobanuro ndangamiterere

Igisobanuro ndangamiterere gifuturira ku buryo bwumvikana imiterere y'inshoza. Akenshi muri bene ubu bwoko bw'igisobanuro hagaragaramo uturango mboneshwajisho cyangwa mboneshwabwenge tw'inshoza mu ruhererekane rw'amagambo akigize (Lehmann & Martin-Berythet, 2003, Musabeyezu, 2022).

Ingero:

- **Intembezwantoki** bita "touchpad" ni igikoresho nyereka gifite ubuso burambuye akenshi kiba ku ruhande rwo hasi kuri mwandikisho.
- **Simatifoni** ni terefoni igendanwa ifite ubushobozi buteye imbere nk'ubwa mudasobwa, nko kubasha kwakira imeri, guhanga no gukosora inyandiko cyangwa kumanura no gukoresha porogaramu zitandukanye.
- **Ijambobanga** ni igicenteruro kigizwe n'inyuguti, imibare ndetse n'ibimenyetso bidasanze byagora undi muntu gufundura.

4.5.2. Igisobanuro ndondorangingo

Abashakashatsi bagaragaza ko igisobanuro ndondorangingo ari imbusane y'igisobanuro ndangamiterere kubera ko cyo gikora gusa urutonde bw'ibyo inshoza yumvikanisha (Lehmann & Martin-Berythet, 2003).

¹²

[https://human.libretexts.org/Bookshelves/Philosophy/Critical_Reasoning_and_Writing_\(Levin_et_al.\)/02%3A_Language_-_Meaning_and_Definition/2.06%3A_Defining_Terms_-_Types_and_Purposes_of_Definitions](https://human.libretexts.org/Bookshelves/Philosophy/Critical_Reasoning_and_Writing_(Levin_et_al.)/02%3A_Language_-_Meaning_and_Definition/2.06%3A_Defining_Terms_-_Types_and_Purposes_of_Definitions)

Ingero:

-Isanduku ya mudasobwa: Iba irimo ubwonko bwa mudasobwa buzwi ku izina rya sipiyu, ubwibukiro bw'ibanze, n'ibikoresho-bubiko nka hadi disike na musomyi ya dividi bikoresha mu kubika amakuru shingiro ku buryo burambye.

- Ibikoresho nyunganizi: Mucapyi, indangururamajwi, kamera, mikoro, mwandikisho, imbeba na mugaragazi.

Bene ibi bisobanuro ndondorangingo bigaragaza inenge z'uko bitakoresha mu nkoranya ku rwego rwiza. Nubwo bitabura mu gusobanura inshoza zimwe na zimwe birakwiye ko abagenamuga bagaragaza kunoza ibisobanuro biteye nk'uko byagaragajwe n'ubushakashatsi.

Tugendeye ku byo ubushakashatsi bwagarageje, hari izindi ngeri z'ibisobanuro by'inshoza zasesenguwe. Tugiye gutanga ingero ngombwa.

4.5.3. Igisobanuro mbonwa

Igisobanuro mbonwa (ostensive/ostentatoire) kiranga ku buryo bunoze uko inshoza iteye hakongerwaho n'amashusho cyangwa amafoto. Bene ibi bisobanuro biba byiza cyane kubera ko bituma igisobanurwa cyumvikana neza kandi hakoreshejwe amagambo make (Nkusi,2018). Mu rwego rw'ikoranabuhanga, amafoto yagaragajwe n'ibisobanuro biyafatiyeho ni umurongo mbonera wari ukwiye kubera ko abiga batari basanzwe bazobereye iby'ikoranabuhanga n'ibyo bijyana na byo. Twakongeraho ko ibisobanuro mbonwa bifasha umusomyi gusobanukirwa vuba no kuvumbura ibindi bigize inshoza.

Ishusho ya gatatu: Urugero rw'imiterere y'igisobanuro mbonwa

INTEMBEZWANTOKI – IBISOBANURO

Intembezwantoki bita "touchpad" ni igikoresho nyereka gifite ubuso burambuye akenshi kiba ku ruhande rwo hasi kuri mwandikisho.



Inkuro: Intore mu ikoranabuhanga, urupapuro rwa 17

4.5.4. Igisobanuro nyarutonde

Igisobanuro nyarutonde (lexical definition) gishingira ku ngeri yihariye kandi kikavanaho urujijo mu magambo asobanura inshoza nshya.

4.5.5. Igisobanuro nzimbuzi

Igisobanuro nzimbuzi (encyclopedic definition) kiva imuzingo amakuru yose yerekeye inshoza isobanurwa.

4.5.6. Igisobanuro mumaro

Igisobanuro mumaro (functional definition) gishingira ku gikorwa cyangwa umumaro w'inshoza isobanurwa ugereranyije n'izindi nshoza zisanzweho.

4.5.7. Igisobanuro mvugakimwe

Igisobanuro mvugakimwe (synonym definition) gitanga impuzanyito /imvugakimwe ishobora kura ari ijambo rimwe cyangwa itsinda ry'amagambo.

4.5.8. Igisobanuro nyagace

Igisobanuro nyagace (partitive definition) gitangwa ku gace kamwe k'inshoza kamwe mu duce tugize ikintu kigari hagatangwa ikinyuranyo ugereranyije n'izindi nshoza bihuje inyito.

Urugero:

Umusemburo: kimwe mu bivaruganda gikoreshwa cyane mu gusembura no kubyimbisha imigati, ...

4.5.9. Igisobanuro nyamiterere

Igisobanuro nyamiterere (structural definition) kigaragaza ishusho nyayo cyangwa imiterere mboneshwajisho cyangwa mboneshwabwenge y'icyo ushaka kwerekana ariko nta mashusho cyangwa amafoto uhereyeho.

Mu isesengura ryakozwe hari ubundi bwoko bw'ibisobanuro bigaragaza kuba bitaboneye igihe hasobanurwa inshoza yo ngeri iyi n'iyi. N'ubwo ubushakashatsi butagaragaza ibisobanuro byose bifite inenge, hari ibigarukwaho kenshi kurusha ibindi ari na byo bikurikiraho kandi byasesenguwe mu nyandiko yifashishijwe n'umushakashatsi.

4.5.10. Igisobanuro ngubirajambo/ ngaruraryuga

Igisobanuro ngarurajambo/ngaruraryuga (circular definition) kirigarura iryuga cyangwa ijambo mu ruhererekane rw'amagambo asobanura inshoza nshya. Mu igenamuga, igisobanuro nk'iki ntikiba kiboneye.

Urugero:

- **Porogaramu y'imbarambare** "Microsoft Excel" ni **porogaramu** y' ikoreshamibare ishobora kugufasha mu gutunganya no kugena imari ukoresheje za forumire na fongisiyo mu gukora **imibare** itandukanye.

- **Mwandikisho** ni **nk'imashini** yo **kwandika** kandi uyikoresha mu **kwandika** no guha amategeko mudasobwa.

4.5.11. Igisobanuro ngereranya

Igisobanuro ngereranya gikoresha icyungo "nka" gifite umumaro wo kugereranya inshoza yumvikanisha imiterere ijya gusa n'iy'iyindi isanzwe izwi. Ibisobanuro biremetse bitya bitera urujijo kubera ko akenshi bisaba kubanza gusonanukirwa imiterere y'inshoza bigereranywa. Indi nenge ni uko na byo bitarasa ku nshoza nyirizina.

Ingero:

- **Mugaragazi** ni **nka** ekara ya tereviziyo. Ituma ubona amakuru shingiro uri kwinjiza muri mudasobwa.

- **Mwandikisho** ni **nk'imashini** yo **kwandika** kandi uyikoresha mu **kwandika** no guha amategeko mudasobwa.

4.5.12. Igisobanuro nkene

Igisonaburo nkene kirangwa no kuba hari hari amakuru ngombwa azimizwa kandi akenewe kugira ngo iryuga ryumvikanishe icyo inshoza irenguriraho.

Ingero:

- **Agashushondanga** ni agafoto gato kerekana ikintu runaka.

- **Mugaragazi** ni nka ekara ya tereviziyo.

Ibisobanuro bikennye bigaragazwa kandi no kuba bidakoresha ngenga ya gatatu.

Urugero:

- **Taburete** ni igikoresho nziramugozi gituma ubasha kujya ku mbuga za murandasi, kohereza imeri, kureba amafoto na videwo, gusoma ibitabo, no gukoresha porogaramu zitari nini.

4.5.13. Igisobanuro nyuranyangingo

Mu nyandiko yasesenguwe, hari ahakoreshejwe igisobanuro kitavuga ukuri inshoza.

Urugero:

- **Imeri** ni igikoresho k'itumanaho gikunze gukoreshwa haba mu kazi cyangwa umuntu ku giti cye.

4.6. Itira ry'amuga y'ikoranabuhanga

Umuco wakira ibintu bitandukanye n'amazina yabyo cyane cyane iyo utari ubisanganywe. Duseguriye ku byagaragajwe mu mutwe wa kabiri ku nzira z'ihangamuga nk'ikomoranshoza, n'ikomoranyumvo, itira ni inzira kandi ikaba n'uburyo bwifashishwa cyane mu mirimo yo kubonera ururimi amagambo cyangwa amuga yita iby'ubumenyi, ubuhanga n'imikorere mishya hanyuma agashyirwa mu rutonde (Neveu, 2004).

Itira ribaho mu ndimi zose kubera ko zihora zikura kandi zigakenera gusobanura ibyinjira mu muco uko bwije n'uko bukeye. Ibi bisobanuye ko hatabaho ururimi rukize n'ururimi rukennye nk'uko byagaragajwe n'abacengerandimi by'umwihariko Nazam Halauoi (1991).

