

‘O sero i dri chant’: technegau caffael dwys ar gyfer y 300 gair cynnwys a ddefnyddir amlaf yn y Gymraeg¹

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Crynodeb: Mae'r erthygl hon yn amlinellu ymchwil a gynhaliwyd ymhlith dysgwyr Cymraeg sy'n ddechreuwr wrth iddynt gaffael geirfa Gymraeg a ddefnyddir yn aml. Gofynnwyd i 23 chyfranogwr ddysgu 300 gair cynnwys dros 50 diwrnod (10 munud y dydd) gan ddefnyddio cardiau fflach. Rhoddwyd gwybodaeth am dechnegau i gefnogi eu dysgu, fel y dull allweddeiriau a rhoi sylw i rannau o eiriau. Datgelodd profion yn syth ar ôl dysgu a phroffion wedi'u hoedi wahaniaethau sylweddol rhwng 'dysgadwyedd' a dargadwedd (*retention*) y geiriau targed. Cafwyd gwybodaeth fanwl am brofiad dysgu'r cyfranogwyr trwy holiadur ar ddiwedd yr astudiaeth, a gwelwyd bod y dysgwyr mwyaf llwyddiannus yn defnyddio dulliau systematig iawn er mwyn dethol ac adolygu geiriau, ac yn defnyddio techneg allweddeiriau. Ar sail hyn, defnyddir rhestr o eiriau wedi'u trefnu yn ôl 'dysgadwyedd', ac mae sylwadau ar dechnegau dysgu gan gyfranogwyr a gafodd sgôr uchel yn darparu gwybodaeth ar gyfer adolygu deunyddiau dysgu.

Allweddeiriau: Caffael geirfa, dysgu Cymraeg, dysgu ac addysgu ieithoedd, ieithyddiaeth gymhwysol, dysgadwyedd geiriau, baich dysgu, cardiau fflach geirfa, dull allweddeiriau.

‘From zero to three hundred’: intensive acquisition techniques for the 300 most frequently used content words in *Cymraeg*

Crynodeb: This paper reports a study investigating the acquisition of frequently used Welsh vocabulary by beginner learners of Welsh. Twenty-three participants were tasked to learn 300 content words over 50 days (10 minutes per day) using flashcards. Information was provided about techniques to support learning, such as the keyword method and paying attention to parts of words. Immediate and delayed post-learning tests revealed substantial differences in the 'learnability' and retention of target words. An end-of-study questionnaire elicited detailed information about participants' learning experience, and found that more successful

¹ Seilir y 300 gair ar restrï amllder *Yr Amladur* (Knight et al. 2020b) a ddaw o *CorCenCC: Corpus Cenedlaethol Cymraeg Cyfoes* (Knight et al. 2020a). Rhoddir rhagor o fanylion am hyn yn adran fethodoleg yr erthygl.

learners used highly systematic approaches to word selection and revision, and used the keyword technique. A resulting list of words ranked by learnability, and comments on learning techniques from high-scoring participants, are informing revisions of learning materials.

Key words: Vocabulary acquisition; Welsh language learning; language learning and teaching, applied linguistics, word learnability, learning burden, vocabulary flashcards, Keyword method.

Cefndir a chyd-destun

Mae effeithlonrwydd dysgu a chymhelliant dysgwyr yn heriau sylfaenol ar draws maes addysg iaith. Gall technegau sy'n rhoi'r budd mwyaf i ddysgwyr am eu hymdrechion i ddysgu'r iaith, yn ogystal â dulliau sy'n cynnal momentwm a chymhelliant dysgwyr, fod yn werthfawr wrth fynd i'r afael â'r heriau hyn. Gyda hynny mewn golwg, ymchwiliodd yr astudiaeth yr adroddir arni yma i ganlyniadau cyfnod dwys o astudio geirfa Gymraeg ar gyfer dechreuwyr pur. Gofynnwyd i gyfranogwyr o oedolion nad oedd ganddynt ddim neu braidd dim gwybodaeth flaenorol o'r Gymraeg ddysgu 300 gair dros gyfnod o 50 diwrnod. Datgelodd tasgau yn syth ar ôl dysgu, a thasgau wedi'u hoedi, pa mor effeithiol y bu dysgu'r geiriau hyn, a chafwyd data trwy holiaduron am dechnegau dysgu, agweddau a chymhelliant.

Gall dysgu'r 300 gair a ddefnyddir amlaf, a hynny ar garlam, roi sylfaen gref maes o law ar gyfer dysgu gan roi'r potensial i gyfathrebu'n syth. Mae'r geiriau a ddefnyddir amlaf mewn iaith yn cynrychioli cwmpas (*coverage*) anghymesur o uchel o gorff testun; dywed deddf Zipf fod cyfrannedd gwrthdro rhwng trefn amllder gair a faint o weithiau mae'n ymddangos wrth gael ei ddefnyddio mewn iaith naturiol. Mae hyn yn rhagfynegi y bydd y gair sydd yn yr ail safle ar y rhestr amllder yn ymddangos tua hanner cymaint o weithiau â'r gair yn y safle cyntaf, a'r gair yn y trydydd safle yn ymddangos traean o weithiau o'i gymharu â'r cyntaf, ac yn y blaen. Golyga hyn fod nifer cymharol fach o eiriau amllder uchel yn cyfrif am ganran uchel o destun. Amcangyfrifa Kremmel (2016), er enghraifft, fod y 500 gair a ddefnyddir amlaf yn y Saesneg yn cwmpasu 66% o holl gynnwys y Corpws Saesneg Americanaidd Cyfoes (COCA) (Davies 2008). O ddefnyddio'r un dull, canfyddwn fod y 500 gair a ddefnyddir amlaf yn y Gymraeg yn cwmpasu 71% o gynnwys y Corpws Cenedlaethol Cymraeg Cyfoes (CorCenCC, Knight et al. 2020a). Fel y nodwyd uchod yng nghyd-destun deddf Zipf, daw'r budd mwyaf o ran cwmpas o'r geiriau a ddefnyddir amlaf; yn wir, canfyddwn fod y 300 gair a ddefnyddir amlaf yn y Gymraeg yn cwmpasu 65% o CorCenCC. Gan fod ein ffocws yn yr astudiaeth hon ar ddysgu geiriau unigol, mae'n bwysig nodi mai geiriau ffwythiannol yw nifer o'r geiriau a ddaw ar frig rhestri amllder: amcangyfrifa Kremmel fod y rhain yn cynrychioli tua 40% o gwmpas corpws. Fel arfer, daw ystyr geiriau ffwythiannol o gyd-destunau penodol, felly fel y mae Dang a Webb yn ei nodi: '*it is more reasonable to incorporate teaching function words with other components of language lessons*' (2016: t. 166).

Gan droi wedyn at eiriau cynnwys, amcangyfrifa Kremmel fod y 500 lema cynnwys a ddefnyddir amlaf yn cwmpasu 26% o holl gynnwys COCA. Gan ddefnyddio offer CorCenCC, canfyddwn fod canran cwmpasu cyffelyb (25%) yn y data Cymraeg trwy ddefnyddio'r geiriau targed o'r astudiaeth a gynhwysir yma, h.y. y 300 enw, berf ac ansoddair a ddefnyddir amlaf yn y Gymraeg (gweler isod am ragor o fanylion am ddewis y geiriau targed). O ran yr hyn y gellir ei wneud o wybod 300 gair, awgryma Nation a Crabbe (1991) y gall 120 gair/y madrodd ffurfio 'geirfa oroesi' (yn y Saesneg), a noda Nation fod modd mynd at y deunydd darllen hawsaf o wybod rhwng 100 a 450 teulu o eiriau Saesneg (2022: t. 27).

Dengys canfyddiadau Fitzpatrick et al. (2008) fod modd llwyddo i gaffael 300 gair mewn cyfnod cymharol fyr. Yn eu hastudiaeth, gofynnwyd i gyfranogwr heb wybodaeth flaenorol o'r Arabeg ddysgu 300 gair Arabeg dros 20 diwrnod trwy gyfrwng cardiau fflach (lle y mae'r gair targed a'r cyfieithiad Saesneg wedi'u hysgrifennu ar ddwy ochr cerdyn). Mewn prawf yn syth ar ôl dysgu, adalwyd 94% o'r geiriau targed, ac adnabuwyd 95% ohonynt. Defnyddiodd Elgort a Piasecki (2014) gardiau fflach i ddysgu hefyd, er bod yr eitemau targed yn eu hastudiaeth yn eiriau ffug. Maent yn adrodd cyfradd adalw o 94% hefyd ar gyfer eu 48 gair targed, ar ôl wythnos o ddysgu y tro hwn. Ar sail y canfyddiadau hyn, pennodd yr astudiaeth gyfredol gyfnod o 50 diwrnod, gyda 10 munud o astudio bob dydd, er mwyn dysgu 300 gair targed. Mae hyn yn cynrychioli hwb cychwynnol sylweddol i'r gyfradd caffael geirfa amcangyfrifol arferol (gweler Milton a Meara 1998).

O ran dulliau dysgu geiriau, ystyria Nation (2022) fod gweithgareddau dysgu bwriadol fel defnyddio cardiau fflach yn rhai effeithiol ac effeithlon. Er mwyn dod yn gyfathrebwyr effeithiol, mae angen i ddysgwyr wybod rhai miloedd o eiriau, a phrin iawn fod digon o oriau dosbarth i'w cwmpasu i gyd. Mae'n hanfodol, felly, i arfogi dysgwyr â strategaethau amnibynnol ar gyfer dysgu geirfa. Cydnabyddir yn gyffredinol bod nifer o gamau ac agweddau ynghlwm wrth wybodaeth am eiriau (gweler Richards 1976; Nation 2022); mae cardiau fflach yn cefnogi'r cam cychwynnol drwy gysylltu ystyr gair â ffurf gair. Anogir athrawon i hyfforddi dysgwyr i ddefnyddio strategaethau, ac yng nghyd-destun dysgu trwy ddefnyddio cardiau fflach, gallai hyn gynnwys yr arfer o adalw geiriau, ailadrodd bylchog (*spaced repetition*) a sylwi bwriadol (am ragor o wybodaeth gweler Nation 2022: tt. 407–29). Mae Nation (2022) ac eraill yn hybu'r defnydd o feddalwedd cardiau fflach, sydd yn aml yn ymgorffori elfennau o ddysgu strategol. Nod yr astudiaeth yr adroddir arni yma, fodd bynnag, oedd archwilio i dechnegau cyfranogwyr ar gyfer dysgu geiriau, a chynhyrchu rhestr o eiriau wedi'u trefnu yn ôl 'dysgadwyedd'. Gan fod meddalwedd yn gallu rheoli technegau, bylchu, ac ailadrodd geiriau penodol, defnyddiwyd cardiau fflach papur caled yn yr astudiaeth hon.

Fel y nodir yn yr adran ar fethodoleg isod, rhoddwyd rhai awgrymiadau ar gyfer strategaethau dysgu i gyfranogwyr yr astudiaeth ynghyd â chyfarwyddiadau am y dasg. Canolbwyntiodd y rhain ar dair techneg: defnyddio cardiau fflach, techneg allweddeiriau,² a

² Mae'r dechneg allweddeiriau yn integreiddio delweddaeth greadigol: '*learners attend to phonetic or orthographic features of the target item, link these to a familiar "keyword", usually in the L1, and create a mental image of the link*' (Fitzpatrick et al. 2018). Er enghraifft, gallai siaradwr Saesneg sy'n dysgu'r gair Cymraeg 'ci' greu delwedd yn y meddwl o gi yn agor drws gyda '*key*'. Gweler hefyd Beaton et al. 1995 a Dolean 2014.

thechneg teulu geiriau,³ yn dilyn ymchwil a wnaed, er enghraifft gan Webb a Nation (2017) a Fitzpatrick et al. (2018), a nododd fod y dechneg allweddeiriau yn un sy'n arbennig o effeithiol o ran dysgu geiriau. Roedd y ddewislen seml hon o dechnegau dysgu effeithiol yn rhoi pecyn cymorth i gyfranogwyr y gallent ddewis dulliau ohono a fyddai'n briodol ar gyfer geiriau targed penodol a'u blaenoriaethau dysgu eu hunain.

Mae geiriau'n amrywio o ran eu 'baich dysgu' (Nation 2022) a pha mor hawdd y mae modd eu caffael. Ar ôl sefydlu gwerth caffael 300 o'r geiriau cynnwys a ddefnyddir amlaf, dylid cydnabod ei bod yn debygol y bydd angen mwy o ymdrech strategol, amser a mewnbwn yn y dosbarth ar gyfer rhai ohonynt nag eraill. Trwy brofi capasiti dysgwyr i adalw neu adnabod geiriau targed ar ddiwedd y cyfnod dysgu, mae modd nodi unrhyw eiriau sy'n anoddach eu caffael, a thynnu sylw dysgwyr ac athrawon atynt. Hyd yn hyn mewn ymchwil ail iaith, ychydig o sylw a roddwyd i greu rhestr geiriau at ddefnydd pedagogaid wedi'u trefnu yn ôl dysgadwyedd (er gweler Ellis a Beaton 1993 am safbwynt gwrthgyferbyniol). Bydd canfyddiadau'r astudiaeth hon yn dangos a yw'r maes hwn yn debygol o fod yn un ffrwythlon ar gyfer ymchwilio a chymhwyso pellach.

Cynlluniwyd yr astudiaeth mewn ymateb i amcanion polisi ac adolygiadau darpariaeth diweddar i addysg Gymraeg, ynghyd ag adnoddau sydd newydd eu rhyddhau:

- Golyga rhyddhau corpws CorCenCC yn 2020 (Knight et al. 2020a) fod modd creu rhestr o eirfa Gymraeg gyfoes ar sail amlder yn seiliedig ar gorpws. Mae amlder yn ystyriaeth allweddol wrth benderfynu ym mha drefn y dylid dysgu eitemau geirfaol (Nation 2022). Y geiriau targed yn yr astudiaeth hon yw'r 300 enw, berf neu ansoddair sy'n ymddangos amlaf yng nghorpws CorCenCC (sy'n cynnwys mwy nag 11 miliwn o eiriau).
- Noda Cymraeg 2050, sy'n datgan yr amcan o gael miliwn o siaradwyr Cymraeg erbyn 2050, y bydd 'cynhyrchu rhagor o adnoddau geiriadur, corpws a therminolegol o ansawdd uchel' yn 'cefnogi dysgwyr ...' (Llywodraeth Cymru 2017). Mae'r astudiaeth hon yn enghraifft o sut y gellir defnyddio adnoddau newydd, yn enwedig corpws Cymraeg CorCenCC (Knight et al. 2020a) i ddatblygu cymhorthion i ddysgwyr.
- Mae argymhellion yr Adolygiad Cyflym o'r Ganolfan Dysgu Cymraeg Genedlaethol (CDCG) (Morris 2021) ac ymateb Llywodraeth Cymru i'r argymhellion hynny (2021) yn cynnwys ystyriaethau fel cynyddu niferoedd, lleihau athreuliad dysgwyr (dysgwyr yn gadael), ac ehangu cylch gwaith y GDCG, er enghraifft trwy 'rannu adnoddau ac arferion da â'r sector ail iaith mewn ysgolion' ac ymestyn 'darpariaeth i oedolion' i gynnwys rhai rhwng 16 a 18 oed. Awgryma ystadegau'r

³ Mae'r dechneg teulu geiriau yn golygu canolbwyntio ar rannau cyfansoddol gair, a dysgu bonau a dodiaid yn fwiadol. Gweler Webb a Nation 2017 a Bauer a Nation 1993.

GDCG (<https://dysgucymraeg.cymru/amdanom-ni/cyhoeddi-data/ystadegau-2021-2022/>) mai cadw dysgwyr sy'n mynd drwy'r lefel Mynediad (CEFR A1) ac i mewn i'r lefel Sylfaen (CEFR A2) sydd fwyaf problematig. Mae'r astudiaeth hon yn canolbwyntio ar y geiriau amlder uchaf, ac felly mae'n cydweddu â chynnwys cwrs A1/A2 (CEFR).

Nodau'r astudiaeth

Roedd pedwar prif nod i'r astudiaeth:

- Trefnu'r 300 gair cynnwys a ddefnyddir amlaf (o <https://corcenc.cymru/>, Knight et al. 2020a) yn ôl eu 'dysgadwyedd',⁴ ac o ran gwybodaeth gynhyrchiol (S>C) a gwybodaeth dderbyngar (C>S).
- Nodi'r geiriau amlder uchel sydd fwyaf heriol i'w dysgu, a'r nodweddion (e.e. orgraffyddol, semantig, morffolegol) a allai gyfrannu at y baich dysgu hwnnw.
- Pennu a yw gwybodaeth am rai geiriau'n golygu eu bod yn fwy tebygol o gael eu cofio (dros gyfnod o bythefnos) nag eraill.
- Nodi technegau caffael effeithiol ar gyfer y 300 gair cynnwys a ddefnyddir amlaf.

Methodoleg

Dewis y geiriau targed

Pennwyd targed o 300 eitem. Fel yr esboniwyd uchod, ystyriwyd bod hyn yn ddigon isel i fod yn darged dysgu dichonadwy, ac yn ddigon uchel i roi hwb ystyrlon i lecsicon dysgwyr.

