Blissful ignorance? Or turning a blind eye? Language departments' attitudes to student use of Google Translate.

Alison Organ, York St John University

Language Teaching Forum,
University of York, 10 December 2019

- Brief literature review

- Methodology

- Findings

- Issues arising from Google Translate conference

- Discussion

- Our decisions at York St John

Background to the research project

The elephant in the room – students' use of GT for L2 production in take-home assignments.

Jargon:

- MT = machine translation
- FOMT = Free Online Machine Translation
- GT = Google Translate
- post-editing = taking the output from MT and editing it for context, accuracy etc.

Background to the research project

How good is Google Translate?

- launched in 2006, using statistical (Phrase-Based) Machine translation (PBMT) (Le & Schuster, 2016):
  - errors in context, syntax, use of pronouns – easy for language teachers to identify its use (Luton 2003, Correa 2014)
  - by 2011, translations between European languages were "usually good", while those involving Asian languages were "often relatively poor" (Aiken and Balan, 2011)

Background to the research project

How good is Google Translate?

- PBMT was replaced in 2016 by Google's Neural Machine Translation (GNMT):

  - greatly improved syntax and recognition of context

  - now provides much more contextual and grammatical information

  - According to its developers:

    - Machine translation is by no means solved. GNMT can still make significant errors that a human translator would never make, like dropping words and mistranslating proper names or rare terms [*or misspelled words - AO*], and translating sentences in isolation rather than considering the context of the paragraph or page. (Le & Schuster, 2016)

Background to the research project

How good is Google Translate?

- It is learning and improving all the time, although a recent article in *The Linguist* magazine casts some doubt on the BLEU scoring system used to assess MT quality, after Microsoft announced in 2018 that its automatic translation system "had achieved parity with human Chinese translators". (La Cruz, 2019)

  - (In his study, some inaccurate but lexically similar translations received a higher BLEU score than factually accurate but less lexically similar translations.)

Literature review

- Previous research has addressed the challenges to language teaching posed by the advent of FOMT by studying:

  - whether to avoid its use by reintroducing assessment in exam conditions (Luton 2003)

  - how to embrace the technology in order to improve L2 production (Niño 2008a and 2014)

  - how to detect when students have used FOMT for plagiaristic purposes (Somers et al 2006, Correa 2011 and 2014, Fredholm 2015)

  - whether FOMT can produce work as good as that of the average student (*conclusion – yes, it can!*) (Somers et al 2006, Bower 2010, Groves & Mundt 2015)

Literature review – survey-based studies of **student usage**

Niño (2009)	16 students of advanced Spanish at a UK university
Bower (2010)	258 second-year students of English in Japan in 2009
Josefsson (2011)	46 students of English at a university in Sweden – a translation task followed by a user-satisfaction survey
Korošec (2011)	33 students of English on translation module in a university in Slovenia – survey-based study on student usage and perceptions of GT's accuracy
Kumar (2012)	60 students of Business and IT on ELT module in Oman – survey to investigate frequency of GT usage and perceptions of its reliability
Clifford et al (2013)	905 participants studying European languages at a US university in 2011-12
Sukkhwan (2014)	125 first-year students of English at a Thai university in 2013
Jolley & Maimone (2015)	128 university students of Spanish in the US in 2014
Farzi (2016)	19 EFL students of mixed nationality in Canada in 2013 – a translation task followed by a user-satisfaction survey and interviews
Alhaisoni and Alhaysony (2017)	92 Saudi university students of EFL in 2016

Literature review – survey-based studies of **staff attitudes**

Niño (2009)	30 language tutors of FL at university level in the UK
Clifford et al (2013)	43 tutors of European languages at US universities in 2012
Case (2015)	35 FL teachers at a Swedish university in 2012
Jolley & Maimone (2015)	39 tutors on Spanish programmes in US universities in 2014
Knowles (2016)	20 tutors of Romance languages at US universities in 2016

Literature review – survey-based studies

Conclusions:

FOMT can be used to aid language learning	Niño 2008a and 2008b, Correa 2014, Sukkhwan 2014
FOMT tools are widely used by students for various purposes including assignments	Bower 2010, Korošec 2011, Kumar 2012, Clifford et al 2013, Sukkhwan 2014, Jolley and Maimone 2015, Farzi 2016, Alhaisoni and Alhaysony 2017
Some students believe that FOMT can produce a better result than they could (Sukkhwan 2014), but also that it affects their ability to retain vocabulary	Sukkhwan 2014, Kumar 2012
The production of students who use FOMT is not significantly superior to work produced without, (however these studies were pre-2016)	Correa 2014, Fredholm 2015