Bizimana, (1998:12) yagaraje ko kwaduka kw'ikintu cyangwa inshoza bidasanzwe bishakirwa ijamba rishya. Akomeza avuga ko gutira bishingira ku gusaabaana kw'imico itandukanye. Uko guhura kw'indimi ni ko kubyara gutizanya amagambo cyane cyane ururimi rurusha urundi agaciro rukaba ari rwo rutiza urundi amagambo. Ibi bisobanuye ko gutira ari ukwinjiza iryuga rishya mu rurimi umuntu aba asanzwe avuga twafata nk'ururimi kavukire.

Nkusi (1983:4) yagaragaje ko ari gutira, DIKI-KIDIRI abyita guhaha. Akomeza agira ati: *“Icyo ukeneye ugihaha aho kiri, uwo ugihashyeho ntakomeza kukita icye, ihaho kandi riba iry'urihashye. Uhaha ahahira inzara kandi ntaho idatera, ikibi ni uguhahira ingeso. No mu ndimi ni uko. Nko mu buhanga buhanitse nta soni zo gukoresha amagambo y'amatirano”*.

4.6.1. Uburyo itira rikorwamo

Abacengerandimi bazobereye ibyerekeye ubuhanga bwo gutira bagararaje ko habaho uburyo bubiri bwifashishwa kandi bwuzuzanya: itira rikorerwa mu rurimi rumwe n'itira rikorerwa mu ndimi mvamahanga.

4.6.1.1. Itira rikorerwa mu rurimi rumwe

Itira rikorerwa mu rurimi rumwe rikunze kugaragara igihe ingeri y'ubumenyi cyangwa ubuhanga imwe itiza indi amuga (Dubuc, 1980). Dubois (2007) we abyitwa ukwĩitiira. Iri tira ribaho igihe hafatwa amagambo asanzwe mu rurimi mbonera cyangwa gikwira agahabwa ibisobanuro bishya. Ikindi ni uko ubu bwoko bw'itira bushobora no kuzura amagambo ya kera twita urunyacyirima aba asanzwe adakoreshwa cyangwa hakitabazwa amagambo akoreshwa mu ndimi shami abandi bita imvugo z'uturere.

4.6.1.2. Itira rikorerwa mu ndimi mvamahanga

Itira rikorerwa mu ndimi mvamahanga, abandi bita *itira mvamahanga* ryibanda ku ndimi zitandukanye zishobora kuba zisangiye umuryango nyarurimi cyangwa se zitawusangiye (Dubuc,1980). Mu Rwanda, gutira amagambo mu ndimi z'amahanga byadutse igihe mu mucu hisukiranyagamo ibitari biwusanzwemo maze abacuramuga babura igihe gihagije

cyo kubisesengura ngo babyite amazina ahwanye na byo mu rurimi rw'Ikinyarwanda. Na n'ubu ni ko bimeze kandi nta muntu n'umwe ushobora kubihagarika (Uwamariya, 2009).

4.6.2. Impamvu zitera indimi gutira

Haspelmath (2009) agaragaza impamvu zitandukanye indimi zishingiraho itira. Muri izo mpamvu twavugamo izishingira ku muco, izishingira ku bwema (prestige) bw'ururimi ku ruhando mpuzamahanga, ku bwisanzure n'izindi zishingiye ku myumvire y'uko ibitekerezo biteye imbere byihishe mu ndimi z'amahanga kurusha ururimi kavukire (puristic attitudes). Ku byerekeye uturango nyarurimi asobanura ko amazina yoroshye kuyatira kurusha inshinga kuko yo igora kuyisanisha ku miterere y'ururimi rutira.

4.6.2.1. Impamvu z'umuco

Iyo hari ibidasanzwe byinjiye mu muco biturutse hanze kandi bigakomeza kwiganza bishakirwa uko byitwa byananirana amagambo abyita akinjizwa mu muco uko yakabaye (Haspelmath, 2009). Nanone twavugaga impamvu y'itoneshamuco. Ni ukuvuga ko abagize umuryango uyu n'uyu bashamadukeye imico yo hanze bakayitorako bakayisimbuza iyabo kandi n'ubuyobozi bukabigiramo uruhare rufatika. Kuri izi mpamvu twakongeraho ko hatirwa mu rurimi rw'amahanga ruvugwa mu gihugu kubera ko nta muntu utira mu rurimi utazi cyangwa atisanzuramo. Abakuze ntibakunda kwakira ku buryo bworoshye amatirano. Baba bumva ari iby'abato no guta umuco.

4.6.2.2. Impamvu y'ubwema

Ubusanzwe, iyo hari ijamba risanzwe mu rurimi nta mpamvu yo gutira ibaho. Iritirano risimbura irisanze mu rurimi kugira ngo abantu bisanishye n'imibereho ya ba nyirarwo. Mu rwego rw'umuco, hari inkurikizi ku rurimi zihita zigaragaza harimo nko kwiyongera kw'amagambo agize ururimi n'icyo avugaga. icya kabiri ni uko iritirano risimbura ijamba bihugye igisobanuro ariko ritagikoreshwa cyangwa rikaba ryarahinduye igisobanuro cyaryo. Mu byerekeye ubwema bw'ururimi rutira ni uko havuka ibangikanyandimi aho ijamba ry'iritirano ribangikana n'ijamba gakondo bihugye igisobanuro bigakorwa kubera ko kumenya indimi z'amahanga ari ryo shema.

4.6.2.3. Impamvu y'ubwisanzure

Ubushakashatsi bwagaragaje ko abageze mu ishuri rigezweho bakiga amasomo y'ubumenyi, ubuhanga, ubugeni n'ikoranabuhanga babangukirwa cyane no gukoresha amagambo y'ururimi bizemo. icyavugwa ni uko bitorohera buri wese gutira ijambo ripfobya iby'umuco karande w'ururimi rutira (Dixon,2002).

Twavuga ko itira ari uburyo bwo kwinjiza mu rurimi ijambo cyangwa akarango k'ururimi bifite inkomoko mu rundi rurimi rigahabwa uturango tw'ururimi rushya rikaba rishobora kugumana inyito kamere cyangwa igahinduka, rikisanisha ku nyemvugo y'ururimi ryinjiyemo ndetse rikanahabwa intego hakurikijwe ubwoko bw'ijambo. Mu rurimi rw'Ikinyarwanda ho, ijambo ritiwe rigenekerezwa ku miterere yarwo maze rigasanishwa ku mvugo n'amajwi rifata ubutinde bw'inyajwi n'amasaku. Iyo ari inshinga igenerwa umuzi naho ryaba ari izina rigahabwa inteko. Itira tibaho ku rwego rw'iryuga (terme) n'igisobanuro (sens) kandi kwiga igisobauro bishingira ku mvugiro (Nkusi, 2018). Hashobora gutirwa ijambo riri mu bwinshi cyangwa mu bumwe bitewe n'imiterere yaryo n'inshoza ryita. Akenshi hatirwa ijambo riri mu bumwe kurusha iriri mu bwinshi.

4.6.3. Itirantego

Itirantego ribaho iyo intego y'ijambo ryatiwe iba isa n'intego y'ijambo ryo mu rurimi ryatiwemo ari rwo twita ururimi mpero (Urujeni, 2007). Iyo umuntu asuzumye neza asanga itirantego ryibanda ku kwinjiza mu rurimi amagambo y'urundi rurimi hatabayeho guhinduka kw'intego ndetse ngo habeho no guhabwa intego nshya ishingiyeye ku miterere y'ururimi ijambo ryinjiyemo. Mu ijora ryakozwe ku muga y'ikoranabuhanga mu Kinyarwanda, dusangamo amuga afite bene iyi miterere.

Ingero: Windows 10, LinkedIn, Skype

4.6.4. Itiranyito

Itiranyito ribaho igihe ijambo ryatiwe mu rurimi mpero rigumana igisobanuro cyaryo. Twakongeraho ko inyito yaryo ishobora kuba inyito mbonera cyangwa inyito shusho. Itiranyito kandi rishobora no gutira imwe mu nyito z'irindi jambo hagamijwe guhwanisha ibifite imisusire imwe, (Dubuc,1980). Amuga afite igisobanuro kimwe nk'icyo mu rurimi

mpero ni menshi mu Kinyarwanda. Isesengura ryakorwe amuga y'ikoranabuhanga, ubushakashatsi bwagaragaje ko hari amuga menshi ateye atyo.

Ingero: Imeri, laputopu, tabureti, modemu, taci

4.6.5. Itiramvugo cyangwa itira mvugonkomoko

Tuvuga ko habayeho « itira mvugonkomoko » iyo mu rurimi hatiwe imvugo. Ubushakashatsi bwacu bwagaragaje ko amwe mu matirano ahuje imvugo n'amagambo yo mu rurimi rwatiwe agumana n'inyito zayo.

Ingero : Sipamu, imeri, twita...

4.6.6. Itira nyantiti

Itira nyantiti ribaho iyo mu ngeri y'ubumenyi cyangwa ubuhanga ubu n'ubu hakoreshwa amuga yatiwe n'inzobere ariko hagakurikizwa amategeko agenga itira kugira ngo habeho ubwumvane. Amagambo yatiwe muri ubu buryo ntasanishwa n'imiterere y'ururimi yinjijwemo. Mu Kinyarwanda ho usanga bene aya magambo cyangwa amuga yiganjemo cyane cyane mu ngeri z'ubuhanga ubumenyi n'ikoranabuhanga.

4.6.7. Itira mvarubanda

Tuvuga ko habayeho itira mvarubanda iyo imvugo ya giseseka ishingiweho hagatirwa ijambo runaka wenda bitewe n'ihushanoza, ihushamvugo, kumvirana, kudasobanukirwa ikivugwa n'ibindi rubanda rwivugira. Nta jambo ryagaragaye mu rutonde rw'amuga yasesenguwe ryatiwe hakoreshejwe ubu buryo ariko hari urugero dusanga mu kinyarwanda rushimangira uko ubu bwoko bw'itira bukorwa. **Gitifu** ni ijambo ryatiwe biturutse kuri rubanda batari bazi kuvuga « *Exécutif* ».