Man cychwyn dewis yr eitemau targed oedd rhestr o'r 750 gair sy'n ymddangos amlaf yn y CorCenCC, fel y'u rhestrwyd yn yr adroddiad *Geirfan* (Knight et al. 2023b). Rhestr o eiriau pedagogaid yw *Geirfan*, sy'n deillio ac wedi'i haddasu o restr *Yr Amliadur* (Knight et al. 2020b) a seiliwyd ar amlder yn unig, heb ystyriaethau pedagogaid (gweler Knight et al. 2023b). Mae Atodiad A o Knight et al. (2023b) yn rhestru'r 750 gair (lema) y mae rhestr *Geirfan* yn deillio ohonynt, yn nhrefn eu hamlder yn CorCenCC, gyda gwybodaeth ychwanegol gan gynnwys rhannau ymadrodd. Gan weithio trwy'r rhestr honno a chychwyn â'r rhai sy'n ymddangos amlaf, dewiswyd y geiriau targed yn ôl y meini prawf canlynol:

- Dim ond enwau, berfau ac ansoddeiriau a ddewiswyd yn eiriau targed. Cafodd adferfau eu heithrio'n systematig oherwydd y modd y mae nifer ohonynt yn cael eu ffurfio yn y Gymraeg. Cafodd geiriau ffwythiannol eu heithrio gan na ellir eu cyfieithu'n hawdd, ac mae eu cysylltiad â

⁴ Yma, rydym yn defnyddio'r term 'dysgadwyedd' (*'learnability'*) i olygu rhwyddineb neu anhawster wrth ddysgu gair penodol – h.y. mae'n nodwedd o'r gair unigol, nid o'r dysgwyr (er enghraifft, mae hyn yn dilyn yr hyn a ddefnyddir gan Carter a McCarthy (2014), Ellis a Beaton (1993) a Laufer (1990)).

strwythurau cystrawennol penodol yn golygu bod nifer ohonynt yn anodd eu dysgu neu eu defnyddio ar eu pennau eu hunain.

- Pan ddefnyddiwyd yr un llynyn geiriau ar gyfer dosbarthiadau geiriau neu ystyron gwahanol (e.e. ‘Cymraeg’ fel enw a ‘Cymraeg’ fel ansoddair, neu de>*right* a de>*south*), dim ond yr un a ddefnyddir amlaf a gynhwyswyd.
- Pan oedd gan ddau air targed posibl yr un cyfieithiad Saesneg, a phan nad oedd gair Saesneg arall ar gael fel cyfieithiad addas, dim ond yr un a ddefnyddir amlaf a ddefnyddiwyd (e.e. dydd a diwrnod>*day*).
- Er mwyn i gyfranogwyr allu gwahaniaethu rhwng enwau a berfau, rhagflaenwyd cyfieithiadau Saesneg o ferfau gan yr arddodiad *to*. Er mwyn cadw at y protocol hwn, cafodd berfau moddol nad oes modd eu mynegi gyda’r *to* annherfynol, eu heithrio (e.e. ‘dylai’).
- Cafodd geiriau a ddefnyddir mewn ymadroddion fformiwläig yn unig eu heithrio (e.e. ‘bodd’, yn ‘wrth fy modd’).
- Eithriwyd geiriau nad oes ganddynt gyfieithiad Saesneg cyfatebol syml (e.e. ‘eisteddfod’).

Arweiniodd y broses ddewis hon at eithrio 178 o eiriau, ac, o ganlyniad, y gair olaf (fesul amllder) o’r 300 gair a ddewiswyd oedd ‘llafur’, sydd yn safle 478 ar restr amllder CorCenCC. Gellir gweld y rhestr o eiriau targed sy’n deillio o hyn, yn nhrefn eu hamlder, yn Ffeil Ddata Atodol 1.

Cyfranogwyr

Recriwtiwyd cyfranogwyr o blith myfyrwyr Prifysgol Abertawe a thrwy gysylltiadau personol (anogwyd myfyrwyr i sôn am yr astudiaeth wrth eu ffrindiau). Rhagwelwyd cyfradd rhoi’r gorau iddi gymharol uchel o ystyried hyd estynedig a gofynion dwys y dasg. Recriwtiwyd 40 o gyfranogwyr, ar y sail y byddai cyfradd ymadael o 50% yn dal i esgor ar sampl ymarferol o 20. Gweithredwyd yr ymarfer recriwtio trwy gyflwyno gwybodaeth mewn darlithoedd, a thrwy e-bost at holl fyfyrwyr y Gyfadran, yn eu gwahodd i gysylltu â’r tîm ymchwil pe bai diddordeb ganddynt mewn cymryd rhan yn yr astudiaeth.

Cyfeiriwyd y sawl a gysylltodd at ddogfen Google Forms gyda gwybodaeth am yr hyn oedd ynghlwm wrth gyfranogi (gweler Ffeil Ddata Atodol 2), gwiriad cymhwystra, a ffurflen gydsynio i’w chwblhau.⁵ Recriwtiwyd y 40 cyfranogwr cyntaf i gwblhau’r ffurflen gydsynio, ac anfonwyd ateb at bawb arall a fynegodd diddordeb gan anfon gwybodaeth atynt am gyrсияu Cymraeg a gynigir gan y Ganolfan Dysgu Cymraeg Genedlaethol. Gellir gweld yn Ffeil Ddata Atodol 2 fod yr ymrwymiad a ddisgwyliid gan gyfranogwyr wedi ei amlinellu’n glir. Hefyd, dywedwyd wrth y cyfranogwyr y byddent yn derbyn taleb Amazon fel gwobr am gwblhau’r astudiaeth; y byddent yn cael eu gwahodd i sesiwn blasu’r Gymraeg a gynlluniwyd

⁵ Cymeradwywyd yr astudiaeth gan bwyllgor moeseg Cyfadran Dyniaethau a Gwyddorau Cymdeithasol Prifysgol Abertawe – rhif cymeradwyo 1 2023 7871 6856.

yn benodol ar gyfer cyfranogwyr yr astudiaeth hon; ac y byddent yn derbyn tystysgrif gyfranogi wedi'i geirio'n briodol fel bod modd ei defnyddio mewn CV neu gais am swydd.

Cynlluniwyd yr astudiaeth ar gyfer cyfranogwyr nad oedd ganddynt wybodaeth flaenorol o'r Gymraeg. Fodd bynnag, gan fod pob cyfranogwr naill ai'n byw neu'n astudio yng Nghymru, neu â chysylltiad â Chymru, roedd yn anochel eu bod wedi dod i gysylltiad â'r Gymraeg trwy'r dirwedd ieithyddol. Felly, gosodwyd y meini prawf cymhwyso fel a ganlyn: '*Participants should be first language or highly proficient users of English, and should not be Welsh speakers. As a guide, if you know the Welsh words for two or more of these words: go, give, big, new, people, children, you are NOT eligible to take part in this project.*' Dewiswyd y geiriau prawf hynny o'r 20 gair sy'n ymddangos fwyaf aml yn rhestr y geiriau targed. Gofynnwyd am hyfedredd yn y Saesneg er mwyn sicrhau y byddai'r cyfranogwyr yn gwybod y cyfieithiadau Saesneg i'r geiriau targed Cymraeg. Datgelodd yr holiadur a ddsbarthwyd ar ddiwedd yr astudiaeth fod cefndiroedd iaith y cyfranogwyr fel a ganlyn: roedd 14 yn siarad Saesneg fel iaith gyntaf (gydag un ohonynt hefyd yn siarad Hindi), a'r ieithoedd cyntaf eraill a nodwyd oedd Siapanaeg, Twrceg, Arabeg, Hindi, Malayalam a Tsiegeg. Adroddodd tri chyfranogwr nad oedd ail ieithoedd ganddynt. Amrywiodd gwybodaeth ail iaith cyfranogwyr eraill o 'Ffrangeg sylfaenol' (dau gyfranogwr) i wybodaeth am bedair iaith arall (pedwar cyfranogwr).

Dyma nifer y cyfranogwyr a gwblhaodd bob cam o'r astudiaeth:

- Cwblhau 50 diwrnod o ddysgu⁶ a'r prawf yn syth ar ôl dysgu: 23⁷
- Cwblhau'r uchod ynghyd â'r prawf wedi'i oedi: 22
- Cwblhau'r uchod ynghyd â'r holiadur ar ddiwedd yr astudiaeth: 20

Cysylltodd saith cyfranogwr â ni yn ystod yr astudiaeth i ddweud bod yn rhaid iddynt dynnu allan oherwydd prinder amser i ymgymryd â'r dysgu. Ni chwblhaodd naw arall y dasg ar ôl dysgu, ac ni wnaethant gysylltu â ni ymhellach, er i ni anfon e-byst atgoffa atynt yn rheolaidd.

Deunyddiau

Rhoddyd pecyn dysgu i'r cyfranogwyr a oedd yn cynnwys:

- 300 o gardiau fflach (gweler Atodiad 1 am sampl). Maint pob cerdyn fflach oedd tua 140mm x 65mm. Yn ogystal â'r gair targed a'r cyfieithiad Saesneg, roedd y cerdyn fflach yn cynnwys grid gyda 50 blwch er mwyn

⁶ Roedd yr holiadur yn cynnwys y cwestiwn: '*We realise that 10 mins per day of vocabulary learning is a big commitment. Please tell us whether there were any days that you missed (how many), and whether you used extra days to make up for this. Please note that we do not need to know why you missed days, and also that there was no obligation to add extra days for any you missed.*' Adroddodd y rhan fwyaf iddynt golli ambell ddiwrnod; roedd rhai (nid pawb) wedi gwneud yn iawn am hyn trwy wneud dyddiau ychwanegol.

⁷ Roedd y pedwerydd cyfranogwr ar hugain yn rhy hwyr yn cwblhau'r prawf yn syth ar ôl dysgu i gael ei gynnwys yn y canlyniadau.

i'r cyfranogwyr allu marcio pob diwrnod yr oeddent wedi edrych ar y cerdyn hwnnw. Pan fyddai geiriau ar fwy nag un cerdyn fflach yn dod o'r un teulu geiriau, roedd y llinynnau geiriau (*word strings*) a rennir yn cael eu rhoi mewn print trwm.

- Taflen wybodaeth dwy dudalen (gweler Ffeil Ddata Atodol 3), gyda:
 - gwybodaeth am pryd i ddechrau dysgu, a sut i gofnodi'r cynllun dysgu
 - awgrymiadau ar gyfer cynllunio'r dysgu – e.e. faint o eiriau i roi cynnig arnynt bob dydd
 - awgrymiadau am sut i ddefnyddio cardiau fflach, y dechneg allweddeiriau, a'r dechneg teulu geiriau
 - nodyn am rannau ymadrodd, ac ynganu
 - cyfarwyddiadau am beth i'w wneud ar ôl cwblhau 50 diwrnod o ddysgu.
- Canllaw '*keep track of your 50 days of learning*'. Dechreuodd y cyfranogwyr ar ddiwrnodau gwahanol (pan oedd yn gyfleus iddynt). Roedd y canllaw hwn yn fodd iddynt nodi eu diwrnodau eu hunain (1, 2, ac ati) ac i farcio diwedd eu 50 diwrnod o ddysgu.
- Canllaw i ynganu'r Gymraeg.
- Copi, er gwybodaeth, o'r ffurflen wybodaeth a chydsynio yr oeddent wedi'i llofnodi ar-lein.

Paratowyd tair tasg ar ôl dysgu:

- Tasg yn syth ar ôl dysgu, wedi'i chyflwyno a'i chwblhau yn Google Forms. Yn dilyn y cyfarwyddiadau, y gellir eu gweld yn Atodiad 2, roedd tasg â dwy adran iddi. Roedd yr adran gyntaf yn mesur gwybodaeth gynhyrchiol (adalw), yn nodi cyfieithiadau Saesneg y geiriau targed, ac yn gofyn i'r cyfranogwyr nodi'r geiriau Cymraeg. Roedd yr ail adran yn mesur gwybodaeth dderbyngar (adnabod) ac yn gofyn i'r cyfranogwyr nodi cyfieithiadau Saesneg o'r rhestr o eiriau targed Cymraeg.
- Anfonwyd dolen i'r dasg ar ôl dysgu wedi'i hoedi, a oedd yr un peth yn union â'r dasg yn syth ar ôl dysgu, rhwng 12 a 14 diwrnod ar ôl iddynt gwblhau'r uchod. Dywedwyd wrth y cyfranogwyr i beidio ag edrych ar eu cardiau fflach rhwng cwblhau'r ddwy dasg.
- Holiadur terfynol, yn gofyn am ymatebion i gwestiynau am gefndir ieithyddol, strategaethau, a'r profiad o ddysgu yn y ffordd hon (gweler Atodiad 3 am restr o gwestiynau).

Cyflwynwyd y tasgau ar ôl dysgu i gyd yn Google Forms.

Dull gweithredu

Cychwynnodd y cyfranogwyr ar eu tasg ddysgu yn ystod mis Tachwedd 2023. Trwy gydol y cyfnod dysgu, anfonwyd e-bost wythnosol at y cyfranogwyr yn cydnabod y gwaith yr oeddent yn ei gyfrannu at yr astudiaeth ac yn eu hannog i ddal ati. Gofynnwyd i'r cyfranogwyr gysylltu â'r tîm ymchwil unwaith iddynt gwblhau eu cyfnod dysgu o 50 diwrnod. Wedyn, anfonwyd e-bost atynt gyda dolen i'r dasg yn syth ar ôl dysgu. Rhwng 12 a 14 diwrnod ar ôl iddynt gwblhau'r dasg honno, anfonwyd dolen i'r ail dasg ar ôl dysgu atynt. Wedi iddynt gwblhau'r dasg honno, anfonwyd dolen i'r holiadur terfynol atynt.

Cafodd y tasgau ar ôl dysgu eu marcio fel a ganlyn:

- 2 bwynt yn cael eu rhoi am bob ateb cywir
- 1 pwynt yn cael ei roi am atebion a oedd yn cynnwys mân wallau sillafu, neu a oedd wedi'u sillafu yn ôl orgraff y Saesneg
- 0 pwynt yn cael ei roi am atebion anghywir neu fylchau gwag.

Gellir gweld set lawn o'r protocolau marcio yn Ffeil Ddata Atodol 4.

Rhoddwyd sicrhad i'r cyfranogwyr yn gyson mai diben y tasgau ar ôl dysgu oedd canfod pa eiriau oedd y rhai hawsaf/anoddaf i'w dysgu, yn hytrach na'u hasesu fel dysgwyr. Eto i gyd, dylid nodi nad oedd yn bosibl pennu a oedd y cyfranogwyr wedi cyfeirio at ffynonellau allanol (e.e. Google Translate, geiriaduron, ffrindiau/teulu Cymraeg) ai peidio wrth gwblhau'r tasgau.

Canlyniadau ac allbynnau***Dysgadwyedd gair***

Aseswyd 'dysgadwyedd' y 300 gair targed yn syth ar ôl y dasg ddysgu. Cafodd y dasg ei marcio yn ôl y protocol a restrir uchod ac yn Ffeil Ddata Atodol 4, a chyfrifwyd cyfanswm nifer y pwyntiau a sgoriwyd ar gyfer pob gair, o'r Saesneg i'r Gymraeg (adalw) a'r Gymraeg i'r Saesneg (adnabod). Dehonglwyd y sgorau fel arwyddion o 'ddysgadwyedd' – h.y. ystyriwyd mai'r geiriau gyda'r sgorau uchaf yw'r rhai mwyaf dysgadwy. Y sgôr uchaf posibl fesul gair, pe bai pob un o'r 23 o gyfranogwyr wedi cynhyrchu atebion cywir (2 bwynt yr un), oedd 46. Rhoddwyd y sgôr uchaf honno i un eitem yn unig: yn y dasg Cymraeg>Saesneg, rhoddodd pob cyfranogwr y cyfieithiad Saesneg cywir am 'Cymraeg'. Hefyd, rhoddwyd sgôr o sero i un eitem yn unig (ni nododd unrhyw gyfranogwr y gair Cymraeg am *to hear*). Dengys tabl 1 yr ystadegau disgrifiadol ar gyfer y sgôr fesul gair. Gellir dod o hyd i'r rhestr lawn o eiriau targed wedi'u trefnu yn ôl 'dysgadwyedd', gyda'u sgorau gwahanol allan o 46, yn Ffeiliau Data Atodol 5 (Saesneg>Cymraeg) a 6 (Cymraeg>Saesneg).

	Sgôr isaf fesul gair	Sgôr uchaf fesul gair	Sgôr gymedrig fesul gair	Gwyrriad safonol
Saesneg> Cymraeg	0	42	18.03	9.03
Cymraeg> Saesneg	4	46	22.41	9.73

Tabl 1: Sgorau fesul gair (sgorau ‘dysgadwyedd’) – prawf yn syth ar ôl dysgu (uchaf posibl: 46 fesul modd, h.y. Saesneg>Cymraeg a Cymraeg>Saesneg)

Dengys Tabl 1 fod y sgorau adnabod yn uwch na'r sgorau adalw; mae'r gwahaniaeth hwn yn arwyddocaol ac wedi'i gadarnhau gan brawf-t ($p < 0.0001$). Mae hyn yn cyd-fynd â'r farn a dderbynnir yn eang fod gwybodaeth dderbyngar (neu wybodaeth adnabod) yn rhagflaenu gwybodaeth gynhyrchiol (neu adalw) am air (gweler e.e. Nation 2022). Dengys y ffigurau yn y tabl fod amrywiaeth sylweddol o ran a oedd eitemau'n cael eu hadalw neu eu hadnabod gan y cyfranogwyr. Mae hyn yn cefnogi'r gosodiad a wnaed cyn dechrau'r astudiaeth ei bod yn fwy heriol dysgu rhai geiriau nag eraill.

Mae'r rhestri yn Ffeiliau Data Atodol 5 a 6 yn amlygu tebygrwydd a gwahaniaethau yn nhrefn y geiriau adalw (S>C) ac adnabod (C>S). Er enghraifft:

- mae geiriau cytras (sydd â ffurf orgraffyddol debyg neu unfath yn y ddwy iaith, sy'n nodweddiadol o eiriau benthyg) yn cael eu gosod yn uchel yn y ddwy restr;
- o'r 43 gair⁸ a osodwyd uchaf (h.y. mwyaf dysgadwy) ym mhob rhestr, roedd 31 ar y ddwy restr – h.y. cawsant eu dysgu'n dda yn y moddau adalw ac adnabod;
- o'r 12 gair arall a roddwyd yn 40 uchaf sgorau'r dasg C>S, methodd y rhan fwyaf y torbwynt o 43 yn y rhestr S>C o drwch blewyn. Eithriad clir i hyn oedd 'newyddion', sydd yn safle 39⁹ yn y rhestr o eiriau mwyaf dysgadwy o ran adnabod (C>S), ond yn safle 124 yn y rhestr o eiriau mwyaf dysgadwy o ran adalw. O graffu ar y data, gwelir bod llawer o gyfranogwyr wedi colli pwyntiau gan eu bod wedi camsillafu 'newyddion'. Roedd camsillafu, yn enwedig geiriau hwy, yn batrwm trwy'r data i gyd, ac yn cyfrannu at sgorau is ar gyfer adalw nag ar gyfer adnabod.
- Sylwyd ar y nodweddion canlynol yn y geiriau lleiaf dysgadwy (h.y. y rheini a gafodd y sgorau isaf), sef eu bod yn tueddu i fod ychydig yn

⁸ Defnyddiwyd 43 fel torbwynt yn y drefn restrol er mwyn cynnwys geiriau sydd â'r un sgorau. Roedd hyn yn cynnwys pob eitem S>C gyda sgôr o 30 neu uwch, a phob eitem C>S gyda sgôr o 36 neu uwch.