Literature review – survey-based studies

Conclusions:

FOMT is here to stay, and we can't prevent students from using it unless we examine them in controlled conditions	McCarthy 2004, Korošec 2011
Students need training in how to use FOMT properly, because they find it tempting to go for the easy option and pursue the end result without thinking about the means	McCarthy 2004, Bower 2010, Korošec 2011, Clifford 2013, Correa 2014, Jolley & Maimone 2015, Steding (2009 cited in Fredholm 2015), Farzi 2016, Knowles 2016
There is hesitation to embrace use of FOMT in class activities because this would appear to condone its use	Correa 2014, Groves and Mundt 2015
There is 'disarray' in universities' attitudes to its use (Case 2015:10), and we therefore need to reconsider assessment policy	Josefsson 2011, Clifford et al 2013, O'Neill 2013, Jolley and Maimone 2015, Farzi 2016, Alhaisoni and Alhaysony 2017

Research questions:

1. How do students in the UK use FOMT (Free Online Machine Translation) for L2 production, and what are their attitudes to its effectiveness and the ethics of using it in assignments?

2. What are language instructors' opinions regarding student use of FOMT for L2 production, its effectiveness and the ethics of using it in assignments?

3. How should universities respond to student use of FOMT for L2 production when framing assessment policy?

Methodology

- Student and staff surveys distributed via Qualtrics in May 2018 through personal and departmental contacts (external examiners etc);

- Student data gathered in July 2017
  - Usable student sample: 80 (mostly 1st and 2nd years, some 3rd and 4th years, Studying languages (mostly European) as a major part of their degree)

- Staff data gathered in in July and November 2017
  - Usable staff sample: 36 (most teaching European languages at a HEI in the UK)

Methodology:

Students were asked:

- whether their instructors had mentioned a FOMT policy;

- with what frequency they used FOMT tools for various aspects of their language learning:
  - for formative or summative assignments
  - for help with vocabulary or grammar
  - for translating different lengths of text, from individual words to paragraphs or whole texts;

- their opinions on the accuracy of output of their chosen tool and the ethics of using it for the different tasks;

- why they used it, and how they dealt with the output;

- whether they thought that university language departments should teach students how to use FOMT effectively, and whether it should be permitted for submitted assignments.

Methodology:

Staff were asked:

- whether they had noticed the use of FOMT by their students;

- whether their institution had a FOMT policy;

- whether they used exercises on the use of FOMT in class;

- how often they believed their students used FOMT and for what purpose;

- why they thought their students used FOMT;

- their opinions on the accuracy of output and the ethics of using it for the different tasks;

- whether they thought that university language departments should teach students how to use FOMT effectively, and whether it should be permitted for submitted assignments.
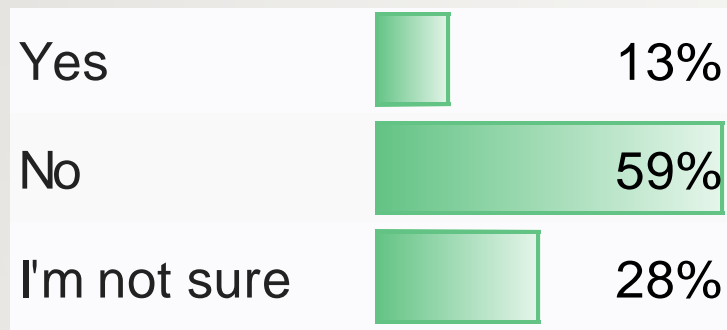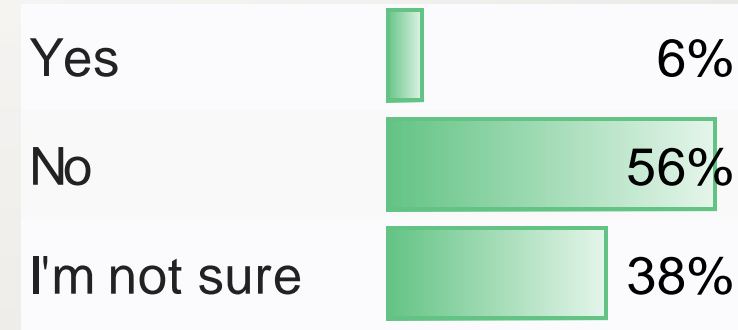
Findings

Institutional policy:

Has your instructor articulated / Does your institution have an official policy (on a syllabus or other course document or in class) regarding the use of online translation tools?