Tugendeye ku iyigakomoka ry'amagambo n'amuga y'ikoranabuhanga, tugashingira kandi ku byanditswe n'abacengerandimi batandukanye, twasanze amuga menshi yaratiwe mu ndimi z'amahanga cyane cyane mu rurimi rw'Icyongereza. Twakwibaza impamvu ari rwo rurimi rwatiye ikoranabuhanga amagambo menshi. Igisubizo ni uko ubushashakashatsi bwakozwe mbere mu by'ikoranabuhanga bwatangiriye muri Leta Zunze Ubumwe za Amerika kandi Abanyamerika bakaba bakoresha Icyongereza mu buzima bwose

bw'igihugu n'imibereho ya buri muni. Amuga y'ikoranabuhanga mu Kinyarwanda ntiyatiwe mu Cyongereza gusa kuko n'Igifaransa na cyo cyatiwe amuga menshi hashingiwe ku turango dukurambere tw'ururimi mpero. Iyo umuntu akoze isesengura nganankomoko asanga mu matirano yasesenguwe kandi yakoreshejwe mu bwanditsi bw'igitabo "Intore mu ikoranabuhanga" huzuyemo itirantego, itiranyito n'itira mvugonkomoko.

Akamaro k'amuga y'amatirano kagaragarira mu ihanamakuru rigamije kutugezaho ubuhanga n'ubumenyi mvamahanga bwaba ngirafato cyangwa mboneshabwenge kandi bugahererkanywa hagati y'abize amashuri n'abatarayize uko ibihe biha ibindi (Munyakazi, 2001). Gutira bigira akamaro kuko bituma ihangamuga rigira agaciro rikagera ku ntego zaryo nko gukungahaza ururimi.

4.6.8. Ukwemerwa kw'amatirano

Mu rwego rw'iyigandimi, amatirano yemerwa iyo ahuje n'ururimi rutira imiterere nyemvugo, nyantego, imyandikire no kwisanisha mu nteruro. Twakwibukiranya ko ijambo ry'iritirano ryemerwa cyane cyane iyo rikenewe n'abenerurimi kandi by'akarusho rikaba rivugitse ku buryo butagoranye. Mu gihe rigoranye kubera imiterere nyemvugo hakoreshwa ijambo rifite imisusire idasanzwe (unusual shape) ku buryo inshoza idatakaza umwimerere. Ikindi ni uko iritirano rishobora kwemerwa kabone n'ubwo iryo rikomokaho ryaba ritazwi.

4.6.9. Ukutemerwa kw'amatirano

Mu rurimi uko ijambo ritiwe si ko rihita ryakirwa n'abenerurimi bitewe n'impamvu bwite z'abarikeneye. Kugira ngo amatirano ntiyemerwe ni uko aba agaragaza tumwe mu turango dukurikira :

- Amatirano ntiyemerwa iyo hari amuga cyangwa amagambo asanzwe mu mucu yita inshoza nshya ;
- Amatirano ntiyemerwa iyo bigaragara ko yahita asimburwa n'andi y'amacurano mu gihe gito. Ashobora kandi no kuba agaragara ko atafata ngo ahame mu rurimi rutira;

- Amatirano ntiyemerwa iyo agoranye mu mvugo cyangwa atisanisha ku nyemvugo y'ururimi yinjijwemo.

4.6.10. Ibibazo by'amatirano

Amatirano menshi agaragaza Ikinyarwanda nk'ururimi rukennye kandi rufite intege nke imbere y'indimi z'amahanga zikomeza kukivogera umunsi ku munsi cyane cyane icyongereza gikomeje kwigarurira isi. Ikindi kibazo ni itira rihutiyeho (Emprunt de luxe) ritera ururimi rw'Ikinyarwanda ikinegu no guta umwimerere warwo (Niyomugabo, 2021). Uretse ibibazo bimaze kugaragazwa hari ibindi bibazo bishingiye ku bisobanuro. Mu muga yakorewe isesengurajora, ubushakashatsi bwagaragaje ko hari amatirano menshi adafite ibisobanuro mu Kinyarwanda, andi afite ibisobanuro bituzuye, ibindi ntibivuga ukuri cyangwa se bikaba bikocamye.

4.7. Ubuhinduzi bw'amuga y'ikoranabuhanga

Ubuhinduzi ni imwe mu nzira zikoreshwa mu buhanga bwo gushakira ururimi amuga n'amagambo yifashwisha mu ihanamakuru n'ubwumvane. Mu iyigandimi, ijambo « guhindura » ryumvikanisha ko ari ukuvana mu rurimi mvamahanga ijambo, interuro, umwandiko bikubiye mu nyandiko runaka bikinjizwa mu rurimi kavukire rw'abakeneye kwakira ubumenyi bw'ibyinjira mu muco wabo (Gasana,1983, Kabagema,2021). Amuga ahinduye akenshi ntasaba ibisobanuro nk'uko byasesenguwe mu nyandiko « Intore mu ikoranabuhanga ».

Iyo iryuga rishya ribonetse mu mirimo y'ubuhinduzi ni umwanya mwiza wo kurimenya, kurishakira uko risomwa, kuriha igisobanuro n'utundi turango tw'ururimi ryinjijwemo. Mu gihe hemejwe iryuga iri n'iri rigasimbura iryari risanzwe mu rurimi haba ibibazo byo kwibaza impamvu irisanzweho ritemewe. Kugira ngo imirimo y'ubuhinduzi igere ku ntego zayo ni uko mbere na mbere haba hari itonde ry'amuga/amagambo, intonde cyangwa se inkoranya biba bisanzwe mu rurimi bikubiyemo amuga yabonejwe. Twakwibukiranya ko ku byerekeye imikurire y'ururimi ruhora rwivugurura umunsi ku wundi kandi rukigwa kugira ngo rujyane n'igihe (Niyomugabo, 2021).

4.7.1. Zimwe mu nenge zigaragara mu buhinduzi n’uko zakemuka

Umurimo w’ubuhinduzi ugomba gukorwa n’impuguke bafatanyije n’abacengerandimi hagamijwe kuwonoza.

- Guhindura iryuga cyangwa ijamba ariko ugasanga hakoreshejwe amuga cyangwa imvugo z’umuhinduzi. Ibi bitera ibibazo byo kubusanya no gutanga ubutumwa uko bikwiye. icyakorwa kugira ngo iki kibazo gikemuke ni ukubanza guhuriza hamwe abahinduzi n’abacengerandimi bakungurana ibitekerezo ku ryuga cyangwa imvugo biboneye, bakumvikana ku ryuga rikoreshejwe mbere y’uko imirimo y’ubuhinduzi itangira.
- Guhindura nta mwenerurimi uhari ngo abigiremo uruhare cyangwa ngo haboneke abahanzwe inyandiko mbere cyangwe se amagambo ahindurwa : mbere na mbere ni byiza kwifashisha abahanga/ inzobere mu ndimi ebyiri ziba zirebwa n’imirimo y’ubuhinduzi.

4.7.2. Ingero z’amuga yakorewe ubuhinduzi

- Amapaji yo ku rubuga (Webpages)
- Agasanduku k’ishakisha (Search box)
- Mutanga serivisi za interineti (Internet Service Provider)

Impugukirwa:

Intera zishingirwaho ubuhinduzi ni nyinshi ku buryo n’inzira zifashishijwe mu guhanga amuga ziba zifitanye isano ya hafi n’ubuhinduzi. Umuhinduzi yitondera imiterere y’ururimi ari guhinduramo iby’ubumenyi, ubuhanga n’ikoranabuhanga kugira bizumvikane neza bitangije umwimerere w’ururimi.

4.8. Isesenguranyito ry’amuga y’ikoranabuhanga

Imirimo y’igenamuga ntisiga inyuma iyiganyito nk’igice cy’ururimi kiga inyito ya buri jambo.

4.8.1. Iyiganyito

Iyiganyito ni igice k'ingirakamaro mu kwiga no gusesengura ururimi mu bice byarwo byose. Abashakashatsi batandukanye nka Palmer (1981; Bizimana, 2002; Urujeni, 2007; Uwamariya, 2009; Neveu, 2004; Sibomana, 2011) basobanuye iyi nshoza nk'igice cy'iyigandimi kibanda ku bisobanuro by'amagambo n'ibindi bimenyetso nyarurimi bikoreshwa haba mu mvugo cyangwa mu nyandiko. Nanone kandi iyiganyito rifite intego yo kwiga inyito n'imisesengurire y'uturango dusobanura ururimi n'imihurire yatwo mu ihanamakuru.

Mu gusesengura iyiganyito hari amwe mu moko yaryo yigiye agaragazwa ***nk'iyiganyito nyurabwenge*** (sémantique logique) rirangwa no gusobanura inyito nk'isano iri hagati y'ibanyabumwe nyandimi n'ibinyabumwe bisanzwe. Hari ***n'iyiganyito nyarurimi*** (sémantique linguistique) ryibanda ku kugaragaza ko inyito ishingira ku nyumve itangwa n'inyumvisho. Kuri ayo moko twakongeraho ***n'iyiganyito nyamyitwarire*** (sémantique psychologique) ryiga inyito nk'isano iri hagati y'ibinyabumwe nyarurimi n'imigirire mbandasano. Twahinira ku ***iyiganyito nyakivugwa / nyamyumvire*** (sémantique cognitif) ryibanda ku nyito nk'isano iri hagati y'ubuzima, umutimana n'indenganyumviro (Neveu, 2004; Sibomana, 2011).

Ibimenyetso nyarurimi byibandwaho cyane mu iyiganyito ni inyumvisho, inyumve n'inyito. ***Inyumvisho*** ijambo rishushanya mu ntekerezo ishusho cyangwa imiterere y'inshoza mu gihe ***inyumve*** ari ishusho iba yahamagawe n'inyumvisho. Igisobanuro k'imiterere y'inyumve ni cyo bita ***inyito***.