⁹ Dylid nodi bod y ffigurau hyn yn rhai dangosol (*indicative*): mae'r rhestri a drefnwyd yn cynnwys eitemau gyda sgorau unfath. Gweler ffeiliau atodol 7 i 10 am fanylion.

hwy, a'u bod yn tueddu i gynnwys llythrennau penodol i'r Gymraeg, neu lythrennau sy'n cael eu seinio'n wahanol yn y Gymraeg i'r modd y cânt eu seinio yn y Saesneg (gan gynnwys y llafariad 'w' ac 'y'). O'r 29 gair targed sy'n dechrau gyda'r cyfuniad 'cy' (sy'n heriol yn anecdotiaidd i ddysgwyr), roedd 19 ohonynt ymhlith y 49 gair lleiaf dysgadwy (rhestr C>S, sgorau o 12 ac is).

Dargadw geiriau (word retention)

Aseswyd yr elfen dargadw geiriau trwy'r dasg ar ôl dysgu wedi'i hoedi. Bwriadwyd cadw'r cyfnod rhwng y ddwy dasg yn bythefnos o hyd, ond mewn gwirionedd amrywiodd rhwng 13 a 32 diwrnod oherwydd bu'n rhaid aros nes bod y cyfranogwyr ar gael (cymedr = 17.2, gwyriad safonol = 4.4). Marciwyd y dasg a chyfrifwyd y sgorau yn yr un ffordd â'r dasg yn syth ar ôl dysgu. Y tro hwn, ystyriwyd mai'r geiriau â'r sgorau uchaf a ddargadwyd orau (h.y. cawsant eu cofio ar ôl cyfnod pan na ddaethpwyd ar eu traws). Gan mai 22 cyfranogwr yn unig a gwblhaodd y dasg hon, y sgôr fwyaf y gellid fod wedi'i chael oedd 44. Unwaith eto, rhoddwyd y sgôr uchaf i un eitem yn unig: yn y dasg C>S, rhoddodd pob cyfranogwr y cyfieithiad Saesneg cywir am 'Cymru'. Dengys Tabl 2 yr ystadegau disgrifiadol ar gyfer y sgorau dargadw fesul gair. Gellir dod o hyd i'r rhestr lawn o eiriau targed wedi'u trefnu yn ôl dargadwedd, gyda'u sgorau dargadw allan o 44, yn Ffeiliau Data Atodol 7 (Saesneg>Cymraeg) ac 8 (Cymraeg>Saesneg).

	Sgôr isaf fesul gair	Sgôr uchaf fesul gair	Sgôr gymedrig fesul gair	Gwyriad Safonol
Saesneg>Cymraeg	0	43	13.77	8.48
Cymraeg>Saesneg	2	44	17.22	9.78

Tabl 2: Sgorau fesul gair (sgorau 'dargadw') – prawf ar ôl dysgu wedi'i oedi (uchaf posibl = 44 fesul modd)

O'r geiriau a osodwyd yn y 43 uchaf o ran dysgadwyedd (S>C), gosodwyd 33 yn y 41¹⁰ uchaf o ran dargadwedd. O'r 10 sy'n weddill, roedd saith o fewn y 60 uchaf. Cafwyd tri eithriad a ostyngodd yn sylweddol yn y drefn restrol rhwng y dasg yn syth ar ôl dysgu a'r dasg wedi'i hoedi: *family*>teulu (116 yn y prawf wedi'i oedi), *matter*>mater (78) a *middle*>canol (97).

Fel yn y dasg yn syth ar ôl dysgu, roedd y sgorau adnabod yn sylweddol uwch na'r sgorau adalw ($p < 0.0001$).

¹⁰ Defnyddiwyd 41 fel torbwynt yn y drefn restrol er mwyn cynnwys geiriau a oedd â'r un sgorau. Roedd hyn yn cynnwys pob eitem S>C a oedd â sgôr o 25 neu uwch.

Ymddygiad dysgu'r cyfranogwyr

Cafwyd cryn amrywiaeth ym mherfformiadau'r cyfranogwyr yn y tasgau ar ôl dysgu, fel y mae'r gwyriadau safonol a gofnodir yn Nhabl 3 yn ei ddangos. Er i'r rhan fwyaf o'r cyfranogwyr (21 o'r 23) sgorio'n uwch ar y dasg C>S na'r dasg S>C, fel y disgwyliid, sgoriodd dau yn uwch ar y dasg S>C. Un rheswm posibl am hyn oedd mai'r elfen C>S oedd ail hanner y dasg, a chan fod y dasg gyfan yn cymryd rhwng 60 a 90 munud, mae'n bosibl bod y ddau gyfranogwr hynny wedi dechrau blino. Y gwahaniaeth cymedrig rhwng y sgorau S>C a C>S oedd 56.43 pwynt (gwyriad safonol o 44.77).

	Sgôr isaf fesul cyfranogwr	Sgôr uchaf fesul cyfranogwr	Sgôr gymedrig fesul cyfranogwr	Gwyriad safonol
Saesneg>Cymraeg	37	588	235.13	152.62
Cymraeg>Saesneg	56	598	291.57	151.42
Sgôr gyfunol (S>C + C>S)	93	1186	526.7	300.73

Tabl 3: Tasg yn syth ar ôl dysgu – sgorau fesul cyfranogwr (uchaf posibl: 600 fesul modd)

	Sgôr isaf fesul cyfranogwr	Sgôr uchaf fesul cyfranogwr	Sgôr gymedrig fesul cyfranogwr	Gwyriad safonol
Saesneg>Cymraeg	15	587	187.77	151.26
Cymraeg>Saesneg	19	592	234.82	156.85
Sgôr gyfunol (S>C + C>S)	78	1179	422.55	303.1

Tabl 4: Tasg ar ôl dysgu wedi'i hoedi – sgorau fesul cyfranogwr (uchaf posibl: 600 fesul modd)

Un o nodau'r astudiaeth oedd adnabod technegau caffael effeithiol ar gyfer y 300 gair targed. Mae data'r holiadur yn rhoi mewnwelediad i strategaethau a dulliau dysgu'r cyfranogwyr, ac isod nodir gwybodaeth berthnasol gan y chwe chyfranogwr a sgoriodd uchaf ar y dasg yn syth ar ôl dysgu a'r dasg ar ôl dysgu wedi'i hoedi (mae set ddata lawn yr holiadur yn Ffeil Ddata Atodol 9). Dangosir sgorau cyfunol (S>C + C>S) y chwe chyfranogwr hyn yn y ddwy dasg ar ôl dysgu yn Nhabl 5, ynghyd â gwybodaeth am eu cefndir ieithyddol. Er mwyn hwyluso'r drafodaeth, mae'r cyfranogwyr wedi'u cynrychioli gan c01, c02, c03, ac yn y blaen. Fel y gwelir yn Nhabl 5, mae cyfraddau athreuliad

geirfa'r cyfranogwyr yn amrywio'n sylweddol, gydag un cyfranogwr yn sgorio'n uwch ar y dasg wedi'i hoedi na'r dasg yn syth ar ôl dysgu, ac un yn sgorio 354 pwynt yn llai. Roedd pob un o'r sgorwyr uchaf yn gwybod o leiaf un ail iaith, ac ar gyfartaledd 2.5 ail iaith, o'u cymharu â'r 14 cyfranogwr arall a oedd yn gwybod 1.6 ail iaith ar gyfartaledd. Er y gellir dehongli hyn fel cefnogaeth i'r gred ei bod yn haws i'r sawl sy'n meddu ar sawl iaith yn barod ddysgu rhagor o ieithoedd (gweler er enghraifft, de Bot a Jaensch 2015), nid oes digon o ddata i gyfrifo a yw'r gwahaniaeth hwn yn arwyddocaol, ac yn wir nododd cyfranogwyr c04 a c05 fod eu gwybodaeth o'r Ffrangeg yn sylfaenol. Un cyfranogwr yn unig, sef c02, a oedd yn medru ail iaith (Gaeleg yr Alban) yr oedd ganddi berthynas â'r Gymraeg. Fodd bynnag, mae'n drawiadol bod pob un o'r chwe sgoriwr uchaf hyn, ac un cyfranogwr arall yn unig, yn nodi iddynt ddefnyddio eu hail ieithoedd i'w helpu i ddysgu a chofio'r eirfa Gymraeg. Soniodd pedwar o'r chwech am enghreifftiau penodol, yn enwedig yng nghyd-destun y dechneg allweddeiriau (e.e. dywedodd c03: '*for instance, the Welsh word "Arian" means "money". In my L1 – Malayalam, there is a word "Ari" (Ah-REE) which means "rice". So, to remember "Arian", I associated it with needing money to buy rice.*').

	c01	c02	c03	c04	c05	c06
Iaith gyntaf / ieithoedd cyntaf	Saesneg	Saesneg	Malayalam	Saesneg	Saesneg	Saesneg
Gwybodaeth o ieithoedd eraill	Almaeneg, Sbaeneg, Portiwgaleg	Almaeneg, Gaeleg yr Alban	Saesneg, Tamil, Hindi, Bengali	Ffrangeg	Ffrangeg	Eidaleg, Ffrangeg, Almaeneg, Sbaeneg
Tasg yn syth ar ôl dysgu	1186	1127	913	861	796	773
Tasg ar ôl dysgu wedi'i hoedi	1179	1056	559	742	808	679
Gwahaniaeth rhwng sgorau'r dasg yn syth ar ôl dysgu a'r dasg ar ôl dysgu wedi'i hoedi	-7	-71	-354	-119	+12	-94

Tabl 5: Sgorau a chefnidiroedd iaith y chwe chyfranogwr a sgoriodd uchaf

Mae ymatebion yr holiadur yn datgelu gwybodaeth fanwl am ddulliau a thechnegau'r chwech hyn a'r holl gyfranogwyr eraill. Mae'r dulliau a'r technegau yn cynnwys y canlynol:

- Edrychodd y cyfranogwyr ar rhwng 8 a 20 gair y dydd, ac eithrio c01, a edrychodd ar tua 30 am y 10 diwrnod cyntaf, ac wedyn tua 75 ar y diwrnodau dilynol.

- Mewn cyferbyniad â'r rhan fwyaf o'r cyfranogwyr eraill, aethant ati i lunio dulliau systematig wrth benderfynu pa eiriau i edrych arnynt bob dydd. Mae'r rhain yn cynnwys (heb eu cyfieithu):
 - I came up with a system on the first day. I split them roughly into verbs, adjectives and nouns then put them in groups of ten cards. I then did the maths of how many words I would need to learn a day to cover all 300 and came up with a 10-day system. Every 10 days looked like this: days 1 and 2 I learnt new sets of 10 words, day 3 I covered those 20 words, days 4 and 5 I learnt another two sets, day 6 I covered those, days 7 and 8 I learnt two more sets, day 9 I covered those last two and then on day 10 I revised all 60 words I had learnt. That way, over 5 sets of this routine, I managed to cover all 300 words. (c04)
 - I tried to introduce some new words each day, and then would shuffle the deck of previous flashcards and draw some to practice. (c02)
 - At the beginning of the 50 days, I split my flashcards into words that looked 'easy' and 'hard', and started on the easier words, all the way through I would pick words that looked easier for me to learn. I feel in a way this may have set me up for failure from the beginning, however, as I did not feel motivation to attempt the 'hard' words, and therefore never ended up learning those. (c05)
 - When doing 10 words a day to start off with, it was completely random. Once I'd studied all 300 words at least once, I'd go through them all again. The ones I remembered correctly I would put in the 'correct' pile. The ones I didn't remember correctly, I would put in an 'incorrect' pile. Once I had gone over all 300 words again, I would revisit the 'incorrect' pile and repeat the process, adding the words I could now correctly recite into the 'correct' pile and returning the ones I still couldn't recite correctly into the 'incorrect' pile. And so on, until all words were in the 'correct' pile. I would then repeat the process with the 300 words. (c01)
 - I initially looked through them all and put to one side the ones I'd learned over the years (English, England, Welsh, Wales, service (from motorways services) Christmas, thank, night, news) and didn't look at them again till the end (green pile). Then I extracted the ones that were either the same or very similar to English (green pile). Then I made a pile of words where I'd successfully given myself a way of remembering them (orange). Finally, I had a pile of words I didn't have anything for (red). I went through the red pile a few times and some of the words made it into the orange pile. As I gradually learned words from the orange pile, they made it into the

green pile. A few times I went back to the red pile, but it was really just so that I could say I'd tried. (c06)

- I did not follow a specific criteria in choosing which words to learn EACH day. However, I must admit that at the beginning of Welsh vocabulary learning, I did prioritize nouns and learned them first over verbs. (c03)
- Nododd pawb ond un o'r chwech eu bod wedi defnyddio'r dechneg allweddeiriau. Nododd nifer o'r dysgwyr eraill iddynt ddefnyddio dull yr allweddeiriau hefyd, ond gan beidio â rhoi llawer o enghreifftiau. Roedd y pum cyfranogwr a sgoriodd uchaf ac a ddefnyddiodd y dechneg allweddeiriau yn gallu rhoi enghreifftiau niferus, a oedd yn cynnwys cysylltiadau a wnaed trwy eu hail iaith (ieithoedd) a chysylltiadau creadigol.
- Adroddodd pedwar o'r chwe chyfranogwr hyn eu bod wedi defnyddio'r dechneg teulu geiriau, gan roi sylw i'r rhannau o eiriau a oedd mewn print trwm ar y cardiau fflach. Nododd tri fod hyn wedi bod o gymorth iddynt. (Wrth sgorio'r tasgau ar ôl dysgu, nodwyd bod y cyfranogwyr yn drysu rhwng aelodau gwahanol o'r un teulu geiriau yn aml.)
- O ran y technegau dysgu eraill a ddefnyddiwyd, cyngor cyffredinol ac awgrymiadau am welliannau, roedd ymatebion y chwe chyfranogwr hyn yn cynnwys:
 - dweud y geiriau yn uchel – gan ddefnyddio'r canllaw ynganu a/neu Google Translate
 - ailymweld â'r un geiriau yn gyson, S>C yn ogystal â C>S
 - bod yn drefnus o ran trefnu'r cardiau yn bentyrrau – penderfynu ar dechneg a glynu ati
 - rhannu'r geiriau yn glystyrau llai er mwyn gallu eu cofio
 - byddai mwy o wybodaeth neu adnoddau yn ymwneud ag ynganu o gymorth, gan gynnwys gwybodaeth am effaith y 'to bach'.

Gofynnwyd i'r cyfranogwyr beth, yn eu tyb nhw, oedd yn ddifyr, ac yn llai difyr, am y dasg ddysgu. Roedd ymatebion pob un o'r 20, ran amlaf, yn gadarnhaol (dylid nodi mai'r rhain oedd y cyfranogwyr a gwblhaodd bob tasg; mae'n debygol mai'r rhai a oedd yn teimlo'n llai cadarnhaol am y profiad oedd y rhai a dynnodd allan o'r astudiaeth). Roedd yr her o ddysgu iaith newydd a gwahanol iawn a/neu o allu cysylltu eu dysgu â thirwedd ieithyddol Cymru yn agweddau a nodwyd fel rhai arbennig o ddymunol. Nododd naw cyfranogwr fod glynu wrth y patrwm gwaith dysgu yn agwedd lai dymunol, neu fwy heriol. Nododd tri chyfranogwr (gan gynnwys c03 a c04) fod peidio â gwybod sut i ynganu'r geiriau targed wedi profi'n anodd. Yr ymateb mwyaf cadarnhaol oedd un c01, a wnaeth y sylw canlynol:

There was no part of [the task] that I didn't enjoy ... It would be good if

the university could do this with other languages, I would happily do this again with another language. I am grateful for the opportunity to have learned some Welsh, and this was a good way to do so as it was only 10 minutes a day, which meant it was a manageable commitment. Having all the information and cards in one clear zip-up folder was also very helpful.

Yr hyn sydd efallai'n arwydd o'r ymateb cadarnhaol i'r dasg (a'r dymuniad i wybod rhagor am ynganu'r Gymraeg) yw bod 12 cyfranogwr wedi ymuno â sesiwn iaith Gymraeg ar-lein gyda'r hwyr ar ddiwedd yr astudiaeth. Dyma un o'r gwobrau a gynigiwyd i'r cyfranogwyr a gwblhaodd bob tasg. Dangosodd yr adborth gan y cyfranogwyr eu bod wedi gweld y sesiwn yn un ddefnyddiol a difyr.

Casgliadau ac awgrymiadau ar gyfer datblygu yn y dyfodol

Cynhyrchodd yr astudiaeth set gyfoethog o ddata. Adroddwyd ar y canfyddiadau a'r allbynnau mwyaf perthnasol uchod, a gellir dod o hyd iddynt yn yr atodiadau. Gallai'r rhain ddarparu gwybodaeth ar gyfer cwricwla dysgu Cymraeg, deunyddiau cwrs, asesiadau, addysg/dulliau athrawon a thechnegau hunanastudio, gan ddangos pa eiriau hanfodol sydd angen y sylw mwyaf a gallai arwain at ymgorffori technegau effeithiol o fewn deunydd cyrsiau, yn ogystal â mynd i'r afael ag athreuliad geirfa ac ati.