Students:

|		
Yes		13%
No		59%
I'm not sure		28%

Staff:

Yes		6%
No		56%
I'm not sure		38%

COMPARISON OF STUDENT REPORTED USAGE AND STAFF ASSUMPTIONS: TRANSLATION UNIT LENGTH

- In every case, the staff assumptions for use 'frequently' or 'always' (in blue) are higher than student reports, and for use 'infrequently' or 'never' (in red) they are lower.
- This suggests that staff assume students are using FOMT more than they claim to be doing themselves.
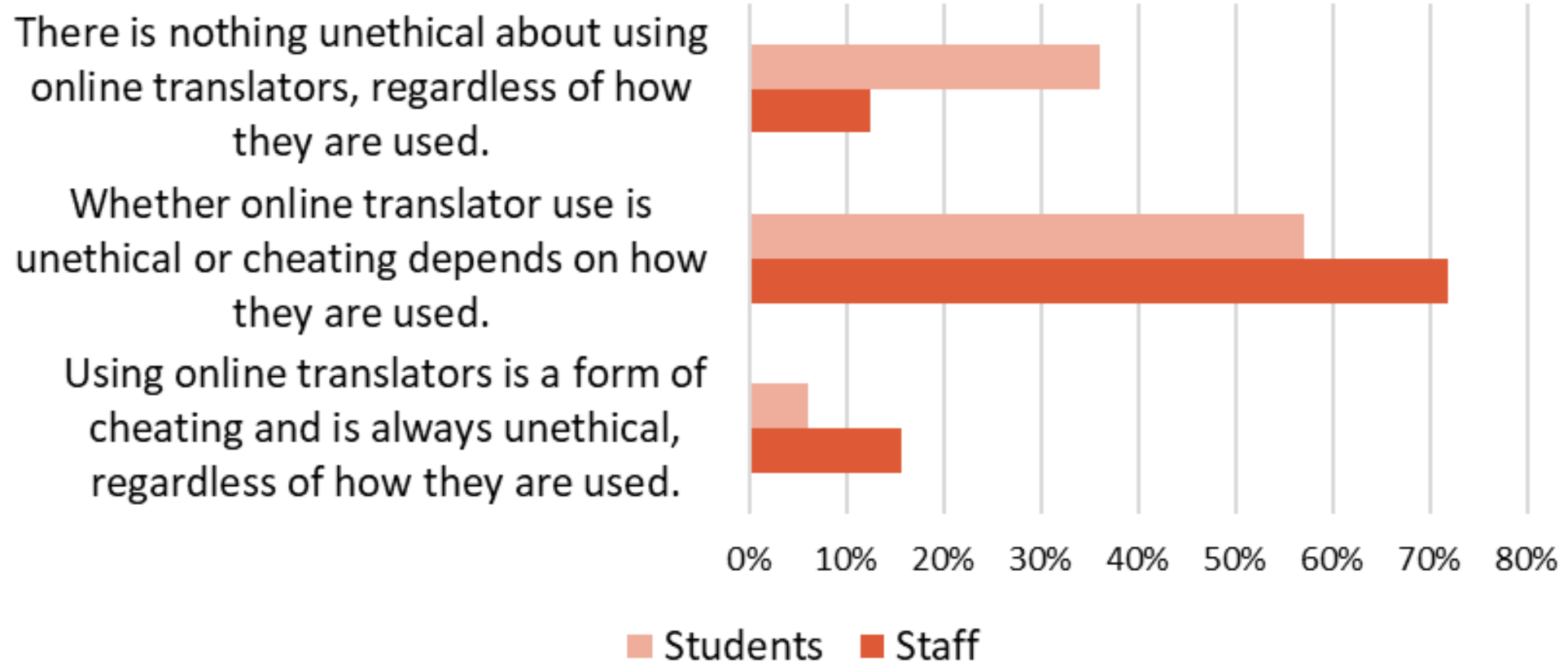
A possibly predictable inverse relationship between staff and student attitudes, although the majority agree that ethicality depends on usage.