4.8.2. Inyito

Inyito ni inshoza isobanurwa n'abashakashatsi mu iyigandimi baturiza ku bitekerezo byuzuzanya n'ubwo baba bakoresheje amagambo anyuranye. Bizimana (2002), Niyomugabo (2008) basobanura inyito nk'imyumvukanire y'ijambo cyangwa urwunge rw'amagambo. Mu iyigandimi, inyito yibanda ku cyo ijambo rivuga cyangwa rihagarariye (IRST, 2005; Sibomana, 2011). Mu misesengurire, abashakashatsi bakunze kugaruka ku bice biri by'inyito: ***inyito mbonera n'inyito mumaro***, (Bizimana, 2002; Urujeni, 2007).

4.8.2.1. Inyito mbonera

Inyisho mbonera igaragazwa nk'igisobanuro cy'umwimerere kitarimo amarenga. Igwizanyito ry'inyito mbonera ni ubundi buryo bwo kongera inyito nshya ku ijambo risanze itagombye igisobanuro.

Ingero:

- Imbeba: Inyamaswa;
- Isanduku: Igikorsho gakondo;
- Ubwonko: Igice cy'umubiri.

4.8.2.2. Inyito mumaro

Inyito shusho ni yo bita **inyito mumaro** ikaba ari indi nyito ijambo rishobora kongererwa habayeho kugereranya ibintu bihuje umumaro, imiterere cyangwa imimerere, imico cyangwa se imyifatire, indeshyo, ingano,...

Ingero:

- Imbeba: Igikoresho nyunganizi cya mudasobwa (ishusho);
- Isanduku ya mudasobwa: Igice cya mudasobwa (imiterere);
- Ubwonko bwa mudasobwa: Igice cya mudasobwa (umumaro).

Muri rusange mu rwego rw'iyigandimi, inyito ni agatsiko k'amagambo gahuriza hamwe ngo gasobanure irindi jambo. Uretse agatsiko k'amagambo yenda adahuye ariko afatanyaga mu gusobanura ijambo rimwe, amagambo anyuranye ashobora kurema agatsiko igihe ahuriye ku nsanganyamatsiko imwe bikitwa **igitsibo cy'inyito** cyangwa **itsinda ry'inyito**.

4.8.3. Ibyiciro by'iyiganyito

4.8.3.1. Ingwizanyito

Ingwizanyito ni amagambo afite inyito nyinshi naho **igwizanyito** ni ubushobozi amagambo agira bwo kugira inyito nyinshi (Bizimana, 2002; Urujeni, 2007). Mu muga y'ikoranabuhanga ubushakashatsi bwagaragaje ko harimo ingwizanyito.

Ingero:

- Ijambo « **Mushakishambuga** » ryita inshoza zitandukanye zirimo « browser, internet explorer, edge... » ;
- Ijambo « **Agashushondanga** » ryita inshoza zitanduakanye zirimo « **pointer, icon task view,...** »

Mu igenamuga, igwizanyito ntirishobora kubura bitewe n'impamvu z'umuco ariko kandi ni imwe mu nenge zishingirwaho ivuka ry'urujijo. Iryuga riboneye ryita inshoza imwe.

4.8.3.2. Impuzanyito cyangwa imvugakimwe

Ubushakashatsi bwagaragaje ko amagambo ahuje inyito ariko akaba yanditse ku buryo bunyuranye yitwa **impuzanyito** cyangwa **imvugakimwe** naho **Ihuzanyito** akaba ari ubushobozi amagambo agira bwo gusimburana mu nteruro.

Ingero :

- Interineti : murandasi
- Kumanura: gupakurura, gukurura, kuvoma...
- Kumadika : komeka

Mu igenamuga, impuzanyito nyinshi na zo ziteza urujijo.

4.8.3.3. Imbusane

Amagambo avuguruzanya ni ukuvuga ko rimwe riba rifite inyito inyuranye n'iy'irindi yitwa imbusane naho ibusana ni uburyo ayo magambo agira inyito zitandukanye, Bizimana(2002).

Ingero:

- Kwagura ≠ gutubya
- Gutangira ≠ gufunga
- Kwinjira ≠ gusohoka
- Kwatsa ≠ kuzimya

4.8.3.4. Imvugwakimwe

Impuzamvugo cyangwa **imvugwakimwe** ni amagambo agira ubushobozi bwo kugira ubutinde n’amasaku bimwe n’amajwi amwe ariko ugasanga avuga ibintu bitandukanye

Urugero:

Desikitopu: - Ubwoko bwa mudasobwa

- Ububiko bw’amakuru

4.8.3.5. Impuzashusho

Impuzashusho ni amagambo agira ubushobozi bwo kwandikwa kimwe mu myandikire isanzwe ariko akaba atandukanye mu nyandiko ya gihanga igaragaza ubutinde n’amasaku bityo agasobanura ibintu bitandukanye.

Urugero:

Muraândasî (interineti) ≠ murândasi (ijambo ryakomowe ku nshinga “kurandata” isonanura Kuyobora umuntu utabona cyangwa utuzuye mu mutwe akagera ahantu runaka).

4.8.3.6. Inyakira

Inyakira cyangwa **ingenganyito** (hypéronyme) ni ijambo rihuriza hamwe inyito z’inshoza zitandukanye (Bizimana, 2002). Inyakira zikoraniye hamwe akenshi ni zo zibyara igitsibo cy’inyito cyangwa igitsibo cy’inshoza. Iyi nshoza y’inyakira ifitanye isano ya hafi cyane n’**iyitirira mbumbe** (horonyme) rifite intego yo kwita ikintu cyose uko cyakabaye ariko nanone gihagarariye ibindi, (Nkusi,2028).

Ingero:

- Ijambo “ **Mudasobwa**” ni inyakira kubera ko ari ryo rihagarariye andi mazina y’amoko ya mudasobwa abaho hano ku isi.

- Ijambo “**Mikorosofuti Ofisi** ” ni inyakira kubera ko ibumbiye hamwe porogaramu zitandukanye ziyikubiyemo.

4.8.3.7. Inyakirwa

Inyakirwa (hyponyme) ni ijambo ryita inshoza imwe mu zihagarariwe n'inyakira (Bizimana, 2002). Mu isesengura ryakozwe kuri iyi nshoza, ubushakashatsi bwagaragaje ko hari isano iri hagati y'inyakirwa n'iyitirira nyagace (méronyme) hashingiwe ku kuba izi nshoza zombi zihurira ku kwita inshoza iri munsu y'inyakira. Ku byerekeye iyitirira nyagace, ijambo ryita igice k'inyakira ni ryo rihagararira rimwe na rimwe ikintu cyose.

Ingero:

- Ijambo **“Laputopu, desikitopu, mudasobwa rukomatanya”** ni inyakirwa kubera ko ari ukwoko bwa mudasobwa.

- Ijambo **“Taci”** rigaragaza iyitirira nyagace kubera hari ibikoresho by'ikorabuhanga bifite igice gikorwaho maze porogaramu zibirimo zigakora neza. Ibyo bikoresho bishobora kuba terefoni cyangwa mudasobwa y'ubwoko runaka.

Ikigaragara mu muga y'ikoranabuhanga yakorewe isesengurajora, ubushakashatsi bwakozweku iyiganyito bwagaragaje ko amuga menshi ari impuzanyito n'ingwizanyito. Ibyo rero ni inenge kubera ho ihame ry'ubuvuganyinshi ritemewe mu igenamuga keretse ahagaragara irengayobora rishingiye ku turango tunyuranye harimo n'utw'ururimi rushakirwa amgambo yihariye mu ngeri iyi n'iyi. Ikindi ni uko amuga adatondetse hakurikijwe uko abacengerandimi babigena nk'uko bisanzwe bizwi neza ko mu igenamuga, amuga ashobora gutondekwa hakurikijwe ibitsibo abarizwamo ka nyanshoza, nyarutonde cyangwa nyanyito.

4.9. Ikibonezamvugo k'Ikinyarwanda n'amuga y'ikornabuhanga

Ikinyarwanda nk'ururimi rufite imiterere yihariye, kigira ikibonezamvugo cyubakiye ku matsinda abiri y'ingenzi: amagambo ahinduka n'amagambo adahinduka. Buri tsinda ryagaragajwe ribarizwamo amoko y'amagambo anyuranye agenwa hashingiwe ku turango twayo cyane cyane imiterere yayo, umumaro wayo n'umwanya wayo (Bizimana, 1998). Nk'uko bigenda bisobanurwa n'abashakashatsi banyuranye, amazina, inshinga, imigereka na ntera ni yo moko y'amagambo yigaragaza mu mirimo y'igenamuga nko mu gusobanura inshoza, guhitamo imyinjizo, kwiga inyito z'amagambo n'ibindi.

Mu gusobanura, hari amahame akurikizwa kugira ngo bigaragare ko amagambo yasobanuye iyo bihujwe ubwoko. Inshinga isobanura indi nshinga izina na ryo rigasobanura irindi, bityo bityo. Gusobanura ijambo irindi ridahujwe ubwoko na ryo bifatwa nko kurenga ku mahame rusange yubahirizwa mu iyigandimi. Ikindi kandi ni uko ubusanzwe imyinjizwa ari amagambo agomba gusobanurwa (Bizimana, 2002). Kugira ijambo ryinjizwe mu rutonde cyangwa inkoranya ni uko abagenamugaba bashingira ku bwoko bwaryo, uturango twaryo, imisesengurire ishingiywe ku ntégo n'ibindi. Ijambo rishobora kwinjizwa uko ryakabaye cyangwa hakarebwa uko ryakwinjizwa hashingiye ku gicumbi cyangwa umuzi. Ibyo ntibyagerwaho hatabanje kwitabazwa ubumenyi bushingiye ku kibonezamvugo. Muri iyi nyigo, ubushakashatsi bwagaragaje ko amugaba y'ikoranabuhanga yasesenguye, amenshi muri yo ni amazina n'inshinga.

