www.snf.ch
Wildhainweg 3, Postfach 8232, CH-3001 Bern

Application form mySNF

Instrument **Sinergia**

Part 1: General Information

Basic data

Original project title	Cognitive Load in Interpreting and Translation (CLINT)
Project title in English	Cognitive Load in Interpreting and Translation (CLINT)

Assignement	Interdisciplinary
University	Zürcher Fachhochschule (ohne PH) - ZFH

Applicant(s)

Main Applicant	**Michaela Albl-Mikasa**
Other applicant(s)	Lutz Jäncke
	Maureen Ehrensberger-Dow

Grant Application

Requested starting date	**01.01.2018**
Duration	**48**

Attachments

Research plan	SciencePart_Albl-Mikasa.pdf
	revision_notes_Albl-Mikasa.pdf
CV, publication list and scientific achievements	CV_Ehrensberger-Dow_Maureen.pdf
	Publist_Ehrensberger-Dow_Maureen.pdf
	Achievements_Ehrensberger-Dow_Maureen.pdf
	CV_Albl-Mikasa_Michaela.pdf
	Publist_Albl-Mikasa_Michaela.pdf
	Achievements_Albl-Mikasa_Michaela.pdf
	CV_Jancke_Lutz.pdf
	Publist_Jancke_Lutz.pdf
	Achievements_Jancke_Lutz.pdf
Cover letter	CLINTcoverletter.pdf
Other annexes	EmpfehlungsschreibenZHAWCLINT2016.pdf
	Infrastructure_LJ_signed.pdf

1. Responsible applicant

Surname	**Albl-Mikasa**
First name	**Michaela**
Function (title)	Professor of Interpreting Studies
Academic degree	Prof. Dr.
Date of birth	18.04.1960
Gender	female
Civil Status	Married
Language	German
Nationality	Germany
Correspondence address of application	Address of workplace

Home address

Address supplement	
Street, No.	In der Unteren Rombach 17
P.O. Box	
Postcode / Zipcode	69118
Place	Heidelberg
Country	Germany

Address of institute

Name of Institution 1 (e.g. laboratory) *	Institute of Translation and Interpreting
Continuation 1 (e.g. inst /dept.)	School of Applied Linguistics
Continuation 2 (e.g. University)	ZHAW Zurich University of Applied Sciences
Street, No.	Theaterstrasse 15c
Address supplement 1 (e.g. building)	SM
Address supplement 2(e.g. office)	R. O4.08
P.O. Box	Postfach 958
Postcode / Zipcode	8401
Place	Winterthur
State, canton, etc.	
Country	Switzerland

Communication

Secretariat line	
Switchboard	+41 58 934 60 60
Direct line	+41 58 934 62 41
Fax office	+41 58 935 62 41
Home telephone number	+49 6221 809455
Cellphone	+41 79 955 95 38
Website	https://www.zhaw.ch/en/linguistics/forschung/dolmetschwissenschaft/
E-mail address	michaela.albl-mikasa@zhaw.ch

2. Other applicants

General information

Surname	**Jäncke**
First name	**Lutz**
Function (title)	Ordinarius for Neuropsychology
Academic degree	Prof. Dr.
Date of birth	16.07.1957
Gender	male
Civil Status	Married
Language	German
Nationality	Germany
Correspondence address	Enter my own working address

Communication

Secretariat line	
Switchboard	
Direct line	+41 44 635 74 01
Fax office	
Home telephone number	
Cellphone	
Website	
E-mail address	lutz.jaencke@uzh.ch

General information

Surname	**Ehrensberger-Dow**
First name	**Maureen**
Function (title)	Professor of Translation Studies
Academic degree	Prof. Dr.
Date of birth	23.05.1957
Gender	female
Civil Status	Married
Language	English
Nationality	Switzerland
Correspondence address	Enter my own working address

Communication

Secretariat line	+4158 934 60 60
Switchboard	
Direct line	+4158 934 60 93
Fax office	
Home telephone number	+4144 811 10 43
Cellphone	+4179 467 3951
Website	https://home.zhaw.ch/ehr/contact.html
E-mail address	ehre@zhaw.ch

3. Applicants' employment

Information on employment and function at the anticipated starting date of the grant

Name	**Albl-Mikasa, Michaela**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	100
Function in the context of this employment	Senior scientist, Senior lecturer
Professorship	Professor at UAS / UTE
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	15.11.2006
PhD supervisor	
Country of doctorate	Germany
Remarks	
Further employments	

Information on employment and function at the anticipated starting date of the grant

Name	**Ehrensberger-Dow, Maureen**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	90
Function in the context of this employment	Senior scientist, Senior lecturer
Professorship	Full professor
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	30.06.1987
PhD supervisor	
Country of doctorate	Canada
Remarks	
Further employments	

Information on employment and function at the anticipated starting date of the grant

Name	**Jäncke, Lutz**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	100
Function in the context of this employment	Head of (e.g. institute, department, center, clinic)
Professorship	Full professor
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	01.12.1989
PhD supervisor	
Country of doctorate	Germany
Remarks	
Further employments	

4. Project partners

5. Basic data I

Original project title	Cognitive Load in Interpreting and Translation (CLINT)
Requested starting date	01.01.2018
Duration	48
Assignement	Interdisciplinary
Discipline	10607 Applied linguistics
Exact designation	Translation & Interpreting Studies
Discipline	10105 Psychology
Exact designation	Neuropsychology

6. Basic data II

Summary (max. 1 page; Exerpt of the research plan, chapter 1)

A consequence and driving force of the developments related to today's increasingly interconnected yet greatly diversified world is the now ubiquitous use of English by non-native speakers. Even in multilingual Switzerland, English is replacing the four Swiss languages not only in international but also in intra-national communication. This first truly global lingua franca is pushing other languages into subsidiary roles in international business, finance, education, and science. The reality of millions of people communicating in a language that is not their first is sure to have enormous repercussions for multilingualism and multilingual societies. However, this reliance on English as a lingua franca (ELF*) can come at a cost. Despite the obvious relevance, there has been very little research into the personal costs and consequences for non-native speakers who have to work in English. The academic study of ELF has tended to focus on communicative success between non-native speakers and the linguistic and sociolinguistic aspects of the phenomenon. Far less attention has been paid to the more negative aspects of processing non-standard language input. In particular, the cognitive load and stress associated with having to use a foreign language to conduct business, academic, and other professional communication have not been addressed. In addition, research into the implications of ELF for the traditional management of multilingualism, namely translation and interpreting, has been exceptionally rare.

This project addresses these gaps by examining how translators and interpreters with different levels of expertise cope with ELF input compared with untrained multilinguals. Preliminary research suggests that the increasing number of ELF speakers at international gatherings impacts on professional interpreters' capacity management and that the growing number of source texts written by non-native speakers of English is forcing translators to expend more time and effort on processing these ELF texts. Cognitive load seems to be the overriding issue for both groups of language experts, so the question logically arises as to whether untrained multilinguals also suffer cognitive overload when confronted with non-standard input in one of their non-native languages. A second major issue that the project examines are stress-related impacts of ELF on multilinguals' language processes and professionals' performance.

This interdisciplinary project brings together researchers from the fields of ELF, interpreting, translation, and neuropsychology in order to gain a better understanding of the actual cognitive demands associated with ELF (as compared to Standard English) by describing and quantifying the influence of ELF on spoken and written language processing. A large number of multilingual participants will be recruited who have either no or various degrees of translation and interpreting experience in order to also evaluate whether there is a beneficial effect of language expertise on ELF processing. Our mixed-method approach ensures construct and concurrent validity. It includes audio and video recordings, eye-tracking and screen logging, physiological measurements, and stimulated-recall commentaries of processes in simulated workplace settings as well as product analyses; psychophysiological measurements in a controlled lab setting; and self-report through online surveys of members of the communities of professional practice (i.e. translators and interpreters). The various disciplinary perspectives will allow a rich description of challenges presented by ELF to experts and non-experts alike.

The findings are expected to have implications not only for methodology and model-building in all of the disciplines concerned (i.e. ELF, translation and interpreting studies, neuropsychology), but also for language management and training in multilingual societies and corporations. Insights into the relationships between

	expertise, cognitive load, and stress when dealing with ELF input could be incorporated into undergraduate, graduate, and professional development programs in a wide variety of disciplines to better prepare the citizens of the future for this global phenomenon. * Reference to ELF has been avoided in the project title, so that study participants remain unaware of linguistic comparisons of interest.
Keywords	English as a lingua franca
	ELF
	cognitive load
	interpreting
	translation
	stress
	expertise
	electroencephalography
Language of correspondence	German
Financial administration	< Other >

7. Use-inspired project

Is your project use-inspired?	Yes

8. Continuation of

9. Link to other SNSF projects

Application/Project	14381
Type of relationship	The proposed project builds on the findings in the ergonomics study by closely examining two of the main issues identified in the cognitive ergonomics of professional translation (problematic source texts and frustration/stress). In addition, it substantially expands on the methodology used in the precursor study.

10. Re-submission

Project	CR11I1_166122 3: Cognitive Load in Interpreting and Translation (CLINT)
Remarks	In consultation with the SNSF office, we were told that Sinergia was the appropriate instrument for this resubmission because the interdisciplinary strand was no longer available.

11. University or research institution

University	Zürcher Fachhochschule (ohne PH) - ZFH
Remarks	

12. Requested funding

Requested funding	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Total (CHF)	**331'374**	**353'232**	**356'462**	**249'658**	**1'290'726**

Equipment	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Material of enduring value, equipment	5'000	0	0	0	5'000
Total (CHF)	**5'000**	**0**	**0**	**0**	**5'000**
Total (%)	**2%**	**0%**	**0%**	**0%**	**0%**

Research funds	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**

					(CHF)
Travel	5'000	7'500	5'000	0	17'500
Conferences and workshops	7'000	7'000	7'000	7'000	28'000
Scientific open access e-publications	0	0	9'000	9'000	18'000
Additional research costs (incl. consumables)	23'250	20'000	13'250	0	56'500
Total (CHF)	**35'250**	**34'500**	**34'250**	**16'000**	**120'000**
Total (%)	**11%**	**10%**	**10%**	**6%**	**9%**

Salaries	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Salary for doctoral students	142'620	147'120	150'120	100'080	539'940
Salary for postdoc (employees with a doctorate)	52'500	52'500	52'500	52'500	210'000
Salary for further employees	55'850	75'150	75'150	48'850	255'000
Total (CHF)	**250'970**	**274'770**	**277'770**	**201'430**	**1'004'940**
Total (%)	**76%**	**78%**	**78%**	**81%**	**78%**

Social security contributions	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Social security contributions	40'154	43'962	44'442	32'228	0
Total (CHF)	**40'154**	**43'962**	**44'442**	**32'228**	**160'786**
Total (%)	**12%**	**12%**	**12%**	**13%**	**12%**

Allocation by person/project

Person	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Not allocated	7'000	7'000	16'000	16'000	46'000
	2%	2%	4%	6%	4%
Albl-Mikasa, Michaela	109'762	120'636	111'386	27'086	326'820
	33%	34%	31%	11%	29%
Ehrensberger-Dow, Maureen	90'480	112'984	112'984	90'480	350'800
	27%	32%	32%	36%	32%
Jäncke, Lutz	124'132	112'612	116'092	116'092	406'320
	37%	32%	33%	47%	36%
Total (CHF)	**331'374**	**353'232**	**356'462**	**249'658**	**1'290'726**

Details

Salary for doctoral students	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Junior researcher (interpreting studies): Amber Latheron	48'540	50'040	50'040	0	148'620
Work-time percentage: 100.00% Relation to research plan / Comments / Additions: This junior researcher will focus on the interpreting processes in the workplace setting. Person: Amber Latheron female / Single / 06.04.1989 English / Great Britain and Northern Ireland Academic degree: MA Supervisor: Albl-Mikasa, Michaela (co-supervision) Relation to person/project: Albl-Mikasa, Michaela Matriculation: 01.01.2017					
Junior researcher (neuroscience): n.n.	47'040	48'540	50'040	50'040	195'660
Work-time percentage: 100.00%					

Relation to research plan / Comments / Additions	This junior researcher will focus on the neurophysiological aspects (i.e. stress).				
Supervisor	Jäncke, Lutz				
Relation to person/project	Jäncke, Lutz				
Junior researchers (neuropsychology): n.n.		47'040	48'540	50'040	50'040	195'660
Work-time percentage	100.00%				
Relation to research plan / Comments / Additions	This junior researcher will focus on the EEG aspects of the project.				
Supervisor	Jäncke, Lutz				
Relation to person/project	Jäncke, Lutz				
Total (CHF)		**142'620**	**147'120**	**150'120**	**100'080**	**539'940**
Total (%)		**43%**	**42%**	**42%**	**40%**	**42%**

Salary for postdoc (employees with a doctorate)		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Post-doc (translation studies): Andrea Hunziker Heeb		52'500	52'500	52'500	52'500	210'000
Work-time percentage	50.00%					
Relation to research plan / Comments / Additions	Andrea Hunziker Heeb worked on two precursor projects and has expertise in various techniques that will be used in the simulated workplace settings. In addition, she has a wealth of experience in working in interdisciplinary teams and has proven her ability to manage recruitment, data collection and analyses.					
Person	Andrea Hunziker Heeb female / Married / 11.08.1966 German / Switzerland					
Academic degree	Dr./PhD since 30.11.2017					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 18 since 01.01.2015					
Total (CHF)		**52'500**	**52'500**	**52'500**	**52'500**	**210'000**
Total (%)		**16%**	**15%**	**15%**	**21%**	**16%**

Salary for further employees		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Consultant (interpreting): n.n.		3'100	0	0	0	3'100
Work-time percentage	0.00% to 3.00%					
Relation to research plan / Comments / Additions	The interpreting consultant will help with the recruiting of the professional interpreters and with the recordings in the booths.					
Relation to person/project	Albl-Mikasa, Michaela					
Consultant (statistics): n.n.		0	3'000	3'000	2'100	8'100
Work-time percentage	0.00% to 3.00%					
Relation to research plan / Comments / Additions	The statistics consultant will advise the core team on the newest methods that are appropriate for the triangulation of the multiple sources of data.					
Relation to person/project	Albl-Mikasa, Michaela					
Eye tracking research associate: Martin Schuler		0	19'400	19'400	0	38'800
Work-time percentage	0.00% to 20.00%					
Relation to research plan / Comments / Additions	The research associate responsible for the eye tracking recordings in the simulated work setting will design the presentation of the materials and and supervise the analyses.					
Person	Martin Schuler					

	male / Married / 01.10.1982 Number of children 2 / French / Switzerland					
Academic degree	BSc / BA since 01.06.2013					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 17 since 01.05.2013					
Research assistant (translation studies): Romina Schaub-Torsello		25'500	25'500	25'500	25'500	102'000
Work-time percentage	30.00%					
Relation to research plan / Comments / Additions	The translation studies research assistant will help with the logistics of the recruitment, testing, transcriptions, and correspondence with participants as well as with the student assistants.					
Person	Romina Schaub-Torsello female / Married / 21.09.1983 German / Switzerland					
Academic degree	MA since 30.09.2016					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 15 since 15.06.2015					
Research assistent (interpreting studies): Livia Bartels		21'250	21'250	21'250	21'250	85'000
Work-time percentage	25.00%					
Relation to research plan / Comments / Additions	The interpreting studies research assistant will help with the logistics of the recruitment, testing, and correspondence with participants as well as with the student assistants.					
Person	Livia Bartels female / Single / 04.10.1987 German / Switzerland					
Academic degree	MA since 01.03.2015					
Relation to person/project	Albl-Mikasa, Michaela					
Further information	Salary bracket 16 since 01.01.2017					
Student assistants: n.n.		6'000	6'000	6'000	0	18'000
Work-time percentage	10.00% to 100.00%					
Relation to research plan / Comments / Additions	The student assistants will produce the first drafts of the transcriptions of the processes under the supervision of the PhD students and research assistants.					
Relation to person/project	Albl-Mikasa, Michaela					
Total (CHF)		**55'850**	**75'150**	**75'150**	**48'850**	**255'000**
Total (%)		**17%**	**21%**	**21%**	**20%**	**20%**

Material of enduring value, equipment		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Computer		5'000	0	0	0	5'000
Relation to research plan / Comments / Additions	A new high-capacity computer is required to process the EEG and neurophysiological data.					
Relation to person/project	Jäncke, Lutz					
Total (CHF)		**5'000**	**0**	**0**	**0**	**5'000**
Total (%)		**2%**	**0%**	**0%**	**0%**	**0%**

Travel		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Travel for data collection		5'000	7'500	5'000	0	17'500
Relation to research plan / Comments /	The participants will have to travel to the ZHAW and the UZH for two data collection sessions each. The heaviest year for data collection is anticipated to be year 2.					

Additions					
Relation to person/project	Albl-Mikasa, Michaela				
Total (CHF)	**5'000**	**7'500**	**5'000**	**0**	**17'500**
Total (%)	**2%**	**2%**	**1%**	**0%**	**1%**

Conferences and workshops	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Conference expenses	7'000	7'000	7'000	7'000	28'000
Relation to research plan / Comments / Additions	Information about the project, preliminary results, and other scientific contributions will be presented at national and international conferences by all of the researchers involved. A contribution in kind (i.e. CHF 1,000 per investigator, post-doc, and PhD per year) is also foreseen from the ZHAW and UZH.				
Total (CHF)	**7'000**	**7'000**	**7'000**	**7'000**	**28'000**
Total (%)	**2%**	**2%**	**2%**	**3%**	**2%**

Scientific open access e-publications	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Open-source publications	0	0	9'000	9'000	18'000
Relation to research plan / Comments / Additions	Three joint publications are foreseen in open-access, high-repute journals in each of the 3rd and 4th year of the project.				
Total (CHF)	**0**	**0**	**9'000**	**9'000**	**18'000**
Total (%)	**0%**	**0%**	**3%**	**4%**	**1%**

Additional research costs (incl. consumables)	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Cantonal ethics approval	10'000	0	0	0	10'000
Relation to research plan / Comments / Additions	Ethics approval will be obtained once the project is approved. The projected costs are based on previous experience with similar projects.				
Relation to person/project	Jäncke, Lutz				
Remuneration for participants	13'250	20'000	13'250	0	46'500
Relation to research plan / Comments / Additions	The participants will be provided with a modest remuneration as appreciation at a level appropriate to their professional status (i.e. CHF 450 for the conference interpreters; CHF 250 for the specialized translators, writer, and teachers; and CHF 100 for the MA and BA students). The second project year is anticipated to involve more data collection than the other two years.				
Relation to person/project	Albl-Mikasa, Michaela				
Total (CHF)	**23'250**	**20'000**	**13'250**	**0**	**56'500**
Total (%)	**7%**	**6%**	**4%**	**0%**	**4%**

Social security contributions	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Consultant (interpreting): n.n.	496	0	0	0	0
Consultant (statistics): n.n.	0	480	480	336	0
Eye tracking research associate: Martin Schuler	0	3'104	3'104	0	0
Junior researcher (interpreting studies): Amber Latheron	7'766	8'006	8'006	0	0
Junior researcher (neuroscience): n.n.	7'526	7'766	8'006	8'006	0
Junior researchers (neuropsychology): n.n.	7'526	7'766	8'006	8'006	0
Post-doc (translation studies): Andrea Hunziker Heeb	8'400	8'400	8'400	8'400	0
Research assistant (translation studies): Romina Schaub-Torsello	4'080	4'080	4'080	4'080	0

Research assistent (interpreting studies): Livia Bartels	3'400	3'400	3'400	3'400	0
Student assistants: n.n.	960	960	960	0	0
Total (CHF)	**40'154**	**43'962**	**44'442**	**32'228**	**0**
Total (%)	**12%**	**12%**	**12%**	**13%**	**12%**

13. Research requiring authorisation or notification

Research on humans	Yes
Collection of samples and data	Yes
Authorisation ethics commitee	Will be submitted
Use of existing samples or data	No
Clinical trials of pharmaceutical products	No
In vivo somatic gene therapy	No
Ex vivo somatic gene therapy	No
Clinical trials with transplants	No
Research on human embryonic stem cells	No
Research on animals	No
Research on GMO or pathogens	No
Access and Benefit Sharing	No
Relevant regulations noted and accepted	Yes

14. General remarks on the project

Subject	Impact on the use of English as a lingua franca
Communication	The proposed project addresses an increasingly important issue in international business, academic, and political communication - the cognitive load and stress associated with having to process English produced by non-native speakers (i.e. as a Lingua Franca or ELF).
Confidential	No

www.snf.ch
Wildhainweg 3, Postfach 8232, CH-3001 Bern

Application form mySNF

Instrument **Sinergia**

Part 1: General Information

Basic data

Original project title	Cognitive Load in Interpreting and Translation (CLINT)
Project title in English	Cognitive Load in Interpreting and Translation (CLINT)

Assignement	Interdisciplinary
University	Zürcher Fachhochschule (ohne PH) - ZFH

Applicant(s)

Main Applicant	**Michaela Albl-Mikasa**
Other applicant(s)	Lutz Jäncke
	Maureen Ehrensberger-Dow

Grant Application

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Duration	**48**

Attachments

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CV, publication list and scientific achievements	CV_Ehrensberger-Dow_Maureen.pdf
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1. Responsible applicant

Surname	**Albl-Mikasa**
First name	**Michaela**
Function (title)	Professor of Interpreting Studies
Academic degree	Prof. Dr.
Date of birth	18.04.1960
Gender	female
Civil Status	Married
Language	German
Nationality	Germany
Correspondence address of application	Address of workplace

Home address

Address supplement	
Street, No.	In der Unteren Rombach 17
P.O. Box	
Postcode / Zipcode	69118
Place	Heidelberg
Country	Germany

Address of institute

Name of Institution 1 (e.g. laboratory) *	Departement Angewandte Linguistik
Continuation 1 (e.g. inst /dept.)	Zürcher Hochschule für Angew. Wissenschaften
Continuation 2 (e.g. University)	
Street, No.	Theaterstrasse 15c
Address supplement 1 (e.g. building)	
Address supplement 2(e.g. office)	
P.O. Box	Postfach 958
Postcode / Zipcode	8401
Place	Winterthur
State, canton, etc.	
Country	Switzerland

Communication

Secretariat line	
Switchboard	+41 58 934 60 60
Direct line	+41 58 934 62 41
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Home telephone number	+49 6221 809455
Cellphone	+41 79 955 95 38
Website	https://www.zhaw.ch/en/linguistics/forschung/dolmetschwissenschaft/
E-mail address	michaela.albl-mikasa@zhaw.ch

2. Other applicants

General information

Surname	**Jäncke**
First name	**Lutz**
Function (title)	Ordinarius for Neuropsychology
Academic degree	Prof. Dr.
Date of birth	16.07.1957
Gender	male
Civil Status	Married
Language	German
Nationality	Germany
Correspondence address	Enter my own working address

Communication

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Switchboard	
Direct line	+41 44 635 74 01
Fax office	
Home telephone number	
Cellphone	
Website	
E-mail address	lutz.jaencke@uzh.ch

General information

Surname	**Ehrensberger-Dow**
First name	**Maureen**
Function (title)	Professor of Translation Studies
Academic degree	Prof. Dr.
Date of birth	23.05.1957
Gender	female
Civil Status	Married
Language	English
Nationality	Switzerland
Correspondence address	Enter my own working address

Communication

Secretariat line	+4158 934 60 60
Switchboard	
Direct line	+4158 934 60 93
Fax office	
Home telephone number	+4144 811 10 43
Cellphone	+4179 467 3951
Website	https://home.zhaw.ch/ehr/contact.html
E-mail address	ehre@zhaw.ch

3. Applicants' employment

Information on employment and function at the anticipated starting date of the grant

Name	**Albl-Mikasa, Michaela**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	100
Function in the context of this employment	Senior scientist, Senior lecturer
Professorship	Professor at UAS / UTE
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	15.11.2006
PhD supervisor	
Country of doctorate	Germany
Remarks	
Further employments	

Information on employment and function at the anticipated starting date of the grant

Name	**Ehrensberger-Dow, Maureen**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	90
Function in the context of this employment	Senior scientist, Senior lecturer
Professorship	Full professor
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	30.06.1987
PhD supervisor	
Country of doctorate	Canada
Remarks	
Further employments	

Information on employment and function at the anticipated starting date of the grant

Name	**Jäncke, Lutz**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	100
Function in the context of this employment	Head of (e.g. institute, department, center, clinic)
Professorship	Full professor
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	01.12.1989
PhD supervisor	
Country of doctorate	Germany
Remarks	
Further employments	

4. Project partners

5. Basic data I

Original project title	Cognitive Load in Interpreting and Translation (CLINT)
Requested starting date	01.01.2018
Duration	48
Assignement	Interdisciplinary
Discipline	10607 Applied linguistics
Exact designation	Translation & Interpreting Studies
Discipline	10105 Psychology
Exact designation	Neuropsychology

6. Basic data II

Summary (max. 1 page; Exerpt of the research plan, chapter 1)

A consequence and driving force of the developments related to today's increasingly interconnected yet greatly diversified world is the now ubiquitous use of English by non-native speakers. Even in multilingual Switzerland, English is replacing the four Swiss languages not only in international but also in intra-national communication. This first truly global lingua franca is pushing other languages into subsidiary roles in international business, finance, education, and science. The reality of millions of people communicating in a language that is not their first is sure to have enormous repercussions for multilingualism and multilingual societies. However, this reliance on English as a lingua franca (ELF*) can come at a cost. Despite the obvious relevance, there has been very little research into the personal costs and consequences for non-native speakers who have to work in English. The academic study of ELF has tended to focus on communicative success between non-native speakers and the linguistic and sociolinguistic aspects of the phenomenon. Far less attention has been paid to the more negative aspects of processing non-standard language input. In particular, the cognitive load and stress associated with having to use a foreign language to conduct business, academic, and other professional communication have not been addressed. In addition, research into the implications of ELF for the traditional management of multilingualism, namely translation and interpreting, has been exceptionally rare.

This project addresses these gaps by examining how translators and interpreters with different levels of expertise cope with ELF input compared with untrained multilinguals. Preliminary research suggests that the increasing number of ELF speakers at international gatherings impacts on professional interpreters' capacity management and that the growing number of source texts written by non-native speakers of English is forcing translators to expend more time and effort on processing these ELF texts. Cognitive load seems to be the overriding issue for both groups of language experts, so the question logically arises as to whether untrained multilinguals also suffer cognitive overload when confronted with non-standard input in one of their non-native languages. A second major issue that the project examines are stress-related impacts of ELF on multilinguals' language processes and professionals' performance.

This interdisciplinary project brings together researchers from the fields of ELF, interpreting, translation, and neuropsychology in order to gain a better understanding of the actual cognitive demands associated with ELF (as compared to Standard English) by describing and quantifying the influence of ELF on spoken and written language processing. A large number of multilingual participants will be recruited who have either no or various degrees of translation and interpreting experience in order to also evaluate whether there is a beneficial effect of language expertise on ELF processing. Our mixed-method approach ensures construct and concurrent validity. It includes audio and video recordings, eye-tracking and screen logging, physiological measurements, and stimulated-recall commentaries of processes in simulated workplace settings as well as product analyses; psychophysiological measurements in a controlled lab setting; and self-report through online surveys of members of the communities of professional practice (i.e. translators and interpreters). The various disciplinary perspectives will allow a rich description of challenges presented by ELF to experts and non-experts alike.

The findings are expected to have implications not only for methodology and model-building in all of the disciplines concerned (i.e. ELF, translation and interpreting studies, neuropsychology), but also for language management and training in multilingual societies and corporations. Insights into the relationships between

	expertise, cognitive load, and stress when dealing with ELF input could be incorporated into undergraduate, graduate, and professional development programs in a wide variety of disciplines to better prepare the citizens of the future for this global phenomenon. * Reference to ELF has been avoided in the project title, so that study participants remain unaware of linguistic comparisons of interest.
Keywords	English as a lingua franca
	ELF
	cognitive load
	interpreting
	translation
	stress
	expertise
	electroencephalography
Language of correspondence	German
Financial administration	< Other >

7. Use-inspired project

Is your project use-inspired?	Yes

8. Continuation of

9. Link to other SNSF projects

Application/Project	143819
Type of relationship	The proposed project builds on the findings in the ergonomics study led by Maureen Ehrensberger-Dow by closely examining two of the main issues identified in the cognitive ergonomics of professional translation (problematic source texts and frustration/stress). In addition, it substantially expands on the methodology used in the precursor study.

10. Re-submission

Project	CR11I1_166122 3: Cognitive Load in Interpreting and Translation (CLINT)
Remarks	In consultation with the SNSF office, we were told that Sinergia was the appropriate instrument for this resubmission because the interdisciplinary strand was no longer available.