Ar ben hynny, mae potensial i archwilio'r data hyn ymhellach, a gallai astudiaethau pellach gynnwys:

- Dadansoddi gwallau yn y tasgau ar ôl dysgu er mwyn:
 - o canfod camau o wybodaeth gynyddrannol (*incremental*) am eiriau, a nodi unrhyw batrymau camsillafu cyffredin
 - o gwahaniaethu rhwng eitemau na chawsant eu dwyn i'r cof o gwbl, a'r rhai a gofiwyd yn rhannol
 - o nodi pa elfennau y drysir rhyngddynt yn aml oherwydd tebygrwydd orgraffyddol (e.e. bod-dod, newid-newydd, agos-aros) neu semantig (e.e. ifanc-bach, diwethaf-olaf).
- Archwilio'r cysylltiadau rhwng yr ymddygiadau dysgu ar gyfer geiriau penodol a amlinellir gan unigolion, a'u sgorau ar ôl dysgu ar gyfer y geiriau hynny
- Edrych ar y berthynas rhwng gwybodaeth flaenorol cyfranogwyr o ieithoedd a'u perfformiad yn y tasgau ar ôl dysgu
- Archwilio patrymau athreuliad geirfa unigolion, a chysylltiadau rhwng hyn ac ymddygiadau dysgu unigol (ceir peth tystiolaeth, er enghraifft, fod dulliau allweddeiriau yn arwain at gofio geiriau'n well)
- Ymchwilio i'r berthynas rhwng faint o weithiau y deuir ar draws pob gair a'r bylchau rhwng y rhain o ran amser, a llwyddo i'w caffael

- Llunio technegau caffael ar gyfer y geiriau amllder uchel hynny sydd fwyaf heriol i'w dysgu.

Mae'r astudiaeth wedi dangos bod modd i ddysgwyr brwdfrydig gaffael y rhan fwyaf o'r 300 enw/berf/ansoddair a ddefnyddir amlaf yn y Gymraeg trwy eu dysgu am 10 munud y dydd dros 50 diwrnod. Mae hyn yn ei gwneud yn ymarferol i roi mwy o bwyslais ar eirfa ddefnyddiol ar ddechrau maes llafur, a bydd ychwanegu cyfleoedd at hyn i ddefnyddio geiriau sydd newydd eu caffael mewn cyd-destun penodol yn dyfnhau ac yn ymwreiddio gwybodaeth ehangach am eiriau. Dengys cymhelliant parhaus y cyfranogwyr a gwblhaodd y tasgau y gallai dysgwyr barhau â'u cynllun dysgu y tu hwnt i 50 diwrnod, gan gymhwys strategaethau caffael y tu hwnt i'r 300 gair cyntaf.

Cydnabyddiaethau

Cydariannwyd yr astudiaeth yr adroddir arni yn yr erthygl hon gan y Ganolfan Dysgu Cymraeg Genedlaethol a Dyfarniad Cyflymu Traweffaith yr AHRC (Cyngor Ymchwil y Celfyddydau a'r Dyniaethau). Mae'r awduron yn ddiolchgar i Gosia Rutecka am ei chymorth wrth brosesu data, ac i Helen Prosser am ei harweiniad a'i chyngor ar gynllun yr astudiaeth. Hefyd, cydnabyddwn gyfraniad estynedig ac ymrwymiad cadarn cyfranogwyr yr astudiaeth. Hebddynt, ni fyddem wedi gallu cynnal yr astudiaeth.

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ATODIAD 1
 Enghreifftiau o gardiau fflach

bod												to be												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

gweld												to see												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

ATODIAD 2

Cyfarwyddiadau ar gyfer y dasg yn syth ar ôl dysgu

Welsh Vocabulary Project - immediate post-learning task

Thank you for participating in our Welsh Vocabulary Project, and congratulations on completing your 50-day learning period. We really appreciate your hard work and your persistence. (*Even if you had to miss some days of study, please complete this task).

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

Please complete the task below as soon as you have completed your 50 days of learning. There are two parts to the task. In Part 1, you will be given an English word and asked to write the Welsh translation. In Part 2 you will be given a Welsh word and asked to write the English translation. Altogether the task should take around 60-80 minutes to complete.

Please bear in mind the following:

- please complete the task **without** referring to any learning materials or reference materials, and **without** using the "back" button to refer to previous questions/answers
- we understand that you probably will only remember *some* of the words from your learning pack; any new word you have learned is an achievement, so please **don't worry if there are questions you are unable to answer**
- the main purpose of the study is to find out which words seem easier for learners to remember, and which seem more difficult; **we are assessing the words, not you as a learner**
- if you only partly remember a word, or are not sure of the spelling, write it as best you can
- **don't use the "back" button** to revisit questions on previous pages - complete each pages as best you can then click "next" to proceed.

After you have completed both parts of the task and submitted your answers, **please do not spend any further time learning the words**. We will ask you to repeat the task in two weeks time in order to see how many words you have retained since this first test, without any further learning.

*We understand that some of you were not able to complete the learning period, or to study every day. After you have completed all the vocabulary tasks we will send you a questionnaire, which will include a question about any interruptions, pauses or difficulties with your studying. Your data is still valuable to us.

IMPORTANT: Please try to complete the task in one sitting. **If you have to exit the form before completing and submitting your answers, your answers will NOT be automatically stored and you will have to start the task over again.** HOWEVER, if you log into your Google account using the option below, your answers will be stored in draft form, enabling you to return to the FORM (via the url) and continue from where you left off.

==

ATODIAD 3

Cwestiynau yn yr holiadur terfynol (yn yr iaith wreiddiol)

- o What is your first language?
- o What other languages do you know?
- o We realise that 10 mins per day of vocabulary learning is a big commitment. Please tell us whether there were any days that you missed (how many), and whether you used extra days to make up for this. Please note that we do not need to know why you missed days, and also that there was no obligation to add extra days for any you missed.
- o On average, how many words did you look at each day?
- o How did you decide which words to look at each day?
- o How did you use the **flashcards**? E.g. Did you cover/fold the card so that a word was hidden? Did you write on the flashcards? Did you divide them into piles (how)? Did you use them in some other way?
- o Did you use the **keyword technique** at all (where you think of a word in English (or your L1) that resembles the Welsh target word in some way, and possibly create a visual image)?
If yes, did you draw your keyword images at all? Did you use the keyword technique in some other way?
- o Can you remember which (if any) words you used the keyword technique to learn? Please list as many as you can remember.
- o Did you use the **word family technique** at all (on the flashcards, common letter strings in words from the same family were marked in **bold**)?
Did this help your learning? If so, in what way?
- o Can you remember which (if any) words you used word family techniques to learn? Please list as many as you can remember.
- o Tell us more about any other learning techniques you used.
- o What advice would you give someone attempting this challenge (learn 300 Welsh words in 50 days) in the future?
- o Is there any other information you think might be relevant to our interpretation of your results? Please note that we do not need to know about why your learning might have been disrupted or interrupted; we are interested in factors that may have impacted on your learning approach or process (e.g. learning difficulties such as dyslexia; knowledge of languages similar to Welsh).
- o What did you find enjoyable about the task?
- o What did you find less enjoyable about the task?
- o Do you have any suggestions for how the task might be made more effective (e.g. timing, instructions, etc.)?
- o Do you have any other comments relating to your experience on the Welsh vocabulary project?
- o Would you like us to email you your scores from the two post-learning tasks?

**FFEIL DDATA ATODOL 1:
Geiriau targed wedi'u rhestru yn nhrefn amllder**

1	bod	to be	51	darllen	to read
2	cael	to have	52	hanes	history
3	gwneud	to do	53	gwahanol	different
4	mynd	to go	54	gwybodaeth	knowledge
5	Cymru	Wales	55	cofio	to remember
6	dod	to come	56	codi	to get up
7	gallu	to be able to	57	llun	picture
8	mawr	big	58	gwlad	country
9	gweld	to see	59	cyfnod	period
10	dweud	to say	60	cymryd	to take
11	da	good	61	wythnos	week
12	peth	thing	62	digwydd	to happen
13	rhoi	to give	63	bywyd	life
14	pobl	people	64	cig	meat
15	Cymraeg	Welsh	65	gadael	to leave
16	newydd	new	66	nifer	number
17	gwaith	work	67	newid	to change
18	blwyddyn	year	68	tro	turn
19	iaith	language	69	creu	to create
20	plant	children	70	gwefan	website
21	ysgol	school	71	clywed	to hear
22	defnyddio	to use	72	newyddion	news
23	gwybod	to know	73	cadw	to keep
24	dydd	day	74	math	type
25	rhaid	necessity	75	ifanc	young
26	rhan	part	76	teulu	family
27	byd	world	77	dangos	to show
28	tŷ	house	78	cwmni	company
29	angen	need	79	pwysig	important
30	meddwl	to think	80	llawn	full
31	bach	small	81	stori	story
32	ffordd	way	82	arbennig	special
33	enw	name	83	cynnwys	content
34	amser	time	84	arian	money
35	rhaglen	programme	85	cynnal	to convene
36	gweithio	to work	86	edrych	to look
37	mis	month	87	dyn	man
38	hen	old	88	prif	main
39	eisiau	want	89	cynllun	plan
40	llyfr	book	90	cynulliad	assembly
41	dysgu	to learn	91	credu	to believe
42	siarad	to speak	92	dilyn	to follow
43	aelod	member	93	ysgrifennu	to write
44	lle	place	94	enedlaethol	national
45	pen	head	95	derbyn	to accept
46	gwasanaeth	service	96	lleol	local
47	gair	word	97	siŵr	sure
48	llywodraeth	government	98	chwarae	to play
49	cyfle	opportunity	99	mam	mother
50	dechrau	beginning	100	teimlo	to feel

101	car	car	151	tîm	team
102	syniad	idea	152	uchel	high
103	taith	journey	153	nos	night
104	cyngor	council	154	data	data
105	merch	girl	155	rhannu	to share
106	byw	to live	156	Saesneg	English
107	tynnu	to pull	157	hanner	half
108	iawn	OK	158	deall	to understand
109	cwestiwn	question	159	tebyg	similar
110	diwedd	end	160	iechyd	health
111	cyhoeddi	to publish	161	cofnod	record
112	cyrraedd	to arrive	162	cân	song
113	ceisio	to attempt	163	grŵp	group
114	chwilio	to seek	164	ystyried	to consider
115	troi	to turn	165	dal	to catch
116	cysylltu	to connect	166	sôn	to mention
117	bwyd	food	167	prosiect	project
118	cyflwyno	to present	168	sir	county
119	helpu	to help	169	digwyddiad	event
120	polisi	policy	170	gyrru	to drive
121	mudiad	movement	171	golygu	to mean
122	sicrhau	to ensure	172	problem	problem
123	busnes	business	173	profiad	experience
124	cynnig	to offer	174	bore	morning
125	ardal	area	175	cefnogi	to support
126	eglwys	church	176	gwir	real
127	maes	field	177	peidio	to cease
128	diolch	thanks	178	hir	long
129	un	same	179	gogledd	north
130	symud	to move	180	ymchwil	research
131	ffrind	friend	181	canol	middle
132	sylw	attention	182	colli	lose
133	tad	father	183	pell	far
134	hoffi	to like	184	ateb	answer
135	cyfrwng	medium	185	ymateb	response
136	diweddar	recent	186	anodd	difficult
137	môr	sea	187	cymorth	aid
138	cartref	home	188	cymuned	community
139	cwrs	course	189	mwynhau	to enjoy
140	gofyn	to ask	190	trafod	to discuss
141	cymdeithas	society	191	prifysgol	university
142	dewis	to choose	192	clwb	club
143	amlwg	obvious	193	plaid	political party
144	addysg	education	194	nodi	to note
145	datblygu	to develop	195	de	right
146	enghraifft	example	196	awr	hour
147	aros	to wait	197	oes	era
148	cyfarfod	meeting	198	dosbarth	class
149	cyfres	series	199	gofal	care
150	oed	age	200	trio	to try

201	swydd	job	251	dŵr	water
202	mater	matter	252	gosod	to set
203	cyffredinol	general	253	achos	cause
204	talw	to pay	254	pwyllgor	committee
205	canolfan	centre	255	cyfeiriad	address
206	gwyb	excellent	256	agos	near
207	ochr	side	257	ymweld	to visit
208	parhau	to continue	258	adnabod	to recognise
209	oen	lamb	259	diddordeb	interest
210	rhestr	list	260	hawdd	easy
211	cerdded	to walk	261	safon	standard
212	dyfodol	future	262	swyddog	officer
213	llaw	hand	263	cynhyrchu	to produce
214	prynu	to buy	264	golwg	vision
215	barn	opinion	265	cerddoriaeth	music
216	olaf	final	266	ffaith	fact
217	adroddiad	report	267	llais	voice
218	noson	evening	268	rhiant	parent
219	munud	minute	269	gŵyl	festival
220	torri	to break	270	dathlu	to celebrate
221	rhyfel	war	271	gwerth	value
222	arwain	to lead	272	gwobr	prize
223	Sul	Sunday	273	cyfieithu	to translate
224	rhyw	sex	274	cerdd	poem
225	bwrdd	table	275	erthygl	article
226	canu	to sing	276	cytuno	to agree
227	tipyn	bit	277	anfon	to send
228	trefnu	to organise	278	ariannol	financial
229	gwyn	white	279	drwg	bad
230	cefn	back	280	swyddfa	office
231	siop	shop	281	defnydd	use
232	gweinidog	minister	282	adran	department
233	blog	blog	283	sgwrs	chat
234	diwethaf	last	284	diddorol	interesting
235	papur	paper	285	penodol	specific
236	drws	door	286	aml	frequent
237	gobeithio	to hope	287	cynnar	early
238	penderfynu	to decide	288	côr	choir
239	galw	to call	289	capel	chapel
240	person	person	290	athro	teacher
241	tywydd	weather	291	pwynt	point
242	cymdeithasol	social	292	cysylltiad	connection
243	sefydlu	to establish	293	darn	piece
244	canrif	century	294	proses	process
245	meithrin	nursery	295	ymddangos	to appear
246	tir	land	296	gwrando	to listen
247	ymuno	to join	297	myfyriwr	student
248	Nadolig	Christmas	298	safle	position
249	rheswm	reason	299	corff	body
250	neges	message	300	llafur	labour

FFEIL DDATA ATODOL 2
Gwybodaeth ar gyfer darpar gyfranogwyr
(wedi'i chynnwys mewn ffurflen Google ynghyd â gwiriad cymhwystra a ffurflen gydsynio)

Thank you for your interest in joining our Welsh Vocabulary project

The project investigates techniques for acquiring Welsh vocabulary, for people who have not previously studied/acquired Welsh. We are interested in how many words people can learn by studying for 10 minutes each day, for 50 consecutive days. We will also use the data to identify which words seem to be easier or more difficult for people to acquire. In other words, our focus is on the words and the task; we are not judging your individual learning capability.

Participants should be first language or highly proficient users of English, and should not be Welsh speakers. As a guide, if you know the Welsh words for two or more of these words: *go, give, big, new, people, children*, you are NOT eligible to take part in this project.

Project participants will receive a learning pack with instructions and vocabulary flashcards, and will be asked to:

- **spend 10 mins per day on word learning** for 50 consecutive days between November and January, starting no later than 29 November. This will be independent study in your own time, using techniques described in the instructions;
- **complete an online task** at the end of the 50-day period to see which words you have acquired (the test will take approximately 50-60 minutes);
- **repeat the online task** 2-4 weeks later to see which words you still remember;
- **complete an online questionnaire** about your learning experience.

In recognition of your contribution to the project, after completing the learning period and online tasks you will:

- receive an Amazon voucher
- be invited to attend an optional Welsh language taster session designed specifically for participants in this project
- receive a certificate of participation, with wording appropriate for use in a cv or job application.

The project is led by Tess Fitzpatrick, Professor of Applied Linguistics, and Steve Morris, Research Officer, in the School of Culture and Communication at Swansea University. If you have any questions about the project you can contact us on t.fitzpatrick@swansea.ac.uk and s.morris@swansea.ac.uk (please send any correspondence to both email addresses).

This study has been approved by the Swansea University Ethics Committee (reference 1-2023-7871-6856). The study is jointly funded by the AHRC (the UK Arts and Humanities Research Council) and the National Centre for Learning Welsh.

FFEIL DDATA ATODOL 3

Taflên wybodaeth ar gyfer cyfranogwyr



Instruction sheet

Thank you for participating in our Welsh vocabulary project. Here's what we would like you to do:

- You have received a **'learning pack'** containing
 - 300 **flash cards**
 - a **"keep track of your 50 days of learning" guide**
 - a guide to **Welsh pronunciation**
 - a copy of the **information and consent form** you signed online (this is only for reference – you don't need to complete it again)
 - this **instruction sheet**
- Decide which day you will start your learning period – the start date must be between 13th and 29th November. You can note your start date on the **"keep track of your 50 days of learning" guide** (see the instructions on the guide). You should study for 10 minutes each day, for 50 consecutive days.
- Plan your learning approach: **How many words each day?**
 You will only be able to look at/learn some of the words each day, and you'll almost certainly need to look at each flashcard several times in order to learn each word. We suggest spacing your learning – e.g. each day try learning 8-10 new words, and revise words from previous days that you may have forgotten. We realise that learning 300 words in 50 days is a big challenge, but you may surprise yourself with how well you do!
- Plan your learning approach: **How will you learn?**
 You will develop your own learning techniques, and we will be interested to hear about these at the end of the project. We suggest that you also try the following:
 - **Using flashcards:**
 - Look at the English word and try to recall the Welsh word (you can cover the Welsh word, or fold the flashcard in half so that you only see the Welsh).
 - Each day try learning 8-10 new words, and revise words from previous days that you may have forgotten. Every time you look at a flashcard, please tick the box on that flashcard for the relevant day of learning - see instructions on the **"keep track of your 50 days of learning" guide**. (This is part of our data collection; we will ask you to return the flashcards at the end of the project).
 - Vary the order in which you revise/learn the words.
 - **Keyword technique:**
 - Look at the Welsh word on the flashcard and think of a word in English (or your L1) that resembles it in some way (e.g. the Welsh word *ci* (=dog) is pronounced the same way as the English word *key*) – this word (*key* in our example) is your "keyword".