Mu ibarura ryayakorewe, amazina arayinganyaga mirongo inani ku ijana (80%) Twakwibukiranya ko aya mazina ashobora kuba amazina gakondo cyangwa amatirano mu gihe tugendeye ku nkomoko cyangwa akaba amazina nyakimwe cyangwa ay'urusobe mu gihe harebwe intego zayo naho harebwa imiterere akaba yaba amazina rusange nyangwa amazina bwite. Ikindi twarenzaho ni uko mu gusesengura amugaba y'ikoranabuhanga hari amazina afutura ayo agaragiye abandi bita amazina nyegamira. Ku rundi ruhande, ibyavuye mu bushakashatsi bigaragaza ko inshinga zikabakaba hafi makumyabiri ku ijana (20%).

Uretse ibyerekeye amoko y'amagambo, ubushakashatsi bwagaragaje ko mu guhanga amugaba y'ikoranabuhanga, abayacuze n'abayahinduye mu Kinyarwanda bageageje kuyasanisha ku miterere y'ururimi rw'Ikinyarwanda. Yahawe intego ziranga amazina n'inshinga, amenshi agaragaza ko imivugirwe yayo igendeye ku butinde n'amasaku bishyirwa ku magambo no mu nteruro mbonezamvugo by'Ikinyarwanda. Hanyuma y'ibyo, amagambo yose y'amatirano, yisanishije ku iyigamvugo n'iyigamajwi by'Ikinyarwanda. Ibyo bigaragazwa n'uko hari ibinyabumwe nyarurimi byari byandikishijwe ibimenyetso biba mu rurimi rwatiwe amagambo maze bigenda bihuzwa n'amajwi ndetse n'imvugo bisanzwe mu rurimi rwatiye ari rwo Ikinyarwanda. Inenge zayanonetsemo zishingiye ku

kuba nta myandikire ya gihanga yagaragajwe kugira ngo abenerurimi boroherwe no kuyavuga neza cyane cyane abazobereye Ikinyarwanda.

4.10. Ibibazo by'amuga y'ikoranabuhanga mu Kinyarwanda

Ururimi rubumbye umuco w'abantu rugomba kurindwa imbogamizi izo ari zo zose (Ngulinzira, 1983). Hari intambwe zifatika zakomeje guterwa mu mirimo y'igenamuga mu Kinyarwanda. N'ubwo ururimi rwashakiwe amuga y'ingeri zinyuranye harimo n'Ikoranabuhanga, ntibibuza ko hakomeza kugenda hagaragara ingorane zishingiye ku ngingo zinyuranye harimo imihangire y'amuga, amuga ubwayo, ibuhinduzi, itira, ibisobanuro n'izindi (Musabeyezu, 2021, Nikuze, 2021). Mbere yo kugaragaza ibibazo amuga y'ikoranabuhanga agaragaza, turabanza kugaruka ku nzira zinyuranye amuga anyuramo kugeza ku rwego rwo kuba aboneye.

4.10.1. Ibibazo bishingiye ku bisobanuro

Kugeza magingo aya, amenshi mu muga y'Ikoranabuhanga akoreshe mu Kinyarwanda ntasobanuye. Bimwe mu bisobanuro byatanze ntibyzuye, ibindi usanga bigereranya inshoza ku ku yindi, ibindi bigenda bigarura iryuga cyangwa ijamba mu ruhererekane rw'amagambo agize igisobanuro. Hari ibisobanuye bikennye byagiye bigaragara mu muga make yasobanuwe, hari ibisobanuro byagiye bitangwa ugasanga ni rusange aho kuba ibyo mu ngeri ivugwaho, hari n'ibisobanuro kikorwa ku buryo bw'irondora. Ubu bwoko bw'ibisobanuro ntibwongerera ubumenyi abenerurimiariko cyane cyane abakoreshe amuga mu ngeri runaka ndetse n'abakunda gusoma. Ibi bisobanuro bituma hatabonekaimyinjizo ihagije ari yo ntandaro yo gukenesha ururimi. Ubusanzwe inshoza, iryuga n'ibisobanuro bigomba kuba bihura. Ibisobanuro bishobora kuba mu rurimi rumwe cyangwa izirenze rumwe ariko mu muga yasesenguwe nta ho bigaragara ko yasobanuwe mu ndimi z'amahanga kugira ngo hagereranywe ibisobanuro byayo. Kuri twakoneraho ko ari hake cyane amuga yasobanuwe mu Kinyarwanda.

4.10.2. Ibibazo bishingiye ku isakazwa ry'amuga y'ikoranabuhanga

Mu igenamuga, iyo amuga amaze guhangwa, guhindurwa cyangwa se gutirwa arasakazwa ku buryo busesuye hagamijwe ko agera ku bantu benshi bashoboka. Ni ku bw'iyi mpamvu

ubushakashatsi bwagaragaje ko muga y'ikoranabuhanga mu Kinyarwanda atasakajwe uko bikwiye haba mu buryo bw'inyandiko cyangwa uburyo bwifashisha ikoranabuhanga (RALC, 2014). Abashakashatsi batandukanye basobanura ku buryo bwimbitse inzira z'isakazamuga nko kuyashyira mu nyandiko, ibitabo, mu magazeti, ibitangazamakuru byandika cyangwa bivuga, ku bihangano mberajisho n'ahandi nko mu masomero afatika n'ayifashisha ikoranabuhanga, mu nganda n'ahandi henshi. Mugesera (1983) agaragaza ko asakazwa ku buryo bwihuse binyuze mu bucuruzi cyangwa ubushabitsi, kuyashyira ku birango (étiquettes), kuyabamba ahantu (affichage), kuyashyira mu nyandiko nyifashisho (catalogues, dépliants, brochures,...) mu masezerano (contrants) n'izindi.

Ibyavuye mu bushakashatsi bigaragaza ko amuga y'ikoranabuhanga yasesenguwe atigeze amenyerwa. Abashakashatsi mu by'iyigandimi (Gasana, 1983; RALC, 2014, Musabeyezu, 2022) basobanura ko amuga yasakajwe anyura mu nzego zitandukanye kugira ngo amenyerwe. Izo nzego ni izi zikurikira:

- Iryuga rikoreshe ubushakashatsi harebwa irivugitse ku buryo buboneye (Détection);
- Iyemezwa ry'amuga n'urwego rubifite mu nshingano cyangwa rwabiherewe ububasha (Normalisation);
- Gukwirakwiza amuga yabonejwe (diffusion);
- Gusuzuma urwego rwayo rw'ubuhame no kwinjizwa mu mikoresherezwe yayo (implantation);
- Kugaragaza amuga ashobora kuba ataboneye hanyuma akabonezwa agahuzwa n'igihe (Mise à jours).

4.10.3. Ibibazo bishingiye ku buhinduzi bw'amuga y'ikoranabuhanga

Ubusanzwe uhindura mu rurimi rumwe ajyana mu rundi ahera ku magambo cyangwa amuga asanzwe mu itonde, intonde, inkoranyamuga, inkoranyamagambo, aho atuye, umuryango nyarurimi abarizwamo n'ibindi maze ibyo bikabera ishingiro ryoroshya umurimo w'ubunduzi.

Mugesera (1981) asobanura ko Ikinyarwanda kiri mu muryango nyarurimi wa Kongo-Kardofan mu gihe icyongereza kiri mu muryango nyarurimi wa Indo-Européenne. Izo ndimi zombi zituranye mu Gihugu kimwe ku bw'impamvu z'ubuzima bw'Igihugu n'amahitamo y'Abanyarwanda (Niyomugabo,2021). Imirimo yo guhindura amuga yakoreshejwe mu gitabo Intore mu ikoranabuhanga hajemo inenge zitari nyinshi zituma agaragara nk'ataboneye.. Twavugaga nko guhindura ijamba nta kwita ku nyito y'inshoza zinjiye mu mucu nyarwanda n'imvugo bwite z'abahinduzi.

Mu kazi kose kakozwe, hajemo ikibazo cyo guhindura amuga yita inshoza z'ibitaba mu mucu nyarwanda hanyuma bikagorana rimwe na rimwe ugasanga iryuga rihinduwe ku buryo butaboneye hakaba hakoreshwa interuro (Nkusi,1981). Hari amuga amwe n'amwe agaragara nk'aho akabije uburebure bityo akaba yakwangwa hakitabazwa amatirano kurusha ayahinduwe (Mugesera, 1983).

Ingero:

- **“Interineti”** ni ryo rikoreshejwe kurusha **“Impuzamiyoboro y'isi ihuriza hamwe mudasobwa”**;

- **“Sipiyu”** ryakoreshejwe cyane kurusha **“Ubwonko bwa mudasobwa”**.

Hari kandi guhindura ku buryo bugerura iryuga ntihamenyekane ijamba mfutuzi cyangwa rifuturwa, igice kibanza cyangwa igikurikiraho.

Ingero:

-**“ Karawudi”** ni iryuga ritumvikanisha neza ikivugwa bitewe n'uko havuyeho **“Mikorosofuti”**.

- **“Thuza”** ni iryuga ritagaragaza igice cyageruwe.

Hari amagambo ahindurwa ugasanga nta sano afitanye n'inshoza.

Urugero:

Gusobanura ko “**Imeri**” ari “**igikoresho cy’ikoranabuhanga**” birenze imyumvire isanzwe.

4.10.4. Ibibazo bishingiye ku nyenvugo y’Ikinyarwanda

Ijambo ryose ryadutse mu rurimi, uryadukanye asabwa kuvuga uko risomwa iyo ritari risanzwe mu rurimi (Nkusi, 1983). Mu isesengura ry’amuga y’ikoranabuhanga, byaragagaye ko amuga atigeze agaragarizwa inyandiko nyemvugo cyangwa nyejwi. Iyo hagaragazwa kandi ubutinde bw’inyajwi n’amasaku byari gufasha abenerurimi kumenya imivugirwe yayo nta mbogamizi bahuye na zo. Inkurikizi z’ibyo bibazo ku Kinyarwanda ni nyinshi ariko iziza ku isonga ni ukutamenya kuvuga neza ijambo ryabugenewe mu buryo bukwiye no mu gihe gikwiye. Bizaba imbogamizi ku rurimi rw’Ikinyarwanda mu minsi iri imbere (Uwamariya, 2009). Ibyo kandi ni intandaro y’ihinduka ry’ururimi mu mivugirwe yarwo bitewe no gushyoma bishingiye ku ihindurasaku n’izindi mpamvu zishingiye ku kutamenya neza umuco karanda w’Abanyarwanda (Munyakazi, 2001).