11. University or research institution

University	Zürcher Fachhochschule (ohne PH) - ZFH
Remarks	

12. Requested funding

Requested funding	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Total (CHF)	**331'374**	**353'232**	**356'462**	**249'658**	**1'290'726**

Equipment	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Material of enduring value, equipment	5'000	0	0	0	5'000
Total (CHF)	**5'000**	**0**	**0**	**0**	**5'000**
Total (%)	**2%**	**0%**	**0%**	**0%**	**0%**

Research funds	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Travel	5'000	7'500	5'000	0	17'500
Conferences and workshops	7'000	7'000	7'000	7'000	28'000
Scientific open access e-publications	0	0	9'000	9'000	18'000
Additional research costs (incl. consumables)	23'250	20'000	13'250	0	56'500
Total (CHF)	**35'250**	**34'500**	**34'250**	**16'000**	**120'000**
Total (%)	**11%**	**10%**	**10%**	**6%**	**9%**

Salaries	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Salary for doctoral students	142'620	147'120	150'120	100'080	539'940
Salary for postdoc (employees with a doctorate)	52'500	52'500	52'500	52'500	210'000
Salary for further employees	55'850	75'150	75'150	48'850	255'000
Total (CHF)	**250'970**	**274'770**	**277'770**	**201'430**	**1'004'940**
Total (%)	**76%**	**78%**	**78%**	**81%**	**78%**

Social security contributions	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Social security contributions	40'154	43'962	44'442	32'228	0
Total (CHF)	**40'154**	**43'962**	**44'442**	**32'228**	**160'786**
Total (%)	**12%**	**12%**	**12%**	**13%**	**12%**

Allocation by person/project

Person	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Not allocated	7'000	7'000	16'000	16'000	46'000
	2%	2%	4%	6%	4%
Albl-Mikasa, Michaela	109'762	120'636	111'386	27'086	326'820
	33%	34%	31%	11%	29%
Ehrensberger-Dow, Maureen	90'480	112'984	112'984	90'480	350'800
	27%	32%	32%	36%	32%
Jäncke, Lutz	124'132	112'612	116'092	116'092	406'320
	37%	32%	33%	47%	36%
Total (CHF)	**331'374**	**353'232**	**356'462**	**249'658**	**1'290'726**

Details

Salary for doctoral students	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Junior researcher (interpreting studies): Amber Latheron	48'540	50'040	50'040	0	148'620
Work-time percentage: 100.00% Relation to research plan / Comments / Additions: This junior researcher will focus on the interpreting processes in the workplace setting. Person: Amber Latheron female / Single / 06.04.1989 English / Great Britain and Northern Ireland Academic degree: MA Supervisor: Albl-Mikasa, Michaela (co-supervision) Relation to person/project: Albl-Mikasa, Michaela Matriculation: 01.01.2017					
Junior researcher (neuroscience): n.n.	47'040	48'540	50'040	50'040	195'660

Work-time percentage	100.00%				
Relation to research plan / Comments / Additions	This junior researcher will focus on the neurophysiological aspects (i.e. stress).				
Supervisor	Jäncke, Lutz				
Relation to person/project	Jäncke, Lutz				
Junior researchers (neuropsychology): n.n.		47'040	48'540	50'040	50'040	195'660
Work-time percentage	100.00%				
Relation to research plan / Comments / Additions	This junior researcher will focus on the EEG aspects of the project.				
Supervisor	Jäncke, Lutz				
Relation to person/project	Jäncke, Lutz				
Total (CHF)		**142'620**	**147'120**	**150'120**	**100'080**	**539'940**
Total (%)		**43%**	**42%**	**42%**	**40%**	**42%**

Salary for postdoc (employees with a doctorate)		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Post-doc (translation studies): Andrea Hunziker Heeb		52'500	52'500	52'500	52'500	210'000
Work-time percentage	50.00%					
Relation to research plan / Comments / Additions	Andrea Hunziker Heeb worked on two precursor projects and has expertise in various techniques that will be used in the simulated workplace settings. In addition, she has a wealth of experience in working in interdisciplinary teams and has proven her ability to manage recruitment, data collection and analyses.					
Person	Andrea Hunziker Heeb female / Married / 11.08.1966 German / Switzerland					
Academic degree	Dr./PhD since 30.11.2017					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 18 since 01.01.2015					
Total (CHF)		**52'500**	**52'500**	**52'500**	**52'500**	**210'000**
Total (%)		**16%**	**15%**	**15%**	**21%**	**16%**

Salary for further employees		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Consultant (interpreting): n.n.		3'100	0	0	0	3'100
Work-time percentage	0.00% to 3.00%					
Relation to research plan / Comments / Additions	The interpreting consultant will help with the recruiting of the professional interpreters and with the recordings in the booths.					
Relation to person/project	Albl-Mikasa, Michaela					
Consultant (statistics): n.n.		0	3'000	3'000	2'100	8'100
Work-time percentage	0.00% to 3.00%					
Relation to research plan / Comments / Additions	The statistics consultant will advise the core team on the newest methods that are appropriate for the triangulation of the multiple sources of data.					
Relation to person/project	Albl-Mikasa, Michaela					
Eye tracking research associate: Martin Schuler		0	19'400	19'400	0	38'800
Work-time percentage	0.00% to 20.00%					
Relation to research plan / Comments / Additions	The research associate responsible for the eye tracking recordings in the simulated work setting will design the presentation of the materials and and supervise the analyses.					

Person	Martin Schuler male / Married / 01.10.1982 Number of children 2 / French / Switzerland					
Academic degree	BSc / BA since 01.06.2013					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 17 since 01.05.2013					
Research assistant (translation studies): Romina Schaub-Torsello		25'500	25'500	25'500	25'500	102'000
Work-time percentage	30.00%					
Relation to research plan / Comments / Additions	The translation studies research assistant will help with the logistics of the recruitment, testing, transcriptions, and correspondence with participants as well as with the student assistants.					
Person	Romina Schaub-Torsello female / Married / 21.09.1983 German / Switzerland					
Academic degree	MA since 30.09.2016					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 15 since 15.06.2015					
Research assistent (interpreting studies): Livia Bartels		21'250	21'250	21'250	21'250	85'000
Work-time percentage	25.00%					
Relation to research plan / Comments / Additions	The interpreting studies research assistant will help with the logistics of the recruitment, testing, and correspondence with participants as well as with the student assistants.					
Person	Livia Bartels female / Single / 04.10.1987 German / Switzerland					
Academic degree	MA since 01.03.2015					
Relation to person/project	Albl-Mikasa, Michaela					
Further information	Salary bracket 16 since 01.01.2017					
Student assistants: n.n.		6'000	6'000	6'000	0	18'000
Work-time percentage	10.00% to 100.00%					
Relation to research plan / Comments / Additions	The student assistants will produce the first drafts of the transcriptions of the processes under the supervision of the PhD students and research assistants.					
Relation to person/project	Albl-Mikasa, Michaela					
Total (CHF)		**55'850**	**75'150**	**75'150**	**48'850**	**255'000**
Total (%)		**17%**	**21%**	**21%**	**20%**	**20%**

Material of enduring value, equipment		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Computer		5'000	0	0	0	5'000
Relation to research plan / Comments / Additions	A new high-capacity computer is required to process the EEG and neurophysiological data.					
Relation to person/project	Jäncke, Lutz					
Total (CHF)		**5'000**	**0**	**0**	**0**	**5'000**
Total (%)		**2%**	**0%**	**0%**	**0%**	**0%**

Travel		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Travel for data collection		5'000	7'500	5'000	0	17'500
Relation to research	The participants will have to travel to the ZHAW and the UZH for two data collection					

plan / Comments / Additions	sessions each. The heaviest year for data collection is anticipated to be year 2.				
Relation to person/project	Albl-Mikasa, Michaela				
Total (CHF)	**5'000**	**7'500**	**5'000**	**0**	**17'500**
Total (%)	**2%**	**2%**	**1%**	**0%**	**1%**

Conferences and workshops	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Conference expenses	7'000	7'000	7'000	7'000	28'000
Relation to research plan / Comments / Additions	Information about the project, preliminary results, and other scientific contributions will be presented at national and international conferences by all of the researchers involved. A contribution in kind (i.e. CHF 1,000 per investigator, post-doc, and PhD per year) is also foreseen from the ZHAW and UZH.				
Total (CHF)	**7'000**	**7'000**	**7'000**	**7'000**	**28'000**
Total (%)	**2%**	**2%**	**2%**	**3%**	**2%**

Scientific open access e-publications	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Open-source publications	0	0	9'000	9'000	18'000
Relation to research plan / Comments / Additions	Three joint publications are foreseen in open-access, high-repute journals in each of the 3rd and 4th year of the project.				
Total (CHF)	**0**	**0**	**9'000**	**9'000**	**18'000**
Total (%)	**0%**	**0%**	**3%**	**4%**	**1%**

Additional research costs (incl. consumables)	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Cantonal ethics approval	10'000	0	0	0	10'000
Relation to research plan / Comments / Additions	Ethics approval will be obtained once the project is approved. The projected costs are based on previous experience with similar projects.				
Relation to person/project	Jäncke, Lutz				
Remuneration for participants	13'250	20'000	13'250	0	46'500
Relation to research plan / Comments / Additions	The participants will be provided with a modest remuneration as appreciation at a level appropriate to their professional status (i.e. CHF 450 for the conference interpreters; CHF 250 for the specialized translators, writer, and teachers; and CHF 100 for the MA and BA students). The second project year is anticipated to involve more data collection than the other two years.				
Relation to person/project	Albl-Mikasa, Michaela				
Total (CHF)	**23'250**	**20'000**	**13'250**	**0**	**56'500**
Total (%)	**7%**	**6%**	**4%**	**0%**	**4%**

Social security contributions	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Consultant (interpreting): n.n.	496	0	0	0	0
Consultant (statistics): n.n.	0	480	480	336	0
Eye tracking research associate: Martin Schuler	0	3'104	3'104	0	0
Junior researcher (interpreting studies): Amber Latheron	7'766	8'006	8'006	0	0
Junior researcher (neuroscience): n.n.	7'526	7'766	8'006	8'006	0
Junior researchers (neuropsychology): n.n.	7'526	7'766	8'006	8'006	0
Post-doc (translation studies): Andrea Hunziker Heeb	8'400	8'400	8'400	8'400	0
Research assistant (translation studies): Romina	4'080	4'080	4'080	4'080	0

Schaub-Torsello					
Research assistent (interpreting studies): Livia Bartels	3'400	3'400	3'400	3'400	0
Student assistants: n.n.	960	960	960	0	0
Total (CHF)	**40'154**	**43'962**	**44'442**	**32'228**	**0**
Total (%)	**12%**	**12%**	**12%**	**13%**	**12%**

13. Research requiring authorisation or notification

Research on humans	Yes
Collection of samples and data	Yes
Authorisation ethics commitee	Will be submitted
Use of existing samples or data	No
Clinical trials of pharmaceutical products	No
In vivo somatic gene therapy	No
Ex vivo somatic gene therapy	No
Clinical trials with transplants	No
Research on human embryonic stem cells	No
Research on animals	No
Research on GMO or pathogens	No
Access and Benefit Sharing	No
Relevant regulations noted and accepted	Yes

14. General remarks on the project

Subject	Impact on the use of English as a lingua franca
Communication	The proposed project addresses an increasingly important issue in international business, academic, and political communication - the cognitive load and stress associated with having to process English produced by non-native speakers (i.e. as a Lingua Franca or ELF).
Confidential	No

www.snf.ch
Wildhainweg 3, Postfach 8232, CH-3001 Bern

Application form mySNF

Instrument **Sinergia**

Part 1: General Information

Basic data

Original project title	Cognitive Load in Interpreting and Translation (CLINT)
Project title in English	Cognitive Load in Interpreting and Translation (CLINT)

Assignement	Interdisciplinary
University	Zürcher Fachhochschule (ohne PH) - ZFH

Applicant(s)

Main Applicant	**Michaela Albl-Mikasa**
Other applicant(s)	Lutz Jäncke
	Maureen Ehrensberger-Dow

Grant Application

Requested starting date	**01.01.2018**
Duration	**48**

1. Responsible applicant

Surname	**Albl-Mikasa**
First name	**Michaela**
Function (title)	Professor of Interpreting Studies
Academic degree	Prof. Dr.
Date of birth	18.04.1960
Gender	female
Civil Status	Married
Language	German
Nationality	Germany
Correspondence address of application	Address of workplace

Home address

Address supplement	
Street, No.	In der Unteren Rombach 17
P.O. Box	
Postcode / Zipcode	69118
Place	Heidelberg
Country	Germany

Address of institute

Name of Institution 1 (e.g. laboratory) *	Departement Angewandte Linguistik
Continuation 1 (e.g. inst /dept.)	Zürcher Hochschule für Angew. Wissenschaften
Continuation 2 (e.g. University)	
Street, No.	Theaterstrasse 15c
Address supplement 1 (e.g. building)	
Address supplement 2(e.g. office)	
P.O. Box	Postfach 958
Postcode / Zipcode	8401
Place	Winterthur
State, canton, etc.	
Country	Switzerland

Communication

Secretariat line	
Switchboard	+41 58 934 60 60
Direct line	+41 58 934 62 41
Fax office	+41 58 935 62 41
Home telephone number	+49 6221 809455
Cellphone	+41 79 955 95 38
Website	https://www.zhaw.ch/en/linguistics/forschung/dolmetschwissenschaft/
E-mail address	michaela.albl-mikasa@zhaw.ch

2. Other applicants

General information

Surname	**Jäncke**
First name	**Lutz**
Function (title)	Ordinarius for Neuropsychology
Academic degree	Prof. Dr.
Date of birth	16.07.1957
Gender	male
Civil Status	Married
Language	German
Nationality	Germany
Correspondence address	Enter my own working address

Communication

Secretariat line	
Switchboard	
Direct line	+41 44 635 74 01
Fax office	
Home telephone number	
Cellphone	
Website	
E-mail address	lutz.jaencke@uzh.ch

General information

Surname	**Ehrensberger-Dow**
First name	**Maureen**
Function (title)	Professor of Translation Studies
Academic degree	Prof. Dr.
Date of birth	23.05.1957
Gender	female
Civil Status	Married
Language	English
Nationality	Switzerland
Correspondence address	Enter my own working address

Communication

Secretariat line	+4158 934 60 60
Switchboard	
Direct line	+4158 934 60 93
Fax office	
Home telephone number	+4144 811 10 43
Cellphone	+4179 467 3951
Website	https://home.zhaw.ch/ehr/contact.html
E-mail address	ehre@zhaw.ch

3. Applicants' employment

Information on employment and function at the anticipated starting date of the grant

Name	**Albl-Mikasa, Michaela**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	100
Function in the context of this employment	Senior scientist, Senior lecturer
Professorship	Professor at UAS / UTE
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	15.11.2006
PhD supervisor	
Country of doctorate	Germany
Remarks	
Further employments	

Information on employment and function at the anticipated starting date of the grant

Name	**Ehrensberger-Dow, Maureen**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	90
Function in the context of this employment	Senior scientist, Senior lecturer
Professorship	Full professor
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	30.06.1987
PhD supervisor	
Country of doctorate	Canada
Remarks	
Further employments	

Information on employment and function at the anticipated starting date of the grant

Name	**Jäncke, Lutz**
Employment at the anticipated starting date of the grant	permanent contract
Level of employment %	100
Function in the context of this employment	Head of (e.g. institute, department, center, clinic)
Professorship	Full professor
Doctorate (PhD)?	Yes
Date of doctorate (PhD)	01.12.1989
PhD supervisor	
Country of doctorate	Germany
Remarks	
Further employments	

4. Project partners

5. Basic data I

Original project title	Cognitive Load in Interpreting and Translation (CLINT)
Requested starting date	01.01.2018
Duration	48
Assignement	Interdisciplinary
Discipline	10607 Applied linguistics
Exact designation	Translation & Interpreting Studies
Discipline	10105 Psychology
Exact designation	Neuropsychology

6. Basic data II

Summary (max. 1 page; Exerpt of the research plan, chapter 1)

A consequence and driving force of the developments related to today's increasingly interconnected yet greatly diversified world is the now ubiquitous use of English by non-native speakers. Even in multilingual Switzerland, English is replacing the four Swiss languages not only in international but also in intra-national communication. This first truly global lingua franca is pushing other languages into subsidiary roles in international business, finance, education, and science. The reality of millions of people communicating in a language that is not their first is sure to have enormous repercussions for multilingualism and multilingual societies. However, this reliance on English as a lingua franca (ELF*) can come at a cost. Despite the obvious relevance, there has been very little research into the personal costs and consequences for non-native speakers who have to work in English. The academic study of ELF has tended to focus on communicative success between non-native speakers and the linguistic and sociolinguistic aspects of the phenomenon. Far less attention has been paid to the more negative aspects of processing non-standard language input. In particular, the cognitive load and stress associated with having to use a foreign language to conduct business, academic, and other professional communication have not been addressed. In addition, research into the implications of ELF for the traditional management of multilingualism, namely translation and interpreting, has been exceptionally rare.

This project addresses these gaps by examining how translators and interpreters with different levels of expertise cope with ELF input compared with untrained multilinguals. Preliminary research suggests that the increasing number of ELF speakers at international gatherings impacts on professional interpreters' capacity management and that the growing number of source texts written by non-native speakers of English is forcing translators to expend more time and effort on processing these ELF texts. Cognitive load seems to be the overriding issue for both groups of language experts, so the question logically arises as to whether untrained multilinguals also suffer cognitive overload when confronted with non-standard input in one of their non-native languages. A second major issue that the project examines are stress-related impacts of ELF on multilinguals' language processes and professionals' performance.

This interdisciplinary project brings together researchers from the fields of ELF, interpreting, translation, and neuropsychology in order to gain a better understanding of the actual cognitive demands associated with ELF (as compared to Standard English) by describing and quantifying the influence of ELF on spoken and written language processing. A large number of multilingual participants will be recruited who have either no or various degrees of translation and interpreting experience in order to also evaluate whether there is a beneficial effect of language expertise on ELF processing. Our mixed-method approach ensures construct and concurrent validity. It includes audio and video recordings, eye-tracking and screen logging, physiological measurements, and stimulated-recall commentaries of processes in simulated workplace settings as well as product analyses; psychophysiological measurements in a controlled lab setting; and self-report through online surveys of members of the communities of professional practice (i.e. translators and interpreters). The various disciplinary perspectives will allow a rich description of challenges presented by ELF to experts and non-experts alike.

The findings are expected to have implications not only for methodology and model-building in all of the disciplines concerned (i.e. ELF, translation and interpreting studies, neuropsychology), but also for language management and training in multilingual societies and corporations. Insights into the relationships between

	expertise, cognitive load, and stress when dealing with ELF input could be incorporated into undergraduate, graduate, and professional development programs in a wide variety of disciplines to better prepare the citizens of the future for this global phenomenon. * Reference to ELF has been avoided in the project title, so that study participants remain unaware of linguistic comparisons of interest.
Keywords	English as a lingua franca
	ELF
	cognitive load
	interpreting
	translation
	stress
	expertise
	electroencephalography
Language of correspondence	German
Financial administration	< Other >

7. Use-inspired project

Is your project use-inspired?	Yes

8. Continuation of

9. Link to other SNSF projects

Application/Project	143819
Type of relationship	The proposed project builds on the findings in the ergonomics study led by Maureen Ehrensberger-Dow by closely examining two of the main issues identified in the cognitive ergonomics of professional translation (problematic source texts and frustration/stress). In addition, it substantially expands on the methodology used in the precursor study.

10. Re-submission

Project	CR11I1_166122 3: Cognitive Load in Interpreting and Translation (CLINT)
Remarks	In consultation with the SNSF office, we were told that Sinergia was the appropriate instrument for this resubmission because the interdisciplinary strand was no longer available.

11. University or research institution

University	Zürcher Fachhochschule (ohne PH) - ZFH
Remarks	

12. Requested funding

Requested funding	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Total (CHF)	**331'374**	**353'232**	**356'462**	**249'658**	**1'290'726**

Equipment	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Material of enduring value, equipment	5'000	0	0	0	5'000
Total (CHF)	**5'000**	**0**	**0**	**0**	**5'000**
Total (%)	**2%**	**0%**	**0%**	**0%**	**0%**

Research funds	Year 1	Year 2	Year 3	Year 4	Total (CHF)
Travel	5'000	7'500	5'000	0	17'500
Conferences and workshops	7'000	7'000	7'000	7'000	28'000
Scientific open access e-publications	0	0	9'000	9'000	18'000
Additional research costs (incl. consumables)	23'250	20'000	13'250	0	56'500
Total (CHF)	**35'250**	**34'500**	**34'250**	**16'000**	**120'000**
Total (%)	**11%**	**10%**	**10%**	**6%**	**9%**

Salaries	Year 1	Year 2	Year 3	Year 4	Total (CHF)
Salary for doctoral students	142'620	147'120	150'120	100'080	539'940
Salary for postdoc (employees with a doctorate)	52'500	52'500	52'500	52'500	210'000
Salary for further employees	55'850	75'150	75'150	48'850	255'000
Total (CHF)	**250'970**	**274'770**	**277'770**	**201'430**	**1'004'940**
Total (%)	**76%**	**78%**	**78%**	**81%**	**78%**

Social security contributions	Year 1	Year 2	Year 3	Year 4	Total (CHF)
Social security contributions	40'154	43'962	44'442	32'228	0
Total (CHF)	**40'154**	**43'962**	**44'442**	**32'228**	**160'786**
Total (%)	**12%**	**12%**	**12%**	**13%**	**12%**

Allocation by person/project

Person	Year 1	Year 2	Year 3	Year 4	Total (CHF)
Not allocated	7'000	7'000	16'000	16'000	46'000
	2%	2%	4%	6%	4%
Albl-Mikasa, Michaela	109'762	120'636	111'386	27'086	326'820
	33%	34%	31%	11%	29%
Ehrensberger-Dow, Maureen	90'480	112'984	112'984	90'480	350'800
	27%	32%	32%	36%	32%
Jäncke, Lutz	124'132	112'612	116'092	116'092	406'320
	37%	32%	33%	47%	36%
Total (CHF)	**331'374**	**353'232**	**356'462**	**249'658**	**1'290'726**

Details

Salary for doctoral students	Year 1	Year 2	Year 3	Year 4	Total (CHF)
Junior researcher (interpreting studies): Amber Latheron	48'540	50'040	50'040	0	148'620
Work-time percentage: 100.00% Relation to research plan / Comments / Additions: This junior researcher will focus on the interpreting processes in the workplace setting. Person: Amber Latheron female / Single / 06.04.1989 English / Great Britain and Northern Ireland Academic degree: MA Supervisor: Albl-Mikasa, Michaela (co-supervision) Relation to person/project: Albl-Mikasa, Michaela Matriculation: 01.01.2017					
Junior researcher (neuroscience): n.n.	47'040	48'540	50'040	50'040	195'660

Work-time percentage	100.00%				
Relation to research plan / Comments / Additions	This junior researcher will focus on the neurophysiological aspects (i.e. stress).				
Supervisor	Jäncke, Lutz				
Relation to person/project	Jäncke, Lutz				
Junior researchers (neuropsychology): n.n.	47'040	48'540	50'040	50'040	195'660
Work-time percentage	100.00%				
Relation to research plan / Comments / Additions	This junior researcher will focus on the EEG aspects of the project.				
Supervisor	Jäncke, Lutz				
Relation to person/project	Jäncke, Lutz				
Total (CHF)	**142'620**	**147'120**	**150'120**	**100'080**	**539'940**
Total (%)	**43%**	**42%**	**42%**	**40%**	**42%**

Salary for postdoc (employees with a doctorate)	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Post-doc (translation studies): Andrea Hunziker Heeb	52'500	52'500	52'500	52'500	210'000
Work-time percentage	50.00%				
Relation to research plan / Comments / Additions	Andrea Hunziker Heeb worked on two precursor projects and has expertise in various techniques that will be used in the simulated workplace settings. In addition, she has a wealth of experience in working in interdisciplinary teams and has proven her ability to manage recruitment, data collection and analyses.				
Person	Andrea Hunziker Heeb female / Married / 11.08.1966 German / Switzerland				
Academic degree	Dr./PhD since 30.11.2017				
Relation to person/project	Ehrensberger-Dow, Maureen				
Further information	Salary bracket 18 since 01.01.2015				
Total (CHF)	**52'500**	**52'500**	**52'500**	**52'500**	**210'000**
Total (%)	**16%**	**15%**	**15%**	**21%**	**16%**

Salary for further employees	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Consultant (interpreting): n.n.	3'100	0	0	0	3'100
Work-time percentage	0.00% to 3.00%				
Relation to research plan / Comments / Additions	The interpreting consultant will help with the recruiting of the professional interpreters and with the recordings in the booths.				
Relation to person/project	Albl-Mikasa, Michaela				
Consultant (statistics): n.n.	0	3'000	3'000	2'100	8'100
Work-time percentage	0.00% to 3.00%				
Relation to research plan / Comments / Additions	The statistics consultant will advise the core team on the newest methods that are appropriate for the triangulation of the multiple sources of data.				
Relation to person/project	Albl-Mikasa, Michaela				
Eye tracking research associate: Martin Schuler	0	19'400	19'400	0	38'800
Work-time percentage	0.00% to 20.00%				
Relation to research plan / Comments / Additions	The research associate responsible for the eye tracking recordings in the simulated work setting will design the presentation of the materials and and supervise the analyses.				

Person	Martin Schuler male / Married / 01.10.1982 Number of children 2 / French / Switzerland					
Academic degree	BSc / BA since 01.06.2013					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 17 since 01.05.2013					
Research assistant (translation studies): Romina Schaub-Torsello		25'500	25'500	25'500	25'500	102'000
Work-time percentage	30.00%					
Relation to research plan / Comments / Additions	The translation studies research assistant will help with the logistics of the recruitment, testing, transcriptions, and correspondence with participants as well as with the student assistants.					
Person	Romina Schaub-Torsello female / Married / 21.09.1983 German / Switzerland					
Academic degree	MA since 30.09.2016					
Relation to person/project	Ehrensberger-Dow, Maureen					
Further information	Salary bracket 15 since 15.06.2015					
Research assistent (interpreting studies): Livia Bartels		21'250	21'250	21'250	21'250	85'000
Work-time percentage	25.00%					
Relation to research plan / Comments / Additions	The interpreting studies research assistant will help with the logistics of the recruitment, testing, and correspondence with participants as well as with the student assistants.					
Person	Livia Bartels female / Single / 04.10.1987 German / Switzerland					
Academic degree	MA since 01.03.2015					
Relation to person/project	Albl-Mikasa, Michaela					
Further information	Salary bracket 16 since 01.01.2017					
Student assistants: n.n.		6'000	6'000	6'000	0	18'000
Work-time percentage	10.00% to 100.00%					
Relation to research plan / Comments / Additions	The student assistants will produce the first drafts of the transcriptions of the processes under the supervision of the PhD students and research assistants.					
Relation to person/project	Albl-Mikasa, Michaela					
Total (CHF)		**55'850**	**75'150**	**75'150**	**48'850**	**255'000**
Total (%)		**17%**	**21%**	**21%**	**20%**	**20%**

Material of enduring value, equipment		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Computer		5'000	0	0	0	5'000
Relation to research plan / Comments / Additions	A new high-capacity computer is required to process the EEG and neurophysiological data.					
Relation to person/project	Jäncke, Lutz					
Total (CHF)		**5'000**	**0**	**0**	**0**	**5'000**
Total (%)		**2%**	**0%**	**0%**	**0%**	**0%**

Travel		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Travel for data collection		5'000	7'500	5'000	0	17'500
Relation to research	The participants will have to travel to the ZHAW and the UZH for two data collection					

plan / Comments / Additions	sessions each. The heaviest year for data collection is anticipated to be year 2.				
Relation to person/project	Albl-Mikasa, Michaela				
Total (CHF)	**5'000**	**7'500**	**5'000**	**0**	**17'500**
Total (%)	**2%**	**2%**	**1%**	**0%**	**1%**

Conferences and workshops	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Conference expenses	7'000	7'000	7'000	7'000	28'000
Relation to research plan / Comments / Additions	Information about the project, preliminary results, and other scientific contributions will be presented at national and international conferences by all of the researchers involved. A contribution in kind (i.e. CHF 1,000 per investigator, post-doc, and PhD per year) is also foreseen from the ZHAW and UZH.				
Total (CHF)	**7'000**	**7'000**	**7'000**	**7'000**	**28'000**
Total (%)	**2%**	**2%**	**2%**	**3%**	**2%**

Scientific open access e-publications	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Open-source publications	0	0	9'000	9'000	18'000
Relation to research plan / Comments / Additions	Three joint publications are foreseen in open-access, high-repute journals in each of the 3rd and 4th year of the project.				
Total (CHF)	**0**	**0**	**9'000**	**9'000**	**18'000**
Total (%)	**0%**	**0%**	**3%**	**4%**	**1%**

Additional research costs (incl. consumables)	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Cantonal ethics approval	10'000	0	0	0	10'000
Relation to research plan / Comments / Additions	Ethics approval will be obtained once the project is approved. The projected costs are based on previous experience with similar projects.				
Relation to person/project	Jäncke, Lutz				
Remuneration for participants	13'250	20'000	13'250	0	46'500
Relation to research plan / Comments / Additions	The participants will be provided with a modest remuneration as appreciation at a level appropriate to their professional status (i.e. CHF 450 for the conference interpreters; CHF 250 for the specialized translators, writer, and teachers; and CHF 100 for the MA and BA students). The second project year is anticipated to involve more data collection than the other two years.				
Relation to person/project	Albl-Mikasa, Michaela				
Total (CHF)	**23'250**	**20'000**	**13'250**	**0**	**56'500**
Total (%)	**7%**	**6%**	**4%**	**0%**	**4%**

Social security contributions	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total (CHF)**
Consultant (interpreting): n.n.	496	0	0	0	0
Consultant (statistics): n.n.	0	480	480	336	0
Eye tracking research associate: Martin Schuler	0	3'104	3'104	0	0
Junior researcher (interpreting studies): Amber Latheron	7'766	8'006	8'006	0	0
Junior researcher (neuroscience): n.n.	7'526	7'766	8'006	8'006	0
Junior researchers (neuropsychology): n.n.	7'526	7'766	8'006	8'006	0
Post-doc (translation studies): Andrea Hunziker Heeb	8'400	8'400	8'400	8'400	0
Research assistant (translation studies): Romina	4'080	4'080	4'080	4'080	0

Schaub-Torsello					
Research assistent (interpreting studies): Livia Bartels	3'400	3'400	3'400	3'400	0
Student assistants: n.n.	960	960	960	0	0
Total (CHF)	**40'154**	**43'962**	**44'442**	**32'228**	**0**
Total (%)	**12%**	**12%**	**12%**	**13%**	**12%**

13. Research requiring authorisation or notification

Research on humans	Yes
Collection of samples and data	Yes
Authorisation ethics commitee	Will be submitted
Use of existing samples or data	No
Clinical trials of pharmaceutical products	No
In vivo somatic gene therapy	No
Ex vivo somatic gene therapy	No
Clinical trials with transplants	No
Research on human embryonic stem cells	No
Research on animals	No
Research on GMO or pathogens	No
Access and Benefit Sharing	No
Relevant regulations noted and accepted	Yes

14. General remarks on the project

Subject	Impact on the use of English as a lingua franca
Communication	The proposed project addresses an increasingly important issue in international business, academic, and political communication - the cognitive load and stress associated with having to process English produced by non-native speakers (i.e. as a Lingua Franca or ELF).
Confidential	No

University of Zurich[UZH]

Zurich University of Applied Sciences

School of Applied Linguistics

IUED
Institute of Translation and Interpreting

Swiss National Science Foundation (SNSF)
Sinergia programme
Wildhainweg 3
P.O. Box 8232
CH-3001 Berne

1 December 2016
Our ref.: CLINT

Dear Sir/Madame

The present proposal "*Cognitive load in interpreting and translation (CLINT)*" is a revised version of a proposal that we submitted to the former interdisciplinary division of SNSF for the October 2015 deadline. On the basis of the feedback from SNSF, we are submitting to Sinergia this time because of the interdisciplinary and breakthrough nature of the proposed research.