COMPARISON OF STUDENT AND STAFF ASSESSMENTS OF FOMT ETHICALITY BY ASSIGNMENT TYPE

Students - presentations
Staff - presentations
Students - translation...
Staff - translation...
Students - written...
Staff - written assignments
Students - formative work
Staff - formative work

In each category, student percentages for 'somewhat' or 'completely ethical' (in blue) are higher than staff, and student percentages for 'somewhat' or 'completely unethical' (in red) are lower.
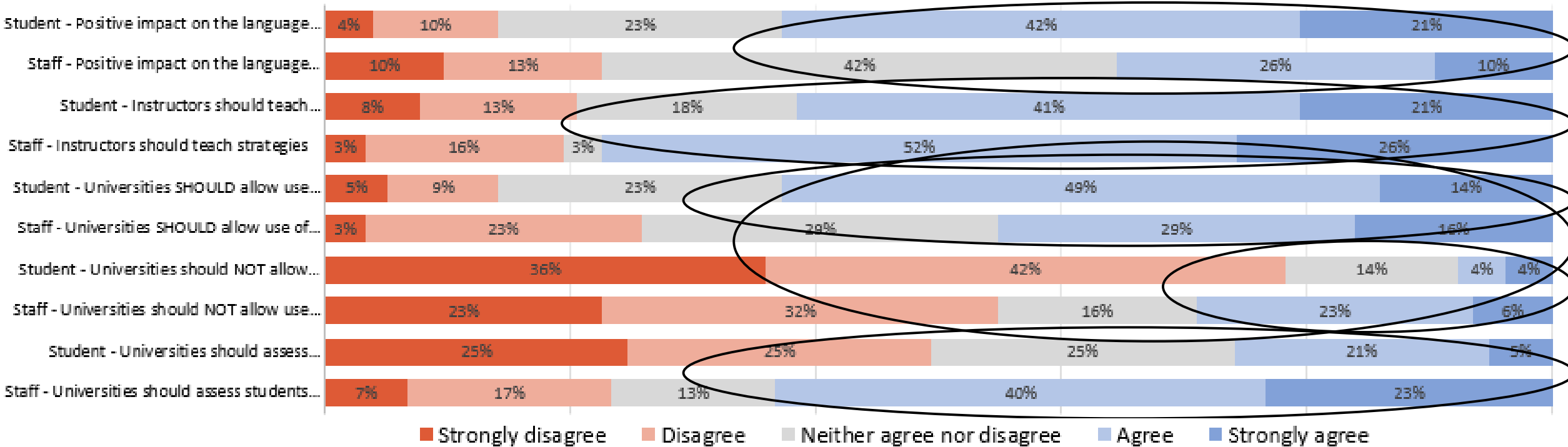The clearest example of this is the data for **written assignments**, where
- 61% of staff consider FOMT use 'somewhat' or 'completely unethical', as against only 25% of students, whereas
- 56% of students consider it 'somewhat' or 'completely ethical' as against only 29% of staff.

Questions put to both cohorts about university policy

- Use of online translation tools has a positive impact on the language learning process.
- It would be helpful if instructors spent time teaching strategies for maximising the effectiveness of these tools.
- Universities should allow students to use these tools in assignments, but give guidance on how to best to use them.
- Universities should not allow students to use these tools in assignments and ask students to sign a declaration to that effect.
- Universities should assess students under exam conditions to ensure that they cannot use translation tools

COMPARISON OF STUDENT AND STAFF OPINIONS
OF UNIVERSITIES' RESPONSE TO STUDENT USE OF FOMT

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Student - Positive impact on the language…	4%	10%	23%	42%	21%
Staff - Positive impact on the language…	10%	13%	42%	26%	10%
Student - Instructors should teach…	8%	13%	18%	41%	21%
Staff - Instructors should teach strategies	3%	16%	3%	52%	26%
Student - Universities SHOULD allow use…	5%	9%	23%	49%	14%
Staff - Universities SHOULD allow use of…	3%	23%	29%	29%	16%
Student - Universities should NOT allow…	36%	42%	14%	4%	4%
Staff - Universities should NOT allow use…	23%	32%	16%	23%	6%
Student - Universities should assess…	25%	25%	25%	21%	5%
Staff - Universities should assess students…	7%	17%	13%	40%	23%