4.10.5. Ibibazo bishingiye ku miterere y’amuga

Ihangamuga ryahawe imbaraga kugira ngo Ikinyarwanda giturane n’izindi ndimi mvamahanga kandi kinabashe gusobanura iby’amajyambere y’igihe tugezemo n’ikizaza (Uwamariya, 2009). Uko iminsi ishira indi igataha, habaho gukungahaza ururimi, amagambo n’amuga akavuka bitewe n’ingeri z’ubumenyi, ubuhanga n’ikoranabuhanga by’igihe tugezemo (Kabagema, 2021; Niyomugabo, 2021; Ntakirutimana, 2021). Mu rwego rw’ikoranabuhanga hari ibibazo byaragagaye mu mihangire y’amuga y’ikoranabuhanga yifashishijwe mu nyandiko yasesenguwe. Ubu bushakashatsi bwagarutse kuri bimwe muri byo kubera ko kubiva imuzingo uko byakabaye kwaba ari ukwigerezaho. Kugira ngo tubigereho twabanje kureba ibiranga iryuga riboneye nk’uko byagaragajwe n’abashakashatsi (Musabeyezu, 2022 na ISO,2000). Iryuga riboneye rirangwa n’ibi bikurikira:

- Iryuga rigomba kuba rikenewe;
- Rigomba kuba nta rindi bigongana;

- Rigomba kua ryoroshye kuryumva cyangwa kurisobanura;
- Kuba byoroshye kurikoresha mu rurimi atari rirerire kandi rishobora gukomorwaho andi;
- Kuba ridahamagara cyangwa rikibutsa ibintu bidashimishije mu mucu;
- Kubara ryahama rikamara igihe kirekire.

Ubushakashatsi bwagaragaje ko amuga yahanze mu Kinyarwanda ari make ugereranyije n'amuga akenewe mu rwego rw'ikoranabuhanga. Ibi bigaragazwa n'uko hari inshoza zakomeje kugaragazwa uko ziri mu Cyongereza. Kuri iyi ngingo twakongeraho n'ikindi kibazo cyo kubura imvugiro cyagaragaye mu muga yakorewe isesengurajora bitewe no kubura imyandiko, inyandiko n'ikigega cy'amuga.

Abashakashatsi banyuranye bazobereye igenamuga nka (Nikuze, 2021, Musabeyezu, 2022) basobanura ko kugira intego zitandukanye ari yo mbarutso yo gukora amuga ku buryo bw'intatane kandi kugeza magingo aya ntibirahinduka.

Ingero:

- **“CPU”** bamwe bayise **“ ubwonko bwa mudasobwa** abandi bayita **“ umutima wa mudasobwa”**;
- **“Screen”** bamwe bayise **“ mugaragaza”** abandi bayita **“irorero”**;
- **“Touch screen”** bamwe bayise **“taci”** abandi bayita **“irorero nkorakorwa”**.

Amuga yakozweho ubushakashatsi yagaragaje ko abura amakuru nshinganwa asabwa kugira age aherwaho mu mirimo yerekeye kuyacenshura no kuyaboneza. hejuru y'ibyo twasanze amuga y'ikoranabuhanga agaragara mu nyandiko yasesenguwe adatondetse. Kuyatondeka bifite akamaro ko korohereza abagenamuga mu mirimo yoze yerekeza ku gukungahaza ururimi mu ikoranabuhanga.

Tugendeye ku kuba iryuga rigomba kura ribangutse kandi rivutse ku buryo bworoshye, twasanze iri hame ritarubahirijwe kubera ko harimo amagambo akabije uburebure ku buryo izigama ry'ibimenyetso nyarurimi ryirengagijwe.

4.10.6. Ibibazo bishingiye ku buryo bwo kuboneza amuga y'ikoranabuhanga

Amuga y'Ikoraabuhanga twasesenguye agaragaza ko ataboneye. Ibikorwa by'ibonezamuga bibanzirizwa no kuyacenshura kugira ngo haboneka indundo ifite ireme. Mbere na mbere hakorwa ubushakashatsi bugamije gukoranya amuga y'ingeri runaka. Hakurikiraho kureba niba nta magambo ari ku rutonde agenda yisubiramo. Iyo ibyo birangiye hasuzumwa amagambo yari asanzwe akoreshwa muri iyo ngeri kandi ameneyerewe. Igikurikiraho ni ugusuzuma niba nta jambo rihuye na ryo mu Kinyarwanda; ryaba rihari hakigwa ku mwirondoro waryo riba ryarahawe ndetse niba unanoze. Iyo nzira irangwa n'uruhererekane rw'ibikorwa bitagira ingano. Ibikorikiraho bibumburirwa no kubaka imbonerahamwe igaragaza amagambo ari mu Kinyarwanda akabangikanywa n'ayo bihura ari mu ndimi z'amahanga n'ibisobanuro byayo. Hakurikiraho kujonjora afite inyito mu Kinyarwanda n'akiri mu rurimi mvamahanga. Iyo atari mu Kinyarwanda, harebwa igisobanuro cyayo, cyaba gikabije kuba kirekeire kikanozwa hagasigara ikiri ngombwa. Twakwibukiranya ko igisobanuro kinoze kitagomba kuba kirekeire. Hakurikiraho gushyira amagambo mu bitsibo bikwiye, nyuma yabyo hakabaho kugenekereza iryuga mu Kinyarwanda ariko bigashingira ku miterere y'inshinga n'ubutumwa yumvikanisha cyangwa se hakarebwa andi magambo agaragara mu gisobanuro. Inzira isorezwa ku gukomora inshinga cyangwa ijamba hagamijwe kubona iryuga ryakwifashishwa mu ihanamakuru (Nikuze, 2022; Kabagema, 2022).

Ibonezamuga ni cyo gikorwa gikurikira icenshurwa ry'amuga. Abagenamuga batumiza abahanga bagasuzuma ireme ry'amuga ari mu nzira zo kubonezwa. Bakurikizaho kureba uko yashyizwe mu Kinyarwanda hanyuma bakongera bagkagenzura niba hatarabayeho guhusha igitsibo cyangwa gusobanura ku buryo butuzuye cyangwa se gutanga igisobanuro kitavuga ukuri (Gasana,1983; Nikuze, 2022).

4.10.7. Ibibazo bishingiye ku nyito z'amuga y'ikoranabuhanga

Kuba iruga rimwe risobanura ibintu byinshi bitandukanye biteza urujijo. Ibyavuye mu bushakashatsi byagaragaje ko mu muga y'ikoranabuhanga yasesenguwe harimo ibibazo

bitari bike bishingiye ku nshoza y'igwizanyito n'uhuzanyito. Ibi iyo bigaragaye mu muga biba bigaragaza ko nta kuyaboneza byabayeho.

4.10.8. Ibibazo bishingiye ku mikoreshereze y'amuga y'ikoranabuhanga

Guhanga amuga y'ikoranabuhanga ku buryo bw'intatane byabaye intandaro yo gukoresha ku buryo butaboneye ururimi rw'Ikinyarwanda. Guhera mu rungabangabo hibazwa iryuga riboneye kurusha irindi si iby'i Rwanda. Umuryango uwo ari wo wose ugira uririmi kavukire rugira uruhare rugaragara mu ihanamakuru n'ubwumvane. Igihe umuntu atisanzuye mu rurimi, ibyo akora, abwirwa... abona ari iby'agaciro gake. Umuturarwanda umenyereye gukoresha Ikinyarwanda mu buzima bwe bwose bwa buri muni, arangwa no kuzitirwa n'indimi z'amahanga kubera inyunguramagambo nke. Ibi bitera kutanoza inshinganyukuru bikwiye kandi biragoye kubihagarika kukonta muntu n'umwe wahagarika umuvuduko w'iterambere ryifashisha ikoranabuhanga. Ikoreshwa ry'amuga ari mu rurimi rw'Ikinyarwanda abangikanye n'ari mu Cyongereza bifite inkurikizi zitari nziza ku rurimi no ku bantu bamwe na bamwe batazi urunyamahanga Kubera ko baba bumva batakaje tumwe mu turango tw'umuco karande wabo nk'Abanyarwanda, gutakaza inkomoko n'isano iri hagati yabo n'Igihugu ndetse bazatakaza n'ubushake bwo kugana ishuri no kwisanzura mu muryango we.

Kwiyungura ubumenyi bishoboka gake kubera ko imfashanyigisho zose atashobora kuzumva. Umuntu yakwibaza ikizakurikiraho mugihe ikoranabuhanga rikomeje kwivugurura umunsi ku muni ari na ko ryifashishwa muri kimwe cyose umuntu akenera. Kutisanzura bizarema amakimbirane mu muntu ku giti cyane ndetse akimbirane n'ibinyuzwa mu ikoranabuhanga. Ibi bishingira ku kuba ubwoko bwose bw'inyandiko n'ibikoresho biba biri mu rurimi rutisanzuwemo na buri wese. Amuga y'ikoranabuhanga afite imitere isa nk'aho ari amahamba kuri benshi mu bayakoresha. Mu buzima busanzwe biragoranye kuyafata no kuyakoresha neza. Ikindi ni uko ayo muga y'ikoranabuhanga Atari yo akoreshwa ku bikoresho byifashishwa Kubera ko byo byifashisha ayo mu cyongereza. Inkoranabuhanga cyangwa porogaramu zose ziba ziri mu Kinyarwanda. Urwo ruvugavange rw'imikoreshereze y'amuga ari mu Kinyarwanda n'atari mu Kinyarwanda ni urucantege ku buryo n'intego zigamijwe zitagerwa ijana ku ijana.