- Create a visual image – either in your head, or draw it – that links the meaning of the keyword with the meaning of the Welsh word. On the back of the card, you can draw the image and/or note the keyword.
- Note that this works better for some words than others – use it only where it is possible for you to create a keyword.
- **Word family technique:**
 - Some words that are related in meaning, share a common root, or a common string of letters (e.g. in English, *drink, drinker, drinkable, or unworkable, works, worker, work*) – these are sometimes referred to as members of the same word family.
 - Some of the words on the flashcards are from the same word family, and where this is the case we have **bolded** the shared letters. Noticing these patterns may help with learning.
- **Other information:**
 - The 300 target words are all adjectives, verbs or nouns. Verbs are preceded by “to” (so, *to work* is the verb, and *work* is the noun).
 - Feel free to write on the flashcards, or draw keyword images etc., if this helps your learning.
 - Welsh words may appear difficult to pronounce at first, because the letters are used differently from the way they are used in English. For example, in Welsh, *w* and *y* are vowels. There is a pronunciation guide in your learning pack, which you can use to support your learning if you wish.
- **What to do at the end of your 50 days of learning?**
 - First, congratulate yourself on completing the learning task!
 - Next, send an email (addresses below) to tell us you have completed your 50 days of learning. We will then send you a link to an online (written) task to see how many of the 300 words you can remember. We will send you a follow-up task 2-4 weeks later. Please complete the tasks **as soon as possible** after you receive them, and please don't do any further learning until after you have completed the second task.
 - Then, we will send you an online questionnaire to find out more about your learning experience.
 - Once you have completed all the above, we will contact you to thank you, to give you some feedback on the tasks (if you wish), and to arrange for you to receive your tokens of appreciation (voucher, certificate, class invitation). We will ask you to return the flashcards, but can give you a list of the 300 words for you to keep if you wish.
- **Any questions?**
 - Contact Tess on t.fitzpatrick@swansea.ac.uk and Steve on s.morris@swansea.ac.uk

We hope you enjoy learning your Welsh words – good luck!



FFEIL DDATA ATODOL 4

Protocolau marcio'r tasgau ar ôl dysgu

- 2 bwynt am ateb cywir
 - 1 pwynt am wall lle mae modd adnabod ateb (mân wallau sillafu)
 - 0 pwynt am ateb anghywir
 - Gadael yn wag os nad oes ateb
-
- Anwybyddu priflythrennau
 - Anwybyddu cynnwys acen grom neu beidio
 - Derbyn ffurfiau'r geiriau oedd ar y cardiau fflach yn unig (gw. rhestr o eiriau targed)
 - Atebion sy'n awgrymu cyfeirio at ddeunyddiau ar wahân i'r cardiau fflach – e.e. *i alw* for “to call” (mae Google translate yn rhoi *i alw* yn sgorio 0.
 - Ar gyfer Cymraeg>Saesneg, anwybyddu cynnwys “to” ar gyfer berfenwau neu beidio – cywir heb neu gyda hyn
 - Ar gyfer Cymraeg>Saesneg, pan roddir ateb sy'n debyg yn semantig neu'n orgraffyddol i'r ateb cywir, ond sydd i gael rhywle arall ar y rhestr (e.e. *gwybod* > knowledge (dylai fod “know”)), y sgôr yw 0.
 - Ar gyfer Cymraeg>Saesneg, pan roddir ateb sy'n gyfystyr â'r ateb a fwriedir ac sydd HEB fod ar gael rhywle arall ar y rhestr (e.e. *dechrau* > start (cyfieithiad ar y cardiau = “beginning”), y sgôr yw 1.
 - Ar gyfer Cymraeg>Saesneg, pan roddir ateb sy'n debyg yn semantig ac yn orgraffyddol i'r ateb a fwriedir ond HEB fod ar gael rhywle arall ar y rhestr (e.e. *rhaid* > necessary (dylai fod “necessity”)), rhoddir 1.
 - Ar gyfer berfenwau (e.e. turn) os cynhwysir “to” yn yr ateb (to turn) er mai'r bwriad ar y cerdyn fflach oedd ei nodi fel enw (~~t~~turn), neu i'r gwrthwyneb, y sgôr yw 2.
 - Derbyn “The news” am “news” (fel ymateb i *newyddion*)
 - Ar gyfer Cymraeg>Saesneg anwybyddu gwallau teipio amlwg (e.e. “specail” am “special”)
 - Os rhoddir dau gynnig gwahanol (e.e. *merch* > woman neu girl), ac un ohonynt yn gywir, y sgôr yw 1.
 - Caiff ateb “?” ei drin fel un gwag (a'i ddisodli gan nodyn gwag ar y daenlen)
 - Pan roddir ateb sy'n air targed yn rhywle arall ar y rhestr, ond nid ar gyfer yr eitem hon, rhoddir 0 (e.e. house > *cartref* (dylai fod *tŷ*). Dyma'r achos hefyd pan fydd cysylltiad orgraffyddol yn ogystal â semantig (to work > *gwaith* (dylai fod *gweithio*).

FFEIL DDATA ATODOL 5

Geiriau targed yn nhrefn eu ‘dysgadwyedd’ cynhyrchiol (Saesneg>Cymraeg)
gyda chyfanswm sgorau 23 o gyfranogwyr (mwyaf posibl = 46 fesul gair)

Ciw S>C	TARGED	sgôr	Ciw S>C	TARGED	sgôr
Welsh	Cymraeg	42	English	Saesneg	28
data	data	42	lamb	oen	28
meat	cig	41	Sunday	Sul	28
small	bach	40	teacher	athro	28
car	car	40	turn	tro	27
thanks	diolch	40	name	enw	26
big	mawr	39	to help	helpu	26
school	ysgol	39	sea	môr	26
children	plant	38	long	hir	26
father	tad	38	thing	peth	25
morning	bore	38	work	gwaith	25
Christmas	Nadolig	38	language	iaith	25
hour	awr	37	world	byd	25
day	dydd	36	picture	llun	25
problem	problem	36	food	bwyd	25
age	oed	35	half	hanner	25
night	nos	35	political party	plaid	25
university	prifysgol	35	centre	canolfan	25
club	clwb	35	door	drws	25
people	pobl	34	process	proses	25
old	hen	34	to come	dod	24
girl	merch	34	month	mis	24
blog	blog	34	to like	hoffi	24
person	person	34	north	gogledd	24
house	tŷ	33	bad	drwg	24
group	grŵp	33	church	eglwys	23
water	dŵr	33	to drive	grru	23
team	tîm	32	right	de	23
shop	siop	32	week	wythnos	22
head	pen	31	business	busnes	22
family	teulu	31	hand	llaw	22
matter	mater	31	sex	rhyw	22
paper	papur	31	to sing	canu	22
chapel	capel	31	land	tir	22
good	da	30	parent	rhiant	22
type	math	30	book	llyfr	21
story	stori	30	to learn	dysgu	21
money	arian	30	history	hanes	21
mother	mam	30	to create	creu	21
friend	ffrind	30	man	dyn	21
project	prosiect	30	sure	siŵr	21
county	sir	30	high	uchel	21
middle	canol	30	far	pell	21
to be	bod	29	white	gwyn	21
choir	côr	29	body	corff	21
Wales	Cymru	28	to have	cael	20
new	newydd	28	part	rhan	20
time	amser	28	to work	gweithio	20
OK	iawn	28	to live	byw	20
policy	polisi	28	area	ardal	20

Ciw S>C	TARGED	sgôr	Ciw S>C	TARGED	sgôr
to wait	aros	20	war	rhyfel	17
lose	colli	20	table	bwrdd	17
to note	nodi	20	cause	achos	17
back	cefn	20	festival	gŵyl	17
to go	mynd	19	prize	gwobr	17
country	gwlad	19	point	pwynt	17
life	bywyd	19	student	myfyriwr	17
full	llawn	19	year	blwyddyn	16
question	cwestiwn	19	want	eisiau	16
to turn	troi	19	place	lle	16
field	maes	19	to get up	codi	16
health	iechyd	19	same	un	16
song	cân	19	record	cofnod	16
answer	ateb	19	care	gofal	16
class	dosbarth	19	side	ochr	16
job	swydd	19	final	olaf	16
minute	munud	19	nursery	meithrin	16
fact	ffaith	19	value	gwerth	16
piece	darn	19	to see	gweld	15
labour	llafur	19	necessity	rhaid	15
to remember	cofio	18	way	ffordd	15
website	gwefan	18	young	ifanc	15
news	newyddion	18	to show	dangos	15
company	cwmni	18	similar	tebyg	15
main	prif	18	experience	profiad	15
to believe	credu	18	to enjoy	mwynhau	15
local	lleol	18	to pay	talw	15
journey	taith	18	future	dyfodol	15
end	diwedd	18	specific	penodol	15
home	cartref	18	need	angen	14
series	cyfres	18	different	gwahanol	14
era	oes	18	meeting	cyfarfod	14
excellent	gwyb	18	to mention	sôn	14
evening	noson	18	research	ymchwil	14
to break	torri	18	bit	tipyn	14
message	neges	18	minister	gweinidog	14
near	agos	18	reason	rheswm	14
officer	swyddog	18	to set	gosod	14
poem	cerdd	18	easy	hawdd	14
article	erthygl	18	voice	llais	14
department	adran	18	frequent	aml	14
chat	sgwrs	18	to give	rhoi	13
to be able to	gallu	17	member	aelod	13
to speak	siarad	17	to read	darllen	13
word	gair	17	period	cyfnod	13
number	nifer	17	special	arbennig	13
council	cyngor	17	movement	mudiad	13
education	addysg	17	attention	sylw	13
to try	trio	17	course	cwrs	13
to buy	prynu	17	real	gwir	13

Ciw S>C	TARGED	sgôr	Ciw S>C	TARGED	sgôr
aid	cymorth	13	to think	meddwl	9
community	cymuned	13	programme	rhaglen	9
financial	ariannol	13	assembly	cynulliad	9
office	swyddfa	13	to attempt	ceisio	9
early	cynnar	13	to move	symud	9
to do	gwneud	12	to ask	gofyn	9
to know	gwybod	12	to walk	cerdded	9
service	gwasanaeth	12	century	canrif	9
opportunity	cyfle	12	to recognise	adnabod	9
to leave	gadael	12	to appear	ymddangos	9
to change	newid	12	to listen	gwrando	9
to play	chwarae	12	to say	dweud	8
to pull	tynnu	12	government	llywodraeth	8
society	cymdeithas	12	content	cynnwys	8
to cease	peidio	12	to convene	cynnal	8
to discuss	trafod	12	national	enedlaethol	8
to continue	parhau	12	to accept	derbyn	8
list	rhestr	12	medium	cyfrwng	8
opinion	barn	12	last	diwethaf	8
to lead	arwain	12	social	cwmdeithasol	8
to join	ymuno	12	to agree	cytuno	8
address	cyfeiriad	12	connection	cysylltiad	8
interest	diddordeb	12	to use	defnyddio	7
to celebrate	dathlu	12	to happen	digwydd	7
interesting	diddorol	12	to look	edrych	7
position	safle	12	to feel	teimlo	7
to take	cymryd	11	to connect	cysylltu	7
to keep	cadw	11	to hope	gobeithio	7
example	enghraifft	11	committee	pwyllgor	7
to share	rhannu	11	use	defnydd	7
to understand	deall	11	to write	ysgrifennu	6
to catch	dal	11	to seek	chwilio	6
response	ymateb	11	to develop	datblygu	6
difficult	anodd	11	to organise	trefnu	6
weather	tywydd	11	vision	golwg	6
standard	safon	11	to publish	cyhoeddi	5
important	pwysig	10	report	adroddiad	5
plan	cynllun	10	to establish	sefydlu	5
to follow	dilyn	10	to translate	cyfieithu	5
idea	syniad	10	beginning	dechrau	4
to ensure	sicrhau	10	knowledge	gwybodaeth	4
recent	diweddar	10	to arrive	cyrraedd	4
to choose	dewis	10	to present	cyflwyno	4
obvious	amlwg	10	to decide	penderfynu	4
event	digwyddiad	10	to produce	cynhyrchu	4
to support	cefnogi	10	to offer	cynnig	3
to call	galw	10	to consider	ystyried	3
to visit	ymweld	10	to mean	golygu	3
music	cerddoriaeth	10	general	cyffredinol	3
to send	anfon	10	to hear	clywed	0

FFEIL DDATA ATODOL 6

Geiriau targed yn nhrefn eu 'dysgadwyedd' derbyngar (Cymraeg>Saesneg)
gyda chyfanswm sgorau 23 o gyfranogwyr (mwyaf posibl = 46 fesul gair)

Ciw C>S	TARGED	sgôr	Ciw C>S	TARGED	sgôr
Cymraeg	Welsh	46	enw	enw	32
Cymru	Wales	44	hen	old	32
ysgol	school	44	tro	turn	32
data	data	44	teulu	family	32
problem	problem	44	byw	to live	32
Nadolig	Christmas	44	môr	sea	32
da	good	42	cwrs	course	32
plant	children	42	tîm	team	32
car	car	42	plaid	political party	31
helpu	to help	42	drws	door	31
prifysgol	university	42	bod	to be	30
siop	shop	42	gwaith	work	30
blog	blog	42	amser	time	30
tŷ	house	40	mis	month	30
cig	meat	40	creu	to create	30
stori	story	40	cwestiwn	question	30
polisi	policy	40	trio	to try	29
busnes	business	40	munud	minute	29
diolch	thanks	40	dod	to come	28
Saesneg	English	40	blwyddyn	year	28
grŵp	group	40	byd	world	28
clwb	club	40	llun	picture	28
mam	mother	39	dyn	man	28
newydd	new	38	siŵr	sure	28
dydd	day	38	bwyd	food	28
ffrind	friend	38	eglwys	church	28
nos	night	38	cartref	home	28
prosiect	project	38	sir	county	28
bore	morning	38	gyrru	to drive	28
awr	hour	38	oen	lamb	28
Sul	Sunday	38	torri	to break	28
papur	paper	38	tir	land	28
person	person	38	pwynt	point	28
capel	chapel	38	gweithio	to work	27
canu	to sing	37	dysgu	to learn	27
pobl	people	36	hanes	history	27
bach	small	36	mynd	to go	26
pen	head	36	iaith	language	26
newyddion	news	36	llyfr	book	26
tad	father	36	darllen	to read	26
oed	age	36	wythnos	week	26
hanner	half	36	bywyd	life	26
dŵr	water	36	iawn	OK	26
mawr	big	35	maes	field	26
merch	girl	35	rhannu	to share	26
canolfan	centre	35	hir	long	26
math	type	34	gogledd	north	26
mater	matter	34	canol	middle	26
proses	process	34	cymuned	community	26
hoffi	to like	33	dosbarth	class	26

Ciw C>S	TARGED	sgôr	Ciw C>S	TARGED	sgôr
rheswm	reason	26	meddwl	to think	20
ffaith	fact	26	gwasanaeth	service	20
drwg	bad	26	lleol	local	20
athro	teacher	26	tebyg	similar	20
codi	to get up	25	iechyd	health	20
chwarae	to play	25	pell	far	20
nodi	to note	25	de	right	20
cael	to have	24	gofal	care	20
peth	thing	24	rhestr	list	20
nifer	number	24	cerdded	to walk	20
arian	money	24	dyfodol	future	20
prif	main	24	prynu	to buy	20
dewis	to choose	24	rhyw	sex	20
cyfres	series	24	ymuno	to join	20
uchel	high	24	gosod	to set	20
cân	song	24	hawdd	easy	20
ateb	answer	24	swyddog	officer	20
swydd	job	24	llais	voice	20
llaw	hand	24	gwobr	prize	20
barn	opinion	24	erthygl	article	20
noson	evening	24	anfon	to send	20
rhyfel	war	24	ariannol	financial	20
tipyn	bit	24	swyddfa	office	20
gwyn	white	24	sgwrs	chat	20
cefn	back	24	cynnar	early	20
neges	message	24	corff	body	20
côr	choir	24	llafur	labour	20
darn	piece	24	peidio	to cease	19
myfyriwr	student	24	gallu	to be able to	18
troi	to turn	23	gweld	to see	18
ardal	area	23	gair	word	18
achos	cause	23	cofio	to remember	18
rhan	part	22	cyfnod	period	18
siarad	to speak	22	dangos	to show	18
lle	place	22	pwysig	important	18
gwlad	country	22	taith	journey	18
gwefan	website	22	symud	to move	18
cadw	to keep	22	gofyn	to ask	18
ifanc	young	22	addysg	education	18
cwmni	company	22	enghraifft	example	18
llawn	full	22	profiad	experience	18
ysgrifennu	to write	22	ymchwil	research	18
diwedd	end	22	ochr	side	18
mudiad	movement	22	olaf	final	18
aros	to wait	22	tywydd	weather	18
sôn	to mention	22	canrif	century	18
gweinidog	minister	22	gŵyl	festival	18
meithrin	nursery	22	diddorol	interesting	18
rhiant	parent	22	penodol	specific	18