- more students than staff think that FOMT has a positive impact on language learning;
- students and staff agree that it would be helpful to teach strategies
- more students than staff think that universities should allow students to use these tools in assignments
- more staff than students think that universities should not allow students to use FOMT in assignments
  - BUT more staff AND students think that universities should allow them than should not
- more staff than students think that universities should assess under exam conditions

Student comments

Assessment:

- *I think it's unfair that people get away with using them then have received better marks when in other subjects people would be extremely penalised for cheating like this.*

- *As long as the user is aware that they are not always accurate and has a reasonable knowledge of the L2 in order to make a sound judgement on the result, then I think that the use of online translation tools should be permitted. Forbidding the use of them is impractical and does not reflect accurately how the student would work or produce texts in a real life situation, which would most likely involve consulting such a tool at some point.*

Staff comments

Assessment:

- *On the last question regarding assessment under exam conditions: They should definitely stay in the mix, and* *their weighting should probably increase a little**.*

- *online translation can be a tool like any other, but it is really iportant [sic] that students understand that they can cross the line and use them too much. Occasional usage for learning support is fine, but* *submitting whole or sections of formative tasks on machine translated text is completely wrong and should be penalised. Universities need to develop policies to address this**.*

Staff comments

Assessment:

- *I think the question is not so much about ethics. If we want to encourage them to learn without translation tools, we have to get creative and revise assignments where translation tools are not appealing or particularly useful, and we have to assess language production frequently (both formatively and summatively) under controlled conditions. Anything else really cannot be regulated, and **framing the issue as ethical really puts students in a very difficult position**.*

What are other departments saying/doing about it?

Summary of issues raised at last year's conference by

- Nottingham Trent (EAP)
  - o survey of EAP students & staff
- Nottingham/Birmingham (EAP)
  - o interviews with cross-discipline lecturers & policy makers
- Oman (EFL)
  - o 50 UG students (native speakers of Arabic majoring in English), interviews & questionnaires
- Edinburgh (MFL)

  presentation by MFL tutor who sat on Academic Misconduct panel

1st university to devise a policy!

1st university to devise a policy!

https://www.nottingham.ac.uk/conference/fac-arts/clas/translation-technology-in-education%E2%80%93facilitator-or-risk/index.aspx

What are other departments saying/doing about it?

Issues raised (Oman):

- Students use it as a support for lack of skills, help with unknown vocab, time-saving, helping to cope with course.
- EFL students admitted to writing whole essays in Arabic and translating them.
  - o Need to teach students to post-edit & critically evaluate output
  - o Need to encourage students to use more linguistically sophisticated tools such as Grammarly.com

What are other departments saying/doing about it?

Staff attitudes (Nottingham Trent):
- *Advocates*: it's just another tool, students will use it anyway
- *Nuanced*: need to demonstrate how/why to use it, better to use GT than 'contract' cheating (ie buying essays), but it shouldn't be used for assessments
- *Opposers*: hinders language learning, ethics & fairness, expectations of employers, devaluing degree etc.

What are other departments saying/doing about it?

Graduate attribute issues (Nottingham/Birmingham):

- concern on part of uni about external stakeholder requirements regarding graduate English proficiency

- who are main stakeholders? Students, employers, university?

- we risk applying different measures for different members of academic community (MFL/EAP?)

- does this (for international students using English) fall under academic literacy/professional skills?

What are other departments saying/doing about it?

Rise in number of academic misconduct cases (Edinburgh):

- these are time-consuming to prepare and are often rejected because of a lack of a policy
- most universities do not have a policy for translation, only for proofreading
- how to frame use of GT: it's not false authorship, but it's not their own words either
- text ownership – who owns a GT text?
- how is it different from using a spellcheck/proofreader?
- control – how to police it

What are other departments saying/doing about it?

Example of a policy (Edinburgh)

- Edinburgh's previous policy was that it was prohibited to have exterior help (including GT) for coursework

- Rejection of academic misconduct cases (or successful appeals) through lack of policy led to loss of trust in student work, and staff choosing to ignore instead of report.

What are other departments saying/doing about it?

Edinburgh's conclusions:

- Make clear to students that
  - there is a distinction between performance and ability/acquired knowledge
  - we are not interested in what they can achieve **with** help of MT – do not permit use even in take-home assignments
- Educate students about
  - stages of language acquisition
  - what constitutes academic misconduct

What are other departments saying/doing about it?