We have taken the constructive comments by the reviewers and evaluation committee of the first proposal on board and have substantially revised our study design and strengthened our case for the need for this research by our team. In addition, we have made clear what the breakthrough components of this interdisciplinary research are and what the societal and scientific impact of it would be if the funding is approved. The review process has contributed significantly to the quality of the revised proposal and consequently to the planned research. Our detailed responses to the reviewers' and evaluators' comments are in a separate document, as specified in the submission guidelines.

Sincerely yours

Michaela Albl-Mikasa
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Maureen Ehrensberger-Dow
Professor of Translation Studies
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Corresponding applicant:	Michaela Albl-Mikasa
Co-applicants:	Maureen Ehrensberger-Dow, Lutz Jäncke
Title of the project:	**Cognitive load in interpreting and translation (CLINT)**

1 Summary

A consequence and driving force of the developments related to today's increasingly interconnected yet greatly diversified world is the now ubiquitous use of English by non-native speakers. Even in multilingual Switzerland, English is replacing the four Swiss languages not only in international but also in intra-national communication. This first truly global lingua franca is pushing other languages into subsidiary roles in international business, finance, education, and science. The reality of millions of people communicating in a language that is not their first is sure to have enormous repercussions for multilingualism and multilingual societies. However, this reliance on English as a lingua franca (ELF*) can come at a cost. Despite the obvious relevance, there has been very little research into the personal costs and consequences for non-native speakers who have to work in English. The academic study of ELF has tended to focus on communicative success between non-native speakers and the linguistic and sociolinguistic aspects of the phenomenon. Far less attention has been paid to the more negative aspects of processing non-standard language input. In particular, the cognitive load and stress associated with having to use a foreign language to conduct business, academic, and other professional communication have not been addressed. In addition, research into the implications of ELF for the traditional management of multilingualism, namely translation and interpreting, has been exceptionally rare.

This project addresses these gaps by examining how translators and interpreters with different levels of expertise cope with ELF input compared with untrained multilinguals. Preliminary research suggests that the increasing number of ELF speakers at international gatherings impacts on professional interpreters' capacity management and that the growing number of source texts written by non-native speakers of English is forcing translators to expend more time and effort on processing these ELF texts. Cognitive load seems to be the overriding issue for both groups of language experts, so the question logically arises as to whether untrained multilinguals also suffer cognitive overload when confronted with non-standard input in one of their non-native languages. A second major issue that the project examines are stress-related impacts of ELF on multilinguals' language processes and professionals' performance.

This interdisciplinary project brings together researchers from the fields of ELF, interpreting, translation, and neuroscience in order to gain a better understanding of the actual cognitive demands associated with ELF (as compared to Standard English) by describing and quantifying the influence of ELF on spoken and written language processing. A large number of multilingual participants will be recruited who have either no or various degrees of translation and interpreting experience in order to also evaluate whether there is a beneficial effect of language expertise on ELF processing. Our mixed-method approach ensures construct and concurrent validity. It includes audio and video recordings, eye-tracking and screen logging, physiological measurements, and stimulated-recall commentaries of processes in simulated workplace settings as well as product analyses; psychophysiological measurements in a controlled lab setting; and self-report through online surveys of members of the communities of professional practice (i.e. translators and interpreters). The various disciplinary perspectives will allow a rich description of challenges presented by ELF to experts and non-experts alike.

The findings are expected to have implications not only for methodology and model-building in all of the disciplines concerned (i.e. ELF, translation and interpreting studies, neuropsychology), but also for language management and training in multilingual societies and corporations. Insights into the relationships between expertise, cognitive load, and stress when dealing with ELF input could be incorporated into undergraduate, graduate, and professional development programs in a wide variety of disciplines to better prepare the citizens of the future for this global phenomenon.

* Reference to ELF has been avoided in the project title, so that study participants remain unaware of linguistic comparisons of interest.

2 Project description

In the popular view, English seems to be well-established as a global language and functions as an effective tool for international communication. However, what appears at first glance to be a very practical solution to a communication problem is unfortunately much more complicated. The convention of using English can carry a heavy cost in monetary, temporal, and emotional terms and can seriously impair communication. Several important questions arise in this context. What does it mean in biological terms when a large proportion of a thinking and speaking species, for whom language is inherently central and relevant, has to communicate and bond through the medium of a language that is not their own? How can corporations function effectively when English is enforced as the working language irrespective of managers' and employees' proficiency levels? Evidence from neuroscience suggests that cognitive load, negative emotions and stress, which have all been associated with the use of foreign languages, trigger an inhibitory mechanism that encourages avoidance. This in turn can result in exclusion from participation and decision-making.

There are indications that an increasing number of corporations are beginning to question the use of English because it can be detrimental to productivity at the management level and even introduce risk on the shop floor. At Porsche, the corporate language was switched back from English to German because of a detrimental effect of the use of L2 English on creativity and productive motivation amongst staff members, which led to unsuccessful discussions of technical details and breakdown of simple work processes (Gentner 2010). In the scientific context, it has been observed that "[w]ithin the European context […], a colleague who speaks three languages fluently, has basic knowledge of a fourth and some passive knowledge of English, is virtually excluded from the discussion" (Snell-Hornby 2010: 18). Especially in disciplines that rely heavily on argumentation and language to disseminate research results, academics with lower levels of competence in English can struggle to achieve the recognition that their work deserves when they publish in other languages (cf. Levý's ideas published in Czech in 1963 have only been available to many translation studies scholars since the translation appeared in 2011). Those academics who are proficient in the conventions of (Anglo-American) native-speaker rhetoric and narratives tend to have more successful track records (Carli & Ammon 2007).

Despite such examples to the contrary, the assumption of the effectiveness of English used as a lingua franca (ELF) is generally insisted upon by scholars who have been instrumental in establishing ELF as a research field (e.g. Jenkins et al. 2011; Mauranen 2012; Seidlhofer 2011). The general conclusion is "that ELF is not a defective, but a fully functional means of communication" (House 2013: 286). However, those results are based primarily on corpus analyses of conversation protocol data from small-scale face-to-face discussions, negotiations, and meetings that do not reflect the level of terminological and special subject complexity typical of higher-level settings such as technical conferences. The optimistic results of ELF research to date exclude the "intellectual, legal and political […] exchange of knowledge and information and […] negotiation of power" in the context of a "wide range of encounters–bilateral meetings between politicians, business seminars, press conferences, scientific or academic symposia, general meetings of shareholders to name but a few" (Donovan 2009: 53-4). In such common contexts, speeches and texts that are not in standard English (SE) may demonstrate a confusing lack of norms that can confound reliable meaning interpretation, not only for the target audience but also for interpreters and translators.

An emerging field, which has been termed ITELF (interpreting, translation, and English as a lingua franca; Albl-Mikasa 2017) has been exploring the limits of EFL communication. Interpreters and translators are language professionals who form a particularly interesting case because they have the expertise and strategies to deal with

non-standard input and thus to optimize communication (Reithofer 2010; 2013) that non-professionals probably do not have at their disposal. Moreover, they represent the spoken and written dimensions of ELF processing. This interdisciplinary project deploys a multi-method approach to consider the cognitive load and stress associated with processing ELF input by these three groups, as explained in the following sections.

2.1 Goals of the project

The project aims to fill the research gap of the effect of multilinguals having to process non-standard linguistic input in their second language, which has become the new reality of everyday and professional contexts in our globalized world. The main goal is to determine the complex inter-relationships between expertise, cognitive load, and stress involved in processing ELF input, which have been unexplored to date. In this project, *expertise* is modelled as level of translation and interpreting experience and/or training; *cognitive load* is understood as being reflected in temporal, technical, and attentional effort as well as an EEG-based brain workload score; and *stress* is indicated by physiological changes during linguistic tasks. The planned mixed-method approach includes various data collection types in simulated workplace settings (i.e. audio, video, and screen recordings, keylogging, eye-tracking, stimulated-recall commentaries, physiological measures, and target texts/speeches), in the controlled setting of lab experiments (i.e. EEG and neurophysiological measurements) as well as online surveys of the participants and other members of the communities of professional practice (i.e. translators and interpreters). The various sources of data will help delineate and explain the cognitive processes, coping mechanisms, underlying cognitive functions, and neural underpinnings of complex bilingual tasks. Taken together, they will allow a rich description of ELF-related multilingual language processing on the basis of both quantitative and qualitative data and triangulation from the different disciplinary perspectives.

The specific goals of this interdisciplinary project are to identify:

- impacts of non-standard linguistic input (ELF) on spoken and written language processing
- cross-linguistic compensation mechanisms and coping strategies
- relationships of translation and interpreting expertise to the capacity to process ELF input
- cognitive effort and stress associated with processing ELF input related to level of expertise
- challenges that ELF input presents to professional translators and interpreters in practice.

Application-oriented goals are to draw conclusions and make recommendations concerning:

- good practices for translation and interpreting workflows with respect to ELF
- ELF-related needs for further education and training
- awareness-raising measures for language policy in corporations and other organizations and institutions.

To achieve these goals, a multidisciplinary team will work together, using jointly-prepared materials in different settings.

2.2 Interdisciplinarity

The project brings together perspectives from applied linguistics, interpreting studies, translation studies, cognitive psychology, and neurosciences. Translation studies and interpreting studies (T&I), often placed under the disciplinary umbrella of applied linguistics, are actually separate disciplines that have traditionally used different methodologies to study their subjects of interest. However, both have been interdisciplinary from their outset. According to a recent edited volume (Ferreira & Schwieter 2015), cognitive science has provided their epistemological foundation, psycholinguistics much of the methodology, and expertise studies its central concepts.

This is because interpreting and translation are situated cognitive activities par excellence, with a high degree of interdependence of cognition, or the mind and its processes, and communicative interaction in a specific situational environment. The interplay of linguistic, situational, and broader extra-textual aspects must be and have been studied from the perspectives of several disciplines.

Such interdisciplinary research has been very productive in demonstrating that T&I processes are both a social (external) and a cognitive (internal) activity. That is, on one hand, they involve (automatic and controlled) cognitive processes which rely on finite attentional resources, working memory and executive control and which determine T&I performance. On the other hand, this performance results from the interpreter's/translator's interaction with the T&I task within the scope of a complex cognitive network of knowledge, abilities and strategies, and a similarly complex socio-cultural and technological environment. Extenuating circumstances, such as non-standard English used by non-native speakers (i.e. ELF) that violates many linguistic and pragmatic norms, can cause stress and disrupt cognitive processing. Because the major aims of this project are to measure the impact of ELF on cognitive load, stress, and ultimately performance in spoken and written language processing, it is imperative to reach out to other disciplines in order to understand the additional effect of ELF on T&I processes.

Consequently, the third discipline represented in the proposed project, cognitive neuroscience, has been included because neurophysiological markers have been demonstrated to be linked to strategic and effortful aspects of cognitive processing. The neurophysiological methodology relies more heavily on statistical procedures, which are indispensable for the multivariate and inferential (i.e. not only qualitative) analyses with big data sets. These can optimally supplement data collected in ecologically valid T&I settings with data collected in strictly controlled laboratory experiments. In the latter context, the additional evaluation of vegetative parameters and brain responses can be used as objective markers for cognitive load that is not contaminated by subjective observations and quantifications. Cognitive neuroscience methods will thus contribute to providing objectivized evidence of ELF-induced cognitive load and stress, while the combination with more naturalistic methods will ensure that the project findings can be integrated into knowledge about T&I as strategic decision-making and problem-solving activities as they are actually practiced to support communication (Gile 2015).

The proposed project addresses questions of cognitive load and stress-related effects of ELF on multilingual experts and non-experts, and the three applicants are ideally placed to collaborate on this research. At the Zurich University of Applied Sciences (ZHAW), the cognitive approach to understanding the situated activity of interpreting and translation (T&I) and the development of expertise has been the focus for members of our interdisciplinary research group over the past few years. Two of the proposal's applicants have a track record in studying differences in T&I competence in students and professionals at their workplaces and in controlled settings and also established ITELF as one of our main research areas, with more publications in the sub-discipline than any other research group. At the University of Zurich (UZH), the research team headed by one of the applicants is one of the leading groups in delineating the neurophysiological and cognitive mechanisms of language and phoneme processing both in experts (e.g., interpreters) and non-experts.

The main applicant, **Michaela Albl-Mikasa**, is a recognized international expert in the field of interpreting, translation, and ELF (i.e. ITELF), so she will coordinate all aspects of the project concerned directly with ELF. Her publications on ELF and interpreting (Albl-Mikasa 2010, 2013a,b,c, 2014, 2015a, 2017; Albl-Mikasa et al. 2016, 2017a,b) have pioneered a new research avenue into this emerging sub-discipline, identifying interpreting difficulties from the lack of express-ability, varying proficiency levels, register shifts and massive L1 transfer on the part of the ELF speakers, along with retrieval processes being impeded by non-standard English speech input. In

2013 she co-organized the first panel session on ELF and interpreting at the 7th Congress of the European Society for Translation Studies (EST). ELF scholars and interpreting studies researchers were brought together for the first time in a colloquium she co-organized in 2014 at the 7th International Conference of English as a Lingua Franca in Athens. She was invited to present her research at the International Conference on East-West Communication in the Era of Lingua Franca in Seoul in 2014 and at the 7th Asian Traditions Translation Conference in Kuala Lumpur in 2016 and to collaborate in a research project on ELF in Chinese TNE (Transnational Education) environments (2015 -2017). She was also invited to write the entries on 'English as a lingua franca' in the Routledge Encyclopedia of Interpreting Studies (2015b), that on 'ELF and interpreting' in the new edition of the Routledge Encyclopedia of Translation Studies as well as the chapter on 'ELF and interpreting/translation' in the first Handbook of English as a Lingua Franca (2017).

Maureen Ehrensberger-Dow, co-applicant, has experience in managing interdisciplinary research projects concerned with the cognitive processes in translation done by groups with various levels of expertise. Her publications with co-investigators of one of the precursor studies (i.e. *Capturing Translation Processes* 13DFD3_124653/1-2) focus on the development of translation expertise and its interaction with metalinguistic awareness, information literacy, and translator self-concept (e.g. Ehrensberger-Dow 2014; Ehrensberger-Dow & Massey 2013; Ehrensberger-Dow & Perrin 2013; Massey & Ehrensberger-Dow 2011a,b, 2014). More recently, her interdisciplinary research with various colleagues on the ergonomics of professional translation (i.e. *Cognitive and Physical Ergonomics of Translation* CR13I1_143819/1) has served as the foundation of the present proposal for investigating the cognitive load associated with the situated activity of translation (e.g. Ehrensberger-Dow 2017; Ehrensberger-Dow & Hunziker Heeb 2016; Ehrensberger-Dow et al. 2016; Ehrensberger-Dow & Massey 2014; Ehrensberger-Dow & O'Brien 2015; Meidert et al. 2016; O'Brien et al. 2017). In particular, the measures associated with keylogging and eye-tracking translation processes have convincingly complemented the qualitative data obtained from direct observations, video and screen recordings, and retrospective commentaries. She will deploy and supplement the expertise gained from these precursor studies in coordinating the data collection and analyses of the data obtained in the naturalistic settings in the proposed project.

Lutz Jäncke, co-applicant, is a recognized expert in the field of cognitive neuroscience. He heads a team at the UZH which has substantially contributed to the research fields of brain plasticity, learning, and functional neuroanatomy. A particular focus of this research is how the human brain is shaped by experience. To investigate this, he and his research group often consider professional musicians, experts such as conference interpreters, and specifically gifted people as models for brain plasticity (Jäncke 2009a,b; Münte et al. 2002). In their research, they regularly deploy state-of-the-art neuroscientific methods including fMRI, sMRI, DTI, and EEG. The most relevant recent work by members of his group in the context of the proposed project demonstrates that professional interpreting training has a strong influence on the functional-structural architecture of the human brain, leading to advantages in several linguistic and extra-linguistic domains (e.g. Elmer et al. 2010, 2011, 2014a, b; Elmer 2016).

Several measures are planned to optimize the collaborative process of this interdisciplinary project, and the budget has been designed to cover the additional resources that will be required to exploit its potential. These include: integrating the early-stage researchers into the interdisciplinary team; presenting the findings continuously to each other in regular meetings; discussing the consequences of the findings for emerging models; closely re-examining disciplinary assumptions; encouraging open discussions about the quality of the analytical process; and producing joint presentations and publications. Planning has already begun for the first interdisciplinary, international ELF conference, which would take place in Switzerland. Finally, it is important to mention that this

interdisciplinary research project opens novel perspectives to join forces between different branches of research, potentially leading to a global understanding of the societal impact of ELF. The triangulation of the various sources of data, researchers, and disciplinary perspectives should help us to better comprehend the idiosyncratic (individual-specific) characteristics of language processing that account for the enormous range of communicative success in an increasingly globalized world.

2.3 Relevance and impact

The proposed project is of prime relevance societally in view of the global dimension of English as a lingua franca (ELF) and its impact on all walks of life and very different user groups (professionals and non-professionals, experts and non-experts). The worldwide spread of ELF across all continents, domains, and social strata is unique in history and one of the most noticeable linguistic features of the 21st century. According to some estimates, there are now five non-native speakers of English for every native speaker. Spurred by the ubiquity of the internet and the growing necessity for communication across linguistic boundaries, the unparalleled expansion of ELF is likely to continue. Important questions that arise in this context include how inclusion and identity can be preserved in a multilingual society like Switzerland, when, increasingly, communication takes place in non-native English instead of in one of the national languages. In order to contribute to language policy decisions, it is incumbent upon researchers to provide insights with regard to ELF-induced language barriers to multilingual communication, ELF-specific communication problems and related cultural differences, ELF-induced stress at the workplace and implications for health policies as well as the cognitive demands and processing mechanisms associated with ELF.

The research to date with interpreters and translators dealing with EFL input (i.e. ITELF) has been very limited in scope and based on introspective (interviews, questionnaires) and performance-based (interpretations and translation) studies. The main scientific relevance of the proposed project is to: a) fill the ITELF research void (see section 2.4); b) produce robust empirical data for one of the most relevant and topical 21st century phenomena, namely ELF, on the basis of a wide range of mixed methods; and c) profit from the synergy of different research perspectives in an effort to shed light on mechanisms involved in the cognitive load and stress associated with processing non-standard linguistic input not only by language experts but also by untrained multilinguals.

The project promises first and foremost to make a major contribution to the new and under-researched *sub-discipline of ITELF* by fostering an understanding of the cognitive demands associated with ELF processing, ways that individuals with varying degrees of experience cope with ELF-induced difficulties, and the related effects on interpreting and translation performance. Direct implications for interpreting and translation studies are expected in methodological advancements, since interdisciplinary multi-method research in these disciplines is still relatively rare, as well as in theoretical model-building, especially with regard to (ELF-related) interpreter/translator competence, T&I quality, and T&I process research. Results are also expected to have an impact within the disciplines of *translation and interpreting studies*. Relatively neglected to date are direct comparisons between interpreters and translators using comparable methodology and source materials, which are possible in the proposed project. Despite similar processes in spoken interpreting and written translation, it is expected that they differ in cognitive control processes, demand for conscious intervention, and cognitive rhythm of speech and text production. Accordingly, results may also inform wider ELF research which has concentrated on spoken ELF and is only now shifting its focus to *written ELF* (cf. WrELFA 2015).

Findings from the project will be disseminated in both ELF and T&I international conferences as well as feeding into an empirical, evidence-based approach for the education and professional development of interpreters and

translators, especially in terms of the training of ELF-geared coping strategies. They will also provide working hypotheses for further research, such as in public service interpreting and translation.[1] ELF is assuming vital importance in the context of migration and refugee movements. since it is increasingly used as a substitute for languages of lesser diffusion and for minority languages (e.g. Määttä 2015).

In view of the interdisciplinary nature of the project, the neuropsychological study of the cognitively extremely demanding tasks of T&I under the additionally taxing ELF condition should also allow advances in a number of areas of *neuroscience*, namely the electrophysiological signature associated with the operation of cognitive control mechanisms, inhibition and control of multiple languages, development of multilingual speech competence (bilingualism research), differences in the processing of written and spoken language, and the influence of expert (interpreter/translator) performance on the functional-structural architecture of the human brain. For some time now, psychologists, psycholinguists, and neuroscientists have found interpreting to be "a challenging paradigm within which to test theories of language processing and cognition [... relating to] memory, bilingual perception, bilingual memory, the acquisition of expertise, the role of attention and resources and allocation of processing resources to different tasks" (Gile 2015: 49-50).

Perhaps most importantly, it will be possible to evaluate the temporal dynamics of brain functions and vegetative responses reflecting differential aspects of cognitive load (i.e., "working harder" or "working better" over time) and stress after repeated exposure to ELF (i.e. based on the principle of neuroplasticity). This dynamic physiological aspect is very relevant to improved understanding of whether and how the brain is able to adapt to non-standard language inputs. Should the project enable inference of such a putative relationship between ELF, cognitive load (i.e., EEG), and stress (i.e., HR, HRV, and EDA), its results will have important scientific, societal and educational implications.

Project results should enrich the *more general study of ELF* within the disciplines of sociolinguistics and applied linguistics. The evaluation of strategic and effortful cognitive processing of lexico-grammatical and morpho-syntactic deviations from a conventional linguistic standard has not yet received the attention it deserves in ELF research. Inquiries into the differences in processing spoken and written ELF texts are at a very early stage (Carey 2013), so the project results will be relevant here as well as to scholars interested in the influence of language proficiency and expertise levels in (spoken and written) ELF contexts.

In the *professional world of T&I*, robust scientific evidence of the additional load associated with ELF processing and the related effect on the efficiency of such processes, the quality of the products, the interpreters'/translators' job satisfaction, and their health would justify concerns about working conditions and ultimately help reshape those conditions to meet demands created by the continued global spread of ELF. In addition, insights into successful coping strategies targeted at reducing cognitive load can be incorporated into language teaching and T&I training programs.

In the *broader context*, a greater understanding of the potential load of ELF processing has far-reaching implications for multilingualism and multilingual societies. Should the project provide evidence – as is introspectively claimed by interpreters and translators and hypothesized on the basis of preliminary evidence – that ELF takes a rather heavy toll on cognitive resources, the tacit assumption that international communication can readily be conducted in any of various "Englishes", without clearer ideas about communicative requirements (such as language skills of speakers) and consequences (for listeners), may have to be reviewed. Awareness-raising of

[1] See, for example, http://www.enpsit.eu/.

language and communication barriers, especially when English proficiency levels are relatively low and people are increasingly "forced" to do their dealings in a language that is not their own. For Switzerland, what is at stake is not only communicative success and effectiveness in high-stake business, political, and academic settings, but also the protection of its national languages and its heritage in terms of related identities, which are clearly undermined by the blurring of source and target languages and cultures. Given the pervasiveness of ELF in all walks of life (e.g. commerce, professions, media, science, as well as primary, secondary and tertiary education), a better understanding of this global phenomenon is of the highest relevance. Jointly-authored contributions are foreseen to relevant international conferences, peer-reviewed T&I and neuroscientific journals, as well as to the communities of practice.

2.4 State of research in the relevant fields

The starting point for the proposed project is work in the newly emerging subdiscipline of ITELF conducted by the main applicant. ITELF can be seen as a response to general research into ELF which, beginning in the 1980s, has grown into a full-blown discipline with annual conferences since 2008, the establishment in 2012 of the de Gruyter *Journal of English as a Lingua Franca* as well as several recent monographs and doctoral studies. Research topics include the phonology of ELF, attitudes and ideologies, conceptual issues and general processes, academic English, Asian Englishes, and implications for teaching and learning of English as a foreign language (EFL). Against the backdrop of the deficit view of the EFL paradigm, the main driving force of ELF research has been an emancipatory effort to liberate the majority of the world's English speakers from the unattainable target model of the native speaker gold standard upheld by vested English language teaching and publishers' interests, and – as part of a conceptual reorientation reflecting the realities of globalized communication in the 21st century – to shift the focus from (grammatical) correctness to (pragmatic) appropriateness. The focus has been on the recognition of ELF as a legitimate use of English in its own right, independent of native speaker norms, and of ELF as an asset for successful international communication (Seidlhofer 2011; Mauranen 2012).

As a result, T&I scholars have been confronted with an overly optimistic view of ELF which is inconsistent with the reality and problems reported by professional interpreters and translators. Conference interpreters, in particular, have criticized it on the basis of additional cognitive load and stress when they have to interpret ELF speeches and for the miscommunication that they have observed when conference participants use ELF among themselves (Albl-Mikasa 2010, 2014). In fact, according to a 2014 study by AIIC, the International Association of Conference Interpreters, the "increasing use of international English ("globish")" (i.e. ELF) is one of the major challenges interpreters face today (Jones 2014). Not surprisingly, scholars in interpreting studies (Donovan 2009; Reithofer 2010, 2013) and in translation studies (Gazzola & Grin 2013; Hewson 2009, 2013; Snell-Hornby 2010) have taken a much more critical stance than ELF proponents. This, however, has not yet been validated by substantial empirical research. A bibliometric analysis of the literature dealing with the impact of ELF on T&I shows that, by the end of 2015, the total number of publications (written in English) on ELF and interpreting was 26 and on ELF and translation was 43. Of the latter, only 25% were based on empirical investigations. Although the percentage is higher for interpreting-related papers (58%), two-thirds of these empirical investigations either concentrated on a single aspect (i.e. foreign accent) or used introspective methods.

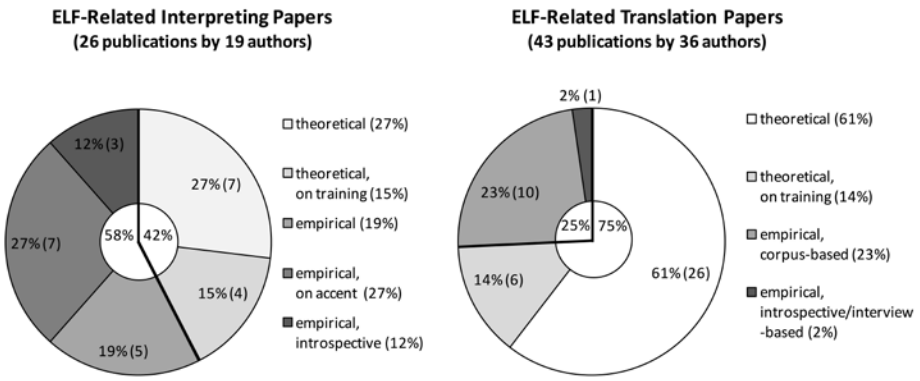

Figure 1. Bibliometric ITELF analysis as at 31 December 2015 (Albl-Mikasa 2016)

The proposed project, therefore, starts from a huge research gap regarding questions of cognitive load and stress-related effects of ELF on multilingual experts and non-experts. These questions have not been addressed by mainstream ELF research, the bulk of which is based on sociolinguistically motivated corpus-based or introspective investigations. The major corpora providing evidence of effective ELF communication are ELFA, VOICE, and ACE.[2] Similarly, ITELF research, which calls into question the ideology of successful ELF communication, is as yet very limited in scope and is based on introspective (interviews, questionnaires) and performance-based (interpretations and translation) studies. Interest in ELF in the context of T&I is just beginning to emerge (see 2.4.1 for a review) in parallel with refined techniques for investigating the situated activity of T&I (see 2.4.2) and a growing interest in the cognitive correlates of expert processing of language (see 2.4.3), which have led to the particular interdisciplinary focus of the proposed project (see 2.4.4).

2.4.1 ITELF-related research

Until very recently, cognitive load and stress were much more prominent issues in interpreting studies than in translation studies. The constant information load, the time factor, the tremendous amount of concentration required, the simultaneous processing of different languages as well as speaker-dependent variables (such as fast speech, difficult accents, highly technical content matters, reading out of manuscripts, etc.) make cognitive load a number one issue in simultaneous interpreting. Additional factors such as fatigue, the confined environment of the conference interpreting booth, poor working conditions, competitive personal relationships, emotional or conflict-prone topics under negotiation, fear of public speaking and other anxieties can all lead to stress. Models such as Gile's (1995/2009) 'Efforts Model' or Moser-Mercer's (2008) adaptive expertise approach have enabled a better understanding of interpreters' capacity management and expertise building for coping with "one of the most complex language tasks imaginable" requiring the simultaneous deployment of sensory, motor, and cognitive skills under tight temporal constraints (Christoffels & de Groot 2005: 454). However, hardly any of the work related to cognitive load and stress has addressed ELF-related aspects.