Ciw C>S	TARGED	sgôr	Ciw C>S	TARGED	sgôr
ffordd	way	16	anodd	difficult	13
eisiau	want	16	dweud	to say	12
aelod	member	16	gwybod	to know	12
newid	to change	16	gwybodaeth	knowledge	12
arbennig	special	16	cymryd	to take	12
credu	to believe	16	cynllun	plan	12
syniad	idea	16	cynulliad	assembly	12
tynnu	to pull	16	cyngor	council	12
diweddar	recent	16	cyhoeddi	to publish	12
amlwg	obvious	16	chwilio	to seek	12
deall	to understand	16	cyfrwng	medium	12
digwyddiad	event	16	cymdeithas	society	12
mwynhau	to enjoy	16	cefnogi	to support	12
gwych	excellent	16	gwir	real	12
bwrdd	table	16	parhau	to continue	12
agos	near	16	arwain	to lead	12
ymweld	to visit	16	gobeithio	to hope	12
cerddoriaeth	music	16	pwyllgor	committee	12
gwerth	value	16	safon	standard	12
adran	department	16	ymddangos	to appear	12
gwrando	to listen	16	llywodraeth	government	10
safle	position	16	dechrau	beginning	10
rhaid	necessity	15	digwydd	to happen	10
cyfarfod	meeting	15	edrych	to look	10
dathlu	to celebrate	15	derbyn	to accept	10
gwneud	to do	14	cysylltu	to connect	10
defnyddio	to use	14	datblygu	to develop	10
angen	need	14	cytuno	to agree	10
rhaglen	programme	14	clywed	to hear	8
cyfle	opportunity	14	cyrraedd	to arrive	8
gwahanol	different	14	ceisio	to attempt	8
dilyn	to follow	14	cynnig	to offer	8
cenedlaethol	national	14	adroddiad	report	8
teimlo	to feel	14	diwethaf	last	8
sicrhau	to ensure	14	golwg	vision	8
un	same	14	cysylltiad	connection	8
sylw	attention	14	golygu	to mean	7
cofnod	record	14	cynnwys	content	6
dal	to catch	14	ystyried	to consider	6
trafod	to discuss	14	cymorth	aid	6
oes	era	14	cyffredinol	general	6
galw	to call	14	trefnu	to organise	6
cymdeithasol	social	14	penderfynu	to decide	6
cyfeiriad	address	14	sefydlu	to establish	6
diddordeb	interest	14	adnabod	to recognise	6
cerdd	poem	14	cynhyrchu	to produce	6
aml	frequent	14	cyfieithu	to translate	6
gadael	to leave	13	defnydd	use	6
colli	to lose	13	cynnal	to convene	4
ymateb	response	13	cyflwyno	to present	4

FFEIL DDATA ATODOL 7

Geiriau targed yn nhrefn eu sgorau 'dargadw' cynhyrchiol (Saesneg>Cymraeg)
gyda chyfanswm sgorau 22 o gyfranogwyr (mwyaf posibl = 44 fesul gair)

Ciw S>C	TARGED	sgôr	Ciw S>C	TARGED	sgôr
Wales	Cymru	43	person	person	22
mother	mam	38	to be	bod	21
data	data	38	work	gwaith	21
Welsh	Cymraeg	37	name	enw	21
night	nos	36	OK	iawn	21
club	clwb	36	white	gwyn	21
university	prifysgol	35	land	tir	21
school	ysgol	34	news	newyddion	20
thanks	diolch	34	type	math	20
group	grŵp	34	sure	siŵr	20
problem	problem	34	to turn	troi	20
morning	bore	34	field	maes	20
Christmas	Nadolig	34	half	hanner	20
children	plant	32	to drive	gyrru	20
meat	cig	32	political party	plaid	20
shop	siop	31	minute	munud	20
big	mawr	30	thing	peth	19
good	da	30	month	mis	19
day	dydd	30	to learn	dysgu	19
small	bach	30	week	wythnos	19
story	stori	30	to like	hoffi	19
car	car	30	class	dosbarth	19
head	pen	29	centre	canolfan	19
father	tad	29	door	drws	19
team	tîm	29	song	cân	18
project	prosiect	28	right	de	18
money	arian	27	matter	mater	18
English	Saesneg	27	choir	côr	18
blog	blog	27	language	iaith	17
people	pobl	26	world	byd	17
old	hen	26	council	cyngor	17
history	hanes	26	end	diwedd	17
friend	ffrind	26	business	busnes	17
hour	awr	26	church	eglwys	17
water	dŵr	26	long	hir	17
new	newydd	25	war	rhyfel	17
turn	tro	25	fact	ffaith	17
to help	helpu	25	bad	drwg	17
age	oed	25	part	rhan	16
lamb	oen	25	number	nifer	16
Sunday	Sul	25	company	cwmni	16
house	tŷ	24	main	prif	16
girl	merch	24	journey	taith	16
policy	polisi	24	to live	byw	16
course	cwrs	24	question	cwestiwn	16
chapel	capel	24	county	sir	16
sea	môr	23	to note	nodi	16
paper	papur	23	to try	trio	16
man	dyn	22	sex	rhyw	16
middle	canol	22	to sing	canu	16

Ciw S>C	TARGED	sgôr	Ciw S>C	TARGED	sgôr
reason	rheswm	16	time	amser	11
labour	llafur	16	to speak	siarad	11
to go	mynd	15	picture	llun	11
to work	gweithio	15	life	bywyd	11
service	gwasanaeth	15	website	gwefan	11
to create	creu	15	to show	dangos	11
young	ifanc	15	to write	ysgrifennu	11
home	cartref	15	same	un	11
far	pell	15	experience	profiad	11
back	cefn	15	care	gofal	11
process	proses	15	to buy	prynu	11
body	corff	15	bit	tipyn	11
member	aelod	14	nursery	meithrin	11
place	lle	14	parent	rhiant	11
family	teulu	14	article	erthygl	11
series	cyfres	14	financial	ariannol	11
high	uchel	14	to see	gweld	10
health	iechyd	14	to give	rhoi	10
answer	ateb	14	necessity	rhaid	10
hand	llaw	14	need	angen	10
evening	noson	14	to read	darllen	10
near	agos	14	to leave	gadael	10
to have	cael	13	full	llawn	10
book	llyfr	13	special	arbennig	10
food	bwyd	13	to believe	credu	10
education	addysg	13	area	ardal	10
job	swydd	13	obvious	amlwg	10
message	neges	13	example	enghraifft	10
prize	gwobr	13	to share	rhannu	10
poem	cerdd	13	record	cefnod	10
to come	dod	12	to support	cefnogi	10
way	ffordd	12	real	gwir	10
word	gair	12	to cease	peidio	10
to get up	codi	12	difficult	anodd	10
local	lleol	12	to enjoy	mwynhau	10
to mention	sôn	12	excellent	gwyach	10
lose	colli	12	side	ochr	10
community	cymuned	12	to break	torri	10
era	oes	12	social	cwmdeithasol	10
opinion	barn	12	value	gwerth	10
final	olaf	12	office	swyddfa	10
cause	achos	12	teacher	athro	10
easy	hawdd	12	to do	gwneud	9
department	adran	12	to be able to	gallu	9
chat	sgwrs	12	to say	dweud	9
specific	penodol	12	country	gwlad	9
point	pwynt	12	period	cyfnod	9
piece	darn	12	national	enedlaethol	9
student	myfyriwr	12	to play	chwarae	9
year	blwyddyn	11	to pull	tynnu	9

Ciw S>C	TARGED	sgôr	Ciw S>C	TARGED	sgôr
attention	sylw	9	to move	symud	6
table	bwrdd	9	to understand	deall	6
century	canrif	9	similar	tebyg	6
to join	ymuno	9	event	digwyddiad	6
music	cerddoriaeth	9	research	ymchwil	6
voice	llais	9	response	ymateb	6
festival	gŵyl	9	to walk	cerdded	6
to send	anfon	9	to lead	arwain	6
frequent	aml	9	minister	gweinidog	6
want	eisiau	8	to hope	gobeithio	6
opportunity	cyfle	8	to visit	ymweld	6
different	gwahanol	8	interest	diddordeb	6
to change	newid	8	vision	golwg	6
to keep	cadw	8	to agree	cytuno	6
idea	syniad	8	beginning	dechrau	5
society	cymdeithas	8	to arrive	cyrraedd	5
to choose	dewis	8	to ask	gofyn	5
to wait	aros	8	meeting	cyfarfod	5
to catch	dal	8	to continue	parhau	5
aid	cymorth	8	future	dyfodol	5
list	rhestr	8	to produce	cynhyrchu	5
weather	tywydd	8	early	cynnar	5
to set	gosod	8	to use	defnyddio	4
committee	pwyllgor	8	to happen	digwydd	4
standard	safon	8	to hear	clywed	4
to celebrate	dathlu	8	content	cynnwys	4
use	defnydd	8	plan	cynllun	4
interesting	diddorol	8	to seek	chwilio	4
to listen	gwrando	8	to present	cyflwyno	4
knowledge	gwybodaeth	7	medium	cyfrwng	4
to remember	cofio	7	general	cyffredinol	4
assembly	cynulliad	7	last	diwethaf	4
to follow	dilyn	7	address	cyfeiriad	4
to connect	cysylltu	7	to recognise	adnabod	4
north	gogledd	7	connection	cysylltiad	4
to discuss	trafod	7	position	safle	4
to pay	talw	7	to offer	cynnig	3
to call	galw	7	to develop	datblygu	3
officer	swyddog	7	to mean	golygu	3
to appear	ymddangos	7	report	adroddiad	3
to know	gwybod	6	to organise	trefnu	3
to think	meddwl	6	to translate	cyfieithu	3
programme	rhaglen	6	to take	cymryd	2
government	llywodraeth	6	to look	edrych	2
important	pwysig	6	to publish	cyhoeddi	2
to accept	derbyn	6	recent	diweddar	2
to feel	teimlo	6	to decide	penderfynu	2
to attempt	ceisio	6	to establish	sefydlu	2
movement	mudiad	6	to convene	cynnal	1
to ensure	sicrhau	6	to consider	ystyried	0

FFEIL DDATA ATODOL 8

Geiriau targed yn nhrefn eu sgorau 'dargadw' derbyngar (Cymraeg>Saesneg)
gyda chyfanswm sgorau 22 o gyfranogwyr (mwyaf posibl = 44 fesul gair)

Ciw C>S	TARGED	sgôr	Ciw C>S	TARGED	sgôr
Cymru	Wales	44	cwrs	course	28
Cymraeg	Welsh	42	oed	age	28
data	data	42	mawr	big	27
ysgol	school	40	hanes	history	26
busnes	business	40	creu	to create	26
prifysgol	university	40	cwestiwn	question	26
clwb	club	40	eglwys	church	26
stori	story	38	canolfan	centre	26
car	car	38	oen	lamb	26
helpu	to help	38	ffaith	fact	26
diolch	thanks	38	pwynt	point	26
problem	problem	38	drws	door	25
plant	children	36	athro	teacher	25
tŷ	house	36	gwaith	work	24
grŵp	group	36	blwyddyn	year	24
prosiect	project	36	mis	month	24
siop	shop	36	dysgu	to learn	24
papur	paper	36	tro	turn	24
person	person	36	math	type	24
Nadolig	Christmas	36	teulu	family	24
da	good	34	siŵr	sure	24
newydd	new	34	cartref	home	24
cig	meat	34	sir	county	24
mam	mother	34	gyrru	to drive	24
ffrind	friend	34	plaid	political party	24
nos	night	34	trio	to try	24
Saesneg	English	34	drwg	bad	24
bore	morning	34	canu	to sing	23
mater	matter	34	bod	to be	22
Sul	Sunday	34	cael	to have	22
blog	blog	34	llyfr	book	22
bach	small	33	llun	picture	22
pobl	people	32	nifer	number	22
dydd	day	32	iawn	OK	22
polisi	policy	32	troi	to turn	22
tad	father	32	maes	field	22
hanner	half	32	canol	middle	22
dŵr	water	32	cymuned	community	22
proses	process	32	dosbarth	class	22
merch	girl	31	munud	minute	22
enw	name	30	mynd	to go	20
pen	head	30	peth	thing	20
arian	money	30	amser	time	20
hoffi	to like	30	gwasanaeth	service	20
môr	sea	30	wythnos	week	20
tîm	team	30	ifanc	young	20
awr	hour	30	cyfres	series	20
capel	chapel	30	hir	long	20
hen	old	28	ateb	answer	20
newyddion	news	28	de	right	20

Ciw C>S	TARGED	sgôr	Ciw C>S	TARGED	sgôr
tir	land	20	gweld	to see	14
rheswm	reason	20	byd	world	14
erthygl	article	20	eisiau	want	14
corff	body	20	siarad	to speak	14
gweithio	to work	19	lle	place	14
prif	main	19	gwlad	country	14
ariannol	financial	19	cyfnod	period	14
rhan	part	18	chwarae	to play	14
angen	need	18	cyngor	council	14
darllen	to read	18	tynnu	to pull	14
cwmni	company	18	mudiad	movement	14
credu	to believe	18	cymdeithas	society	14
byw	to live	18	iechyd	health	14
diwedd	end	18	profiad	experience	14
bwyd	food	18	ymchwil	research	14
rhannu	to share	18	pell	far	14
cân	song	18	mwynhau	to enjoy	14
barn	opinion	18	ochr	side	14
olaf	final	18	rhestr	list	14
noson	eening	18	hawdd	easy	14
torri	to break	18	rhiant	parent	14
rhyw	sex	18	darn	piece	14
gwyn	white	18	safle	position	14
meithrin	nursery	18	gwneud	to do	12
agos	near	18	gallu	to be able to	12
côr	choir	18	ffordd	way	12
ysgrifennu	to write	17	aelod	member	12
taith	journey	17	llywodraeth	government	12
nodi	to note	17	bywyd	life	12
dod	to come	16	newid	to change	12
iaith	language	16	dangos	to show	12
codi	to get up	16	cenedlaethol	national	12
gwefan	website	16	teimlo	to feel	12
arbennig	special	16	addysg	education	12
dyn	man	16	dal	to catch	12
lleol	local	16	sôn	to mention	12
ardal	area	16	cefnogi	to support	12
enghraifft	example	16	peidio	to cease	12
aros	to wait	16	gogledd	north	12
uchel	high	16	oes	era	12
llaw	hand	16	gofal	care	12
prynu	to buy	16	swydd	job	12
rhyfel	war	16	talw	to pay	12
tipyn	bit	16	cerdded	to walk	12
cefn	back	16	dyfodol	future	12
neges	message	16	tywydd	weather	12
swyddog	officer	16	cymdeithasol	social	12
anfon	to send	16	ymuno	to join	12
myfyriwr	student	16	achos	cause	12
llafur	labour	16	llais	voice	12

Ciw C>S	TARGED	sgôr	Ciw C>S	TARGED	sgôr
gwobr	prize	12	gosod	to set	8
cerdd	poem	12	pwyllgor	committee	8
sgwrs	chat	12	cerddoriaeth	music	8
penodol	specific	12	gŵyl	festival	8
aml	frequent	12	diddorol	interesting	8
gwrando	to listen	12	ymddangos	to appear	8
rhoi	to give	11	ceisio	to attempt	7
colli	lose	11	arwain	to lead	7
ymateb	response	11	defnyddio	to use	6
dweud	to say	10	rhaglen	programme	6
gwybod	to know	10	gwahanol	different	6
rhaid	necessity	10	cymryd	to take	6
gair	word	10	cyhoeddi	to publish	6
gwybodaeth	knowledge	10	cyrraedd	to arrive	6
cofio	to remember	10	chwilio	to seek	6
cadw	to keep	10	cysylltu	to connect	6
pwysig	important	10	cynnig	to offer	6
llawn	full	10	cyfrwng	medium	6
dilyn	to follow	10	deall	to understand	6
derbyn	to accept	10	digwyddiad	event	6
syniad	idea	10	cymorth	aid	6
un	same	10	trafod	to discuss	6
sylw	attention	10	cyffredinol	general	6
dewis	to choose	10	adroddiad	report	6
amlwg	obvious	10	gobeithio	to hope	6
tebyg	similar	10	galw	to call	6
cofnod	record	10	ymweld	to visit	6
gwir	real	10	cynhyrchu	to produce	6
anodd	difficult	10	golwg	vision	6
gwych	excellent	10	cyfieithu	to translate	6
bwrdd	table	10	cytuno	to agree	6
gweinidog	minister	10	defnydd	use	6
diddordeb	interest	10	dechrau	beginning	4
safon	standard	10	digwydd	to happen	4
dathlu	to celebrate	10	clywed	to hear	4
gwerth	value	10	cynnwys	content	4
swyddfa	office	10	edrych	to look	4
adran	department	10	cynllun	plan	4
cynnar	early	10	cyflwyno	to present	4
cysylltiad	connection	10	diweddar	recent	4
gofyn	to ask	9	datblygu	to develop	4
meddwl	to think	8	golygu	to mean	4
gadael	to leave	8	penderfynu	to decide	4
cynulliad	assembly	8	sefydlu	to establish	4
sicrhau	to ensure	8	cyfeiriad	address	4
symud	to move	8	adnabod	to recognise	4
cyfarfod	meeting	8	cylfe	opportunity	2
parhau	to continue	8	cynnal	to convene	2
diwethaf	last	8	ystyried	to consider	2
canrif	century	8	trefnu	to organise	2

FFEIL DDATA ATODOL 9
Data'r holiadur

Isod, mewn print trwm, ceir y 14 cwestiwn o'r holiadur ar ddiwedd yr astudiaeth. Mae ymatebion y cyfranogwyr yn dilyn pob cwestiwn, heb unrhyw drefn benodol (ond yn yr un drefn ar gyfer pob cwestiwn).

1. On average, how many words did you look at each day?

- a. 30 words per a day in the former part, and 50-70 words in the latter part
- b. 10 to 20
- c. It varied a lot but I aimed for 20
- d. I averaged around 8 words a day, the most words I did in a day was 14. However, I often would have days where I learnt no new words in order to revise words I had already looked at.
- e. 20
- f. around 15-20
- g. At the start, about 30. Once I'd seen all 300 words for the first time, about 75.
- h. 8-10 at the beginning but then once I had gone through them all I did more words in a day maybe maximum 14
- i. 7
- j. Around 30 words
- k. My learning can be broken down in 3 parts. Initial look over all words and find ways of remembering, then a learning phase, then almost a consolidation phase where I flicked through the ones I thought I was in with a chance of remembering. During the actual learning phase I was probably getting through 15 a day, more during the consolidation phase
- l. 10
- m. 20 days 10 words, 27 days 3 words, 2 days 4 words ,and 1 day 11 words
- n. 6 words
- o. 10 words and sometimes 15
- p. Some I did 30/sometimes 40 depends upon the types of words to be very honest
- q. 10
- r. I started with 10. But that was to much, so I did 8. On the second pass through the words, I did double that.
- s. 12-13
- t. I usually looked at 10 words per day, trying to remember at least 6 to follow the set plan

2. How did you decide which words to look at each day?

- a. I roughly separated into word classes and started from verbs, nouns and adjectives. After three times learning of each vocabulary, I tried to memorise only words I didn't remember clearly.
- b. I came up with a system on the first day. I split them roughly into verbs, adjectives and nouns then put them in groups of ten cards. I then did the maths of how many words I would need to learn a day to cover all 300 and came up with a 10-day system. Every 10 days looked like this: days 1 and 2 I learnt new sets of 10 words, day 3 I covered those 20 words, days 4 and 5 I learnt another two sets, day 6 I covered those, days 7 and 8 I learnt two more sets, day 9 I covered those last two and then on day 10 I revised all 60 words I had learnt. That way, over 5 sets of this routine, I managed to cover all 300 words.