Edinburgh - changes to policy:

- Changing take-home assignments – eg replace open essays (at lower levels) with rephrasing exercises, replace coursework with formative assessment

- Weight exam significantly more than coursework

- **Students have to respond to academic misconduct report – 'yes, I accept it', or 'no, I appeal'. If they appeal they have to undergo a supervised exercise whereby they show how they achieved that performance.**

  o **This has had the effect of reducing the number of appeals!**

  o ***I also think it may have a trickle-down effect and deter some students from using GT in the first place.***

Discussion

- What do you think are the implications of this research for assessment policy?

- What is your experience of student use of FOMT?

- Has your department discussed FOMT use and/or developed an assessment policy?

When we have discussed this in groups, I will share with you the steps we took at York St John…

Implications for our assessment policy

We used to assess by means of
- e-portfolios including:
    - Short pieces of written work
    - Videos
    - Class tests
    - Extended essays (coursework)

- Oral exams

Apart from the class tests and oral exams, there is no assessment carried out under exam conditions.

Implications for our assessment policy

On the strength of this research, we took the following decisions for this academic year:

- e-portfolios including:
  - ~~Short pieces of written work~~
  - Videos
  - Class tests   Increase weighting for writing test
  - Extended essays (coursework)   Change marking criteria:

- Oral exams   Use as viva for essays

Old essay marking criteria

	NSA (0-19)	F (2 F 20-39)	3rd D (40-49)	2:2 C (50-59)	2:1 B (60-69)	1st A (70-84)	1st* A* (85+)
Content	*Very poor content, very limited scope, unbalanced argument, generally unclear, possibly insufficient length*	*Poor content, limited scope, lack of balance, some lack of clarity, possibly insufficient length*	Fair level of analysis, some scope, some attempt at balanced argument, some clarity.	Good level of analysis, relatively broad scope ('bigger picture'), balanced and clear argument.	Very good level of analysis and scope, very clear and balanced argument.	Excellent level of analysis and scope, going beyond the obvious. Very clear and well-balanced argument.	Outstanding level of analysis and scope, imaginative and original work. Very clear and well-balanced argument.
Structure	*Lack of structure, very poor cohesion.*	*Poor structure and cohesion.*	Fair structure, some use of connectors and cohesive devices.	Good structure on the whole, some good use of connectors and cohesive devices.	Logical structure, very good use of connectors and cohesive devices.	Excellent and well-presented structure, excellent use of connectors and cohesive devices.	Outstanding and well-presented structure, outstanding use of connectors and cohesive devices.
Grammar	*Very poor command overall, frequent major errors*	*Poor command, even of basic structures, frequent major errors*	Fair grasp of basic grammar but some major and frequent minor errors	Good command of basic grammar, some major and minor errors, but possible lack of command of more advanced structures	Very good command of basic grammar, although some errors in more advanced structures	Excellent command of grammar, few errors even in more advanced structures	Almost totally error-free.
Vocabulary, idiom and register	*Very poor vocabulary. Inappropriate register.*	*Poor vocabulary and largely inappropriate register.*	Fair use of vocabulary and idioms. Choice of register may be inappropriate at times.	Good use of vocabulary and idioms, although choice of register may not always be appropriate.	Very good use of vocabulary and idioms. Appropriate choice of register.	Excellent and accurate use of vocabulary and idioms. Excellent choice of register.	Faultless use of vocabulary & idioms. Perfect choice of register.
Authenticity (e.g. syntax)	*Very strong interference from other languages.*	*Strong interference from other languages.*	Some interference from other languages - may be a barrier to communication at times.	Interference from other languages is noticeable but not a barrier to communication.	Very occasional to occasional evidence of interference from other languages.	No noticeable interference from other languages.	No interference from other languages.
Referencing and presentation	*Very poor referencing and little understanding of conventions*	*Poor referencing and little understanding of conventions*	Fair understanding of conventions	Good referencing and consistent approach to conventions	Accurate and consistent referencing and presentation	Technically excellent, accurate referencing and presentation	Technically excellent, accurate referencing and presentation

New essay marking criteria based on GAD*)