Accent is perhaps the only aspect that has been looked at in any depth. Strong accents and mispronunciations have, of course, been identified as impacting the delicate distribution of limited resources to the listening, analysis, production, memorization, and coordination effort involved in interpreting. While accent and pronunciation can refer to both native and non-native speakers, Gile explicitly mentions that bad pronunciation "by the *non-native* speaker forces the interpreter to devote much processing capacity to the Listening and Analysis Effort, and therefore

[2] Refer to www.helsinki.fi/elfa, www.univie.ac.at/voice/index.php, http://corpus.ied.edu.hk/ace/About.html.

slows down production [which] in turn overloads the Memory Effort and results in loss of information from memory" (Gile 1995/2009: 173, our emphasis). The handful of earlier studies relevant to ELF all concentrate on the effect of non-native accents on the interpreting task (e.g. Kurz 2008; McAllister 2000) or the advantages of having the non-native speaker's first language as one of the interpreter's working languages (e.g. Basel 2002; Kurz & Basel 2009), but not on ELF input *per se*. Similarly, stress studies among interpreters (Cooper et al. 1982: 104; AIIC 2002: 25) have shown that a high percentage of conference interpreters consider an unfamiliar foreign accent of a speaker to be a stress factor. In the AIIC Workload Study (2002), a representative sample of professional conference interpreters rated unfamiliar accent as the fourth most stressful factor (62%) and 71% of the subjects confirmed that difficult accent was a type of stress "very frequently" encountered in professional assignments.

More recent ITELF-specific research has shown that ELF speech is characterized not only by foreign accents but by a combination of unconventional sentence structures, imprecise labeling and irregular usage of concepts as well as various other types of negative transfer from the speakers' first languages (L1), most of which are unknown to the interpreter (Albl-Mikasa 2010, 2014). If a German says 'escaped winnings' (from *entgangene Gewinne*) instead of 'loss in profits' or an Italian says 'voice' to refer to a balance sheet item (from *voce*), anyone except those familiar with the L1 of that speaker will have difficulty understanding what might be meant. Since in international contexts, ELF users may come from any number of origins (e.g. Spanish, Chinese, Hindi) and since low-proficiency users tend to draw on their L1s heavily (Pavlenko 2005: 438, 446), the resulting problems for interpreters and other listeners are obvious. Presence or absence of a "shared languages benefit" (Albl-Mikasa 2013a: 105), which enables interpreters to uncover the intentions underlying non-standard patterns, needs to be taken into account in all ELF-related investigations.

To complicate matters further, challenges from the combination of unconventional usages are added to by differences in text organization, content and information presentation, style and register on the part of ELF speakers (see Albl-Mikasa et al. 2016 and Albl-Mikasa 2017 for preliminary results). ELF-induced problems are, therefore, not at all confined to accent-related aspects. The various factors mentioned may all contribute to restricting ELF speakers' expressive ability and capacity to present their line of argument in a logical, consistent, coherent, and targeted manner. This could explain why interpreters claim that it takes extra comprehension effort for them to think outside the box or "around two corners" in order "to be able to discern what the speaker would have said had he spoken proper English" (Albl-Mikasa 2014: 300). Additional cognitive demands were explicitly mentioned by the interpreters in this context. Incoherent, inconclusive, and imprecise ELF input on the textual level has an effect on knowledge access, general processing, and, ultimately, interpreting performance. This likely results in the need for additional plausibility checks and compensation loops. More generally speaking, impaired bottom-up processing probably impedes fundamental processes such as inferencing and anticipation as well as the retrieval of translation equivalents and transfer routines (Albl-Mikasa 2013b), while at the same time forcing a greater reliance on top-down processing and higher-order inferences (i.e. more resource-intensive). Thus, ELF weighs most heavily on the interpreters' comprehension phase, but with consequences for all other cognitive processing, namely transfer and target speech production.

At this point in time, the explanations as to how and why ELF speech input might impede processing are theoretically-based and purely hypothetical. Possible reasons include difficult retrieval of automatized transfer routines and well-established translation equivalents. It may be that "translinguistic equivalents", which have been established in the literature as "regular associations or 'links' between particular LCs [Language Constituents] in two languages, essentially between lexical units and between set phrases" (Gile 2009: 239) may become disrupted.

This could be because the non-standard ELF input does not match encoded items. According to the 'Principle of Encoding Specificity' (van Dijk & Kintsch 1983: 334), the activation of automatized processes depends on a match of incoming items (from the speaker) with previously encoded items (by the listener, in this case, the interpreter). Activation can be undermined when there is a mismatch due to the input being creatively appropriated, non-standard, and therefore unpredictable English usage (i.e. all typical features of ELF; cf. Seidlhofer 2011; Mauranen 2012). This may help to explain why interpreters experience ELF speech as "brain stoppers" (Iturri 2013). It is also in line with introspective statements of professional interpreters in interview and questionnaires studies who explicitly mention increasing exhaustion and stress as well as decreasing job satisfaction due to additional cognitive load (e.g. Albl-Mikasa 2010).

A number of the ELF-induced interpreter problems mentioned above can be put down to the specific processing conditions in interpreter-mediated communicative events. Most importantly, simultaneous interpreting of monologic speeches does not allow for the co-constructive, interactional strategies typically employed in conversational ELF encounters. At the same time, it has been observed that ELF communication between participants not relying on interpretation is often ineffective and unsuccessful, because untrained listeners find it even more difficult than communication experts such as interpreters to understand ELF speakers (Albl-Mikasa 2017; Jones 2014).

ITELF-related research questions the tenet of (generally) successful ELF communication. Reithofer (2010, 2013), for example, uses comprehension testing as a means of measuring communicative effect and provides evidence that the understanding of source speeches in conference settings can be significantly higher among conference participants listening to professional interpretation into their L1 than those listening to the ELF original, even when they share the same technical background as the speaker. Moreover, in their statistical analysis of EU data, Gazzola & Grin (2013) conclude that the EU's multilingual (interpreter/translator-based) regime is fairer, more effective, and less costly than any substitution with ELF would be.

The societal question of interest is the extent to which factors related to cognitive load and stress also apply in non-interpreter-mediated settings (e.g. academic and political business; see Volk et al. 2014 for a discussion of foreign language processing in multinational corporations). When speeches and oral presentations that are not in standard English (SE) demonstrate a confusing lack of norms that can confound reliable meaning interpretation for language experts, what are the implications for others? Is it possible that violations at the pragmatic, syntactic, morphological, and lexico-semantic levels increase cognitive load to such a degree that only people with training such as interpreters and translators can cope with all types of spoken ELF input effectively?

The same questions apply to written ELF. Generally speaking, consideration of written texts in relation to ELF has been highly limited, since the focus of ELF research from the outset has been on the spoken modality. In initial analyses of the WrELFA corpus[3], Carey (2013) finds no statistically significant difference between spoken and written ELF with respect to phraseological deviations from SE. While the specific working conditions of the T&I tasks have to be taken into account, ELF speeches and ELF texts can therefore be expected to share similar features. A common feature is that translators, just like interpreters, are now confronted with an almost exponential increase in English source texts produced by non-native speakers of English. As in interpreting, translation also involves a monologic situation, usually with little or no recourse to the source text producer to clarify intended meaning. According to Hewson (2009, 2013), the potential loss of control for the translator also affects equivalence relations and translational quality. Consequently, he emphasizes the need for the translator to enter into a "normalization

[3] http://www.helsinki.fi/englanti/elfa/wrelfa.html

process" (Hewson 2009: 119).

In the EU, the challenges inherent in translating ELF texts have been recognized and led to the establishment of so-called editing units by the Directorates General for Translation of the European Parliament as well as of the Commission. The function of the units is to revise ELF texts to meet native English standards before they are passed on to serve as source texts for translation into the various EU languages. The aim is to resolve vague, unclear, or ambiguous wordings and structures so as to avoid different versions in the target languages and thus different readings of legally binding texts (Murphy 2013). In one of the few performance-based studies to date, the effect of ELF texts on translators was investigated (Albl-Mikasa et al. 2017b) on the basis of source texts made available by the European Parliament's Editing Unit. After an in-depth analysis of twelve 'before- and after-texts', three of them in both the edited and non-edited versions were translated by six professional translators. Over the three non-edited source texts, the segments selected for modification by the Editing Unit gave rise to translation problems in 26% of cases, which is more than twice as often as for the edited counterparts (12%). The study also showed that in the analysis of both subcorpora, most problems could be traced back to the non-standard use of lexical expressions. Finally, screen-recording measures provided an indication of longer times needed for the translation of ELF texts.

Other than this, empirical research directly related to translation of written ELF texts is still scarce. A recent *ITT* special issue on English as a Lingua Franca (Taviano 2013) concentrates on translator training and ELF-related implications for pedagogy. There have also been examples of the hybrid nature of ELF source texts (Taviano 2010) and the impact of ELF on other languages via translations (House 2013). Empirical investigations into the cognitive load associated with communicating with ELF would contribute to understanding the adverse effects on comprehension and expression processes when higher demands are placed on available cognitive capacity. Recent developments in process research related to the situated activity of translation and interpreting are promising in this regard, as described in the next section.

2.4.2 Situated activity of translation and interpreting

Translation and interpreting are multi-activity tasks which can easily cause cognitive overload and stress even when conditions are good. These activities involve translators and interpreters processing input in one language and formulating output in the target language while thinking, retrieving, and evaluating information from internal and external resources under tight temporal constraints. Translation and interpreting never take place in a vacuum, either: they are situated activities that are influenced by societal expectations, information sources, technological aids, economic demands, organizational requirements, and physical constraints (e.g. Risku 2010). Professional translators and interpreters are subject to heavy demands on concentration, working memory, and bilingual lexical retrieval processes, since they must also constantly keep in mind their client's requirements and target audience's needs. Just as models have been proposed to explain the effort or cognitive load involved in simultaneous interpreting (e.g. Gile 1995/2009; Seeber 2013), the theoretical construct of mental load has been used to explain how various factors such as time pressure, information content, or input quality can affect translation performance (see Muñoz 2012, 2014).

The relatively young field of cognitive T&I process research uses a variety of methods in its attempt to gain information about the internal processes and decision-making involved in professional translation and interpreting work. Process techniques include video recording, computer logging, reconstructing the process to understand individual steps and decisions, and asking translators and interpreters to reflect on what they do and why. As computer and eye-tracking technology has driven methodological developments, process research has expanded to

encompass the translator and interpreter as an agent situated in a social and environmental context (see Muñoz 2016). The implications of this broader view are reflected in the diversity of phenomena that are being studied within the framework of recent cognitive research (e.g. affect and agency; see Hokkanen & Koskinen 2016; Risku 2014).

Working conditions, time constraints, and stress have all been associated with disturbances to the translation process (cf. Hansen 2006), which can be revealed through the use of process research methods. For example, typing mistakes that translators make when they encounter certain translation challenges might be indicators of stress and cognitive effort (Muñoz 2009). Such mistakes can also present an additional cognitive load, since the translator has to correct them to maintain the expected level of quality, which in turn interrupts the flow of target text production. Similar phenomena have been noted in interpreting tasks, as indicated by hesitations or the 'brain stoppers' mentioned above. The concept of 'flow' refers to a state of being fully immersed in a task such that this immersion is energizing (Nakamura & Csikszentmihalyi 2002). If translators and interpreters encounter resistance in their tasks, for example by difficulties in extracting meaning from ELF input as reported in the studies reviewed in the previous section, then flow is interrupted (see Ehrensberger-Dow & O'Brien 2015 for other examples). The choice of 'letting it pass' or selective processing that is available to other recipients of ELF input is not an option for these professionals, who have to convey the whole meaning of the source input in an appropriate form for the target audience. Professional translators and interpreters may have more resources to cope with the non-ideal condition of ELF input than untrained listeners and readers do, perhaps due to adaptive expertise (cf. Moser-Mercer 2008; Muñoz 2014).

In other contexts, the quality of source texts has been explicitly identified as an issue in surveys of professional translators (e.g. Lafeber 2012) and recent workplace studies (e.g. Ehrensberger-Dow & Massey 2017). The potentially compromising effect of ELF input can be addressed in cognitive translation research with a variety of observational methods to gain information about the internal processes and decision-making involved. For example, the cognitive effort associated with processing other types of input has been evaluated by examining time lags, pauses, and eye-tracking measures such as average fixation duration, fixation count, and/or pupil dilation (e.g. O'Brien 2006; Seeber 2013; Timarová et al. 2011; Vieira 2014). In view of the central role of cognitive load in ELF processing, these behavioral methods would lend themselves to complementing the ITELF-related research reviewed above. However, neuroanatomical and psychophysiological techniques might provide more direct measures of the cognitive load and stress that can be triangulated with results that have been obtained under more naturalistic conditions. Some of these techniques are beginning to be used to supplement the more tested methods of cognitive translation process research (e.g. García et al. 2016; Hansen-Schirra 2017). In the next section, approaches more familiar to the discipline of neuroscience are considered with respect to their application to understanding how translators and interpreters cope with ELF input.

2.4.3 Cognitive correlates of (expert) language processing

Expert language processing such as that evinced by interpreters and translators has been convincingly associated with particular neuroanatomical, neurophysiological, and cognitive features (Abutalebi et al. 2000, 2013; Golestani et al. 2011; Elmer et al. 2011; Hervais-Adelman et al. 2015; Price et al. 1999; Rodriguez-Fornell et al. 2002). This neuroscience research has also identified that age of acquisition, frequency of exposure, and talent are important aspects influencing not only bi- and multilingual proficiency but also the way in which the neural underpinnings of the language system adapt to the learned languages (Perani et al. 1998; Kuhl 2004).

Research has also shown that certain cognitive processes are active during translation (e.g. Abutalebi & Green 2007; see Figure 2). For example, translation into the L1 is associated with different cognitive and emotional processes than translation into the L2. During translation into the L2, the dominant, strongly anchored, and fully automatized language (Kuhl 2004) has to be inhibited in order to avoid negative transfer or interference. As a consequence of the necessity to actively inhibit the automatized language, translation into the L2 is associated with increased brain activation in the language network (e.g. the anterior cingulate cortex, the prefrontal cortex, and the inferior parietal lobe) relative to translation into the L1 (Elmer et al. 2014b; Grabner et al. 2007; Proverbio et al. 2004, 2009; Rinne et al. 2000). This higher level of neurophysiological activation within the language network is generally understood as an increase in the neurophysiological resources necessary to inhibit the overlearned functions.

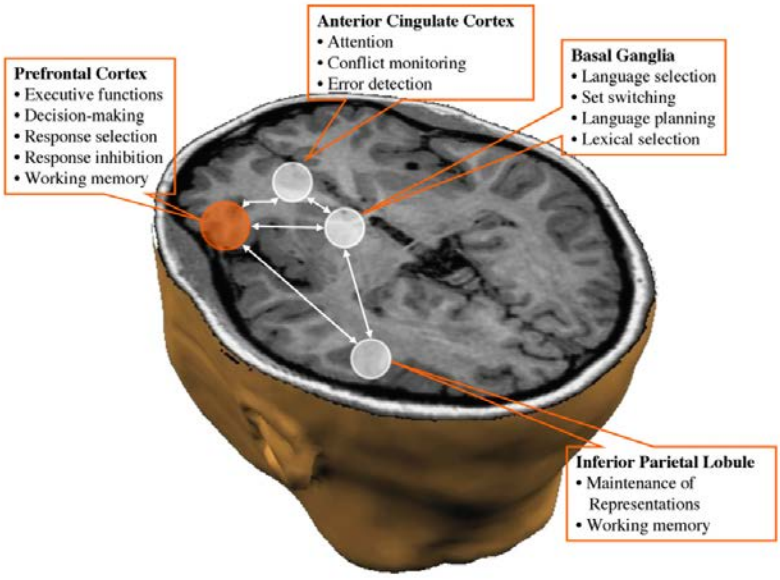

Figure 2. Model of the neural circuits involved in language control (reproduced from Abutalebi & Green 2007: 249)

While switching between languages (such as during translation and interpreting), 'cognitive control' is needed to inhibit the currently non-active language (Garbin et al. 2011; Abutalebi & Green 2007; Hernandez et al. 2000, Rodriguez-Fornells et al. 2002, 2006; Price et al. 1999; Quaresima et al. 2001; Morales et al. 2015; Rinne et al. 2000). Cognitive control is a term frequently used in cognitive psychology to describe several processes comprising action inhibition, conflict detection, and working memory (Botvinick et al, 2001; Braver & Barch 2002; Braver 2012). Cognitive control is assumed to be necessary in translation and interpreting because of the following:

1. Control of the L2 is usually less automatized than the L1. More cognitive resources are needed for processing L2 input in order to identify the correct mappings from phonetic and/or graphemic information to the appropriate semantic associations. In addition, idioms or specific grammar rules in the L2 that are substantially different from those in the L1 have to be identified and mapped individually onto the correct associations. Thus more working memory, semantic memory, and executive control processes are needed in this situation (Grabner et al. 2007). If the L2 input is non-standard, as in the case of EFL, than it can be assumed that even more resources are needed.

2. Dealing with two languages simultaneously and sequentially imposes further cognitive demands, because translators and interpreters have to switch between different language representations. To understand this, one has to imagine that the L1 and L2 are stored in partly overlapping but nevertheless different neural networks (Perani et al. 1998). If one language is active, the particular language network of this language has to be activated while the other

language network is inhibited. When switching to the other language, the previously activated language network has to then be inhibited in order to provide the other network with the opportunity to unfold its abilities. As a consequence, (repeatedly) switching between two networks and languages requires more cognitive and neural resources than staying in one language would. These additional resources have been coined the 'switching costs' in cognitive psychology (Price et al. 1999; Serrien & Sovijarvi-Spape 2013).

3. In the context of speech and language use, we formulate our ideas and thoughts primarily in our automatized language (L1). The language network therefore generates a prepotent model of communication output where a certain stimulus (i.e. ideas and/or thoughts) is mapped onto a particular response (e.g. the speech output), which in turn represents a habitual pattern in a given situation or condition. However, when the stimulus is non-standard and the mapping patterns are disrupted, it is assumed that this prepotent model has to be overridden and inhibited (action inhibition). Simultaneously, if current ideas have to be maintained in working memory, a further burden are placed on the cognitive system. Thus the processing of non-standard input may require additional cognitive control, just as is the case with translating and interpreting in the L1-L2 direction.

These findings fit perfectly with the so-called Cognitive Load Theory (CLT), which was originally proposed to describe cognitive workload in general and not specifically for translation or interpreting (Sweller 2003, 2005). In the context of this theoretical framework, three different aspects can be distinguished to describe different cognitive loads in the context of different T&I situations: germane, intrinsic, and extraneous CL. Germane CL reflects the load necessary for acquiring T&I skills and improving language proficiency. Intrinsic CL reflects the inherent level of task difficulty, which typically emerges during translation or interpreting tasks. Extraneous CL, on the other hand, refers to the influence of external aspects such as the auditory transmission of the speech, visibility of the speaker, or comprehensibility of a text. We use this theoretical framework in our project to delineate the cognitive processes of translating and interpreting as well as their neural underpinnings.

In this context, it is important to emphasize that increased CL (or cognitive workload, as it is often called) is associated with substantial emotional and vegetative consequences. It is well-known that cognitive performance diminishes with increasing CL (Bruggen 2015). One of the most detrimental consequences is occupational stress, which has been documented for various occupations, but there is a dearth of psychophysiological studies with professional interpreters and translators to date. With the exception of earlier work such as the comprehensive AIIC workload study and isolated studies (e.g. Korpal 2016; Kurz 2002, 2003; Moser-Mercer 2005), the relevant work in the context of interpreting has focused more on psycho-affective factors, such as motivation, anxiety and stress resistance (e.g. Timarová & Ungoed-Thomas 2008; Rosiers et al. 2011; Bontempo and Napier 2011). With respect to translators, research has focused on the effects of time pressure, text complexity, or translation difficulty level as measured with psycholinguistic methods such as eye-tracking or keylogging (e.g. Jensen 1999; Sharmin et al. 2008; Sun & Shreve 2014). Research with representative from other occupations has also uncovered a tight interaction between the vegetative and central nervous system (Koelsch & Jäncke 2015). Pivotal in this interaction is how the so-called meta-cognitive system (the neural networks controlling and generating thoughts and interpretations) interpret the interoceptive signals. This meta-cognitive system monitors the interoceptive-allostatic circuitry and updates beliefs about the brain's capacity to successfully regulate bodily states (allostatic self-efficacy). If this system fails, the body can fall into a negative, health-hazardous state. In addition, the meta-cognitive system can develop inefficient predictions about its competencies which ultimately results in an inefficiently functioning cognitive system. Thus, increased cognitive load - especially over extended periods - can result in inefficient coping styles and cognitive processes, affecting cognitive performance and ultimately leading to body-related health

problems.

Preliminary ITELF-related research suggests that ELF speeches/texts require additional effort to understand and interpret/translate because the input deviates from (learned, acquired, and rehearsed) lexico- and morpho-syntactic discourse structures. Following this line of argumentation, it can be assumed that the processing of ELF is generally associated with a stronger engagement of cognitive resources, as reflected by a modulation of brain activity (i.e. reduced alpha power, increased beta power, and increased P600 responses). Based on previous literature pointing to a strong influence of speech and language expertise on cognitive functions (Abutalebi & Green 2007; Bialystok et al. 2004; Costa et al. 2008), differences can also be expected between how trained interpreters/translators and other multilinguals process ELF input as well as even transfer effects (cf. Besson et al. 2011) from the experts' usual modality to their less familiar modality (e.g. from auditory to visual input for interpreters). Finally, this project offers another extremely interesting aspect related to T&I expertise, which is the relationship between cognitive load, neurophysiological underpinnings of cognitive load, and associated stress responses. Experts are usually considered to be able to perform more or less automatically without any stress. However, only a few published studies have so far demonstrated that experts (not all, but a relative large proportion) subjectively feel stress when carrying out expert tasks, which negatively influences their performance. Evidence of relationships between ELF-related language processing, cognitive load (i.e., EEG), and stress (i.e., HR, HRV, and EDA) would have important implications for professional education. These and other research questions are the motivation for the proposed project, as outlined in the next section.

2.4.4 Research gap

In this project, we intend to build on the findings from our previous research in ELF, cognitive translatology, and neurological correlates of language expertise in order to understand how multilinguals cope with non-standard linguistic input. We hypothesize that ELF imposes additional cognitive load that can impede the efficiency of comprehension, slow down decision-making and other cognitive processes, and thereby affect the quality of interpreting and translation performance. In the proposed project, we will precisely track cognitive load and the associated vegetative responses with neurophysiological and psychophysiological techniques. These techniques will provide us with new and objectively-supported insights into the mechanisms operative during various translation and interpreting activities.

Specific research questions will be addressed in this multi-method study with multilinguals who have various degrees of interpreting and translation competence and experience (see section 2.5). Existing instruments available from precursor studies and an established research team will contribute to attaining the relatively ambitious goals of the proposed project within the scheduled 48 months (see section 2.6). The results are expected to have implications for the study of ELF, T&I, and multilingualism as well as for theoretical models of situated activity and cognition. There are risks associated with the scale and complexity of this interdisciplinary project, especially because of the innovative nature of the combination of techniques and stimuli, so certain contingencies have been built into the planning and study design (see section 2.7).

2.5 Research approach

Other than a few pioneering studies, the area of ITELF is seriously under-researched despite an identified need from the T&I industry.[4] Most work in the field has been more of a conceptual and theorizing nature until now, perhaps

[4] For example, the head of the European Commission's Directorate General for Interpreting has explicitly encouraged T&I scholars to pursue this line of research (p.c.).

because of a relative lack of cross-over between T&I and ELF research. Given the global implications of ELF and ITELF, however, empirical research is urgently required to provide robust evidence and objective measurements of the cognitive load as well as possible negative impacts involved in processing ELF speeches and texts. This presents a unique opportunity for Switzerland to take on a leading role in a newly emerging sub-discipline.

Drawing on experience from various precursor studies, we have worked out a project plan that will allow us to gather data from nine groups of multilinguals with different degrees of translation and interpreting expertise. The groups with training and/or experience in translation and interpreting will be matched as closely as possible to multilingual individuals who have had no formal training or experience in translation and interpreting. Hypotheses about the cognitive load imposed by ELF source texts will be tested with a number of methods commonly deployed in T&I process research (i.e. audio, video, and screen recording; keylogging; eye tracking; stimulated-recall; questionnaires; and target text evaluations) and supplemented with methods typically used in neuroscience research (i.e. EEG recordings, electrodermal and heart rate activity). The overall objective of the proposed project is to better understand the cognitive load related to multilingual language processing by determining how experts (i.e. professional translators and interpreters) cope with sub-optimal linguistic input in the form of ELF. The findings will be validated through a large-scale survey of the communities of practice.

The following sections outline the research questions of the project (2.5.1), explain the study design and recruitment of participants (2.5.2), describe the test materials (2.5.3), justify the data collection methods, instruments, and analyses (2.5.4), and present the synthesis of the data and analyses that address each question of interest (2.5.5).

2.5.1 Research questions

Drawing on perspectives from translation and interpreting studies, ELF, and cognitive neuroscience, the present project will address the following research questions:

(1) What problems does ELF input (either spoken or written) cause compared to standard English (SE) input?
(2) Which measures of cognitive load and stress are related to ELF input?
(3) What are the coping strategies used by interpreters/translators/multilinguals when processing ELF?
(4) What influence does the degree of interpreting or translation expertise have on processing ELF input?
(5) Which neurophysiological and vegetative processes are particularly active during ELF processing?
(6) What other challenges does ELF present to the communities of practice?

As described below, the proposed mixed-method design and choice of multilingual participants will allow the interdisciplinary team to provide empirically-supported answers to these questions.

2.5.2 Mixed-methods design and participants

Due to the applied nature of the research questions and the interdisciplinary approach, a mixed-method design has been chosen that involves quasi-experiments of active language processing (i.e. interpreting, translation, sight translation[5]) in simulated workplace settings; covert language processing experiments (e.g. listening, reading) in the controlled setting of the neuro-psychology lab; and self-report observations in an online survey. The ELF and standard English (SE) stimuli for the translation, interpreting, sight translation, and lab experiments will be prepared and pilot tested before any data collection begins (i.e. in Phase 1 of the study). The stimuli will be presented in either written mode (i.e. for translation and reading tasks) or oral mode (i.e. for interpreting and listening tasks), and the

[5] The term ‘sight translation’ refers to the spontaneous oral rendition of a written text after a short preparation period.

study participants will be tested individually (see 2.6.3). To prevent any preconceptions about ELF from affecting the results, the participants will not be told the origin of the source texts until after the data collection of both the active and the covert language processing tasks is complete (see 2.6.4).[6]

In the quasi-experiments in Phase 2 of the study (see 2.6.4.1 for details about the data collection methods), multilinguals with different levels of interpreting and translation expertise (i.e. BA students of applied languages[7], MA interpreting or translation students[8], professional conference interpreters and specialized translators; see Table 1) will interpret or translate authentic ELF texts and standard English (SE) source texts in a simulated workplace setting. Such considerations of ecological validity are especially important for investigations involving the situated activities of translation and interpreting. In addition, the simulation of the workplace should mimic performance-oriented conditions, which presumably involve stress and cognitive load, especially for the advanced students and professionals who are very quality-conscious about their areas of expertise (cf. Zeier 1997). For reasons of comparability, the translations and interpretations will be done in the most common language version of the Swiss T&I market (i.e. ELF/English into German).

Multilinguals who do not have a background in T&I will be matched as closely as possible for age, gender, sociolinguistic biography, and years of formal education (i.e. BA and MA students of education or literature, language teachers and professional writers). In the simulated workplace setting, they will do sight translations of the same ELF and SE source texts as the T&I groups.

Table 1. Study design: groups of participants

Profession *Expertise*	*T&I interpreters*	*T&I translators*	*Non-T&I multilinguals*
Beginner	BA multilingual communication	BA multimodal communication	BA education/literature
Advanced	MA interpreting	MA translation	MA education/literature
Professional	Conference interpreters	Specialized translators	Teachers/Writers

The 3x3 study design thus has two grouping factors with respect to the participants (expertise and profession) and 3 levels for each factor (expertise levels: Beginner, Advanced, and Professional; professions: T&I interpreters, T&I translators, and Non-T&I multilinguals). For each of the nine cells shown in Table 1, the goal will be to recruit 30 participants. We have chosen this sample size on the basis of an a-priori power analysis (Faul et al. 2007) with a medium effect size (f=0.25), a significance level of p=0.05, and a power of p=0.95 which yields a recommended sample of 250, well within our target of 270 participants (see section 2.7 for provisos).

In the lab setting, the same groups of participants will participate in EEG experiments involving listening, reading, covert interpretation, and covert translation of ELF and SE input (see section 2.6.4.2 for details of the experiments and data collection). In order to avoid carry-over effects half of the subjects will be randomly assigned to start with the active language processing tasks in the simulated workplaces while the other half will start with covert language processing tasks in the lab. In the final verification, the participants as well as other members of the international communities of practice (i.e. professional translators and interpreters) will be surveyed with an online questionnaire in order to derive information about their experiences with ELF texts at their usual workplaces (see 2.6.4.3 for details).

[6] This is the reason that the term ELF is not included in the project title either.
[7] BA students of applied languages have preliminary experience in non-specialized translation, but none in interpreting.
[8] To overcome the anticipated challenge in filling this group, the recruitment phase will be extended to cover three cohorts.

All of the participants in the study will be native (i.e. L1) speakers of German with at least C1 English proficiency (as documented by standardized tests or university entrance requirements).[9] They will be volunteers recruited from (a) BA and MA programs of universities and universities of applied sciences; (b) language service departments of commercial providers and institutions as well as networks of freelance translators and interpreters; (c) publishing enterprises and language schools. As far as possible, the participants of all the groups will be recruited through existing networks in Switzerland. The exact nature of their involvement and the remuneration they will receive for participating will be detailed on a consent form that they will be asked to read and sign. The data will be treated with absolute confidentiality: any identifying information will be removed from the data for the analyses, and participants will be assured that any data or examples used for publication or educational purposes will be modified to ensure anonymity. The master code list of participants will be stored in a separate file and destroyed after the anonymization procedure at the end of the data collection phase.