4.11. Impamvu zitera ibibazo bigaragara mu muga y'ikoranabuhanga n'uko byakemuka

Nta kibazo kitagira imvanyo nk'uko n'igisubizo cyacyo kitabura ngo gikomeze kibe agatereranzamba. Umushakashatsi yagerageje gusuzuma impamvu zitera ibibazo amuga y'ikoranabuhanga maze asanga atari nyinshi. Zimwe zishingiye ku gihe, urwego rw'uburezi, umuvuduko w'iterambere naho iz'ibanze zishingiye kuri poritiki y'indimi itariho mu Rwanda.

Kutagira poritiki y'indimi yubahirizwa mu Gihugu bidindiza imirimo yose yerekeye gukungahaza Ikinyarwanda kugira ngo kibashe gusobanura iby'ubwenge bw'ibihe byose by'ukubaho kwacu nk'Abanyarwanda. Kugira ngo byumvikane neza, ibikurikira ni imwe mu mimaro ya poritiki y'indimi.

- Poritiki y'indimi ni yo igena poritiki y'amuga irangwa no kugena amuga yemewe mu ngeri iyi n'iyi n'ibisobanuro byayo (Ntakirutimana, 2021).

- Poritiki y'indimi igena inzego zihariye zishinzwe amuga (Musabeyezu, 2022) Kuziba icyuho hashyirwaho inzego zitandukanye zihuriza hamwe ubushakashatsi bukorwa bugamije gushakira ururimi amuga aboneye.

- Poritiki y'indimi ni yo igaragaza uruhare n'umwanya by'ururimi rw'Igihugu mu igenamigambi rituganisha ku iterambere ryo mu nzego zose.

- Poritiki y'indimi isobanurira abanyaporitiki n'abandi inyungu zifatika n'izidafatika zikomoka ku gukoresha neza ururimi rw'Igihugu no kukibangikanya n'izindi ndimi z'ubutegetsi (Munyakazi, 2001).

- Poritiki y'indimi igena uko bashyiraho ububiko bw'amuga hifashishijwe ibikoreshe by'ikoranabuhanga n'inkoranabuhanga.

- Akandi kamaro ka poritiki y'indimi kagaragarira iteza imbere indimi n'aho zivugirwa (Ecolinguistique), irinda indimi kurya izindi (glottophagie), ishingirwaho igenamigami nyarurimi n'ibonezarurimi. Uruhare rwa buri rurimi mu butegetsi nta tegeko rirugaragaza

(Ngulinzira, 1983) kandi mu ngingo ya 8 y'Itegeko Nshinga rya Repubulika y'u Rwanda, Ikinyarwanda cyaratoneshejwe kikaba ururimi rw'Igihugu n'urw' ubutegets. Rubangikanywa n'izindi z'ubutegets zirimo icyongereza, Igifaransa n'Igiswayire

Gukemura bibazo bigararagara mu muga y'ikoranabuhanga bisaba ubufatanye bw'abakoranyamuga, abagenamuga, impuguke n'abacengerandimi. Bimwe mu byagabanya ibibazo byagaragajwe n'ibyavuye mu bushakashatsi ni uwandika imyandiko myinshi ituma amuga agira imvugiro ku buryo kuyasobanuro byorohera abagenamuga. Ikindi ni ukwifashisha ibikoresho by'ikoranabuhanga n'inkoranabuhanga mu gukusanya amuga y'ibitsibo, kuyajonjora no kuboneza ibisobanuro byayo. Kwiha igihe bikaba bigezweho ibyo kubonera buri ngeri na buri gitsibo amuga aboneye (Mugesera, 1983). Hejuru y'ibyo, ukorera ku ntego zimwe, guhuriza hamwe abakoranyamuga n'ubushakashatsi bukorwa, gusakaza ayamaze kubonezwa n'andi aba ari mu nzira zo kubonezwa no guhuzwa n'igihe.

Gushyiraho ikigega cy'amuga na byo byakemura byinshi mu bibazo. Haramutse hari ikigega cy'imbonwa (dataset), amuga yifashishwa ntiyabura kandi ntiyakorwa inshuro nyinshi mu gihe hari andi asanzwe akoreshe. Kugeza ubu amuga ashakirwa henshi bigatera urujijo ku ryuga nyaryo.

4.12. Ingamba zo kongera amuga y'Ikoranabuhanga

Umushakashatsi Niyomugabo (2021) yagaraje ko ururimi rupfa iyo rutabasha kuvuga ibijyanye n'amajyambere umuryango ugamiye mu bumenyi, isanzuramuco, ikoranabuhanga n'ibindi. Gushakira ururimi amuga aboneye si umurimo wa buri wese ahubwo ni uw'imena utajya wigabizwa na buri wese kuko usaba ubushobozi buhambaye mu by'ubwenge, ubwitange, ukwihangana, ubushishozi n'ibindi. Guhanga amuga ni iby'impuguke mu ngeri ishakirwa amuga naho kuyaboneza ni iby'abacengerandimi (Nkusi, 2018). Zimwe mu ngamba zafatwa kugira ngo amuga y'ikoranabuhanga yiyongere zishingiye ku ishyirwaho rya poritiki y'indimi mu Rwanda. Mu gihe itarajyaho hari iby'ibanze byakorwa hakaboneka amuga yifashishwa mu ikoranabuhanga.

- Gushyiraho inzego zishinzwe amuga y'ikoranabuhanga kugira ngo umuvuduko ririho udatuma hagira ibyibagirana. Izi nzego kandi zahuriza hamwe ubushakashatsi bukorwa ku buryo bw'intatane.
- Gukora ubushakashatsi ku bitsibo by'amuga y'ikoranabuhanga byaba imbarutso yo kumenya amuga hafi ya yose hanyuma hakihutishwa imirimo y'iyandikamuga hifashishijwe uburyo butandukanye ariko cyane cyane ubwifashisha ikoranabuhanga. Ibyo ntibihagije, nanone hashyirwaho ikigega cy'amuga kugira ngo hamenyekane ahari hanyuma aburamo akongerwamo (Munyakazi; 2001; Nikuze,2022).
- Gushora imari mu bikorwa by'igenamuga kugira ngo haboneke amuga ku buryo bwihuse kandi bunyuze mu mucyo.

4.13. Umwanzuro

Muri uyu mutwe wa kane, twagerageje kugaragaza amuga y'ikoranabuhanga yifashishijwe mu nyandiko twasobanuye. Twayasesenguye dushingiye ku mahame y'igenamuga n'amahange anyuranye. Ubushakashatsi bwagaragaje ko nta muga gakondo yabonetse mu mbonwa ahubwo amacurano n'amatirano ni yo yakoreshejwe cyane. Uretse gushyira ahagaragara amuga y'ikoranabuhanga, twanasesenguye imiterere yayo, imihangire yayo n'amoko y'ibisobanuro byayo. Ijora ryakozwe ryagaragaje ko ihangamuga mu ngeri zose z'ubumenyi rishoboka dufatiye ku rugero rw'amuga yasesenguwe. Gusa hari ibibazo byayagaragayemo birasesengurwa hagamijwe gushaka uko byakemuka. Hagaragajwe n'ingamba zafatwa maze amuga akoreshwa muri iyi ngeri akiyongera. Ibyo bizafasha abagenamuga, impuguke mu ikoranabuhanga n'abacengerandimi kurushaho gukora amuga menshi aboneye cyane ko twasanze hari menshi atarinjizwa mu Kinyarwanda.

UMUTWE WA GATANU: UMWANZURO RUSANGE N'IBYIFUZO

5.1. Intangiriro

Umutwe wa nyuma w'ubu bushakashatsi ukubiyemo ibice bibiri by'ingenzi. icya mbere ni umwanzuro rusange naho igice cya kabiri kikibanda ku byifuzo by'umushakashatsi birebana na zimwe mu ngamba zafatwa kugira ngo amuga ari mu rurimi rw'Ikinyarwanda arusheho kwiyongera.

5.2. Umwanzuro rusange

Muri uyu murimo “Ijora ry'amuga y'ikoranabuhanga mu Kinyarwanda”, twagerageje kugaragaza amuga y'ikoranabuhanga mu Kinyarwanda. Dutangira ubu bushakashatsi twari tugamije kugaragaza amuga y'ikoranabuhanga mu Kinyarwanda, imihangire yayo, ibibazo biyagaragaramo no kureba ingamba zafatwa kugira nyo yiyongere. Kugira ngo umushakashatsi abigereho yakusanyije amakuru akesha gusoma inyandiko zitandukanye no kubaza abahanga mu igenamuga maze arayasesengura. Ibyavuye muri ubu bushakashatsi byerekana ko hari amuga y'ikoranabuhanga yahanze bigatuma ururimi rukura ku buryo bugaragarira buri wese. Imihangire yayo ifatiye ku buryo busanzwe bwifashishwa mu igemamuuga mu Kinyarwanda nko kubanza kureba imbere mu rurimi, gucura no gutira. Imbomwa zagaragajwe zerekanye ko umurimo w'ihangamuga ushoboka cyane mu ngeri iyo ari yo yose. Isesengura ry'amakuru ryagaragaje ko nta muga gakondo yabonetse mu muga yajowe. Ikindi kandi hari bimwe mu bibazo byagaragayemo nk'ibifitanye isano n'amuga ubwayo, imihangire yayo, ibisobanuro n'ibindi. Umushakashatsi yihatiye gushaka impamvu zibitera asanga ahanini ari ibura rya poritiki y'indimi ishingirwaho ibikorwa byose by'igenamuga, n'ibindi bisanzwe bigaragara mu muga yo mu zindi ngeri z'ubumenyi. Hagaragajwe n'ingamba zafatwa maze amuga akoreshwa muri iyi ngeri akiyongera. Ibyo bizafasha abagenamuga, impuguke mu ikoranabuhanga n'abacengerandimi kurushaho gukora amuga menshi aboneye cyane ko twasanze hari menshi atarinjizwa mu Kinyarwanda.