- c. I tried to introduce some new words each day, and then would shuffle the deck of previous flashcards and draw some to practice
- d. At the beginning of the 50 days I split my flashcards into words that looked 'easy' and 'hard', and started on the easier words, all the way through I would pick words that looked easier for me to learn. I feel in a way this may have set me up for failure from the beginning, however, as I did not feel motivation to attempt the 'hard' words, and therefore never ended up learning those.
- e. I piled them. One pile I knew, one uncertain, one not looked at. Some days I'd do uncertain and some not looked at ones. Other days I would revise the know pile.
- f. at first it was random just to get a look at all of them but then at the end I would go through and sort the ones I could remember vs the ones I could not.
- g. When doing 10 words a day to start off with, it was completely random. Once I'd studied all 300 words at least once, I'd go through them all again. The ones I remembered correctly I would put in the 'correct' pile. The ones I didn't remember correctly, I would put in an 'incorrect' pile. Once I had gone over all 300 words again, I would revisit the 'incorrect' pile and repeat the process, adding the words I could now correctly recite into the 'correct' pile and returning the ones I still couldn't recite correctly into the 'incorrect' pile. And so on, until all words were in the 'correct' pile. I would then repeat the process with the 300 words.
- h. I just picked randomly out of the bag and then once I had looked at the words I put them in a separate pile
- i. I didn't split them up at all, I simply took them as they were. If I thought there were too many complex looking ones (i.e. longer or similar spellings), I would swap them out for a shorter word in the deck.
- j. It depended on the day I would either review cards or attempt to go for a new one.
- k. I initially looked through them all and put to one side the ones I'd learned over the years (English, England, Welsh, Wales, service (from motorways services) Christmas, thank, night, news) and didn't look at them again till the end (green pile). Then I extracted the ones that were either the same or very similar to English (green pile). Then I made a pile of words where I'd successfully given myself a way of remembering them (orange). Finally I had a pile of words I didn't have anything for (red). I went through the red pile a few times and some of the words made it into the orange pile. As I gradually learned words from the orange pile, they made it into the green pile. A few times I went back to the red pile, but it was really just so that I could say I'd tried..
- l. Randomly stacked cards, picked from top each day.
- m. I separated all letters (a,b,c) individual like alphabetic order, and I took each letter in one day, except words start "C" because lots of words starting the C letters, I used words starting C each day almost 3 words, for example first day; cynulliad, cyfrwng, cymuned, problem, cael, dweud, gwyl, pwyllgor, sgwrs, trefnu
- n. Picked them randomly
- o. Randomly - I would look at 5 to 6 new words maximum and then review other words.
- p. Like I decided one to cover verbs then nouns and so on..
- q. I simply picked 10 from the pile
- r. I divided them into new words and words I'd seen. Then I randomly picked from words that were new.
- s. I did not follow a specific criteria in choosing which words to learn EACH day. However, I must admit that at the beginning of Welsh vocabulary learning, I did prioritize nouns and learned them first over verbs.

- t. I took some words that I found difficult from the day before and I added as many of the ones that were on the top of the pile to make 10 all together.

3. How did you use the flashcards? e.g. Did you cover / fold the card so that a word was hidden? Did you write on the flashcards? Did you divide them into piles (how)? Did you use them in some other way?

- a. I divided them into verbs, nouns and adjectives and covered English meaning.
- b. I folded them in half (I hope that was ok) because having both words one one side of the flashcard was not working for me. When I tried to cover one side with my hand I just ended up seeing the answer so I had to fold them all. I found the table very useful for seeing when I last covered each set.
- c. I folded them in half and divided into cards I had already looked at and cards that I hadn't seen yet
- d. I divided them into the aforementioned 'hard' and 'easy' pile. When looking at the cards I would cover the English and translate the Welsh word to English. I didn't write on my cards, just kept the associations I made to remember them in my head.
- e. I wrote some things on the cards to remember them. I covered the Welsh side, however I did try to do either way near the end.
- f. I wrote how I thought they were pronounced on some of them. I would cover the English part .
- g. I held them in my hand, covering the word (English or Welsh) that I was memorising with my hand. I divided them into several piles to keep track of which words I had gotten correct and which ones I needed to revisit the following day.
- h. I covered the English and tried to remember the welsh. I wrote in the cards using the keyword technique on the ones that worked. Once I had gone through all the cards I divided them into piles that I knew and didn't and then repeated the process with the words I didn't know.
- i. I covered one half of the card by folding it in half. I would read the words a few times, see if I could recall the English. Once I'd done this, I would swap and try to recall the Welsh. I would keep going until I thought I could remember all of the words. After the first five days, I realised I should have mixed the cards after a while so as not to rely on the order for memorisation. So after that, I made sure to either mix them at the end and do a few more rounds of recall, or I would mix the piles of cards I'd already studied and add them to my new lists.
- j. I would hid the english word, and write above the phonetically version of the welsh words.
- k. I went through them, wrote words or drew pics that would help me remember the word then folded it in half when I had learned it.
- l. Cover and learn, only ticked on cards and nothing else.
- m. I only write Turkish meaning behind flashcards and I used my recall technique it means i looked first ten words and I looked same words after 2 day, 2 day to after 3 day, 3 day to after 5 day and 5 day to after 7 day . every vocabulary comes front of me 5 times. for example my first word cynulliad , I checked same words day 3-6-11-18. I hope, I can explain it.
- n. I divided them into 6 piles
- o. I did not fold the cards. Actually, I used them exactly how they were given to me, but I put some notes on them especially for the words that share a similar part. I would write all related words on the same card so whenever I am reviewing one word, I am reviewing all other words with a similar root. I also grouped some

words in terms of categories while revising things like office & officer in addition to words like hand, head & back.

- p. I learned from flash card and gave it to my husband and he asked me the meanings.
- q. I looked at the flashcard whole, thought of a sentence that could connect the Welsh word and English translation, wrote it on the back of the card and then folded it up.
- r. My methodology I developed over time. I would look at each card a few times, while saying both English and Welsh out loud. Then I'd cover the English, trying to pronounce the Welsh words. After a few attempts (at a point where I usually got all the words) I would cover the English and try to remember them while saying the Welsh words. A method I developed late in the learning period was to divide into piles in terms of ease in learning the words. This allowed me to look at the words I found more difficult and ignore the ones which were easy, using my time more effectively. Sadly I only thought of this in the last few days, so I didn't get to use this method to its full potential.
- s. I mostly used the flashcards by covering them up, you know, to keep the words hidden and test myself. I didn't really write on the cards, but I had this diary where I'd jot down the Welsh words I learned each day. So, after cramming in about 12-13 words a day, I'd try to recall them by writing them out without peeking at the flashcards. Then, I'd double-check my memory using the flashcards to see if I got them right. Oh, and I wasn't too bothered about the spellings, to be honest. I just tried to write down how the words, I thought, really sounded or were pronounced."
- t. I fold them in half so I cannot see the translation without turning the card. I had three piles. Left pile was the ones I have not yet learned, middle pile were the ones that I still need to work on and the pile on the right was a pile of the words that I was sure I knew. The goal was to get all of the flashcards from the left pile to the right pile.

4. Did you use the keyword technique at all (where you think of a word in English (or your L1) that resembles the Welsh target word in some way, and possibly create a visual image)? If yes, did you draw your keyword images at all? Did you use the keyword technique in some other way?

- a. I tried to memorise them by sound because sometimes pronunciation between English and Welsh is a bit similar though these spellings are different.
- b. I only really did this if the English and Welsh sounded very similar, although some Welsh words reminded me of similar French words so I made those connections instead. I didn't use drawings as nothing came to mind.
- c. No
- d. I did find myself making associations to English words to remember the Welsh word. I didn't draw them out, just kept these associations in my head.
- e. I just wrote phrases on them that I could connect to the word.
- f. I did not find it easy to do this so only for a few.
- g. I did use this technique. I didn't draw anything, but I definitely associated several Welsh words with words in English or any other languages I know.
- h. Yes, I either drew on the back of the cards an image or wrote a similar word.
- i. I did this for as many as possible. It was easier with some than others. As I used to be fluent in Danish, am fluent in Spanish and also know French, it was easy for me to draw similarities between many words or come up with "stories" in my head in order to remember them (like an image). For example "rhannu" I thought of

"Rhianna always shares." This was the only keyword technique I used. It didn't work for all of them. There were so many of the more complex words that sounded or were spelled in such similar ways that it became really difficult. I have ADHD and dyslexia so I started to really struggle to differentiate and cognitively, I think it became a little too much and so I didn't remember them easily. In truth, my motivation for those words in particular dropped and I didn't put as much effort into those words towards the end.

- j. For some words such as Sul I would use visual images to help.
- k. Yes. Where there was a vague resemblance to a word in English or Italian, I used that as my prompt (drew a cigarette for meat, italian bird flies high (uccello/uchel)...) some much more abstract and tenuous than others.
- l. No, tried to remember directly.
- m. I used my own key word technique . I write Turkish means behind flash card, it was very helpful for me because some words looks like Turkish words, I remembered more easy for example: erthygl(article) my nephew name is ERTUGRUL, is very similar letter and word , or cor (choir) we used in Turkish "KOR"
- n. I drew the keyword images in a journal
- o. I used my native language, Arabic, to draw on some words. I also linked some Welsh words to the English ones that resemble them.
- p. Umm to be very honest my L1 and Learning welsh has nothing in common .I learned it like a child does in the primary stage.
- q. I used the keyword technique and incorporated it into a sentence which was written onto the back of the flashcard, i did not visual an image.
- r. It would depend on the word. Sometimes I would think of a similar English word and create the association there. Sometimes I would just visualise the thing or action involved if I couldn't do that. Sometimes I would find some other connection. For example, Hand is Llaw, which sounds a lot like claw, which is similar to / can be made by a hand. Or something wilder like ffaith is like the English word faith. But it means fact. The Welsh language was revived using religious texts. So, faith being taken as fact seems like a particular concept to a religious community. ... But maybe I was just indulging a tinfoil hat theory there. It worked, though, I remembered the word.
- s. Yes, I did use a kind of keyword technique, but not in the traditional way. For instance, the Welsh word 'Arian' means 'money.' In my L1 - Malayalam, there is a word 'Ari' (Ah-REE) which means 'rice.' So, to remember 'Arian,' I associated it with needing money to buy rice. It's a memorization trick I've used since my school days, and it really helped me learn a bunch of words in this vocabulary task
- t. I did in some words that seemed familiar, but there were not many

5. Can you remember which (if any) words you used keyword technique to learn?

Please list as many as you can remember.

- a. cwmni, rhestr, rheswm
- b. The word for value (gwerth) sounds like worth which is related. A slightly sillier one is that the word for money (arian) just made me think of Ariana Grande and she probably has a lot of money.
- c.
- d. For example: 'Gwerth' (Value) - is similar to 'Worth' in English. Beyond English, there was also words such as 'eglwys' (church), which I associated with the French word for church (église).

- e. Tad (dad) - father. Bach (a small batch)
- f. erthygol - article. it helped when the words had the same amount of syllables
- g. gwerth (this reminded me of the English word 'wealth'); mis (looks like the word for month in Spanish ['mes'] and Portuguese ['mês']); gogledd (looks a bit like 'Google', which made me think of 'Google Earth', which made me think of directions); môr (looks like 'mar', the word for sea in Spanish and Portuguese); mam ('mam' can be used in English to refer to one's mother); credu (reminded me of the word 'credence' in English); olaf (I pictured the character from 'Frozen'); chwarae (reminded me of the game 'charades'); sicrhau (looks like the German adjective 'sicher', which means 'sure'); profiad (reminded me of the word 'professional'); rhoi (reminded me of the French word for 'king' [roi]); oed (I thought of the initials for Oxford English Dictionary); addysg (reminded me of the mathematical function 'to add'); pobl (reminded me of 'población', the Spanish word for 'population'); fford (I thought of the footballer Caitlin Foord); corff (reminded me of the French word for body ['corps']); trefnu (reminded me of the German verb 'treffen', which (when reflexive) means to 'meet up'); cân (reminded me of the word for song in Spanish ['canción'] and Portuguese ['canção']); safon (reminded me of the word 'saffron'); gwobr (reminded me of the English word 'globe', which made me think of the Golden Globe Awards); gwefan (I thought of the singer Gwen Stefani)
- h. War, necessity, world, children
- i. Rhannu - Rhianna always shares; canol - the canal runs through the middle;
- j. Sul; Poble; People; Person; Siop
- k. man makes a racket (dyn); I looked it up (north); a week with us (wythnos); no sun (evening); mention my son (sôn); go find the answer (gofyn); think of winning (medwl); a nod is difficult (anod); cart the ref home (cartref); not easy! (hawdd); de(stra) (de); discorso (sgwrs); specific pain relief (penodol); to give to the french king (rhoi); pelted far away (pell); italian corn (maes); gun (rhyfel); produce a baby can hurt you (cynhyrchu); giocare (chwarae); to understand the card game (deall); piece of wool for darning (darn); keep the french present (cadw); nursery matron (meithrin); drwgs are bad (drwg); visitym the German world (ymweld); thoughts on a barn (barn); I rhan part of the marathon (rhan); share into parts (rhannu); learn to dance at a dysgu (dysgu); high as an italian bird (uchel); wait for the red arrows (aros); near the store with the red sign (agos)
- l. NA
- m. first word Welsh , second word Turkish: erthygl-ERTUGRUL, cor-KOR, cwrs-KURS, canol-KANAL, siop-SINOP, can-CAN, derbyn-DERBI, sul-SAL, clwb-KLUB, colli-KOLI, peth-PED, dathlu-TATLI, ardal-ERDAL, aros-ARAS, mor-MOR, bach-BAK, mis-MIS, blog-BLOK, son-SON, polisi-POLIS, grwp-GRUP, canu-KANO, tad-TAT, dal-DAL, tim-TIM, un-UN
- n.
- o. For example, the easiest words for me to learn were thinks like poble (because there is a housing organisation with a similar name I think), problem, prosiect, papur, grwp, tim, kurs and ffriend.
- p.
- q. Basically all of them.
- r. If I had a list of words next to me, I could probably remember which ones I used it on. But not off the top of my head.
- s. Arian, Pobl, Gyrri, Mater, Nodi, Peth
- t. like sicrhau and versichern in German

- 6. Did you use the word family technique at all (on the flashcards, common letter strings in words from the same family were marked in bold)? Did this help your learning? If so, in what way?**
- a. It's helpful to learn them, but it's more complicated to distinguish which words are which meanings at the same time. For example, I was confused whether newydd or newid meant new or to change.
 - b. Yes, I found this very helpful and am used to connecting word families because of my French learning. Even if the word had a different ending I could recognise the root, especially since it was in bold, and immediately knew what the word meant.
 - c. Yes, I found it helpful to link words
 - d. No, I didn't find this helped as I learnt all the words at different times, and therefore couldn't make a clear link between them.
 - e. No I did not. There were too many similar. The movement cards really confused me, even though I knew that they were to do with movement - to move, movement, moving, ect...
 - f. it did help sometimes just to know whether it was the word or the to "word".
 - g. Yes, I did, and it helped quite a lot.
 - h. No
 - i. Only to an extent. In truth, I thought they were for pronunciation purposes...a friend of mine who is also learning Welsh pointed out the word families. They only helped me to an extent. In truth, unless I have someone "discussing" (especially a teacher), I don't notice a lot of things straight away.
 - j.
 - k. yes
 - l. Yes, it made remember that it is related to something that I already know.
 - m. I use this technique only a few words.
 - n. The word family technique helped my learning by helping with the pronunciation of several words
 - o. Yes, like I mentioned above, things like office and officer, I grouped them together. There are also two words that I remember, diddordab and diddoral, one of them means interest and the other means interesting. It was helpful to group them together, so even now I can remember the Welsh words but in terms of translation, I keep forgetting which is which.
 - p. No I didn't
 - q. It did not really help, i was a bit confused is all.
 - r. Yes and no. Sometimes I didn't recognise these. Sometimes I did and it was helpful to know the relation between words. It felt like I was understanding the word, rather than just using it. (e.g. Canol, Canolfan and Nos, Noson)
 - s. No
 - t. I did not use this technique
- 7. Can you remember which (if any) words you used word family techniques to learn? Please list as many as you can remember.**
- a. newydd, newid; symud, symudiad; cysylltu, cysylltiad; bywyd, byw
 - b. Arian and arianol, cymdaethas and cymdaethasol.
 - c. Swydd, swyddfa, swyddog. Dangos, ymddangos. Gwybod, gwybodaeth. Dysgu, addysg. Cerdd, cerddoriaeth
 - d.
 - e. None.