2.5.3 Test materials and presentation

Authentic ELF texts will be supplied by collaborating scholars from French- and Italian-speaking Switzerland as well as from China. The motivation for these three language backgrounds is that German-speaking Swiss can expect to encounter ELF produced by their compatriots from other regions of Switzerland as well as ELF produced by speakers of other world languages that are typologically very different (e.g. Chinese). All of the source test materials will have been produced by native speakers of the respective languages (i.e. French, Italian, or Mandarin Chinese) living in those regions who are at B2-C1 proficiency.[10] This ensures that the test materials will have specific linguistic properties of speeches and texts typical of the communication situations in which professional interpreters and translators work (see Example 1). Source texts will be selected that contain various ELF-specific features as identified by the specialist literature on the basis of ELF corpora (e.g. lexical irregularities; vague or ambiguous expressions; unconventional meta-discourse markers; cross-linguistically influenced (un)grammatical patterns or L1-based lexical calquing; inappropriate anticipatory or pragmatic devices; cf. Mauranen 2012).

Example 1. ELF and SE versions of the same content (extracts from two authentic industry presentations in our pilot data)

ELF speaker: *We are checking before this is coming to the site if is everything correct. If is everything according to our isometrics what we are preparing.*
SE speaker: *We of course have to check if things are correct, so we do a shop inspection of the isometrics before shipping the equipment to the site.*

The selected texts will be manipulated to remove the ELF features (i.e. conversion to standard English) in order to produce two versions of each text from a French, Italian, and Chinese (e.g. ELF1-FR/SE1, ELF2-IT/SE2, ELF3-CN/SE3). The same ELF/SE texts will serve as the source texts for the tasks done by the different groups in the simulated workplace setting. The T&I interpreting groups will produce interpretations; the T&I translation groups will produce target texts; and the Non-T&I multilinguals will produce sight translations. Equivalent sets of stimuli will be prepared for the lab experiments. The final choice of stimuli for the workplace setting and EEG experiments in the lab will be informed by the findings from the pilot testing. To ensure comparability, the number and type of ELF-specific features will be balanced across the texts. All texts will be presented in neutral form (i.e. the same

[9] C1 is the minimum "proficient" level of the Common European framework (www.coe.int/t/dg4/linguistic/Source/Framework_EN.pdf).
[10] B2-C1 of the Common European Framework is equivalent to the traditional categories of 'upper intermediate' or 'advanced', which is how many EFL users active in international settings describe their level of English. It would be interesting to assess the cognitive load of processing other levels of ELF but this would exceed the scope of the proposed study and probably the patience of participants.

layout with no spelling or punctuation mistakes in the written mode; a generic accent such as General American produced by a trained speaker at the same speed, pronunciation, and prosody in the oral mode). All of the written tasks will be presented on computer monitors; the spoken tasks will be presented in the form of video recordings in the simulated workplace setting and in the form of auditory recordings in the lab.

2.5.4 Data collection, instruments, and analyses

The mixed-method approach of the proposed study will provide sources of both quantitative and qualitative data to obtain a rich description of ELF-related multilingual language processing. The multiple sources of data are crucial to this type of interdisciplinary research: only by triangulating information from different disciplinary perspectives can a complete pattern of the underlying cognitive mechanisms involved in multilingual activities emerge. For example, the ELF texts are expected to result in more hesitations, regressions, and revision activity than the corresponding SE texts when the T&I groups interpret and translate in the simulated workplace settings. The stimulated-recall retrospective commentaries should help determine the motivation for certain behaviors recorded by the audio, video, and eye-tracking software that can be linked to linguistic characteristics of the stimuli. Similar differences would also be expected in the neurophysiological measures (as shown in previous experiments with interpreters, e.g. Elmer et al. 2010). The high temporal resolution of EEG makes it possible to capture brain responses that are time-locked to specific ELF phenomena in an objective and observer-independent manner. Consequently, additional EEG measurements allow a more precise isolation of the various psychological processes (e.g. cognitive load, see below) assumed to be induced by ELF processing. The inter-group comparisons will allow us to surmise whether such phenomena are typical of certain levels of interpreting and translation expertise or typical of proficient multilinguals in general. The sources of data, instruments, and proposed analyses associated with each of the phases of the proposed study are described in more detail below.

2.5.4.1 Simulated workplace setting (active language processing)

Various types of active language processing will be evaluated in the simulated workplace setting in the second phase of the project. Depending on the professional group, the participants will be asked to interpret or translate (i.e. the T&I groups) or do sight translations (i.e. the non-T&I groups) of SE and ELF texts that are auditorily- or visually-presented (i.e. spoken or written). The data collection instruments and specific tasks are described below.

Preliminary semi-structured interviews. Background data about all of the participants, such as socio-linguistic biography, education, translating and professional experience, will be obtained in a preliminary interview with a questionnaire developed and tested in the precursor study. Information will also be sought from the participants in the T&I groups (i.e. BA and MA students, conference interpreters, and specialized translators) about their T&I procedures and what types of texts they usually deal with. No specific questions will be asked about ELF texts but any mention of ELF by the participants in the preliminary interviews will be categorized and coded using the same software and procedures as explained in more detail below for the stimulated-recall retrospective commentaries.

Interpreting tasks and recordings. The interpretations of the ELF and SE source texts will be carried out by the T&I interpreting groups (i.e. BA multilingual communication, MA interpreting, conference interpreters) at the ZHAW Institute of Translation and Interpreting in a setting that simulates a typical interpreter's workplace. Two-track recordings of source speech and interpreter rendition will capture information about the amount and intensity of attention to speech items and apparent hindrances to smooth processing. Hesitations, pauses, false starts, repetitions as well as atypical EVS (ear-voice-span) behavior generally associated with interpreting problems will be assessed through analyses of audio and video recordings. Intra- and inter-group comparisons will be made of the

interpreting process and output, such as anticipation strategies, presentational fluency, logical coherence, and completeness.

Since it is well-known that mental states requiring high cognitive demands influence the autonomic nervous system, which is further differentiated into the parasympathetic and sympathetic nervous system, we will also measure the heart rate (HR), heart rate variability (HRV), and electrodermal activity (EDA). These are often used as biomarkers of the autonomic nervous system. HRV and in particular its high-frequency (HF-HRV) component (0.15 to 0.40 Hz), is a marker of the parasympathetic activity (Reyes del Paso et al. 2013) and related to a variety of psychological factors including attention, working memory and emotion regulation (Thayer & Lane 2009). EDA measures variations of sweat gland activity and is also strongly related to physiological arousal (Boucsein 2012). These measures can easily be obtained with mobile measurement devices, which will be used in the simulated workplace setting.

Translation tasks and recordings. The translations of the T&I translation groups (i.e. BA multimodal communication, MA translation, specialized translators) and the sight translations of the non-T&I groups (i.e. BA or MA language/literature, teachers/writers) of the ELF and SE source texts will be collected at the ZHAW Institute of Translation and Interpreting at a computer work station set up to simulate a typical translator's or writer's workplace. A mobile eye-tracking system (i.e. Tobii SMI RED250mobile) and software will be used in combination with keystroke logging and screen recording software to capture information about the amount of attention to various areas of interest (i.e. fixation number and duration) and gaze patterns (i.e. regressions) related to the linguistic characteristics of the ELF and SE source texts; the location and intensity of attention, number and direction of eye movements when translation problems are encountered; the resources accessed; and number of steps involved in solving translation problems. Intra- and inter-group comparisons will be made of productivity measures of the translation processes, such as words and propositions per minute; typing mistakes; number, type, and location of revisions; activity during pauses in the process; regressions to previously translated text that might suggest cognitive friction caused by linguistic problems; and extended pauses that might be indicative of cognitive overload.

Stimulated-recall retrospective commentaries. Immediately after interpreting, translating, or sight translating the ELF source texts, the participants will be replayed the audio recording or eye-tracking visualization, respectively, of their process and asked to verbalize what they have just done. A researcher will be present to record everything the participants say in a separate audio digital file and to prompt them to continue verbalizing if they stop commenting. The commentaries will be transcribed using XML-markup according to the TEI P5 guidelines (which will ensure compatibility with other research programs), and coded using qualitative data analysis software (i.e. HyperResearch) in a process known as 'open coding' by two researchers in several cycles until no new codes emerge. The data from the commentaries will be compared with the computer and video recordings to identify difficulties caused by linguistic features of the ELF texts and any coping strategies used by the participants.

Target text analysis. The interpreting and translation solutions for the ELF phenomena will be evaluated by two independent judges using assessment criteria validated in previous studies (e.g. fluency, lexical choice, coherence), and comparisons will be made across the levels of expertise groups and professional backgrounds. The quantitative data collected during the interpreting and translation recordings will be triangulated with the qualitative data from the preliminary interviews and the retrospective commentaries as well as with the target text evaluations.

2.5.4.2 Controlled lab setting (covert language processing)

In the second phase of the project, all of the participants will also be asked to do tasks related to processing written and spoken ELF and SE input while EEG data is collected. Due to the restrictions of this particular data collection

instrument, the input will be processed "covertly" (i.e. no verbal output will be actively produced by the participants; cf. Hervais-Adelman et al. 2011). During presentation of the stimulus material and processing the input, EEG will be measured using a BrainProducts 32-channel system. After data pre-processing (e.g. filtering, elimination of eye movement and muscle artifacts), event-related potentials (ERPs) and frequency spectra (i.e. theta, alpha, and beta power) will be computed. ERPs (i.e. P600 responses) indicate brain responses that are time-locked to linguistic issues during ELF processing. Since P600 is a marker of cognitive load, increased amplitudes are expected in the conference interpreters and specialized translators (i.e. the professionals) when processing ELF compared to SE input. Differences are also predicted between the experts and non-experts. In addition, differences are predicted between the professional interpreters and the other groups in the auditory condition and between the professional translators and the other groups in the visual condition.

As in the simulated work setting, we will also measure HR and EDA using the BIOPAC system in the lab setting. The cardiac variables, including HR and HF-HRV, will be assessed with electrocardiogram recordings (ECG) measured with the BIOPAC harness system placed on a belt that participants can wear comfortably around their chest. EDA will also be measured via the BIOPAC system with a sensor placed on the palm of the right hand. HR and EDA signals will be continuously sampled during the task. As with the EEG measurements, we will measure EDA and HR during a baseline session during which the subjects are asked to relax. By calculating the relative difference between physiological signals obtained during the task and baseline, we can eliminate inter-individual differences (e.g., Jäncke et al. 2015; Koelsch & Jäncke 2016).

Cognitive load will be operationalized by means of frequency-based analyses (i.e. frequency spectra, theta, alpha, and beta band power). Here we will determine the EEG-based brain workload score (Gevins et al. 1997; Gevins & Smith 2000; Gevins et al. 2012). This brain workload score is defined as the ratio between frontal theta and parietal alpha power (theta Fz/alpha Pz), as measured by standard EEG registrations. Increased task demands, and thus greater cognitive load, are associated with increased frontal theta activity and a simultaneous decrease in parietal alpha activity. In addition, we will also assess alpha power fluctuations. Increased alpha power is known to reflect inhibitory processes and inversely correlates with blood flow. Therefore, cognitive load is expected to attenuate alpha power. By contrast, since beta oscillations mimic an alert brain state during demanding task conditions, cognitive load should also be reflected in increased beta power. In order to control for inter-individual variability of alpha and beta oscillations, task-related activation patterns will be compared to a silent baseline (i.e. 5 minutes of resting state recorded at the beginning of the session). In particular, event-related synchronization (i.e. ERS, increased power relative to the baseline) and event-related de-synchronization (i.e. ERD, decreased power relative to the baseline) will be evaluated by applying the following mathematical formula: ERS or ERD = $[(A-B)/B]*100$, where B is the mean power during the baseline session, and A represents the mean power during the stimulation period.

The experimental session with each participant (including the application of the EEG cap and psychometric measurements) will consist of three different types of tasks and will last about 2.5 hours. With all participants, we will first do a screening executive function test using the German version of NAB (neuropsychological assessment battery; Petermann et al. 2016). The visual and auditory stimuli, the coordination between stimuli and EEG as well as the collection of behavioral responses will be controlled by the Neurobehavioral Systems Presentation software. The visual stimuli (four or five text lines) will be presented as a whole on a computer screen in Arial font and a font size of 20, whereas the auditory stimuli will be normalized in intensity by using the Adobe Audition software and presented via in-ear Sennheiser headphones with a sound pressure level (SPL) of about 80 dB. Visual and auditory

stimuli will be presented for 30 seconds.

Perceptual control task. In the first task, participants will be instructed to attentively read or listen to auditorily- and visually-presented phrases, sentences, and short passages in ELF and SE that are played backwards. This task makes it possible to control for differences in brain activity between the groups that are induced by graphemes and phonetic cues. In fact, previous work has shown a profound influence of expertise on basal visual and auditory processes (Proverbio et al. 2013; Ressel et al. 2012). Backward speech and letter strings will be prepared from the same stimulus material used for the other two experiments by using the Adobe Audition software and MATLAB. The visual and auditory stimuli will be presented for a duration of 20 seconds. Furthermore, each modality will be presented in a block-wise manner and the visual and auditory blocks will be counterbalanced across participants and groups. For each modality 8 trials will be presented with an inter-trial interval of 2 seconds, resulting in a total recording time of 6 minutes. No behavioral data will be collected, and only the frequency spectra will be evaluated.

Listening and reading tasks. In order to simulate the demands of interpreting and translation, the participants will be exposed to auditorily- and visually-presented phrases, sentences, and short passages in SE and ELF in the second task. After hearing or reading the stimuli (depending on the modality), a short control statement designed to evaluate attention and comprehension will appear on the screen. The participants will indicate whether the statement is congruent with the previously heard/read sentence by pressing a button as quickly as possible. The aim of this specific task is to capture brain activity related to cognitive engagement while listening to or reading SE and ELF input. Each of the ELF sentences will contain ELF-specific features (see section 2.5.3), with one approximately every 4 seconds in order to avoid overlapping ERPs. In total, 32 sentences will be presented for a duration of 30 seconds (16 auditorily- and 16 visually-presented, 8 of which are SE and 8 ELF, respectively) on-screen or via headphones. After each stimulus, a control question will appear on the screen for 5 seconds in order to control for attention and sentence comprehension. After response selection, a visual cue (i.e. “x”, lasting four seconds) will predict the next trial. By taking into account an inter-trial interval of 2 seconds (additional baseline for ERS and ERD analyses), the single trial duration will be 37 seconds, resulting in a total recording time of 40 minutes. Differences in behavioral responses (i.e. percent correct responses, reaction times) will be evaluated between the groups by using ANOVAs and t-tests. The EEG correlates reflecting cognitive demands during listening and reading ELF will be isolated by calculating the percentage signal change between SE and ELF (i.e. frequency spectra). The processing of ELF features as a function of expertise will be evaluated by comparing differences in ERP strength (i.e. maximal P600 amplitude) and latencies between the groups.

Covert interpreting and translation tasks. In the third task, participants will again be exposed to auditorily- and visually-presented phrases, sentences, and short passages. However, participants will have to not only focus on the input language itself (i.e. SE or ELF) during this task but will be instructed to also interpret or translate the auditory or visual input, respectively. Since EEG is extremely susceptible to movement artifacts (i.e. overt articulation and writing), participants will be instructed to perform the task in a covert manner, by using sub-vocalization. In order to evaluate the influence of expertise, the participants will be required to push a response button when starting and finishing the respective interpretation or translation. The temporal dynamic of this task is the same as that described for the previous one. The differences in onset-time of the interpretation/translation as well as the duration of the entire process will be tested using ANOVAs and t-tests. The EEG correlates reflecting cognitive demands will be isolated by computing the percentage signal change (i.e. frequency spectra, ERS, ERD) between hearing/listening SE and ELF and interpreting/translating SE and ELF, as well as between interpreting/translating SE and ELF input.

In all of the experimental tasks, the SE stimuli will be presented first (see Table 2). Within each task the modality

of presentation will be randomized across participants and groups in a block-wise manner (i.e. SE auditory-ELF auditory/SE visual-ELF visual, and vice versa). Finally, in order to avoid context-related contaminations, the three tasks will always be presented in the following order: 1) perceptual control condition; 2) listening and reading SE and ELF; and 3) covert interpreting and translation of SE and ELF.

Table 2. Design of covert language processing experiments in the lab setting

Order	Task	Condition	Randomization	Task duration
1	Perceptual control condition	Backwards letters (BL) Backwards speech (BS)	BL / BS BS / BL	6 minutes
2	Listening and Reading - standard English (SE) and ELF	Listening SE (LiSE) Listening ELF (LiELF) Reading SE (ReSE) Reading ELF (ReELF)	LiSE-LiELF / ReSE-ReELF ReSE-ReELF / LiSE-LiELF /	40 minutes
3	Covert interpreting and translating - standard English (SE) and ELF	Interpreting SE (InSE) Interpreting ELF (InELF) Translating SE (TrSE) Translating ELF (TrELF)	InSE-InELF / TrSE-TrELF TrSE-TrELF / InSE-InELF	40 minutes

2.5.4.3 Self-report observations

The final phase of data collection in the project comprises a validation of the findings from the other phases by collecting self-report observations with respect to everyday experiences and difficulties that interpreters, translators, and multilinguals have in processing SE and ELF source texts.

Online survey. After the data collection in the workplace setting and lab is complete, all of the study participants will be asked to take part in an online survey designed to determine how often they actually deal with ELF texts, the characteristics of the texts that cause them the most difficulties, whether they have to work with ELF texts produced by speakers of their own or of other languages, what coping strategies they use, etc. The items on the questionnaire will be developed during the integration and synthesis of the previous phases in order to be able to test hypotheses that emerge during the course of the project. It is predicted that professional interpreters and translators have had more experience with ELF texts than the other groups and that they demonstrate more sensitivity to their inherent difficulties. It is also predicted that they have developed some effective coping strategies to deal with ELF texts.

In order to maximize the representativeness of the results, the online survey will be adapted slightly and also made available to professional interpreters and translators who have not participated in the previous phases of the project. On the basis of the response to the survey in the precursor study, it is anticipated that the interest in this survey will be high among the communities of practice (i.e. at least 500 professional interpreters and translators). The potential survey respondents will be recruited through Swiss and international networks and multipliers (such as the EU Directorate-Generals for Translation and Interpreting or national and international professional associations) in order to assess how well the study participants' responses represent the current realities of the T&I market in Switzerland and abroad. The survey data from the communities of practice will be summarized and compared with those of the participants as well as with the findings from the previous phases of the project.

2.5.5 Synthesis relevant to research questions

In summary, the various sources of data that are directly relevant to each of the research questions are indicated below.

(1) What interpreting/translation/comprehension problems does spoken and written ELF input cause compared with those in SE?

- preliminary interviews, audio, screen, and video recordings, eye-tracking records, stimulated-recall commentaries, brain activity and physiological measures (EEG, HR, HRV), online survey

(2) What influence does the degree of interpreting or translation expertise have on processing ELF input?

- audio, screen, and video recordings, eye-tracking records, stimulated-recall commentaries, EEG, online survey

(3) What are the coping strategies used by interpreters/translators/multilinguals when processing ELF?
- audio, screen, and video recordings, stimulated-recall commentaries, survey

(4) What, if any, are objective neurophysiological and vegetative measures of cognitive load during ELF translation?
- brain activity and physiological measures (EEG, HR, HRV)

(5) What other challenges do ELF speeches and texts present to the communities of practice?
- preliminary interviews, stimulated-recall commentaries, online survey.

Before the integration and synthesis of data, descriptive statistics will be carried out to provide an overview of the different groups and their properties as well as inferential statistics to establish the significance of intra- and inter-group differences (e.g. ANOVAs, t-tests, linear regression models). At the end of each data collection phase, the findings will be triangulated in order to address the research questions.

2.6 Project implementation

The supervision of team members will be shared among the senior investigators depending on the particular phase, as indicated in Table 3. In addition to the principal applicant and co-applicants from each of the involved disciplines (i.e. interpreting, translation, and neuroscience), the core project team consists of a post-doctoral translation studies researcher and three PhD students – one from interpreting studies and two from neurosciences – at least two of whom will bring experience from precursor projects and expertise in the particular methods and analyses foreseen in the present project. They will do the bulk of the project work as well as help train and supervise the junior research assistants and the students, who will help with transcription work. A research associate trained in eye-tracking methodology will participate in the data collection during the second phase. Consultants with expertise in interpreting practice, eye-tracking analyses, and statistics will contribute to the project when specialized knowledge is needed to train the junior researchers or to carry out certain analyses. In addition to the regular intra-disciplinary project meetings, the investigators, post-doc, and PhD students will all participate in bi-monthly multidisciplinary meetings as well as in all aspects of the synthesis and dissemination phases of the project.

Table 3. Overview of the main tasks for team members during project phases

	Investigators			Early-stage researchers							Consultants			
	PI-IS	Co-TS	Co-NS	PhD-IT	PhD-TS	PhD-NS	PhD-NS	RA-IT	RA-TS	RA ET	IT	ET	Stat	SRAs
Preparation	s	s	s	all	all	all	all	p	p		s	p		
Active language processing	s	s		all	all	p	p	dc	dc	dc		an	s	p
Covert language processing	s		s	p	p	all	all						s	p
Self-report observations	s	s		all	all			dc	dc				s	
Synthesis	s	s	s	all	all	all	all	an	an					
Dissemination	all	all	all	all	all	all	all							

Team members: PI=Principal Investigator; Co=Co-Investigators; PhD=PhD students; RA=Research Assistants; SRAs=Student Research Assistants
Disciplines: IS=Interpreting Studies; TS=Translation Studies; NS=Neurosciences; ET=Eye-Tracking; Stat=Statistics
Codes for project work: supervision, preparation, data collection, data analysis, all types of project work

The goals of the proposed project can be attained within the scheduled 48 months (see Table 4), since the contacts to obtain authentic ELF texts for the test materials already exist, the instruments developed in recently-completed pilot and precursor studies are at hand, and experienced research teams are in place. The project phases are designed as cycles of preparing source materials and refining instruments, pilot testing of stimuli, data collection, analysis, synthesis, testing hypotheses with additional instruments, and integrating the findings with those of the previous phases. Based on our experience from other projects of similar complexity, we have planned extended blocks of time to accommodate the challenges of recruiting and individually testing a large number of participants in the

simulated workplace and the lab settings as well as for the development of the questionnaire for the participants and the online survey for the T&I communities of practice.

Table 4. Project plan and major milestones

Milestone	Activity	Month	2018												2019												2020												2021											
			J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Phase 1. Preparation	Update of literature																																																
	Preparation of testing instruments																																																
	Pilot testing																																																
	Recruiting of participants																																																
MS 1	**Start of data collection**																																																
Phase 2: Language processing data collection	Active language processing in workplace setting																																															
	Covert language processing in lab setting																																															
MS 2	**Data collection complete**																																															
Phase 3: Analysis of languge processing data	Analysis of workplace processes, products, and retrospections																																															
	Analysis of EEG and neuro- and other physiological data																																															
MS 3	**Data analysis complete**																																															
Phase 4. Self-report	ELF questionnaire of participants																																																
	On-line survey of community of practice (T&I)																																															
	Analysis of self-report data																																															
MS 4	**Self-report data and analysis complete**																																															
Phase 5. Synthesis	Triangulation and synthesis																																															
	Dissemination and SNSF reporting																																															
MS 5	**Project completion**																																															

2.7 Risk management

In addition to the usual challenges involved with managing a large interdisciplinary project, we have identified three potential risks as well as the measures that we have included in our planning to cope with them.

The greatest challenge in the proposed study will be recruiting enough qualified participants in Switzerland, especially the professional translators and interpreters with the required language version (i.e. L2 English-L1 German). If the target of 30 per group cannot be reached within the first half of the block of time foreseen for recruitment, then we will begin recruiting participants from nearby regions (e.g. southern Germany, Tirol in Austria). We also have close contacts within the EU Directorate-Generals of language services, who have indicated their readiness to provide access to their pool of staff. For this eventuality, we could take our mobile eye-tracker and

deploy a mobile EEG device to collect data in Brussels and/or Luxembourg. To ensure enough participation in our study, we have included appropriate levels of remuneration for the various groups as well as travel expenses for the participants and/or junior researchers in the budget.

Another major challenge will be to achieve an effective balance between the number and complexity of the ELF problems and authenticity of the source texts and experimental stimuli. If the ELF problems are too few or minor, it is likely that the coping strategies of the participants with higher levels of expertise will allow them to accommodate without noticeable increases in their levels of stress or cognitive load. If there are too many, then all of the participants might treat the ELF texts as nonsense input rather than as real source texts. For this reason, the materials will all be pilot tested with several individuals who fit the profiles of the target groups but will not participate in the study. The pilot testing phase will be extended if necessary.

The third challenge that we have identified is a potential lack of effect in the ELF texts from the French and Italian speakers, because those are languages that our participants might be familiar with and able to accommodate for. In order to control for this so-called shared languages benefit, which has been identified in precursor studies (e.g. Albl-Mikasa 2013a, 2014), ELF from Mandarin Chinese speakers has also been included in the design of the study. The inclusion of this language, which is typologically unrelated to the Indo-European languages, has two advantages. The first is that it is unlikely that our participants will have any prior knowledge of Mandarin. Secondly, encounters with Chinese speakers of ELF are becoming increasingly common as Switzerland reaches beyond its borders in international business and science. The participation of the main applicant in project with the XJTLU university in Suzhou, China, guarantees access to authentic ELF texts produced by Chinese speakers. One of the motivations for collecting sociolinguistic and language background data from all of the participants is to be able to take familiarity with French, Italian, and Mandarin Chinese into account in the analyses.

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Main applicant: Michaela Albl-Mikasa
Co-applicants: Maureen Ehrensberger-Dow, Lutz Jäncke
Title of the project: **Cognitive load in interpreting and translation (CLINT)**

Responses to the comments and criticisms of the previous proposal

The somewhat general societal relevance in some parts of the original proposal have been tightened in the resubmission to focus on the breakthrough nature of this interdisciplinary research – specifically the cognitive load and stress associated with processing non-standard linguistic input by experts and non-experts. The particular points of criticism raised by the reviewers and SNSF evaluation committee are addressed in the resubmission as explained below.

Language background choice for ELF materials

One of the major criticisms of the first submission of this project was the exclusive focus on Chinese speakers for the source text materials (by reviewers 1 and 3). In the revised project plan, ELF texts produced by French and Italian speakers will also be included because German-speaking Swiss can expect to encounter ELF produced by their compatriots from other regions of Switzerland in addition to ELF produced by speakers of other world languages that are typologically very different (e.g. Chinese). In our view, it is important to include a language typologically very different from English (i.e. with respect to its sound, morphology, semantics, syntax) because the so-called shared languages benefit, which has been identified in precursor studies (e.g. Albl-Mikasa 2013a, 2014), might result in Swiss participants not being as disturbed by ELF produced by French or Italian native speakers. Secondly, communication with Chinese speakers of ELF is becoming increasingly common and important as Switzerland reaches beyond its borders in international business and science.
An additional comment concerned the B2-C1 proficiency range of the EFL source material. The motivation for this choice has been made more explicit in the proposal (i.e. B2-C1 of the Common European Framework is equivalent to the traditional categories of 'upper intermediate' or 'advanced', which is how many EFL users active in international settings describe their level of English). In addition, the English produced by speakers of these proficiency levels contain typical ELF features that have been documented in the literature.

Relevance of neuroscience for the project

Of the four reviewers, only reviewer 1 questioned the relevance of the neuroscience component of the interdisciplinary project whereas the other reviewers, in particular reviewer 4, explicitly cite this as a strength. In the revised proposal, we have explained the motivation for including different disciplinary perspectives more clearly. Because the major aims of this project are to measure the impact of ELF on cognitive load, stress, and ultimately performance in spoken and written language processing, it is imperative to reach out to disciplines with methods that can objectively measure cognitive load and stress. Consequently, cognitive neuroscience, has been included because neurophysiological markers have been demonstrated to be linked to strategic and effortful aspects of cognitive processing. The evaluation of vegetative parameters of stress and brain responses can be used as objective markers for cognitive load that is not contaminated by subjective observations and quantifications. Cognitive neuroscience methods will thus contribute to providing objectivized evidence of ELF-induced cognitive load and stress, while the combination with more naturalistic methods will ensure that the project findings can be integrated into knowledge about T&I as strategic decision-making and problem-solving activities.

Motivation for neuroscientific experiments

In the original proposal, the motivation for the neuroscientific experiments and the contribution of the results to the project goals were not explicit enough (reviewer 1 and the SNSF evaluation committee). The justification for including measurements of biomarkers of the parasympathetic and sympathetic nervous system and their relevance to stress associated with processing non-standard input (i.e. ELF) has been made more explicit in the resubmission. In addition, the study design with the various groups of participants (i.e. different professions and expertise levels) has been linked more directly with the specific research questions related to the cognitive load of processing ELF (i.e. brain activity as measured by EEG). In the proposal, we argue that T&I processes are clearly a social (external) as well as a cognitive (internal) activity involving automatic and controlled cognitive processes which rely on finite attentional resources, working memory and executive control. Given that non-

standard English used by non-native speakers can disrupt cognitive processing and cause stress, neurophysiological evidence is essential to validate the link between strategic and effortful aspects of cognitive processing and performance. In the interests of concurrent validity, it is crucial to obtain data in strictly controlled laboratory experiments to optimally supplement data collected in ecologically valid T&I settings.