Kujora amuga si ukuyatesha agaciro ahubwo ni uburyo bwo gukangurira buri muntu wese ubishoboye gutanga umusanzu we no kumwibutsa ko tugifite urugendo rurarerure.

Ibyavuye mu bushakashatsi byerekanye ibyakozwe n'ibikwiye gukorwa kugira ngo ururimi rw'Ikinyarwanda rukungahare rubashe gusobanura ubumenyi bw'ikoranabuhanga.

N'ubwo uyu murimo w'ubushakashatsi utavuye imuzingo ibyerekeye igenamuga mu Kinyarwanda mu rwego rw'ikoranabuhanga, turizera ko hari intambwe yatewe ngo umwenerurimi w'Ikinyarwanda yiyungure amuga n'ubumenyi ku buryo bwifashishwa mu ihangamuga, ibigenderwaho mu isesengurajora ry'amuga n'ibindi.

Umusanzu wacu mu rwego rw'ubushakashatsi ni aha ucumbikiye. Ibyo twashoboye kugeraho ni ibi tubamurikiye. Tuboneyeho gushishikariza abandi bashakashatsi gukomereza muri iyi ngeri bibanda ku byo ubu bushakashatsi butasesenguye mu rwego rw'igenamuga mu Kinyarwanda.

5.3. Ibyifuzo

Uyu mutwe ntiwakwanzurwa hatagaragajwe bimwe mu byifuzo byakwitabwaho mu kurushaho kuboneza ibikorwa bigamijegukungahaza ururimi.

1. Leta ibifashiswemo n'inzego zifte mu nshingano ibyerekeye ururimi n'umuco, ikwiye gushyiraho poritiki y'indimi. Akamaro kayo ni ntagereranywa.
2. Inteko y'umuco ifite mu nshingano gukora ubushakashatsi ku Kinyarwanda, ikwiye gutegurauburyo bwo guhuza abahanga mu ngeri zinyuranye, abacengerandimi, abakoranyamuga n'abandi kugira ngo hashyirweho inzego zishinzwe amuga.
3. Kwihutisha ibikorwa by'iyandikamuga, gushyiraho ikigega cy'amuga ku buryo bw'ikoranabuhanga. Ibi byakemura ibibazo byishibigaragara mu muga nk'uko tubikesha abahanga n'ikerekezo isi iganamo.
4. Gushyiraho inzobere mu igenamuga zihugukiwe kandi nanone zirangwa no gukoresha neza Ikinyarwanda mu buzima bwabo bwa buri munsu muri buri rwego rw'imirimo.
5. Guhozaho ubukangurambaga. Ibi bizatuma imyumvire imwe n'imwe ihinduka. Abumva ko Ikinyarwanda nta ho cyabageza, kikaba kandi ari ururimi rw'imiryango iciriritse naho indimi z'amahanga zikaba izo mu miryango ikomeye. Ni ubwema (prestige) ku Gihugu kuba gikoresha indimi nyinshi by'akarusho ntihabe iryanandimi n'itonesharurimi.

6. Gutegura amahugurwa ku buryo buhoraho kubera ko Ikinyarwanda ni ururimi rushishikaza abantu banyuranye mu buryo butandukanye (Uwamariya, 2009) aho usanga agaciro ruhabwa kagendana n'inyungu umuntu arukesha cyangwa ubuzima abayemo. Hari abo usanga amateka yarababereye agatereranzamba ntibarumenye neza, urugendo rw'imyigire ibacisha ukubiri n'Ikinyarwanda, imiterere y'umuryango umuntu avukamo cyangwa abamo, inshingano ze, icyo akora n'izindi mpamvu bitera umuntu kwiyumvamo ingobyi y'umuco nyarwanda cyangwa ntawiyumvemo.
7. Gutegura ibikorwa byo gusakaza amuga ahari kandi akenewe muri buri rwego. Ibi byafasha gukemura ibibazo bushingiye ku gukoresha cyane gukoresha indimi z'amahanga kurusha Ikinyarwanda. Abakozi n'abandi bari mu nzego zifata cyangwa zifatirwamo ibyemezo bahura n'ikibazo cyo kutabona amuga ahagije bifashisha mu kazi kabo ka buri muni.
8. Gukundisha abantu Ingobyi y'umuco wacu kuko utuma u Rwanda rugira ubudasa. Gukunda Ikinyarwanda si ukwanga icyongereza, Igifaransa, Igiswayire n'izindi ndimi zituranye na cyo haba imbere mu Gihugu cyangwa hanze yacyo ahubwo ni ukumenya kukivugamo no kugisobanuramo ibyerekeye iterambere rishingiye ku muco nyarwanda.
9. Mu rwego rw'uburezi, kongera amasomo y'igenamuga n'ihangamuga mu byiciro by'uburezi byita ku iyigandimi.
10. Kongera amahugurwa ahoraho ku igenamuga no ku by'ikoranabuhanga n'inkoranabuhanga, hakajyaho ububiko bw'imbonwa buzafasha gukoranya amuga ku buryo bworoshye, kuyajonjora, kuyasobanura, kuyaboneza, kuyatangaza, kuyasakaza no kuyajyanisha n'igihe tugezemo. Ibyo bazarinda guhanga amuga ku buryo bw'intatane.
11. Amuga ntakwiye kwihereranwa n'abo mu rwego uru n'uru ahubwo aba akwiye gusakazwa hose muri bose kugira ngo amenyekane n'amakuru ayaranga. Bitaba ibyo bamwe bazasaza bakabura ababasimbura kandi bigaragarira buri wese ko igenamuga ari igice cy'ururimi gikorwamo n'abacengerandimi bihariye.

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UMUGEREKA

AMWE MU MUGA Y'IKORANABUHANGA

ICYONGEREZA	IKINYARWANDA
Access	Ububiko shingiro
Antivirus	Porogaramu zirinda virusi
Apps	Amaporogaramu
Attachment	Umushandiko
Backspace	Intemberezwantoki
Blank document template	Inyandikorugero iriho ubusa
Blog	Urubuga bwite/ ikinyamakuru rubuga
Bold face	Imyandikire itsindagiye
Bookmark	Ubushyinguropaji
Broadband	Musakaza
Browser	Mushakishambuga
Click and drag	Kanda unyereza
Clipboard	Itsinda ry'ububiko
Close	Gufunga
Copy	Gukoporora/koporora
CPU	Sipiyu/ ubwonko bwa mudasobwa
Cursor	Akamenyetso ndanganyandiko/Inyoboranyandiko
Cut	Gukata
Default	Mucapyi isanzweho
Double click	Kanda wungikanya
Edge	Mushakishambuga
Email	Imeri
Email box	Agasanduku kakira ubutumwa
Enter	Injira/buto yo kwinjira

Excel	Imbaramibare
File Explorer Quick Access	Igeno ryihuse rya mugaragazi kuri window
File name	Izina rya dosiye
Floppy disk	Ububiko bwa disikete
Font	Itsinda ry'imyandikire
Forward	Kwigiza imbere
Frequent folders	Ububiko bukoreshwa cyane
Grey slider	Agatemberezi k'ikijuju
Help	Ubufasha
Homepage	Ipaji ibanza
Hometab	Idirishya ry'ahabanza
Horizontal Scrollbar	Akarongo ntemberezi gatambitse
Hotspots	Interineti igendanwa
Hyperlinks	Ihuzamwandikonyobora
Icon	Agashushondanga
Inbox	Ibyinjiye mu bubiko
Internet	
Internet	Murandasi, impuzamiyoboro y'isi ihuriza hamwe mudasobwa
Internet explorer	Mushakisha/ mushakishambuga
Italic	Imyandikire iberamye
Link	Ihuuza
Mail server	Serivisi y'ubutumwa
Maximize	Kwagura
Microsoft cloud	Karawudi
Modem	Modemu
Network	Impuzamiyoboro
Network Internet Access	Urusobe mpuzamiyoboro

Paste	Komeka
Phishing	Irobamakuru
Pin to start	Kubadika ku itangira
Pinning	Kumadika
Podcasts	Amajwi yafashwe
Pointer	Agashushondanga
Power	Aho gucanira
Power point	Imbonerahamwe nyanziga
Power point	Imbonerahamwe nyamigongo
Power point	Imbonerahamwe y'imirongo mpagazi
Power point	Inyerekana yo mu mbwirwahuruhamwe
Print	Gucapa
Printer	Mucapyi
Profile page	Urukuta rw'umwirondoro
Quick Access	Inzira y'ubusamo
Recent files	Inyanfiko za vuba
Restore down	Gutubya
Save	Kubika
Save as	Kubika nka
Search	Mushakisha
Search box	Agasanduku k'ishakisha
Search icon	Agashushondanga k'ishakiro
Selection	Imbuganyuma yijimye
Settings	Igenamiterere
Sign in	Kwinjira
Sign out/log off	Gusohoka
Slides:	Uduce nyerekanwa
Social media	Imbuga nkoranyambaga

Spam	Sipamu
Spreadsheet	Imbaramibare
Start	Itangira/kwatsa
Status bar	Umurongo ngengamikorere
System icons	Uturangashusho twa sisiteme
System tray	Umwanya w'imikoro
System unit	Isanduku ya mudasobwa
Task view	Agashushondanga k'imikoro
Task view	Agashushondanga k'igaragazamikoro
Tiles	Amakaro
Title bar	Umwanya w'umutwe/ wo hejuru
Touch screen	Taci
Unpinning	Komora
Username:	Izina ryo gukoresha
Vertical Scrollbar	Akarongo ntemberezi gahagaritse
w.w.w	Urubuga mpuzamahanga
Web pages	Amapaji yok u rubuga
Websites	Impuga zo kuri murandasi
Wireless /network	Inziramugozi
Wireless broadband	Musakaza yihuta y'inziramugozi
Word	Musesenguranyandiko
Word Pad	Musesenguranyandiko
Word processor	Musesenguranyandiko