Grade:	Non serious attempt F 0-19	Fail F 20-39	Fair D 40-49	Good C 50-59	Very good B 60-69	Excellent A 70-84	Outstanding A* 85-100
Quality of content	*Very weak analysis and evaluation.*	*Weak analysis and evaluation.*	Fair analysis with some evaluation.	Good analysis and sound evaluation.	Accurate analysis and very good evaluation.	Strong critical ability and analytical approach to the subject.	Exceptional critical ability & analytical approach to the subject.
Knowledge and understanding	*Subject knowledge is very poorly demonstrated*	*Subject knowledge is poorly demonstrated*	Fair understanding of a few relevant ideas.	Good understanding of relevant ideas.	Very good understanding of a range of ideas.	Excellent understanding of a wide range of ideas.	Exceptional understanding of a wide range of ideas.
Organisation and cohesion	*Lack of structure, very poor cohesion.*	*Poor structure and cohesion.*	Fair structure, some use of connectors and cohesive devices.	Good structure on the whole, some good use of connectors and cohesive devices.	Logical structure, very good use of connectors and cohesive devices.	Excellent and well-presented structure, excellent use of connectors and cohesive devices.	Outstanding and well-presented structure, outstanding use of connectors and cohesive devices.
Communication	*Ideas are not communicated effectively.*	*Ideas are not communicated effectively.*	Ideas are communicated with some success.	Most ideas communicated effectively.	Very good ability to communicate ideas clearly.	Excellent ability to communicate ideas clearly.	Exceptional ability to communicate ideas clearly.
Presentation	*Communication is highly compromised by spelling and/or punctuation errors*	*Communication is compromised by spelling and/or punctuation errors.*	Frequent spelling and/or punctuation errors.	Relatively frequent spelling and/or punctuation errors.	Some spelling and/or punctuation errors.	Few spelling and/or punctuation errors.	Error-free
Referencing	*No referencing or understanding of conventions.*	*Poor referencing and little understanding of conventions.*	Fair understanding of conventions.	Good referencing and consistent approach to conventions.	Accurate and consistent referencing and presentation.	Technically excellent, accurate referencing and presentation.	Error-free

* University-wide Generic Assessment Descriptors

Amended YSJ Academic Misconduct policy

The university added this clause for 2019-20:

"Misuse of translation tools: Inappropriate use of online translation tools to conceal the source of text, or otherwise present work that it not a student's own."

https://www.yorksj.ac.uk/media/content-assets/registry/policies/code-of-practice-for-assessment-2019-20/22.Academic_Misconduct_Policy_2019-20.pdf

We have added this to our Moodle modules:

Extensive use of an online translation tool or another person to translate your work into the language of assessment is a form of academic misconduct. You might be asked to evidence full understanding of the language you have produced. This could include being able to do the following spontaneously:

- summarise and/or paraphrase the content of your assignment;
- explain the grammatical functions of the sentence structures you used;
- use the vocabulary or structures to produce a different sentence which is meaningful.

Comments and questions?

Bibliography

Alhaisoni, E. and Alhaysony, M., (2017). An Investigation of Saudi EFL University Students' Attitudes towards the Use of Google Translate. International Journal of English Language Education, 5(1), pp.72-82. Available at http://www.macrothink.org/journal/index.php/ijele/article/view/10696/8598 [Accessed 11.6.18]

Bower, J., (2010). Japanese university students' use of online machine translators for English writing tasks. *LSJ Journal Gengo Kenkyu* [Internet] Available at:
https://kuis.repo.nii.ac.jp/?action=repository_action_common_download&item_id=496&item_no=1&attribute_id=18&file_no=1 [Accessed 18.1.18]

Case, M., (2015). Machine translation and the disruption of foreign language learning activities. *eLearning Papers*, (45), pp.4-16. [Internet] Available at: http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A874792&dswid=-780 [Accessed 17.01.18]

Clifford, J., Merschel, L. and Munné, J., (2013). Surveying the Landscape: What is the Role of Machine Translation in Language Learning?. *@ tic. revista d'innovació educativa*, (10). January-June, 2013, pp. 108-121 [Internet] Available at: http://www.redalyc.org/pdf/3495/349532398012.pdf [Accessed 13.6.18]

Correa, M. (2014). Leaving the "peer" out of peer-editing: Online translators as a pedagogical tool in the Spanish as a second language classroom. *Latin American Journal of Content and Language Integrated Learning*, 7(2), 1–20 doi:10.5294/laclil.2014.7.1.1 eISSN 2322-9721. [Internet] Available at http://laclil.unisabana.edu.co/index.php/LACLIL/article/view/3568/3411 [Accessed 17.01.18]