Inclusion of psychophysiological data

In the original proposal, too little space was devoted to explaining the point of collecting physiological data, and the criticism from the SNSF evaluation committee was that there was too evidence that the expertise was available in the core project team. The resubmission makes clear that the co-applicant Prof. Dr. L. Jäncke not only has this expertise but also that he will be supervising a doctoral student whose focus will be on the stress-related biomarkers. His UZH team will be responsible in both the workplace and the lab settings for the collection and analyses of the physiological data.

Other comments

We have taken most of the other suggestions by reviewer 4 on board in revising the proposal for resubmission

- a model of the hypothesized cognitive systems involved in processing linguistic input;
- inclusion of CLT in the theoretical framework;
- the order of settings (i.e. workplace first or lab first) will be randomly assigned to the participants in order to control for spillover and contamination effects while still allowing for comparisons between the controlled and more ecologically valid settings;
- the foreseen eye-tracking measures have been made explicit (i.e. fixations, durations, regressions). AOIs will be determined once the materials have been prepared and pilot-tested;
- testing of executive function with NAB;
- the triangulation of the neuropsychological data with the behavioral measures in the simulated workplace setting will help the answer the question about the significance of pauses in linguistic processing.

The comments about affective responses and related emotions have not been taken into consideration in the resubmission because the focus of the neurophysiological component of the project is on the more operationalizable aspect of stress.

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1 Current positions

Institute of Interpreting and Translation IUED, School of Applied Linguistics, ZHAW Zurich University of Applied Sciences, Winterthur, Switzerland

- Professor of Translation Studies (since 2012)
- Member of the Institute management committee (since 2015)
- Coordinator of usability projects (since 2015)

2 Education

2011	ZHAW Tertiary Education Didactics Course, University of St. Gallen.
1987	PhD (Linguistics) University of Alberta, Edmonton, Alberta, Canada. Full scholarships (SSHRCC and Province of Alberta). Thesis title: *The Psychological Reality of Sub-syllabic Units*.
1981	MSc (Psycholinguistics) University of Alberta, Edmonton. Thesis title: *On the role of Orthography in Experimental Phonology*. Full scholarship (SSHRCC).
1980	TESL certificate (Teaching English as a Second Language), University of Alberta, Edmonton.
1979	BA (Honours Psychology) Queen's University, Kingston, Ontario. Provincial entrance scholarships (for 1st and 2nd years).

3 Previous professional and academic experience

2005-2011	Professor in English section of translation program, Institute of Interpreting and Translation, Zurich University of Applied Sciences (ZHAW), Winterthur - abroad coordinator for North America, 2000-2015.
1998-2011	Freelance translator (German to English) and editor for various financial and industrial organizations and ESP (English for Special Purposes) instructor and coach for high-register business and academic English, Opfikon.
1995-2005	Instructor in English department, Zurich University of Applied Sciences Winterthur, formerly Dolmetscherschule Zürich, Zurich.
1993-2000	English consultant and mathematics seminar instructor at Oekreal Schools of Business and Graduate School of Business Administration (GSBA), Zurich.
1993-1998	In-house ESL instructor for an international consulting company, Zurich.
1989-1991	Freelance translator (German to English) and ESL instructor, Milan, Italy.
1987-1988	In-house ESL consultant & instructor, Credit Suisse, Zurich.
1987-1988	ESL instructor of intermediate English, business English, TOEFL and GMAT preparation at Oekreal and GSBA, Zurich.
1986-1987	ESL instructor for TOEFL preparation and intermediate level English at the English Centre, Zürich.
1982-l983	ESL instructor for technical and Business English, Queen's University, Kingston, Ontario.
1981-1983	Research associate, Regional Human Communication Unit, Queen's University.
1980	Teaching assistant of introductory linguistics, University of Alberta, Edmonton.
1979	Research assistant, Department of Psychology, Queen's University, Kingston.

4 Externally funded research projects

Energy Discourses in Switzerland: Prerequisites for Change
- co-investigator with ZHAW researchers and institutional partner
- external funding, BFE/SFOE, 2016-2019: CHF 284,825

Informed Consent in verständlicher Form [Comprehensibility issues regarding informed consent]
- principal investigator of collaboration with ZHAW researchers and institutional partner
- external funding, BAG/FOPH, 2016: CHF 45,000

Cognitive and Physical Ergonomics of Translation (ErgoTrans)
- principal investigator of interdisciplinary project with ZHAW Health Professions researchers
- SNSF funding (CR13I1_143819/1) 2013-2015: CHF 330,000

Overcoming Language Barriers in Homecare Nursing (OLBiHN)
- co-investigator of interdisciplinary project with ZHAW Health Professions researchers
- SNSF (CR13I1_140833/1) and Ebnet Stiftung funding, 2012-2014: CHF 325,587

Capturing Translation Processes (CTP)
- principal investigator of reseach collaboration with industry partner
- DORE/SNSF funding (13DFD3_124653/1-2), 2009-2012: CHF 420,500

Language Attrition and Official Bilingualism
- principal investigator, Canada-Europe award, 2009: CDN 10,000

Maintaining Natural English
- principal investigator, Fondation Henri Moser grant, 2008: CHF 10,000

5 Supervisor, examiner, or external expert

- PhD co-supervision, University of Geneva, in progress
- PhD co-supervision, University of Hildesheim, in progress
- PhD examining committee, University of Surrey, 2016
- PhD examining committee, Universitat Rovira i Virgili, 2015
- Insitute head search committee, ZHAW, 2015
- EST PhD award evaluator, 2010 and 2013
- Professorship search committee, Aarhus University, 2012
- Tenure and promotion committee, Kent State University, 2012
- PhD examining committee, Dublin City University, 2011
- Reaccreditation expert committee, Fachhochschule Köln, 2010

6 Awards, fellowships, distinguished memberships

- Brazilian Swiss Joint Research Programme (BSJRP) seed money grant, Brazil, 2016
- Invited scholar, Translation department, Aston University, Birmingham/UK, 2016
- Swissnex travel grant, Belo Horizonte, Brazil, 2015
- Invited scholar, English Department, Beijing Normal University, Beijing/CN, 2015
- Swissnex travel grant, Shanghai, China, 2014
- Invited scholar, LETRAS, Universidade Federal de Minais Gerais, Belo Horizonte/BR, 2013
- ZHAW inter-departmental research awards (for ErgoTrans project), 2013 and 2014
- ZHAW inter-departmental research award (for acquisition of OLBiHN project), 2012

7 Professional memberships, reviewing, and editing activities

- Board membership: European Society for Translation Studies (EST), since 2016; TREC Thematic network on empirical and experimental research in translation, since 2015
- Membership in academic and professional associations: European Society for Translation Studies (EST); Gesellschaft für Angewandte Linguistik (GAL); International Association for Translation & Intercultural Studies (IATIS); Swiss Association for Applied Linguistics (VALS/ASLA); Swiss Association of Translators, Terminologists and Interpreters (ASTTI)

- Membership in research networks: EU COST Action IS1201 Disaster Bioethics (2014-2016); TREC Thematic network on empirical and experimental research in translation
- Peer reviewing for journals: European Journal for Applied Linguistics, Fachsprache International Journal of Specialized Communication, Hermes Journal of Language and Communication in Business, IATIS Yearbook, InJAL International Journal of Applied Linguistics, John Benjamins Translation Studies Series, JoWR Journal of Writing Research, Linguistik online, Meta: Journal des traducteurs / Translators' Journal, Machine Translation, Target International Journal of Translation Studies, The Interpreter and Translator Trainer, TIS Translation and Interpreting Studies, trans-kom Journal of Translation and Technical Communication Research, Translation and Interpreting
- Editing activities: Bloomsbury Companion to Language Industry Studies 2019; Translation Spaces 2016; Benjamins Current Topics, volume 77, 2015; Benjamins Current Topics, volume 72, 2015; TIS Translation and Interpreting Studies 2014; TIS Translation and Interpreting Studies 2013; Target 2013

8 Organization of conferences and panels

- Panel organization, *8th EST Congress*, Aarhus, 2016
- Co-organization, *International Workshop on Ergonomics*, Belo Horizonte/BR, 2016
- Co-organization, *Non-professional Interpreting and Translation NPIT3*, Winterthur, 2016
- Co-organization, *Translators at Work 2015* conference, Grenoble
- Advisory board and panel organization, *5th IATIS Conference*, Belo Horizonte/BR, *2015*
- Member of the scientific committee and panel organization, *didTRAD 2014*, Barcelona
- Panel organization, *7th EST Congress*, Germersheim, 2013
- Panel organization, *didTRAD 2012*, Barcelona, 2012

9 Outreach

- American Translators Association Chronicle, invited contribution, in press.
- BDÜ Best Practices Übersetzen, invited contribution, in press
- DÜV Interpreters' and Translators' Association, invited presentation, 2016.
- LQA SYMPOSIUM 2016, invited presentation, 2016.
- *Dolmetscher- und Übersetzervereinigung (DÜV) Bulletin*, invited contribution, 2015.
- IAMLADP training seminar, invited presentation, 2015
- XXth World Congress of the International Federation of Translators, presentation, 2014
- ASSTI équivalences 14, invited presentation, 2014
- EU DG Translation, TRANSLATION FORUM, invited presentations, 2012, 2014
- *Irish Translators' and Interpreters' Association Bulletin*, contribution, 2013

10 Research career breaks

1998-2007	Taught in the Diploma/BA program of the ZHW/ZHAW Institute of Translation and Interpreting as part of the English group; initiated internally-funded research projects; started participating in conferences and applying for external funding; conference contributions and publication from 2002 onwards
1995-1998	Joined the Dolmetscherschule Zürich, worked in the English group; started collecting data for pilot projects and attending conferences
1985-1995	Moved to Switzerland from Canada, taught English, learned German, and started a family (three daughters born between 1988 and 1993); very limited contact with research community

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http://www.zhaw.ch/fileadmin/php_includes/popup/person-detail.php?kurzz=ehre

(**Bold** typeface indicates that entries are connected to the proposed research project.)

Publications in international peer-reviewed scientific journals

Ehrensberger-Dow, Maureen (2014). Challenges of translation process research at the workplace. *MonTI Monographs in Translation and Interpreting*, Special Issue 1: 355-383. http://rua.ua.es/dspace/bitstream/10045/43732/1/MonTI_2014_Special_Issue_13.pdf

Ehrensberger-Dow, Maureen, Andrea Hunziker Heeb, Gary Massey, Ursula Meidert, Silke Neumann, & Heidrun Becker (2016). An international survey of the ergonomics of professional translation. *ILCEA Revue de l'Institut des Langues et des Cultures d'Europe et d'Amérique* 27. http://ilcea.revues.org/4004

Ehrensberger-Dow, Maureen & Gary Massey (2013). Indicators of translation competence: Translators' self-concepts and the translation of titles, *Journal of Writing Research* 5 (1), 103-131. doi: 10.17239/jowr-2013.05.01.5

Ehrensberger-Dow, Maureen & Sharon O'Brien (2015). Ergonomics of the translation workplace: Potential for cognitive friction. Special Issue of *Translation Spaces*, 4 (1).

Ehrensberger-Dow, Maureen & Daniel Perrin (2013). Applying a newswriting research approach to translation, *Target* 25 (1), 77-92.

Englund Dimitrova, Birgitta & Maureen Ehrensberger-Dow (2016). Cognitive Space: Exploring the Situational Interface, *Translation Spaces* 5 (1): 1-19.

Meidert, Ursula, Silke Neumann, Maureen Ehrensberger-Dow, & Heidrun Becker (2016). Physical ergonomics at translators' workplaces: Findings from ergonomic workplace assessments and interviews. *ILCEA Revue de l'Institut des Langues et des Cultures d'Europe et d'Amérique* 27. http://ilcea.revues.org/3996

O'Brien, Sharon, Maureen Ehrensberger-Dow, Marcel Hasler, & Megan Connolly (in press). Irritating CAT tool features that matter to translators. *Hermes* 57.

Perrin, Daniel, Maureen Ehrensberger-Dow, & Marta Zampa (in press). Translation in the newsroom: losing voices in multilingual newsflows. *Journal of Applied Journalism and Media Studies* (Special issue 2017).

Monographs / Edited books

Ehrensberger-Dow, Maureen, Birgitta Englund Dimitrova, Séverine Hubscher-Davidson, & Ulf Norberg (eds) (2015*). Describing cognitive processes in translation: Acts and events*. Amsterdam: John Benjamins.

Ehrensberger-Dow, Maureen, Susanne Göpferich, & Sharon O'Brien (eds) (2015). *Interdisciplinarity in Translation and Interpreting Process Research*. Amsterdam: John Benjamins.

Contributions to books

Angelone, Erik, Maureen Ehrensberger-Dow, & Gary Massey (2016). Cognitive Processes. In: Claudia Angelelli & Brian Baer (eds). *Researching Translation and Interpreting*. Abingdon: Taylor & Francis Routledge. 43-57.

Bale, Richard, Maureen Ehrensberger-Dow, & Lorenza Pescia (in press). Swiss energy policy in translation. In: Kleinberger, Ulla & Rosenberger Staub, Nicole (eds.): *Energiediskurs*. Frankfurt am Main u. a.: Peter Lang (*Sprache in Kommunikation und Medien – SKM 10*).

Ehrensberger-Dow, Maureen (in press). Process research. In Yves Gambier & Lieven D'hulst (eds), *History of Translation Knowledge: A Dictionary*. Amsterdam: John Benjamins.

Ehrensberger-Dow, Maureen (in press). An ergonomic perspective of translation. In: John W. Schwieter & Aline Ferreira (eds), *The Handbook of Translation and Cognition* (Chapter 18). London: Wiley-Blackwell.

Ehrensberger-Dow, Maureen & Andrea Hunziker Heeb (2016). Investigating the ergonomics of a technologized translation workplace. In: Ricardo Muñoz Martín (ed), *Reembedding Translation Process Research*. Amsterdam: John Benjamins. 69-88.

Ehrensberger-Dow, Maureen & Gary Massey (2014). Cognitive ergonomic issues in professional translation. In: Schwieter, John W. & Aline Ferreira (eds), *The Development of Translation Competence: Theories and Methodologies from Psycholinguistics and Cognitive Science.* Newcastle upon Tyne: Cambridge Scholars Publishing. 58-86.

Ehrensberger-Dow, Maureen, Daniel Perrin, & Marta Zampa (in press). Multilingualism and media. In: Daniel Perrin & Colleen Cotter (eds), *The Routledge Handbook of Language and Media*. Abingdon: Taylor & Francis/Routledge.

Massey, Gary & Maureen Ehrensberger-Dow (2012). Evaluating the process: implications for curriculum development. In: Zybatow, Lew, Petrova, Alena, & Ustaszewski, Michael (eds.) (2012): *Translationswissenschaft interdisziplinär: Fragen der Theorie und der Didaktik*. Frankfurt am Main: Peter Lang. 95-100.

Massey, Gary & Maureen Ehrensberger-Dow (2013). Evaluating translation processes: opportunities and challenges. In: Don Kiraly, Silvia Hansen-Schirra, & Karin Maksymski (eds). *New Prospects and Perspectives for Educating Language Mediators* [Translation Studies Series 10 edited by Franz Pöchhacker and Klaus Kaindl]. Tübingen: Narr Francke Attempto. 157-180.

Massey, Gary & Maureen Ehrensberger-Dow (2014). Looking beyond text: the usefulness of translation process data. In: Engberg, Jan, Carmen Heine, & Dagmar Knorr (eds), *Methods in Writing Process Research*. Bern: Peter Lang. 81-98.

Massey, Gary, Peter Jud, & Maureen Ehrensberger-Dow (2015). Building competence and bridges: the potential of action research in translator education. In: Pietrzak, Paulina & Mikołaj Deckert (eds.), *Constructing Translation Competence*. Bern: Peter Lang. 27-48.

Perrin, Daniel & Maureen Ehrensberger-Dow (2012). Translating the news: A globally relevant field for applied linguistics research. In: Gitsaki, Christina & Dick Baldauf (eds): *Future Directions in Applied Linguistics: Local and Global Perspectives*. Newcastle upon Tyne: Cambridge Scholars Publishers. 352-372.

Perrin, Daniel & Maureen Ehrensberger-Dow (in press). Translation in journalism: Local practices in global newsflows? In: Catherine Chua (ed), *Language Planning and Policy: From Global to Local*. De Gruyter Open.

Review articles

Massey, Gary & Maureen Ehrensberger-Dow (2014). Vom "Schattendasein" zur Interdisziplinarität: 35 Jahre Übersetzungswissenschaft im Bulletin. *Bulletin suisse de linguistique appliquée*, 100. 177-182.

Peer-reviewed conference proceedings

Ehrensberger-Dow, Maureen (2015). An ergonomic perspective of professional translation, *Meta* 60 (2): 328.

Ehrensberger-Dow, Maureen & Gary Massey (2014). Translators and machines: working together. In: Man vs. Machine? Vol. I. *Proceedings of XXth World Congress of the International Federation of Translators*, Berlin, 4-6 August 2014, 199-207.

Läubli, Samuel, Mark Fishel, Gary Massey, Maureen Ehrensberger-Dow, & Martin Volk (2013). Assessing Post-Editing Efficiency in a Realistic Translation Environment. In: Sharon O'Brien, Michel Simard, & Lucia Specia (eds). *Proceedings of MT Summit XIV Workshop on Post-editing Technology and Practice,* Nice, September 2, 2013. Allschwil: European Association for Machine Translation. 83-91.

Other relevant publications

Ehrensberger-Dow, Maureen & Gary Massey (2015). Translation process research in the workplace. *EST Newsletter* 46: 11-12.

Ehrensberger-Dow, Maureen, Birgitta Englund Dimitrova, & Severine Hubscher-Davidson (eds) (2014). *The development of professional competence,* (Special Issue), *Translation and Interpreting Studies,* 9 (1).

Läubli, Samuel, Mark Fishel, Gary Massey, Maureen Ehrensberger-Dow, & Martin Volk (2013). Assessing Post-Editing Efficiency in a Realistic Translation Environment. In: Sharon O'Brien, Michel Simard, & Lucia Specia (eds). *Proceedings of MT Summit XIV Workshop on Post-editing Technology and Practice,* Nice, September 2, 2013. Allschwil: European Association for Machine Translation. 83-91.

Invited contributions to international conferences

Socio-technical issues in professional translation practice (invited contribution with Gary Massey), *TPRW5*, Graz, 1-3 Dec 2016.

Ehrensberger-Dow, M. (keynote), Ergonomic aspects of translation technology. *1st International Translation Technology Summer School*, KU Leuven, Antwerp, 1 Sep 2016.

Why ergonomics matters in translation (invited presentation with Gary Massey). *Swansea Tools Workshop*, Swansea, 19-20 July 2016.

Real-world research: Coping with the realities of professional translation (invited presentation with Gary Massey). *TRA&CO symposium*, Germersheim, 28-29 Apr 2016.

The actors and factors behind translation quality: exploring processes, products and environments (keynote with Gary Massey). *Points of View on Translator's Competence and Translation Quality*, Kraków, 26-27 Nov 2015.

Investigating the ergonomics of the technologized translation workplace (invited contribution with Andrea Hunziker Heeb), *TPRW4*, Las Palmas, 15-17 Jan 2015.

Translators in the loop: understanding how they work with CAT tools (keynote), *HaCat 2014 Human in the Loop: Workshop on Humans and Computer-Assisted Translation*, Gothenburg, 26 Apr 2014.

Translation Cultures? Exploring Translators' Self-Concepts (invited contribution with Gary Massey), *Translating Cultures Research seminar series*, University of Westminster, 27 Mar 2013.

Challenges of translation process research at the workplace (invited contribution), *TPW3, 6th International Conference of the Iberian Society for Translation & Interpreting Studies, AIETI*, Las Palmas de Gran Canaria, 21-22 Jan 2013.

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Scientific achievements

1. Multi-method process research in the translation workplace
In the SNSF-funded project "*Capturing Translation Processes*" (2009-2012), headed by the present applicant, writing process research techniques were extended and applied to the training and practice of professional translation in new ways. Another major innovation in that project was moving process techniques out of the controlled setting of the lab into the classroom and the translation workplace. The findings from that project have increased the understanding of cognitive processes during (bilingual) text production as well as of the development of translation competence. The research output of the project team has contributed to shifting cognitive approaches from the periphery of Translation Studies to a more central position. In addition, it has significantly contributed to establishing the reputation of the ZHAW Institute of Translation and Interpreting over the past five years as a center of empirical research with a clear application to teaching and practice (also reflected in its acceptance to the EU's EMT network and to CIUTI). Recognition from the scientific community is reflected in the number of requests for members of the project team to participate in project proposals, review publications, serve on examining committees, and give invited talks. In addition to being responsible for the logistics of the project, the present applicant coordinated the data collection, decided in collaboration with team members on the analyses, worked out new ways of presenting results, and disseminated the findings at international conferences and in peer-reviewed publications.

2. Importance of ergonomics in translation work
One of the significant outcomes of the *Capturing Translation Processes* project is the recognition that the work of professional translators is significantly affected by socio-technical and ergonomic issues. An ergonomic perspective on the translation process was proposed by a colleague in Grenoble in 2011 with respect to training but there was little relevant empirical evidence about the realities of the translation workplace until the current applicant launched the SNSF-funded project "*Cognitive and Physical Ergonomics of Translation*" (2013-2015). Combining methodological approaches from translation studies, occupational therapy, and usability allowed the interdisciplinary ZHAW team to convincingly demonstrate the potential influence of poor ergonomics on translation quality as well as on translator health and job satisfaction. The implications for reputational risk and long-term costs have been recognized by professional associations and industry, as members of the team have been asked to give talks and submit contributions to newsletters and bulletins. The impact of the research is also clear from the dramatic increase in the number of mentions of ergonomics in recent academic publications and conference presentations in translation studies - especially by early-stage researchers - and requests from the latter to come to the ZHAW as visiting scholars. The present applicant designed the study, coordinated the work of the interdisciplinary team, guided the triangulation of the various data sources, has published results in various venues, and is still being asked to talk about the research at professional meetings and academic conferences.

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1 Current position

Institute of Translation and Interpreting IUED, School of Applied Linguistics, ZHAW Zurich University of Applied Sciences, Winterthur, Switzerland
- Professor of Interpreting Studies (since 2012)

2 Education

2011	Baden-Württemberg Tertiary Education Didactics Certificate of Teaching and Learning at University
2007	Dr. phil. (PhD Applied Linguistics), UNIVERSITY OF TÜBINGEN (DE), English Department (Honours 'summa cum laude')
1989	Dipl.-Dolm. (MA equivalent Conference Interpreting English/French) UNIVERSITY OF HEIDELBERG (DE), Institute of Translation and Interpreting
1987	MPhil (Cantab) (International Relations) CAMBRIDGE UNIVERSITY (UK), Queens' College

3 Previous professional and academic experience

10/2009 - 12/2011	Lecturer in Interpreting Studies and Applied Linguistics, Institute of Translation and Interpreting, ZHAW Zurich University of Applied Sciences, Winterthur, Switzerland
01/2008 - 12/2011	Lecturer/researcher in Applied English Linguistics, English Department, University of Tübingen, Germany Member of TELF (Tübingen English as a Lingua Franca research project, corpus and database) (http://projects.ael.uni-tuebingen.de/telf)
2001-2007	Freelance translating and conference consulting (www.konferenzdolmetschen.de)
1993-1996	Lecturer/researcher, Applied English Linguistics, University of Tübingen, Germany
1990-1994	Researcher, Institute of Translation and Interpreting, University of Heidelberg, EU ESPRIT Project 2315 TWB I and II – Translator's Workbench (conceptual design of a termbank for translation purposes)
1990-1996	Freelance conference interpreter

4 Externally funded research projects

Writing Interpreting in (Chinese) TNE (Trans-National-Education) Environments – Impact of English variety on accuracy and performance, ZHAW
- co-investigator
- external funding, Xi'an Jiaotong-Liverpool University (XJTLU) Research Development Fund; SERI-ETH seed money, 2015-2017 https://www.zhaw.ch/de/forschung/personen-publikationen-projekte/detailansicht-projekt/projekt/2699/

JUSTISIGNS *Legal Interpreting and Sign Language Interpreting*, HfH-ZHAW
- sub-contracted investigator of HfH (Hochschule für Heilpädagogik) Zurich
- external funding, EU LEONARDO Lifelong Learning Programme 538899, 2015-2016
http://www.justisigns.com/JUSTISIGNS_Project/About.html

Interpreting in Medical Settings: Roles, Requirements and Responsibility, ZHAW
- associate researcher
- external funding, KTI Suisse Commission for Technology and Innovation, 2010 – 2012
(http://www.zhaw.ch/fileadmin/php_includes/popup/projekt-detail.php?projektnr=1034)

ViKiS *Video conference interpreting with integrated simultaneous interpreting*, University of Tübingen
- project initiator and key concept developer in proposal submission (non-continuation due to child-break)
- external BMBF funding, 1996-1998, BMBF German federal government ministry of Education and Research)
(http://projects.ael.uni-tuebingen.de/vikis/index.html), 1996 - 1998

TWB *Translators'Workbench I and II*, University of Heidelberg
- main researcher
- external funding, EU, ESPRIT Project 2315, 1990-1994

5 Supervisor, examiner, or external expert

- External reviewer, professorial appointment procedure, Innsbruck University, 2017
- Consultant Editor, third edition (2017) *Routledge Encyclopedia of Translation Studies* (edited by Mona Baker)
- Member of *taskforce* for the establishment of a directorate-general-like *Center of Multilingualism, Interpreting and Translation* (ASEAN-MIT) for the ASEAN countries in cooperation with the *Association of Asian Translation Industry* (AATI) and the *US National Council for Language and International Studies* (since 2015)
- Representative for Switzerland (*regional node*) of CIRIN (*Conference Interpreting Research and Information Network*) lead by Daniel Gile (since 2014)
- Examiner, PhD, University of Auckland 2015

6 Awards. fellowships, distinguished memberships

- *Writing Interpreting in Chinese TNE (Trans-National-Education) Environments, seed money grant (Sino Swiss Science and Technology Cooperation Program SSSTC), 2016*
- *Joint Translation and Interpreting Development Effort in Thailand and the ASEAN Region (TIDE), seed money grant* (SERI-ETH), 2016
- *Joint Translation and Interpreting Development Effort in Thailand and the ASEAN Region (TIDE II), seed money grant* (SERI-ETH), 2017
- Swissnex travel grant, Bangalore, India, 2016
- Swissnex travel grant, Shanghai, China, 2016
- Swissnex travel grant, Shanghai, China, 2014
- Invited scholar, SummerTrans Summer School, Innsbruck University, 2016
- 2006 German Society of Applied Linguistics (GAL) award for the dissertation "Notationssprache und Notizentext. Ein kognitiv-linguistisches Modell für das Konsekutivdolmetschen" (*Notation language and notation text. A cognitive-linguistic model of consecutive interpreting*)
- Reintegration grant (Hochschul- und Wissenschaftsprogramm des Landes Baden-Württemberg, HWP), 2001-2003

7 Professional memberships, reviewing, and editing activities

- Executive Council membership: IATIS (*International Association of Translation and Intercultural Studies*), since 2016
- Editorial board Translatologia (http://www.translatologia.ukf.sk) (since 2014)
- Membership in Research networks: COST (European Cooperation in Science and Technology) Action OC-2016-2-21397 " TRANSLATING AND INTERPRETING - Promoting Equal Access to Public Services "; English as a Lingua Franca Research Network (ELF-ReN); European Public Service Interpreting and Translation Network (EPSIT); KWG (Kulturwissenschaftliche Gesellschaft) network "Intertraditionale Wissenskonstitution"
- Membership in academic and professional associations: Gesellschaft für Angewandte Linguistik (GAL); European Society for Translation Studies (EST); International Association for Translation and Intercultural Studies (IATIS) (Member of the Executive Council); Kulturwissenschaftliche Gesellschaft (KWG) (Founding member);

- Peer-reviewing for specialist journals: *Interpreting. International Journal of Research and Practice in Interpreting; Target. International Journal of Translation Studies; TIS. Translation and Interpreting Studies; JELF. Journal of English as a Lingua Franca; Translatologia; CETRA papers*
- Member in scientific committees: 6th International Conference on Public Service Interpreting and Translation (Community Interpreting), Alcala, Spain, March 2017; Fourth Non-Professional Interpreter and Translation Conference (NPIT4), Stellenbosch, South-Africa, May 2018
- Review Committee annual international ELF conferences (since 2013)

8 Organization of conferences and panels

- Panel co-organization (with Juliane House, Claudio Bendazzoli), 10th ELF Conference Helsinki, 2017
- Panel co-organization (with Jim Hlavac), 7th Asian Traditions Translation Conference, Kuala Lumpur, 2016
- Panel co-organization (with Juliane House, Claudio Bendazzoli), 8th EST Congress, Aarhus, 2016
- Co-organization, Non-professional Interpreting and Translation NPIT3 Conference, Winterthur, 2016
- Panel co-organization (with Anna Mauranen), 7th ELF Conference, Athens, 2014
- Panel co-organization (with Karin Reithofer), 7th EST Congress, Germersheim, 2013

9 Outreach (knowledge transfer activities)

- Sprachspiegel, Schweizerischer Verein für die deutsche Sprache, invited contribution (SVDS, 5/2015, 140 – 149).
- Annual conference of Swiss Specialized Integration Services (Jahreskonferenz der Schweizer Integrationsstellen, Kofi), invited keynote with Christiane Hohenstein, Solothurn 22 Sept 2015
- XXth World Congress of the International Federation of Translators, Berlin, presentation, 2014
- BDÜ, German Interpreters' and Translators' Association, contribution, *MDÜ*, 2/2012, 24-27.
- DÜV, Swiss Interpreters' and Translators' Association, invited contribution (DÜV-Bulletin 1/2012, 4-9)

Continuing education programs and services

- BDÜ-SAVD-ZHAW-cooperation for the training of video-interpreters for refugee languages (Arabic, Kurdish, Dari, Farsi, etc.), 2016 http://www.videodolmetschen.com/
- MedDolm professional development courses for medical interpreters in cooperation with BDÜ (Bundesverband der Dolmetscher und Übersetzer e.V.), 2016
- TIDE *Joint Translation and Interpreting Development Effort in Thailand and the ASEAN Region* (*Seed-money*-funded by ETH Zürich, mandated by SERI, Swiss Federal Secretariat for Education, Research and Innovation; collaboration with Prof. Dr. Maneeratana Sawasdiwat Na Ayutthaya, President of *Association of Asian Translation Industry* (AATI) (2015 – 2017)
- Community Interpreting workshop, Buddhist Center, Gretzenbach, Switzerland, 2015
- BDG Training of legal interpreters in cooperation with Zurich High Court (annually until 2014)
- CAS 8-month *Certificate of Advanced Studies* course for the professional development of legal interpreters (annually until 2014)
- DiG Continuous education programme „Healthcare interpreting – communication in difficult contexts" (6 courses between 2010 and 2014)
- Interpreter training for multilingual inhouse medical staff at the Schweizer Paraplegiker-Zentrum as well as at Zürcher Kinderspital (KISPI)
- Module „Interpreting in medical encounters with migrants" as part of CAS „Transcultural Competences for Midwifes" ZHAW School of Health

10 Research career breaks

2001-2007	PhD project on a cognitive linguistic model of consecutive interpreting (Dissertation and colloquium: 'summa cum laude'), University of Tübingen; - German Society of Applied Linguistics (GAL) award, 2006 - publication 2007, in *Language in Performance* series, Tübingen, Narr. - reintegration grant (Hochschul- und Wissenschaftsprogramm des Landes Baden-Württemberg, HWP), 2001-2003
1997-2000	Child-rearing break (two children, born in 1996 and 1998)

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(**Bold** typeface indicates that entries are connected to the proposed research project)

Publications in international peer-reviewed scientific journals

Albl-Mikasa, Michaela; Fontana, Giovanna; Fuchs, Laura Maria; Studeli, Lena Meret; Zaugg, Aline (2017). Written ELF and translation: Professional translations of non-native English. Before and after texts from the European Parliament's Editing Unit. *The Translator* 23, (forthcoming).