- f. I cant exactly remember for the ones that started with gwybod
- g. canol, canolfan; swydd, swyddfa; diwedd, diweddar; nos, noson; gwybod, gwybodaeth; defnydd, defnyddio; arian, ariannol; symud, mudiad; gwaith, gweithio; cymdeithas, cymdeithasol; diddorol, diddordeb; ateb, ymateb; tro, troi; llun, cynllun; dangos, ymddangos; digwydd, digwyddiad; cysylltu, cysylltiad; byw, bywyd
- h.
- i.
- j.
- k. Gweithio/Gwaith; Arian, ariannol,; Cân, canu; Nos, noson; Rhan/rhannu
- l. Addysg
- m. cymru-cymraeg , swyddog-swyddfa, byw-bywyd
- n.
- o. I answered this in the previous question.
- p.
- q. none
- r. Like a key method I'd need the list of words to remember. Except the examples above.
- s.
- t. N/A

8. Tell us more about any other learning techniques you used.

- a. Link the vocabulary and hand gesture when I learned the vocabulary which expresses any motions, mostly verbs. Link Welsh and English vocabulary with example sentences, e.g., The son mentions.(sôn in Welsh=mention in English)
- b. It was mostly the system I came up with and folding the cards that really helped.
- c.
- d. Just going over the words over and over. Two of my flatmates also participated in this study, so sometimes just bringing up and discussing our own learning techniques and how we individually remembered the words helped.
- e. I just would flash through the well known cards at lightning pace. If I didn't know it would go back in the uncertain pile (I had them rubber banded with green, yellow and red bands).
- f. I would try to use the welsh word in a sentence like amloog "that was so obvious/amloog"
- g. For longer words, I tried splitting them into chunks (often based on syllables). Examples: cyn-hyr-chu; cy-syll-tiad; cerdd-ori-aeth
- h. I sort of used the word association technique but with things in my personal life. For example, 'to sing' in Welsh is 'Canu' and I personally can't sing so I'd think sing - I canNOT. For some words I'd try and emphasise the first letter if it was the same as the Welsh word.
- i. I'm really quite useless when it comes to using a variety of techniques. I actually just followed the same technique mentioned previously (read one side, fold and try to recall). My ADHD means I really do need a set routine of doing something so that was what I did each night.
- j.
- k.
- l. None, tried to remember directly before I failed to complete the task.

- m. I used sign reading technique, for example on the road (M4) some place is fixing and I read sign end-diwedd, or on the school sign- nursery-meithrin, school-ysgol. I read every Welsh sign for remember some words.
- n.
- o. Only word family technique in addition to drawing on my first language.
- p. I took it as a challenge that need to do at least 10 words a day
- q. I used words that were similar to each other, like 'centre' and 'middle' to help remember each other
- r. Sometimes I would try and use the words in everyday conversation to replace English. Since I was near a Welsh speaker most days when I was working, this I found quite effective. (e.g. dwr)
- s.
- t. reading the words out loud and fixing the sound with the word also helped. Awr and hour don't look similar until you read them aloud.

9. What advice would you give someone attempting this challenge (learn 300 Welsh words in 50 days) in the future?

- a. I usually learn new vocabulary while reading it aloud, but it was difficult to do that this time because I mostly didn't know the pronunciation of each word though I checked the given pronunciation list. It would be easier to learn vocabulary with pronunciation audio.
- b. Pronunciation was the hardest part and I did have to get Google Translate up to say the words to me (which might not be the most reliable source).
- c. It can be helpful to have days where you only look at old flashcards rather than trying to learn any new words
- d. Don't set yourself up to be afraid to try the harder words. Keep going over the words often and trying to recall. Try going from Welsh-English AND English-Welsh.
- e. To go outside the box to keep interested. I wanted to and still want to learn Welsh, but purely going off the covering technique makes you lose interest faster.
- f. try to keep on top of it and be excited about what words you might be learning!
- g. Don't write any words down, as you can go through more words in 10 minutes when you just say them out loud. Make sure to switch every so often between English to Welsh and Welsh to English. Also, be very organised if sorting the words into piles. If they get mixed up, it could negatively impact the effectiveness of the technique you are trying to use.
- h. Write and draw on as many of the cards as you can as I definitely found the ones where I did that easier to remember.
- i. Definitely to pre-prepare the cards into set groups. Make sure the "complex" words are evenly dispersed amongst the less complex ones. I would also say to try and involve others around you if you're like me and struggle with self-motivation. My husband helped me to maintain the consistency of the 50 days and my friend, whenever he came over, would quiz me on random words throughout to see how many I could remember. I would also say to set aside the same time, everyday. This will help you to make sure you don't forget!
- j. Try to do it with a group of friends that way you keep each other responsible.
- k.
- l. Keep up with daily new learning but always take a look at the words you learned earlier, constant revision is more important.

- m. Before participating in this research, it is important to emphasize to the potential participants that memorizing words in just 10 minutes is not sufficient, and that they need to review each word at specific intervals. Additionally, if they reside in this country, they should be encouraged to pay close attention to any Welsh signage they encounter, as visual memory can significantly aid in word acquisition.
- n. To keep an open mind
- o. To do this first thing in the morning rather than leaving it to the evening!
- p. Keep it in practice and do it as you are learning something new with interest.
- q. Maybe arrange the 300 words into similar contextual piles to help remember them?
- r. I would say to not try to learn too much at once. You will not learn all the words by the end, it's impossible, so don't give yourself a workload with that goal in mind. Go through each of the words once. Try to review words you have learnt over the last day or two, if possible. (This is something I didn't do, but think it would be helpful). While you do this reviewing, place them into different piles of difficulty. This will allow you to look at the harder ones more when you are just reviewing and have gone through all of the words once. - However, I can see the difficulty in doing this if travelling a lot. (I had a thought that if this flash card method was transferred to an app it would make it easier for people travelling or who couldn't use physical cards for whatever reason. But that's a tangent.). Finding unique ways of learning words. Something that makes them stick out in your mind. That can be creating a picture in your mind (like the key technique) or even overpronouncing a word (for example gyrru, while rolling the 'r's excessively like a car engine). Another technique is to use these words in everyday thoughts and conversation. Like, ""I'm going to send this person a neges."" - Using fun ways like this make the brain feel like it's playing and play is how we've learnt a lot of things in life (play isn't just for children). If you can find someone else to practise your Welsh words with, that will make learning them even easier.
- s. My advice for anyone taking on this challenge in the future would be to find a learning technique that works the best for them. Not every method will click for everyone, but if they can find the one that feels right for them, it can make a big difference. Even if they don't manage to learn all 300 words, sticking with a technique that suits them could still help them learn a significant portion of the words.
- t. Stay consistent, even if you have to do 5 minutes a day. Learn the words while you brush your teeth or any other activity that you do every day so you stick to it.

10. Is there any other information you think might be relevant to our interpretation of your results? Please note that we do not need to know about why your learning might have been disrupted or interrupted; we are interested in factors that may have impacted on your learning approach or process (e.g. learning difficulties such as dyslexia; knowledge of languages similar to Welsh).

- a.
- b. My knowledge of French and experience of learning languages definitely would've helped but Welsh is pronounced and spelt very differently to any language I've seen so that was the trickiest part.
- c. I have been learning Scottish Gaelic for several years and know a very small amount of Cornish

- d. I often did my Welsh right before going to sleep (often quite late into the night). Some words in this study I didn't necessarily learn from the flashcards, more so from just living in Wales for university (coming from England) and seeing certain words on signs and in emails daily (eg: prifysgol, diwedd, etc) which could have affected how I memorised certain words more than others.
- e. Dyslexia and Epilepsy.
- f.
- g. No
- h.
- i. As I've said, I do suffer with ADHD and dyslexic traits. These mean I naturally have a poor memory and extremely poor motivation, leading me to the three days missed. I have learned to speak foreign languages since I was 6 as I travelled the world with my family, attending school for more than one year at a time in Mexico, Norway, Spain, Denmark and Canada (in that order), only returning to the UK at the age of 11. I only started learning Welsh two years ago and even then, I only know classroom language from my PGCE. Therefore, words like Gwaith and Dosbarth, Athro etc were easier for me to remember.
- j. I have dyslexia and that may have influenced how I learnt the words.
- k. Nothing like any other language I've ever learned! I only realised we were supposed to be learning Welsh to English as well as English to Welsh until 10 days before the end. I believe I'd have done better in the W to E if I'd spent time learning the other way round
- l. Solo learning disrupts my learning experience.
- m. In my study, there weren't many gaps. However, I struggled because many Welsh words consist of consonants only. In my native language, Turkish, there are no such words; they always consist of both vowels and consonants. There are no words composed entirely of vowels or entirely of consonants. I found it challenging to learn the words because of this. For example, in the word "cyfrwng," there isn't a single vowel, making it difficult for me to establish connections between the letters. Due to many Welsh words being structured this way, learning them wasn't easy.
- n.
- o.
- p.
- q. a lot of the welsh words seemed very similar, and i struggled to memorise or recognise them, i also struggled to commit them to my long term memory.
- r. While in school, I was learning French and German for a few years. While I wasn't absolutely terrible, they were my worst subjects. So I didn't think I was going to be amazing after all this. Brains are wired differently and all that. I've had quite a lot of trouble with consistent good quality sleep. So that may have affected my learning.
- s. Before participating in this Welsh vocabulary learning task, I had previously attempted to learn some Welsh using Duolingo. As a result, I was already familiar with some of the words included in the learning pack. However, I did not know the Welsh equivalents for those words used to filter participants for this task. Also, I haven't used Duolingo since signing up for this task. I am not sure whether this is relevant but I thought I'd keep you informed of this
- t. I really struggle with long words. Anything above three syllables takes a lot of energy to read let alone remember. I also have auditory memory so when I could

not figure out how the word is being pronounced it was very difficult for me to remember and then recall that word during the exam.

11. What did you find enjoyable about the task?

- a. I'm happy that I'm able to understand Welsh a little when I come across it at supermarkets or signs on the roads.
- b. The challenge and the feeling of starting to learn a new language because I love languages and just enjoy learning vocabulary in general.
- c. It was very enjoyable
- d. I find language learning interesting even if I don't reach a high level. It is interesting to learn about different language systems.
- e. Learning Welsh. I had the incentive to learn Welsh beforehand which made this enjoyable, mostly at the beginning.
- f. it was really interesting to learn what the words meant especially because some of them I come across often.
- g. All of it, I really enjoyed studying a language that bears very little resemblance to the languages I know already, as it meant I had to rely on my memory a lot more. It was good being able to test my memory, and the 50-day grid on each word's card was also a good way for me to tell which words I found harder than others. I feel a good variety of words were chosen also.
- h. My partner is Welsh and is also learning to speak it better so it was nice asking him about the pronunciation of certain words and also telling him which words I learnt that he didn't know.
- i. I liked the challenge and seeing how many words I actually already knew.
- j. I enjoyed being able to translate some words when going out.
- k. I found linking some of the words to words in English/Italian fun
- l. A new language is always exciting.
- m. One of the most enjoyable aspects of the assignment is that, living in a Welsh town, when people come to the place where I work, they speak entirely in Welsh among themselves. It was enjoyable for me because I could catch a few things from their conversations.
- n. The idea of learning a challenging language
- o. Learning words in Welsh is interesting since I live in Wales. There are words that I always saw on signs things like ysgol, canolfan and gwasanaith, so it was lovely to learn what these words meant. In Cardiff, I lived in an area called: pen-y-wain, and it was only through the project that I learned that pen means head and therefore the word is also used to refer to areas at the top of a mountain for instance.
- p. To learn the meaning in Welsh.
- q. simply learning Welsh was very enjoyable, I had never encountered the language until now, and it's a very fun language I feel :)
- r. Personally, I enjoyed pronouncing the words. I also enjoyed talking about Welsh words with Welsh speakers, as they were supportive of my learning and mixed in Welsh words in speaking to help (I even found some when I wasn't in Wales!)
- s.
- t. Learning new vocabulary, new language. I find Welsh so interesting and it was an honour to take part in this project.

12. What did you find less enjoyable about the task?

- a. I have some words I couldn't definitely memorise which are long, unfamiliar alphabet combinations and difficult pronunciation. It was challenging to practice these vocabulary.
- b. Trying to pronounce all the words that start with c and sound similar or are really long.
- c. Remembering to do it every day
- d. It became very repetitive and more of a chore in my day.
- e. It became tedious.
- f. finding a time of day to study when my schedule was not the same every day.
- g. There was no part of it I didn't enjoy, to be honest.
- h. Having to stop the learning after 10 minutes. Sometimes it was really frustrating as I feel that with an extra few minutes I could have focussed more on a specific word that I wasn't sure on.
- i. 50 consecutive days was harder than I thought it would be for someone with ADHD.
- j. Nothing in particular
- k.
- l. Learning alone with none to apply the language to in a conversation
- m. I did not find anything dull or unenjoyable about the assignment, but my biggest challenge was that it coincided with exam time. Therefore, I couldn't fully enjoy it as I was constantly stressed due to exams. I believe that this kind of research should not be conducted during exam weeks; it should be done during less stressful times for better efficiency.
- n. The anxiety of not remembering as many words as expected
- o. Nothing in particular
- p. Like to cram the words and the most difficult was the pronunciation
- q. the everyday commitment was tiring at times, especially when i'm very tired about to go to bed and i remember oh gosh i havent done my welsh.
- r. I did get frustrated time to time when I wasn't grasping/remembering the words when using the flashcards. (This happened especially when I was tired)
- s. What I found less enjoyable about the task was the fact that, as a complete novice, I had no clue how to pronounce these words. It was really frustrating. While a leaflet was provided with the learning task, briefly touching upon pronunciation, I didn't find it very helpful. I ended up looking online for the pronunciation of some of the words.
- t. Getting used to the routine and forcing myself to do the 10 minutes a day. Feeling guilty when I couldn't recall all of the words. Also the long exam was probably too long for me... I would've appreciated if there were more exams of shorter length than just the big one of 16 slides.

13. Do you have any suggestions for how the task might be made more effective (e.g. timing, instructions, etc.)?

- a. I mainly tried to learn Welsh to English translation, but I should also have practiced English to Welsh. I should have confirmed how was the post-learning tasks like, but I would happy that we were clearly instructed that we should learn both ways, namely Welsh to English and English to Welsh.
- b. Having flashcards with the words on separate sides of the card and more help with pronunciation.
- c.

- d. I believe this task would have been more affective with audio files for each word. If this were to replicate a classroom, the teacher would be saying the word aloud. I found it difficult even with the pronunciation guide to understand how to say words - so I don't think I could speak Welsh words, only read them. I also think it would have been good to learn some grammar, rather than just a vocabulary list: as a result I don't really feel I learnt much, it felt more like a pattern recognition exercise. Furthermore, with the final tests, I feel there may have been an order effects issue as the words were in the same order in the welsh-english side and english-welsh side, which meant you could accidentally recognise the pattern from the first to the second and remember more than in actuality.
- e. Having audio to go along with the cards. Being able to put the correct pronunciation to a word would really help. When asking Welsh speakers they said that the pronunciation of words when going by the sheet often wasn't right, so going off of purely reading and uncertain speech made it a lot harder.
- f. splitting the cue cards into days so there are certain words we learn everyday already laid out rather than it being a free for all.
- g. Perhaps a little insight into the accent marks (ŷ ŵ ô â î) and what effect they have on pronunciation. This is because I struggled a bit when memorising which words carried an accent mark, and I feel it may have been a bit easier to memorise those words if I had known a little more about the role the accent marks play in the pronunciation of a word.
- h.
- i. Everything was very clear in truth. I don't know how you might have changed it in order to not affect your study.
- j. Have an amount of words that need to be learnt a day, as I was unable to get through all the words.
- k. I'm not sure 10 minutes was enough for me. 20 would have still been manageable but much more effective. Instructions were very clear.
- l. Learning groups
- m. As I mentioned in the previous question, research of this nature should not be conducted during students' exam weeks. Apart from that, in my opinion, 10 minutes a day for 50 days is sufficient to learn 300 words. Especially for not native English students like myself, we typically learn between 5 to 10 words daily when acquiring English. Of course, the rate of word acquisition may vary depending on age. Being 48 years old, I may not achieve the same performance level as younger individuals in their 20s, who can potentially learn more words at a faster pace.
- n. The learning process might be more effective if the participants are exposed and interact with a community of welsh speakers, as opposed to individual learning alone
- o.
- p. Sometime i think 50 days are less , if you have something else to do along with learn words because I think it's a continuous practice.
- q. i feel like 15 minutes instead of 10 to help remember would be better, and some suggestions other than flashcards to memorise to learn the words, different techniques and stuff like that
- r. When I first started I was quite with lost with trying to find a good strategy, it was developed over time. But it would have been nice to have some method in place early on. Maybe with loose guidelines such as spend x-y minutes looking at words, then spend a-b minutes covering the English words on the cards and trying

to remember them, etc... One thing I thought might have helped would be a short chat with someone a week into the the learning. Maybe to talk about how the learning is going, but also to discuss what might be the best way to learn going forward (certain techniques, making suggestions to draw on the cards, or even a low-pressure test environment, etc.)

- s.
- t. Maybe making more tests but shorter

14. Do you have any other comments relating to your experience on the Welsh vocabulary project?

- a.
- b. No but I really enjoyed it so thank you.
- c.
- d. It was an interesting experience to be involved in a project such as this and experience the participant side of a study.
- e.
- f. it was really fun!
- g. It would be good if the university could do this with other languages, I would happily do this again with another language. I am grateful for the opportunity to have learned some Welsh, and this was a good way to do so as it was only 10 minutes a day, which meant it was a manageable commitment. Having all the information and cards in one clear zip-up folder was also very helpful.
- h.
- i. NO. Only that I really did enjoy it, I'm just sad with myself that I couldn't maintain it as accurately as I'm sure you'd have liked.
- j. No was a nice experience.
- k. I'd be really interested in hearing about your findings
- l. Excellent initiative to generate interest in a minority spoke language.
- m. It was a very interesting experience for me; this was my first task in learning vocabulary in a new language. I gained confidence in myself, and perhaps I am considering participating in future studies. It's not only beneficial for exercising my mind but also presents a great opportunity for learning a new language. PS: And what caught my attention the most was my difficulty in recalling the Welsh meaning of an English word, but I could remember the English meaning of the word much faster when I saw the Welsh one.
- n. Getting the right pronunciation for most of the welsh words was a huge challenge
- o.
- p. It was a nice and good experience and now whenever i go I try to remember and sometimes i feel that yes I know this word.
- q. I really enjoyed this project! I'd like to participate in another, or attend some welsh classes if possible
- r. I'm sorry that my second task was done so late after the timeframe. I forgot that I was going abroad and that an alternative email should have been provided. - Sorry if that makes my data unusable. Thank you for letting me be a part of this study. I really did enjoy learning Welsh words (or at the least attempting to).
- s.
- t. I really enjoyed this project and I do think I will be continuing in learning the Welsh language.