Farzi, R. (2016) *Taming Translation Technology for L2 Writing: Documenting the Use of Free Online Translation Tools by ESL Students in a Writing Course*. (Doctoral dissertation, University of Ottawa). [Internet] Available at: https://ruor.uottawa.ca/handle/10393/34585 [Accessed 18.01.18]

Bibliography

Fredholm, K., (2015). Online translation use in Spanish as a foreign language essay writing: Effects on fluency, complexity and accuracy. *Revista Nebrija de Lingüística Aplicada a la Enseñanza de Lenguas*, (18), pp.7-24. [Internet] Available at: https://revistas.nebrija.com/revista-linguistica/article/view/248 [Accessed 26.01.18]

Groves, M. and Mundt, K., (2015). Friend or foe? Google Translate in language for academic purposes. *English for Specific Purposes*, *37*, pp.112-121. [Internet] Available at: https://www.sciencedirect.com/science/article/pii/S088949061400060X [Accessed 17.01.18]

Jolley, J.R. and Maimone, L., (2015). Free online machine translation: use and perceptions by Spanish students and instructors. *Learn Languages, Explore Cultures, Transform Lives*, pp.181-200. [Internet] Available at: https://s3.amazonaws.com/academia.edu.documents/36927315/Free_Online_Machine_Translation.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1528717408&Signature=BRMSnKdXuTVVcjOLejyT0Yyg6mw%3D&response-content-disposition=inline%3B%20filename%3DFree_Online_Machine_Translation_Use_and.pdf [Accessed 17.1.18]

Knowles, C.L., (2016). *Investigating instructor perceptions of online machine translation and second language acquisition within most commonly taught language courses*. The University of Memphis. [Internet] Available at: https://search.proquest.com/openview/1f36cf98d5c9d44ad45d474f2450b058/1?pq-origsite=gscholar&cbl=18750&diss=y [Accessed 13.6.18]

La Cruz, E. (2019) Linguist vs Machine. *The Linguist* 58/6.

Le, Q.V. and Schuster, M., (2016). A neural network for machine translation, at production scale. *Google research blog*. [Internet] Available at: https://ai.googleblog.com/2016/09/a-neural-network-for-machine.html [Accessed 26.2.19]

Bibliography

Luton, Lisette (2003). If the Computer did my Homework, How Come I didn't get an A? *The French Review*, 76 (4), pp. 766-770. [Internet] Available at: https://www.jstor.org/stable/3133085?seq=1#metadata_info_tab_contents [Accessed 26.2.19]

Niño, A. (2008a) Evaluating the use of machine translation post-editing in the foreign language class, *Computer Assisted Language Learning*, 21:1, 29-49 [Internet] Available at: https://doi.org/10.1080/09588220701865482 [Accessed 18.1.18]

Niño, A., (2008b) Free Online Machine Translation as a New Form of Cheating in Foreign Language Written Production. *The EUROCALL Review*, 14, 9-12 [Internet] Available at:http://www.eurocall-languages.org/uploaded/EUROCALL_Review/review14.pdf [Accessed 18.1.18]

Niño, A. (2009) Machine translation in foreign language learning: Language learners' and tutors' perceptions of its advantages and disadvantages. *ReCALL*, 21(2), pp.241-258 [Internet] Available at: https://doi.org/10.1017/S0958344009000172 [Accessed 20.2.19]

Somers, H., Gaspari, F. and Niño, A. (2006). *Detecting Inappropriate Use of Free Online Machine Translation by Language Students – A Special Case of Plagiarism Detection.* Proceedings of the Eleventh Annual Conference of the European Association for Machine Translation, Oslo, Norway, 41-48. [Internet] Available at: https://www.researchgate.net/profile/Federico_Gaspari/publication/228353067_Detecting_inappropriate_use_of_free_online_machine_translation_by_language_students-A_special_case_of_plagiarism_detection/links/53fc684c0cf2364ccc0495fd/Detecting-inappropriate-use-of-free-online-machine-translation-by-language-students-A-special-case-of-plagiarism-detection.pdf [Accessed 18.1.18]

Wu, Y. et al (2016*) Google's Neural Machine Translation System: Bridging the Gap between Human and Machine Translation.* arXiv preprint arXiv:1609.08144. [Internet] Available at: https://arxiv.org/abs/1609.08144v2 [Accessed 29.1.18]