Albl-Mikasa, Michaela; Glatz, Elisabeth; Hofer, Gertrud; Sleptsova, Marina (2015). Caution and compliance in medical encounters. Non-interpretation of hedges and phatic tokens. *Translation & Interpreting*, 7/2, 76–89.

Albl-Mikasa, Michaela (2014). English as a lingua franca in international conferences. Current and future developments in interpreting studies. *Interpreting and Translation Studies* (Korea), 18/3, 17–42. (invited article)

Albl-Mikasa, Michaela (2014). The imaginary invalid. Conference interpreters and English as a lingua franca. *International Journal of Applied Linguistics*, 24/3, 293–311.

Albl-Mikasa, Michaela (2013). Developing and Cultivating Expert Interpreter Competence. *The Interpreters' Newsletter*, 18, 17–34.

Albl-Mikasa, Michaela (2013). ELF speakers' restricted power of expression – implications for interpreters' processing: In: Maureen Ehrensberger-Dow; Birgitta Englund Dimitrova; Séverine Hubscher Davidson (Hg.). Describing cognitive processes in translation. *Special issue of Translation and Interpreting Studies*, TIS, 8/2, 191–210.

Albl-Mikasa, Michaela (2013). Express-ability in ELF communication. *Journal of English as a Lingua Franca*, 2/1, 101–122. (invited article)

Albl-Mikasa, Michaela (2013). Teaching Globish? The Need for an ELF-Pedagogy in Interpreter Training. *International Journal of Interpreter Education*, 5/1, 3–16.

Edited volumes

Ahrens, Barbara; Albl-Mikasa, Michaela; Sasse, Claudia (Hg.). (2012). *Dolmetschqualität in Praxis, Lehre und Forschung: Festschrift für Sylvia Kalina.* Tübingen: Narr.

Contributions to books

Albl-Mikasa, Michaela (2017). ELF and Translation/Interpreting. In: Jennifer Jenkins; Will Baker; Martin Dewey (Hg.). *The Routledge Handbook of English as a Lingua Franca*. London and New York: Routledge, (forthcoming). (invited chapter)

Albl-Mikasa, Michaela; Bartels, Livia; Mohler, Lorenz; Wick, Bernd (2016). World Englishes and English as a lingua franca in interpreter training. In: Susanne Hagemann; Thomas Kempa; Julia Neu; Stephan Walter (Hg.). *Translationslehre und Bologna-Prozess: Unterwegs zwischen Einheit und Vielfalt*. Berlin: Frank und Timme, (forthcoming).

Albl-Mikasa, Michaela (2016). Notation Language and Notation Text: A Cognitive-Linguistic Model of Consecutive Interpreting. In: Yasumasa Someya (Hg.). *Consecutive Notetaking and Interpreter Training.* London and New York: Routledge, (forthcoming). (invited chapter)

Albl-Mikasa, Michaela (2015). English as a lingua franca. In: Franz Pöchhacker; Nadja Grbic; Peter Mead; Robin Setton (Hg.). *Encyclopedia of Interpreting Studies*. (140–142). Oxford and New York: Routledge. (invited entry)

Albl-Mikasa, Michaela (2015). Lingua franca. In: Pöchhacker, F.; Grbic, N.; Mead, P.; Setton, R. (Hg.). *Encyclopedia of Interpreting Studies*. Oxford and New York: Routledge, 235. (invited entry)

Albl-Mikasa, Michaela (2015). ELF speakers' restricted power of expression: Implications for interpreters'processing. In: Maureen Ehrensberger-Dow; Birgitta Englund Dimitrova; Séverine Hubscher Davidson; Ulf Norberg (Hg.). *Cognitive Processes in Translation: Acts and events.* (43–62). Benjamins Current Topics, 77. Amsterdam: John Benjamins. (invited chapter)

Albl-Mikasa, Michaela (2014). Receptivism. An intertraditional approach to intuition in interpreter and translator competence. In: Lew Zybatow; Michael Ustaszewski (Hg.). *Bausteine translatorischer Kompetenz oder Was macht Übersetzer und Dolmetscher zu Profis.* Innsbrucker Ringvorlesungen zur Translationswissenschaft VII. Forum Translationswissenschaft – Band 18. (51-81). Frankfurt am Main: Peter Lang. (invited chapter)

<u>Peer-reviewed conference proceedings</u>

Albl-Mikasa, Michaela (2014). Conference interpreting in times of English as a lingua franca (ELF) - Changing variables and requirements. In: *Proceedings of the 14th GSIT-ITRI International Conference: East and West Communication in the Era of Lingua Franca*. (2-3 June). Seoul (South Korea), 53–62. (invited contribution)

Albl-Mikasa, Michaela (2014). Interpreting versus English as a Lingua Franca (ELF). Future developments for conference interpreters in a globalizing world. In: *Man vs. Machine? Proceedings of the XXth FIT World Congress.* (4-6 August). Berlin, 809–817.

Albl-Mikasa, Michaela; Hofer, Gertrud; Sleptsova, Marina (2014). (Non-)salience of 'culture' in interpreted medical encounters. In: Carmen Valero Garcés (Hg.). (Re)visiting ethics and ideology in situations of conflict. *Proceedings of the 5th International PSI Conference*. (108-113). Alcalá de Henares: Universidad de Alcalá.

Albl-Mikasa, Michaela; Hofer, Gertrud; Sleptsova, Marina (2013). Die Unterbewertung phatischer und Überbewertung kulturspezifischer Ausdrücke in der gedolmetschten Arzt-Patienten-Kommunikation. In: Mapping the Field of Community Interpreting - Community Interpreting Heute. *InDialog Conference Programme*. (42-44). Berlin: ICWE GmbH.

Albl-Mikasa, Michaela (2012). Interpreting Quality in Times of English as a Lingua Franca (ELF): New Variables and Requirements. In: Zybatow, Lew; Alena Petrova; Michael Ustaszewski (Hg.). Translation Studies: Old and New Types of Translation in Theory and Practice. *Proceedings of the 1st International Conference TRANSLATA*. Translation & Interpreting Research: Yesterday? Today? Tomorrow?, May 12-14, 2011, Innsbruck. (267–273). Frankfurt am Main: Peter Lang.

<u>Other relevant publications</u>

Albl-Mikasa, Michaela; Guggisberg, Sandra; Talirz, Fenja (2016). (Source) texting ELF. Native and non-native English speaker discourse production and conference interpreters' native speaker preference. In: Andy Stauder; Michael Ustaszewski; Lew Zybatow (Hg.). *Translation Studies and Translation Practice.* (=Forum Translationswissenschaft 19–20). Frankfurt am Main: Peter Lang, (forthcoming).

Albl-Mikasa, Michaela (2015). „Don't take the interpreters to your room, lay them on the table" – Von den Tücken des Übersetzens in englischen Zeiten. *Sprachspiegel* (herausgegeben vom Schweizerischen Verein für die deutsche Sprache, SVDS), 5, 140–149. (invited contribution)

Albl-Mikasa, Michaela (2012). Raus aus dem Elfenbeinturm, rein in die globalisierte Welt - Dolmetschqualität unter veränderten Vorzeichen. *MDÜ*, 2/2012, 24–27/*DÜV-Bulletin*, 1/2012, 4–9. (invited contribution)

Albl-Mikasa, Michaela (2012). The importance of being not too earnest: a process- and experience-based model of interpreter competence. In: Barbara Ahrens; Michaela Albl-Mikasa; Claudia Sasse (Hg.). *Dolmetschqualität in Praxis, Lehre und Forschung: Festschrift für Sylvia Kalina*. (59-92). Tübingen: Narr.

Invited contributions to international conferences

Albl-Mikasa, Michaela; Na Ayutthaya, Maneeratana Sawasdiwat (2016). Joint Translation and Interpreting Development Effort in Thailand and the ASEAN region (invited presentation with Prof. Maneeratana Sawasdiwat Na Ayutthaya). Workshop with Research Agencies from Switzerland, Indonesia, Malaysia, Thailand, The Philippines and Vietnam, *SERI-ETH ASEAN Workshop*. (2-3 November). Singapore.

Albl-Mikasa, Michaela (2016). ITELF – Interpreting, Translation and English as a Lingua Franca (invited panel organization and presentation). *7th Asian Traditions Translation Conference*. (26-29 September). Kuala Lumpur (Malaysia).

Albl-Mikasa, Michaela (2016). Interpreting and English as a lingua franca (invited module). *International Translation Summer School* (11-20 July). Innsbruck (Austria): University of Innsbruck.

Albl-Mikasa, Michaela (2016). ITELF – Interpreting, Translation and English as a Lingua Franca (keynote). *International Symposium English in Italy – Translation and Interpreting in Educational and Professional Settings.* (5 February). Torino (Italy): Università degli Studi di Torino

Albl-Mikasa, Michaela (2016). Introduction into Conference and Community Interpreting (invited workshop). *International Conference on ASEAN Best Practices on Language, Translation, Interpretation, Sign Language Interpreting and Informatics in Celebration of Her Royal Highness Princess Maha Chakri Sirindhorn's 60th Birthday Anniversary* (29 April – 1 May 2015). Bangkok (Thailand).

Albl-Mikasa, Michaela (2014). English as a Lingua Franca (ELF) in International Conferences – New Trends in Interpreting Studies (invited keynote, last minute cancellation due to illness). *Translation and Culture* (17-18 September). Nitra (Slovakia): Constantine the Philosopher University.

Albl-Mikasa, Michaela (2014). Interpreting, Translation and English as a lingua franca (ITELF) (invited special colloquium with Anna Mauranen). *7th International Conference of English as a Lingua Franca* (4-6 September). Athens (Greece): DEREE- The American College of Greece.

Albl-Mikasa, Michaela (2014). Conference interpreting in times of English as a lingua franca (ELF) – changing variables and requirements (invited talk). *The 14th GSIT International Conference East-West Communication in the Era of Lingua Franca.* (2-3 June). Seoul (South Korea).

Albl-Mikasa, Michaela (2013). Dolmetschkompetenz – Kernkompetenzen und Kompetenzpflege (invited lecture). *7. Internationale Innsbrucker Ringvorlesung zur Translationswissenschaft*. (20 March). Innsbruck (Austria): Institut für Translationswissenschaft der Universität Innsbruck.

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Scientific achievements

1. ITELF – research into the implications of English as a lingua franca for translation and interpreting

The main applicant's work (between 2008 and 2011) in the TELF group (Tübingen English as a lingua franca database and research) within the Tübingen University's Applied English Linguistics chair was firmly-anchored, mainstream ELF research. Upon accepting a position at the ZHAW Institute of Translation and Interpreting, the opportunity to shed new light on ELF by exploiting the cross-over between T&I and ELF research was immediately taken, with a focus on its limitations as experienced by T&I professionals rather than on its alleged effectiveness. The impact of this pioneering work is documented by the number of peer-reviewed publications in the subfield produced by the applicant and the recognition by the mainstream ELF research community, whose key researchers have begun to take an interest in ITELF. Examples include invitations to co-organize an ITELF panel at the 7th International ELF Conference, with Anna Mauranen, and to contribute a chapter on this topic to the first Routledge Handbook of ELF (2017), edited by Jennifer Jenkins. The main applicant of the present proposal continues to be the driving force behind ITELF, conducting empirical studies into the effects of ELF on interpreting as well as on translation processes and performance.

2. Establishing a cognitive approach in investigations of community interpreting

Under the supervision of Kurt Kohn and connected to his cognitive-linguistic approach to T&I, the doctoral research of Sylvia Kalina (1998), Sabine Braun (2004), and Michaela Albl-Mikasa (2007, recognized by the German Society of Applied Linguistics award) was instrumental in establishing what has been termed the 'Heidelberg School' (HS), in the tradition of the Paris, Moscow, Leipzig, and Trieste School of interpreting studies. The key element of this cognitive and pragmatic discourse model of interpreting centers around the idea of describing interpreters' comprehension and production processes in terms of mental modeling. The HS model is supported by a large body of psycholinguistic evidence and has been successfully applied to conference interpreting by the authors mentioned above.

The current applicant is in the process of applying this model to community interpreting (i.e. in medical, legal, and educational settings), which as yet has been described primarily with the discourse in interaction (DI) paradigm, methodologically grounded in interactional sociolinguistics with no regard to the cognitive processing dimension. The HS framework has enabled her to carry out in-depth analyses of community interpreting which promise to introduce a cognitive turn in the field (the forthcoming de Gruyter publication will appear in early 2017). The societal importance of investigating community interpreting from various perspectives is heightened by the recent influx of refugees and increasing migrant mobility in Europe.

Curriculum Vitae

Prof. Dr. rer. nat. Lutz Jäncke

University Zurich
Psychological Institute, Division Neuropsychology
E-Mail: l.jaencke@psychologie.uzh.ch

Personal
born 16.7.1957 in Wuppertal / Germany, German citizenship. Married since October 1988 to Petra Jäncke (Neuropsychologist). Father of 2 boys (26 and 21 years old).

Current position(s)
Ordinarius for Neuropsychology at the University of Zurich

Education
- 1981: B.S. (Psychology) Technical University Braunschweig
- 1984: M.S. (Psychology, Brain research). Heinrich-Heine- University Düsseldorf (Germany)
- 1989: Ph.D (Neuropsychology, Cognitive Psychology); Dr. rer. nat.,Heinrich-Heine-University Düsseldorf (Germany)
- 1995: Habilitation (Neuropsychology), conferring of the venia legendia for Psychology, Heinrich-Heine-University Düsseldorf (Germany)

Professional and academic experience
- 1996: Senior Researcher at the research centre Julich (Ddepartment of Medicine)
- 1982-1984: Post-Doc (Experimental Psychology, Düsseldorf)
- 1984-1989: Research assistant to Prof. Kalveram (C1) at the Institute of Experimental Psychology, Düsseldorf
- 1989-1995: Assistant Professor (C1; Hochschulassistent) of Experimental Psychology University Düsseldorf
- 1995: Harvard Medical School, Beth Israel Hospital, Department of Neurology and Radiology (Prof. Steven Warrach and Prof. Gottfried Schlaug) – visiting scientist (with a DFG-Stipendship)
- 1996-1997: Senior Researcher at the Research Center Julich, Germany, Institute of Medicine
- 1997-2002: C4 Prof. Experimental Psychology, Otto-von-Guericke-University Magdeburg
- since 2002: Ordinarius for Neuropsychology at the University Zurich

Supervised PhD theses, important contributions to the career of scientists
- Since 1997 I have supervised more than 150 PhDs and 5 “Habilitations” (2 direct and 3 indirect) theses.
- Among them are researchers who are now holding professorships at universities in Germany, Switzerland, USA, and Norway (Prof. Karsten Specht, Prof. Toemme Noesselt, Prof. Nadine Gaab, Prof. Eileen Lüders, Prof. Gaser, Prof. Buncek, Prof. Meyer, Prof. Langer)

Prizes, fellowships, distinguished memberships
- 1984: B.S. and M.S. with honour
- 1989: Dissertation (summa cum laude, with honour)
- 1995: Habilitation *Venia legendi* in Psychology (Privat-Dozent, PD)
- 1996: Award for the best Habilitation at the ‘Mathematisch-Naturwissenschaftliche Fakultät’ of the Heinrich-Heine-University Düsseldorf
- 1996: Heisenberg Grant (personal grant for excellent science from the German Research Foundation granted for 3 years)
- 2006: “Goldene Eule” for best teaching at the ETH Zürich
- 2007: “Credit Swiss Best Teaching Reward” from the UZH
- 2008: “Goldene Eule” for best teaching at the ETH Zürich
- 2011: Special “Credit Suisse Award for Best Teaching” from the UZH
- 2013 -: Distinguished Scientist and Adjunct Professor at the King Abdulaziz University, Jeddah, Saudi Arabia

- Job offer for Professor positions: 2008 University Vienna, Chair for Biological Psychology.; 2009 University South Carolina, Endowed Chair in Neuroimaging and Scientific Director of the *MacCausland Brain Imaging Center*.

Governing activities

- Director of the Institute of Psychology at the Otto-von-Guericke-University Magdeburg from 1998-2002.
- Member of the "Forschungskommission" of the University Zurich since 2002.
- Member of several search committees as well as teaching organization committees at the UZH and ETH.
- Director of the "International Normal Aging and Plasticity Imaging Centre" (INAPIC) Zurich.
- Director of the University Research Priority Program "Dynamic of Healthy Aging"
- European representative of the "Dana Organization" (Brain and Community).
- Representative of the UZH professors (2012-16)

Organization of conferences

- Joined midyear meeting of the "International Society of Neuropsychology" together with the German and Swiss Neuropsychology Associations in July 2006 in Zurich.
- Co-organizer of the Swiss Psychology Conference in Zurich in September 2007.

Outreach (e.g., technology and knowledge transfer activities)

- Scientific **boards**
  - Neuroscience Center Zurich
  - Dybuster GmbH- Defeating Dyslexia
  - Board Member of Faculty of 1000 for Neurology/Neuroimaging
  - Centre for Integrative Human Physiology, University of Zurich - Senior member
  - COST (European Cooperation in Science and Technology) Initiative ""Neurofeedback and Brain Computer Interface" - Swiss Representative
  - The International Max Planck Research School "The Life Course: Evolutionary and Ontogenetic Dynamics (LIFE)" – Faculty Membe
  - Scientific Board Member of the Gesellschaft für Neuropsychologie (GNP), Germany
  - Associate Professor at the King Abdulaziz University in Jeddah, Saudi Arabia in the program for highly cited scientists as distinguished scientist.
  - Director of the International Normal Aging and Plasticity Imaging Center Zurich (INAPIC)
  - Director of the University Research Priority Program "Dynamic of Healthy Aging" (URRP)
- **Review work**
  - *Grant reviewer for various grant organizations (selection):* Deutsche Forschungsgemeinschaft (DFG), National Institute of Mental Health (NIMH), Irish Research Council, New Zealand Research Foundation, German Israel research foundation Canadian Research Council (CRC), Natural Sciences and Engineering Research Council of Canada (NSERC), Swiss National Foundation (SNF), Welcome Institute (London), Welcome Trust (GB), National Institute of Mental Health (NIMH), Leverhulme Foundation (GB), Dutch Social Science Research Council, Danish National Research Foundation (DNRF), Academy of Finland.
  - In the last 5 years I have reviewed more than 20 PhD and "Habilitation" theses from universities out side the UZH.
  - I have served as independent reviewer in the last 5 years in more than 15 review board meetings organized by grant organisations in the context of larger scientific endeavours (EU, BMBF, DFG-SFB, CNRS).
- **Review work for organizations**: Neuropsychological expert reviewer, official reviewer for the "Strassenverkehrsamt Zürich" (traffic office of the Canton Zurich). Reviewer for health insurance companies.
- **Editorial board - scientific journals:** Brain and Language, Laterality, NeuroReport, Zeitschrift für Neuropsychologie, Swiss Journal of Psychology, European Journal of Developmental Sciences, Frontiers in Neurosciences, Neuroscience, Psychological Research, Quarterly Journal of Psychological Research, Restorative Neurology and Neuroscience
- Member of *Faculty of 1000* (Neurology and Neuroimaging)
- **Ad hoc Reviewer for scientific journals:** I am serving as ad hoc reviewer for more than 50 journals including all major general (Science, Nature) neuroscience (Nature Neuroscience,

Neuron, J Neuroscience, Cerebral Cortex, Brain) and psychology journals (Psychological Research, Neuropsychologia, Psychological Review).

- **Citation analysis**
  - **Web of Science**: 13497 citations (23.11.2016), 445 papers, average citations per article: 30.3 H-Index = 62
  - **Essential Science Indicator (ESI)** (23.11.2016) ISI: 4313 citations in „all fields“ (1% of the most cited scientists).
  - **Google scholar**: 22378 citations (23.11.2016), h-index = 79, i10-index = 277, since 2010: 10940 citations, h-index since 2010 = 61, i10-index since 2010 = 243.
- Grant support: From various organisations including the *German Research Foundation* (DFG: Deutsche Forschungsgesellschaft), *Swiss National Science Foundation* (SNF), *European Union* (EU), private donations and industry projects. Including 2 Bonus of Excellence Grants from the SNF (total amount **1.9 Million CHF**). Total amount of grant money from SNF and EU since 2003 = **12 Million CHF.** University Research Priority Program **5 Million CHF** for 2013-1018 (together with Prof. Martin).
- **Invited talks in the last 5 years**
  - More than 100 invited talks and lectures (as keynote lecturer) at symposia and conferences about brain plasticity, brain organization of synaesthetes and musicians.
  - More than 50 invited talks at science colloquia in various universities and science institutions.
  - More than 100 invited talks at public science education events, at general science meetings for laypersons, for politicians, or companies.
  - Several appearances on international and national TV, radio, and print press about science issues related to brain plasticity, education, music, and geniuses.

Publication list of Lutz Jäncke

A full list of publications is available on:
https://www.ncbi.nlm.nih.gov/pubmed?otool=uscnmlib&term=**Jancke**%20L&cmd=search
https://scholar.google.com/citations?hl=en&user=unQpfgoAAAAJ

Publications in international peer-reviewed scientific journals

Kurth, F., Jancke, L., & Luders, E. (2017). Sexual dimorphism of Broca's region: More gray matter in female brains in Brodmann areas 44 and 45. *Journal of Neuroscience Research, 95*, 626-632.

Valizadeh, S. A., Hanggi, J., Merillat, S., & Jancke, L. (2016). Age prediction on the basis of brain anatomical measures. *Hum Brain Mapp*.

Rogenmoser, L., Zollinger, N., Elmer, S., & Jäncke, L. (2016). Independent component processes underlying emotions during natural music listening. *Soc Cogn Affect Neurosci*.

Muller, A. M., Merillat, S., & Jancke, L. (2016). Older but still fluent? Insights from the intrinsically active baseline configuration of the aging brain using a data driven graph-theoretical approach. *Neuroimage, 127*, 346-362.

Marcar, V. L., & Jäncke, L. (2016). To see or not to see; the ability of the magno- and parvocellular response to manifest itself in the VEP determines its appearance to a pattern reversing and pattern onset stimulus. *Brain and Behavior*, e00552.

Lutz, J., Bruhl, A. B., Scheerer, H., Jancke, L., & Herwig, U. (2016). Neural correlates of mindful self-awareness in mindfulness meditators and meditation-naive subjects revisited. *Biol Psychol, 119*, 21-30.

Lutz, J., Bruhl, A. B., Doerig, N., Scheerer, H., Achermann, R., Weibel, A., Jancke, L., & Herwig, U. (2016). Altered processing of self-related emotional stimuli in mindfulness meditators. *Neuroimage, 124*, 958-967.

Lutz, J., Brühl, A., Scheerer, H., Jäncke, L., & Herwig, U. (2016). Neural correlates of mindful self-awareness in mindfulness meditators and meditation-naïve subjects revisited. *Biol Psychol*.

Kropotov, J., Ponomarev, V., Tereshchenko, E. P., Müller, A., & Jäncke, L. (2016). Effect of Aging on ERP Components of Cognitive Control. *Front. Aging Neurosci., 8*, 434.

Klein, C., Liem, F., Hänggi, J., Elmer, S., & Jäncke, L. (2016). The "silent" imprint of musical training. *Hum Brain Mapp, 37*, 536-546.

Klein, C., Diaz Hernandez, L., Koenig, T., Kottlow, M., Elmer, S., & Jäncke, L. (2016). The Influence of Pre-stimulus EEG Activity on Reaction Time During a Verbal Sternberg Task is Related to Musical Expertise. *Brain Topogr, 29*, 67-81.

Jäncke, L., & Alahmadi, N. (2016). Resting State EEG in Children With Learning Disabilities: An Independent Component Analysis Approach. *Clin EEG Neurosci, 47*, 24-36.

Jancke, L., & Alahmadi, N. (2016). Detection of independent functional networks during music listening using electroencephalogram and sLORETA-ICA. *Neuroreport, 27*, 455-461.

Ghadri, J. R., Sarcon, A., Diekmann, J., Bataiosu, D. R., Cammann, V. L., Jurisic, S., Napp, L. C., Jaguszewski, M., Scherff, F., Brugger, P., Jancke, L., Seifert, B., Bax, J. J., Ruschitzka, F., Luscher, T. F., Templin, C., & Inter, T. A. K. C.-i. (2016). Happy heart syndrome: role of positive emotional stress in takotsubo syndrome. *Eur Heart J*.

Dittinger, E., Barbaroux, M., D'Imperio, M., Jäncke, L., Elmer, S., & Besson, M. (2016). Professional Music Training and Novel Word Learning: From Faster Semantic Encoding to Longer-lasting Word Representations. *J Cogn Neurosci*, 1-19.

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Casutt, G., Martin, M., & Jäncke, L. (2016). Driving Simulator Training Is Associated with Reduced Inhibitory Workload in Older Drivers. *Geriatrics, 1*, 16.

Alahmadi, N., Evdokimov, S. A., Kropotov, Y., Müller, A. M., & Jäncke, L. (2016). Different Resting State EEG Features in Children from Switzerland and Saudi Arabia. *Frontiers in Human Neuroscience, 10*.

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Scherpiet, S., Herwig, U., Opialla, S., Scheerer, H., Habermeyer, V., Jancke, L., & Bruhl, A. B. (2015). Reduced neural differentiation between self-referential cognitive and emotional processes in women with borderline personality disorder. *Psychiatry Res, 233*, 314-323.

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Joel, D., Berman, Z., Tavor, I., Wexler, N., Gaber, O., Stein, Y., Shefi, N., Pool, J., Urchs, S., Margulies, D. S., Liem, F., Hanggi, J., Jancke, L., & Assaf, Y. (2015). Sex beyond the genitalia: The human brain mosaic. *Proc Natl Acad Sci U S A, 112*, 15468-15473.
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Madhyastha, T., Mérillat, S., Hirsiger, S., Bezzola, L., Liem, F., Grabowski, T., & Jäncke, L. (2014). Longitudinal reliability of tract-based spatial statistics in diffusion tensor imaging. In *Hum Brain Mapp* (Vol. 35(9), pp. 4544-4555).
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Hanggi, J., Brutsch, K., Siegel, A. M., & Jancke, L. (2014). The architecture of the chess player's brain. *Neuropsychologia, 62*, 152-162.
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Cheetham, M., Suter, P., & Jancke, L. (2014). Perceptual discrimination difficulty and familiarity in the Uncanny Valley: more like a "Happy Valley". *Front Psychol, 5*, 1219.
Cheetham, M., Hanggi, J., & Jancke, L. (2014). Identifying with fictive characters: structural brain correlates of the personality trait 'fantasy'. *Soc Cogn Affect Neurosci, 9*, 1836-1844.
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Bruhl, A. B., Hanggi, J., Baur, V., Rufer, M., Delsignore, A., Weidt, S., Jancke, L., & Herwig, U. (2014). Increased cortical thickness in a frontoparietal network in social anxiety disorder. *Hum Brain Mapp, 35*, 2966-2977.
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Monographs

Jäncke, L. (2013). *Lehrbuch Kognitive Neurowissenschaften* (1., Aufl. ed.): Huber Hans.
Jäncke, L. (2015). *Ist das Hirn vernünftig?: Erkenntnisse eines Neuropsychologen* (2. Auflage ed.): Hans Huber.

Contributions to books

Jäncke, L. (2015). Musik und Hirnplastizität. In G. Bernatzky & G. Kreutz (Eds.), *Musik und Medizin* (pp. 49-67). New York, Berlin: Springer-Verlag.
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Jäncke, L. (2014). Neurobiologie der Begabung. In M. Stamm (Ed.), *Handbuch der Talententwicklung* (pp. 107-126). Bern - Göttingen: Huber-Verlag.

Review articles

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Peer-reviewed conference proceedings
No conference proceedings contribution

Patents
No patents

Invited contributions to international conferences

In the last 5 years I have given more than 80 scientific presentations. In the following I have listed some of them explicitly.

Jäncke L. (2016) The brain of pianists. Invited keynote lecture at the 26th Annual meeting of the Society of Neural Control in Montego Bay, Jamaica (April 24 – 29, 2016).
Jäncke L. (2016) The brain of musicians. Invited keynote lecture at the meeting of the International Psychophysiological Society in Havana, Cuba (September 3rd, 2016).
Jäncke L. (2015). The plastic human brain. Invited keynote lecture at the meeting of the Norwegian postdoc neuroscience meeting in Bergen, Norway (21st, September 2015)
Jäncke L. (2015). The aging brain. Invited keynote lecture at the University of Groningen, Netherlands (2nd and 3rd of Julyt, September 2015)
Jäncke L. (2015). Specialization of the specialists – the brain of experts. Invited keynote lecture at the University of Edinburgh, Scotland (10.4.2015)
Jäncke L. (2015). The plastic human brain. Invited keynote lecture at the University of Munich (motor control conference), Germany (6.3.2015)
Jäncke L. (2014). The brain of musicians. Invited keynote lecture at the University of Oslo (Music, language, and the brain), Norway (15.9.2014)
Jäncke L. (2013). The plastic human brain. Invited keynote lecture at the University of Amsterdam (Neurorehabilitation conference), (23.11.2013)
Jäncke L. (2013). The plastic human brain. Invited keynote lecture at the University of Bordeaux (Health science conference), (18.7.2013)
Jäncke L. (2013). How the brain shapes the world. World Economic Forum, Switzerland, (7.6.2013)
Jäncke L. (2013). The brain of synesthetes. Invited keynote lecture at the Italian neuroscience meeting. Rom, (3.6.2013)
Jäncke L. (2013). Musicians and their particular expertise. Invited keynote lecture at the Wagner-Bienale neuroscience conference. Lisbon (25.5.2013)
Jäncke L. (2013). How neuroscience is informed by psychology. Invited keynote lecture at the Munich Neurophilosophy conference, Munich (22.3.2013)
Jäncke L. (2013). Specialization of the specialists – the brain of experts. Invited keynote at the Neurological colloquium of the University Dusseldorf (27.3.2013)
Jäncke L. (2013). Specialization of the specialists – the brain of experts. Invited keynote at the Psychological colloquium of the University Giessen (21.1.2013)
Jäncke L. (2012). The brain of synesthetes. Invited keynote lecture at the European Neurology meeting. Rom, (10.9.2012)
Jäncke L. (2012). The plastic human brain. Invited keynote lecture at the New York plasticity meeting, New York, (8.5.2012)

Other publications (maps, documents, software, databases, arXiv-articles, etc.)
n.a.

Scientific achievements of Lutz Jäncke, PhD. Prof.

1. Lutz Jäncke (LJ) was one the first who discovered strong **structure-function relationships** in the human brain. Back in the 1990s he started to uncover that particular anatomical features of the human brain are strongly related to psychological functions, expertise, and learning (e.g., handedness, language functions, expertise). Thus, he was one of the first researchers worldwide who paved the way for modern brain plasticity research in humans. These findings have been uncovered in several projects (for which he was the PI), which have been funded by the SNF and DFG.

2. LJ has uncovered specific anatomical and neurophysiological features in the **musician's brain**. For example, he has shown that specific musical abilities (e.g., absolute pitch, motor performance in pianists etc.) and proficiencies are tightly related to specific anatomical and neurophysiological features. In addition, he has substantially contributed to uncover the tight links between music and language proficiency. These findings have been uncovered in several projects (for which he was the PI), which have been funded by the SNF and DFG.

3. A further research to which LJ has substantially contributed is **synaesthesia**, a specific variant of cross-modal perception. He is one of the few worldwide who have delineated the neurophysiological and neuroanatomical underpinnings of this extraordinary ability. These findings have been uncovered in several projects (for which he was the PI), which have been funded by the SNF.

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Winterthur, 15. November 2016

Empfehlungsschreiben der ZHAW an den SNF für das Projekt: Cognitive Load in Interpreting and Translation: the case of English as a Lingua Franca (CLINT)

Sehr geehrte Damen und Herren

Die ZHAW ist eine der führenden Schweizer Hochschulen für Angewandte Wissenschaften. Das Departement Angewandte Linguistik der ZHAW ist neben der Universität Genf die einzige Hochschule in der Schweiz, die Forschung, Lehre und Dienstleistungen im Bereich Übersetzen und Dolmetschen anbietet. Mit ihrem Fokus auf angewandter Forschung hat sich die ZHAW als ‚center of excellence' auf den genannten Gebieten etabliert und einen hervorragenden internationalen Ruf erworben.

Im beantragten interdisziplinären Projekt werden führende ExpertInnen aus der Dolmetsch-, Übersetzungs- und Neurowissenschaft gemeinsam erforschen, welche Auswirkungen die im Zuge der Globalisierung fortschreitende Verbreitung des Englischen als Lingua Franca auf das Dolmetschen und Übersetzen und für die Mehrsprachigkeit hat. Prof. Dr. Michaela Albl-Mikasa und Prof. Dr. Maureen Ehrensberger-Dow leiten die Forschungs- und Arbeitsbereiche Dolmetsch- bzw. Übersetzungswissenschaft am Departement Angewandte Linguistik. Sie haben ausgewiesene langjährige Erfahrung in der Akquise und Durchführung internationaler Forschungs- und Entwicklungsprojekte.

Das eingereichte Projekt steht im Einklang mit der Forschungsstrategie der ZHAW und wird die notwendige Unterstützung durch unsere Institution erhalten. Wir danken Ihnen für eine sachgerechte und wohlwollende Prüfung dieses Antrags.

Freundliche Grüsse

ZHAW Zürcher Hochschule für Angewandte Wissenschaften

Prof. Dr. Jean-Marc Piveteau
Rektor

Prof. Dr. Urs Willi
Direktor Departement Angewandte Linguistik

Universität Zürich[UZH]

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SNF-Forschungsgesuche: Bestätigung Rahmenbedingungen und Infrastruktur

Bitte senden Sie dieses Formular ausgefüllt und unterschrieben per 1. April / 1. Oktober (Projekte) bzw. 15. Januar (Sinergia) als PDF an: **support@forschung.uzh.ch**

➔ Auszufüllen durch Gesuchstellerin/Gesuchsteller

Projektart:	☐ Projektförderung (Abt. I – III)	☐ Interdisziplinär	☒ Sinergia	☐
Gesuchsteller/in:	**Prof. Lutz Jäncke**			
Projekttitel:				
Beantragt:	Beginn: 01.01.2018	Dauer (Mte): 48	Summe CHF: 1'250'000	

Anstellung der Gesuchstellerin/des Gesuchstellers

Stellung/Funktion:	Prof.	
Beschäftigungsgrad:	100 %	
Arbeitgeber:	UZH	
Ist die Stelle für die beantragte Projektdauer gesichert?	☒ Ja	☐ Nein*, sie ist befristet bis

Lokale Unterstützung

Sind die Rahmenbedingungen zur erfolgreichen Durchführung des Projekts im Falle der Bewilligung gegeben (Verfügbarkeit von Infrastruktur, Personal, Räumen)?

☒ Ja
☐ Ja mit Vorbehalt*
☐ Nein*

Medizin / Vetsuisse

Wenn im Rahmen des Projekts die Benutzung der Infrastruktur folgender Zentren vorgesehen ist, holen Sie bitte die Unterschrift der entsprechenden Direktion(en) ein.

☐ Zentrum für klinische Forschung (ZKF/CTC) ☐ Zentrum für klinische Studien (ZKS) ☐ Forschungszentrum für das Kind (FZK)	Unterschrift Direktion(en):

Weitere Kommentare (* bitte kommentieren)

➔ Bestätigung der Angaben durch Instituts-/Seminar-/Klinikleitung

Datum: 10.11.2016	**Name, Vorname:** Prof. Veronika Brandstätter-Morawietz
Unterschrift und Stempel:	Brandstätter-Morawietz Universität Zürich Psychologisches Institut Binzmühlestrasse 14/1 CH-8050 Zürich

1. Further requested and running research funds (not from the SNSF)

Information on requested or currently running research funds

Funding agency and instrument	Swiss Federal Office of Energy
Project title	Energy discourses in Switzerland
Amount in CHF	284825
Duration: from	01.11.2016
until	31.10.2019
Status	approved
Applicant's role	Maureen Ehrensberger-Dow: Supervision of the multilingualism aspect of the project (approximately 150 hours per year).
Relation to the present application	No
Abstract of the project	Issues surrounding the production, supply, and use of energy will be of concern to Switzerland in the next few years and the decades to come. In the project “Energy discourses in Switzerland”, researchers in the ZHAW School of Applied Linguistics are investigating the communicative prerequisites for the anticipated changes. The project, which will last three years from 2016-2019, will receive substantial support from the Swiss Federal Office of Energy (SFOE) under the Energy - Economy - Society (EES) research programme. The objective of the project is to identify how patterns of language use about energy issues in the three official Swiss languages (German, French, and Italian) develop across institutions, media, and societal sectors. The research is based on a large multilingual corpus of texts relevant to Swiss discourses on energy since 2011. The findings will be actively conveyed to various actors involved in the transition to sustainable energy systems and in the democratic dialogue about energy. This interdisciplinary project is led by members of the School of Applied Linguistics and its two Institutes (Maren Runte, head of the School’s corpus group; Peter Stücheli-Herlach, IAM, project spokesman; and Maureen Ehrensberger-Dow, IUED).
Link to the project website (if available)	https://www.zhaw.ch/no_cache/en/research/personen-publikationen-projekte/detailansicht-prc
Remarks	

Review: 3

Application data

Applicant(s)
Albl-Mikasa, Michaela
Ehrensberger-Dow, Maureen / Jäncke, Lutz

Cognitive Load in Interpreting and Translation (CLINT)
Sinergia

Detailed evaluation

Assessment of the proposal's breakthrough character

ELF contexts and potential problems related to the use of English as a LF undoubtedly deserve the attention of researchers. The question of how translators and interpreters handle ELF input seems to be a relevant research question. As to the question whether this project has the potential to "lay the foundations of an emerging discipline", I personally do not think that an explosion of disciplines is desirable, but rather that the existing fields should strive for an interdisciplinary regard on a scholarly problem if the problem calls for such a regard. And my impression is that this project fulfills this requirement.

Specific strengths
The project, in its revised version, seems to bear the potential to address a problem on a larger scale than what the main applicant has investigated before in her case studies. The fact that other first languages are now part of the picture is a welcome attempt to produce potentially more generalizable results.

Specific weaknesses
Answering the applicants' questions in a generalizable way hinges on the specific operationalization of ELF (English as a lingua franca) and SE (Standard English). The proposal, and I understand that this might be due to lack of space, gives a list of phenomena (2.5.3), without questioning the category of SE or of the native speaker: Native speakers, too, can express themselves vaguely and ambiguously, to take just one feature attributed to ELF. This might make the project vulnerable to criticism from bilingualism/multilingualism reviewers who tend to disagree with such one-dimensional SE vs. ELF views.

Assessment of the proposed research approach

The approach and the methods seem appropriate to answer the main research questions.

Specific strengths
The experimental design involving within-subject analyses is particularly well suited to tap into possible differences in SE and ELF processing.

Specific weaknesses
As indicated before, a more critical categorization of phenomena that are attributed to SE and ELF would have been desirable. One possible variant to the rationale presented in the project would be to be more cautious and to abolish the SE-ELF dichotomy as an a priory distincion and to locate the critical analysis at the level of features rather than SE or ELF varieties. The authors then can still argue that the features tested are generally deemed to be typical for SE and ELF by the leading scholars in the field, but the project's main point is not dependent on such an attribution.
Also, even though the different L1s are now more varied, working with participants all of which are L1 speakers of some sort of German might yield results with only limited generalizability. Again, this is not a fundamental objection to the project, but a call for cautious interpretation/generalization of the evidence gathered.
A last weakness is the absence of interaction of accent with other ELF-features. As the authors themselves point out in the literature review, accent is a well-researched component of ELF. Although I understand the rationale for controlling for accent by eliminating it, using only a standard pronunciation of EN is reducing considerably the ecological validity of the findings, since in the real life of interpreters, varying other ELF features come precisely with varying degrees of accentness, and not addressing this in such an ambitious project seems problematic.

Assessment of the interdisciplinary character of the research project and the added value of the collaboration

As far as I can see, the project integrates very different types of measures that are all related to the central research question.

Specific strengths
The proposal has a clear focus and does not fall into the trap of addressing too many loosely related questions, and - in its revised version - the contribution of the different disciplines to the central research question is clearer.

Specific weaknesses
Maybe the project could benefit from additional expertise on the ELF/SL disctinction. It might be helpful if the authors, e.g. when preparing their stimuli, put together a panel of both variationists and ELF speacialists in order to assess the 'ELF'-ness of features chosen in the stimulus material. I do not doubt the main applicant's expertise in the ELF field, but - as I argued above - ELF as a 'variety' is a moving target and not everybody agrees on its (typical) features. Adding an independent assessment of the actual linguistic features used in the study as to their 'native-likeness' might protect the applicants from criticism regarding the varieties compared.

Overall assessment of the project

I think this is a promising enterprise that deserves funding.

Main strengths:
The carefully designed lab experiments seem to be the way to go.

Main weaknesses:
As I have pointed out before, the main problem is that ELF is a dynamic set of changing practices with - maybe - some core features. I would recommend to be slightly more careful when it comes to generalizing the results obtained in this project, and discarding accent as a stress-inducing factor seems a questionable decision.

Note on the evaluation procedure

The evaluation bodies of the SNSF strive to reach a balanced overall assessment of each proposal. External reviews play an important role in this. Reviewers generally review only one proposal. The evaluation bodies of the SNSF, however, must compare and rate the quality of all proposals submitted by a given deadline. The opinions expressed in external reviews are generally positive, or they may occasionally include critical remarks that are largely irrelevant to the assessment conducted by the evaluation body. Therefore, the final decision taken by the SNSF evaluation bodies need not necessarily reflect the content of external reviews.

Review: 4

Application data

Applicant(s)
Albl-Mikasa, Michaela
Ehrensberger-Dow, Maureen / Jäncke, Lutz

Cognitive Load in Interpreting and Translation (CLINT)
Sinergia

Detailed evaluation

Assessment of the proposal's breakthrough character

The project addresses an important gap in research: the actual implications of English as a lingua franca (ELF) in the management of multilingualism and the cognitive load related to the procession of ELF in particular. This is an important gap in research and the envisioned project therefore addresses important challenges.

Specific strengths
The main strengths of the project are the following: 1) an extremely varied and comprehensive set of data-collection methods, 2) the interdisciplinary nature of the project, 3) the impact on theoretical models and methodological implications in the emerging discipline of ELF studies, and 4) the practical implications (language management and training).

Specific weaknesses
n/a

Assessment of the proposed research approach

The research approach, methodology, and organisation are very sound and convincing. The scheduled duration of the project (4 years) is realistic because the projects is carefully divided into phases and components among the participants. Since the activities are so wide-spread and varied, the requested funds are justified.

Specific strengths
The multi-method and mixed-method approach allows for an intersectional and transversal analysis of the phenomena under study across different fields. The solid expertise and internationally recognized quality of the researchers' work.

Specific weaknesses
n/a

Assessment of the interdisciplinary character of the research project and the added value of the collaboration

Bringing together insights from the fields of ELF studies, interpreting studies, translation studies, and cognitive neuroscience is absolutely necessary in order to reach the goals of this project. When the object of study if the cognitive load of processing English as a lingua franca in translation and interpreting professions, other language professions, and among the general public, the connections between the disciplines represented in this project are mandatory and logical.

Specific strengths
Insights into the actual workings of translation, interpreting, and general language processing on a neurological level, combined with expertise from the fields of ELF studies and translation and interpreting studies.

Specific weaknesses
n/a

Overall assessment of the project

This project has all the potential to provide breakthrough-knowledge about the cognitive load related to the processing of English as a lingua franca in translation, interpreting, and general language processing, therefore opening new insights into the implications and consequences of the wide-spread use of English as a lingua franca.

Main strengths:
The results of this projects are likely to generate models that will help engender more comprehensive tools for understanding not only cognitive load and stress in language processing and translation and interpreting in particular, but also tools for deepening the understanding the role of affect in the professional and every-day management of multilingualism. The envisioned deliverables related to the working life are particularly impressive.

Main weaknesses:
n/a

Note on the evaluation procedure

The evaluation bodies of the SNSF strive to reach a balanced overall assessment of each proposal. External reviews play an important role in this. Reviewers generally review only one proposal. The evaluation bodies of the SNSF, however, must compare and rate the quality of all proposals submitted by a given deadline. The opinions expressed in external reviews are generally positive, or they may occasionally include critical remarks that are largely irrelevant to the assessment conducted by the evaluation body. Therefore, the final decision taken by the SNSF evaluation bodies need not necessarily reflect the content of external reviews.

Review: 1

Application data

Applicant(s)
Albl-Mikasa, Michaela
Ehrensberger-Dow, Maureen / Jäncke, Lutz

Cognitive Load in Interpreting and Translation (CLINT)
Sinergia

Detailed evaluation

Assessment of the proposal's breakthrough character

The major question that has been identified for study (i.e., investigating the relationships between expertise, cognitive load, and stress when dealing with ELF input) is extremely important and has been under-researched to date. For better or worse, English has become established as the language of "international communication", yet comparatively little is known about the effects of this situation. The subject of this proposal is therefore timely and extremely pertinent.

Specific strengths
ELF and Translation/Interpreting are well established disciplines; however, the proposed project has the potential to lay the foundations for an emerging interdiscipline, coined by these researchers as ITELF.

The project stands to have significant societal impact. The results could change the way that "average" citizens (i.e., those who are not language professionals) are prepared for working in a world where communicating in a foreign language is required. Different language training requirements could be developed and implemented not only by educational institutions (across all disciplines) but also by private sector corporations. The results of this project could inform the logical development of such training programs and help to make Swiss citizens more competitive players on the global stage.

With regard to academic impact, the project proposes to use cutting-edge multi-modal approaches to investigate the cognitive processing involved in language transfer. It should be noted that Swiss researchers are already recognized as leaders in this area, so this project will serve to further cement and even expand their reputation in this regard.

The findings of this research could also provide a launchpad for future research projects, such as in public service interpreting and translation where ELF is assuming a pivotal role as migrants and refugees settle in different parts of Europe. The role of ELF is set to become larger, not smaller, in the foreseeable future, and this project, which will provide foundational knowledge about how ELF is processed by language professionals and regular people.

Specific weaknesses
This project will likely make a somewhat stronger contribution to advancing work in translation/interpreting and ELF than to neuroscience.

Assessment of the proposed research approach

Hypotheses about the cognitive load imposed by ELF source texts will be tested with a number of methods commonly deployed in T&I process research (i.e. audio, video, and screen recording; keylogging; eye tracking; stimulated-recall; questionnaires; and target text evaluations) and supplemented with methods typically used in neuroscience research (i.e. EEG recordings, electrodermal and heart rate activity).

Specific strengths
A truly wonderful strength of this proposal is that it allows for various types of triangulation, including triangulation of research methods, of the various sources of data, and of different disciplinary perspectives. This is a significant strength and will lead to a much deeper and richer understanding of the challenges of multilingual processing. Other studies have been more superficial, presenting a view through a single disciplinary lens, or using a single method. The multimodal approach outlined for this project is very sound and promises to paint a fuller picture of the issues at hand.

I very much like that the measures introduced by the neuroscience component are objective, as this will complement some of the more "perception-based" measures obtained through surveys or commentaries.

To date, the criticisms that have been leveled at EFL research by the translation/interpretation community have not been based on empirical evidence. The proposed project will provide an empirical basis for either supporting or refuting future claims.

The 3x3 study design is well thought out with logical grouping factors (expertise and profession) and levels. I very much like the fact that a period for pilot testing the ELF texts has been built into the project. Ensuring the right level of text will be key to the project's success, and it's good to see that this has been taken into consideration.

Specific weaknesses
The strength of this multi-modal approach is also a bit of a weakness because the integration of so many different aspects is complex to manage, and the project stands to generate an enormous volume of data. On balance, however, I think that the strength of it outweighs the weakness. The researchers are experienced with good track records in managing complex projects. The project is certainly ambitious in scope, but there is no serious harm done if there is still data left to analyze following the formal period of the project. Having a lot of data is a "happy" type of problem to have! It lays a solid foundation for logical follow up projects.

A risk associated with the project -- and which has already been identified by the researchers, along with a mitigation strategy -- is that it could be difficult to recruit enough participants, particularly among the professional translator/interpreter groups. However, the mitigation strategy proposed by the researchers seems appropriate.

Assessment of the interdisciplinary character of the research project and the added value of the collaboration

The literature survey is convincing in that it shows what each discipline can contribute to this project, and emphasizes that to date, these disciplines have not interacted to any great extent, even though they have the potential to come together and create something greater than the sum of their parts. This project will take things to the next level. It cannot be achieved without interdisciplinary collaboration because it truly crosses the boundaries of the capabilities of any one discipline.

It is encouraging to hear that an interdisciplinary ELF conference is currently being planned to be held in Switzerland, and this shows that momentum is gaining for interdisciplinary work around ELF.

Specific strengths
The contributions of translation, interpreting, applied linguistics, cognitive science and neuroscience are all clear and necessary. I am pleased to see that translation and interpretation have been treated separately, and that both have been broken out from applied linguistics. The nuance and attention to detail in identifying the specific and valuable contributions of each discipline is welcome and valuable. Much of what happens inside a person's brain when translating, interpreting or working through a foreign language has long been considered to simply be a "black box" because the people themselves could not necessarily articulate what was happening in sufficient detail. By joining forces with experts in cognitive and neuroscience, the contents of the "black box" will begin to be revealed in more detail.

Each individual researcher has established a solid record of research in his/her own area, and taken holistically, they will be able to contribute the necessary expertise to ensure the success of the project. All researchers show evidence of being able to work productively in a team setting.

The plan to incorporate a range of graduate students, post-doctoral researchers, junior researchers, research associates and consultants is also sound, and overall the team looks to be well-rounded and very competent. It is excellent to see that this team will make a significant investment in training the next generation of researchers.

Specific weaknesses
The proposed project leader -- Albl-Mikasa -- is the least experienced of the three researchers. However, I don't see this as being a significant problem as she is clearly ready for the next step of being a project leader, and she will be well supported by the co-applicants.

Overall assessment of the project

The proposal is very well written, well developed and convincingly argued. The researchers have made a strong case for the need for this research and have clearly articulated the value of its impact for the language professions, for public and private sector organizations doing business internationally, and for "average" citizens who must communicate through the medium of a non-native language.

Main strengths:
This is an area that is growing in importance and one where Swiss researchers are recognized as being leaders in the field. This project represents a great opportunity to cement and extend that reputation.

The proposed project builds logically on the findings from previous SNSF-funded research by following up on two main questions resulting from Ehrensberger-Dow's cognitive ergonomics study. This is good scientific practice and instills confidence in this program of research.

The researchers clearly took the feedback from the previous evaluation seriously and revised and strengthened the proposal accordingly.

The project will provide valuable empirical data, which is missing from the current state of the field. The multimodal approach will allow for triangulation and paint a richer picture of the field.

The project and research team are truly interdisciplinary and seem well equipped to manage the project.

Main weaknesses:
Scope and complexity of the proposed project: it is an ambitious proposal. However, it also seems well structured and planned, with the various sub-steps happening at logical points in the timeline (e.g. the bulk of data collection will be carried out in year two). Also, the bulk of the money will be spent on salaries to hire appropriately qualified graduate students, post-doctoral fellows, junior researchers, research associates and consultants, and with their support, the volume of work should be manageable.

The main risk is not finding enough project participants, particularly among the professional translator/interpreter groups. However, a suitable mitigation plan has been devised.

Note on the evaluation procedure

The evaluation bodies of the SNSF strive to reach a balanced overall assessment of each proposal. External reviews play an important role in this. Reviewers generally review only one proposal. The evaluation bodies of the SNSF, however, must compare and rate the quality of all proposals submitted by a given deadline. The opinions expressed in external reviews are generally positive, or they may occasionally include critical remarks that are largely irrelevant to the assessment conducted by the evaluation body. Therefore, the final decision taken by the SNSF evaluation bodies need not necessarily reflect the content of external reviews.

Review: 2

Application data

Applicant(s)
Albl-Mikasa, Michaela
Ehrensberger-Dow, Maureen / Jäncke, Lutz

Cognitive Load in Interpreting and Translation (CLINT)
Sinergia

Detailed evaluation

Assessment of the proposal's breakthrough character

I believe the research has the potential to generate important insights.

Specific strengths
Strong methodology.

Specific weaknesses
More data points would make it somewhat stronger

Assessment of the proposed research approach

The applicants clearly have the knowledge, skills, background, networking, and resources to undertake the proposed research project. They understand the relevance and the complexity - and are aware of methodological challenges, the need for a streamlined project management, and the know-how to monitor the progress. They are well-connected in the field and the disciplines (see the multi-disciplinary nature of the proposal) and should be able to problem solve issues as the project unfolds.

Specific strengths
the multi-disciplinary approach

Specific weaknesses
The methodology could use more control data points

Assessment of the interdisciplinary character of the research project and the added value of the collaboration

The relevance of the project is very high, as it may provide data and evidence that relates to in-the-moment language processing and the ability to switch between codes and languages. It can yield information about the status of ELF as some kind of inter-language, and its impact on listeners.

Specific strengths
The applicability and practical relevance.

Specific weaknesses
Nothing specifically to be mentioned.

Overall assessment of the project

The team is well organized and certainly has the potential to bring this to a worthwhile scientific result

Main strengths:
Meticulous planning

Main weaknesses:
Previously mentioned weaknesses in the methodology have been reduced

Note on the evaluation procedure

The evaluation bodies of the SNSF strive to reach a balanced overall assessment of each proposal. External reviews play an important role in this. Reviewers generally review only one proposal. The evaluation bodies of the SNSF, however, must compare and rate the quality of all proposals submitted by a given deadline. The opinions expressed in external reviews are generally positive, or they may occasionally include critical remarks that are largely irrelevant to the assessment conducted by the evaluation body. Therefore, the final decision taken by the SNSF evaluation bodies need not necessarily reflect the content of external reviews.

Review: 5

Application data

Applicant(s)
Albl-Mikasa, Michaela
Ehrensberger-Dow, Maureen / Jäncke, Lutz

Cognitive Load in Interpreting and Translation (CLINT)
Sinergia

Detailed evaluation

Assessment of the proposal's breakthrough character

Due to its focus on under-researched yet highly significant areas of ELF processing, this proposal has a high potential of allowing a potential breakthrough in this field.

Specific strengths

The proposed work is highly relevant, original, and timely. Applicants have been involved in the establishment of a new subarea of research that is at the intersection of T&I and ELF research, and the current proposal aims to conduct research in this emerging area. From a scientific perspective, the combination of linguistic and neuroscience approaches has the potential to yield very interesting results and make significant contributions to the field. The use of a multi-method approach has the potential to advance the state of the art by yielding important insights into CL issues related to the use of ELF in translators as well as untrained multilinguals. I agree with the self-assessment of the impact of the project as described by the applicants.

Specific weaknesses
Even though it is included by design, applicants do not explicitly state as a sub-goal the investigation how the exposure to ELF over time may result in reduced CL and stress. By focusing only on the current state, this dynamic is lost, thereby suggesting that whatever findings of stress and CL are obtained are static findings when in fact they need to be treated as malleable due to continued language input and therefore continued development of language proficiency in interpreters as well as (initially) untrained multilinguals.

Assessment of the proposed research approach

The proposed research approach is overall sound and appropriate for the research questions posed by the applicants.

Specific strengths

The most significant strength of the proposal is that it brings together researchers from fields as diverse as applied linguistics, interpreting studies, translation studies, cognitive psychology, and neurosciences. The resulting expertise, and the mixed methods proposed, make me believe that this is a very sound and convincing project. The theoretical foundations of the proposed work incorporate relevant results from translating studies, linguistics, and cognitive neuroscience.

Specific weaknesses
None noted.

Assessment of the interdisciplinary character of the research project and the added value of the collaboration

The project shows clear qualities of the interdisciplinary character of the research project and the added value of the collaboration.

Specific strengths
The present proposal is an example for why the combining of theories and concepts from different disciplines can have a significant impact related to reaching the intended leaning outcome. The disciplines that have joined in this proposal are not only all needed to successfully complete the proposed research; they enable the high caliber of the proposed work through their individual and very unique contributions.

Specific weaknesses
None noted.

Overall assessment of the project

The combination of T&I, linguistics and neuroscience approaches in this proposal makes for a very interesting interdisciplinary collaboration that, as the authors point out, could lead to a number of theoretical and methodological advances in each of these fields.
There is not doubt that the scientific questions posed in this proposal require an interdisciplinary approach, and that all the required disciplines are involved and connected within the proposed research approach. In fact, the integration and interaction of the involved disciplines are considered in the organization of the project, and the applicants propose several measures to optimize the collaborative process of this interdisciplinary project. The proposal also explicitly states the goal to promote young academics by integrating them into the research team.

Main strengths:
Strengths s include the innovative research questions, solid theoretical foundation, solid multi method design, and strong interdisciplinary team.

Main weaknesses:
None noted.

Note on the evaluation procedure

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Bern, 24. Mai 2017

Verfügung
Beitrag Nr.: CRSII5_173694 / 1

Sehr geehrte Frau Prof. Albl-Mikasa

Wir freuen uns, Ihnen mitzuteilen, dass der Forschungsrat beschlossen hat, das Projekt *Cognitive Load in Interpreting and Translation (CLINT)* zu unterstützen. Er bewilligt dafür einen Forschungsbeitrag von **CHF 1'263'222**.

Der SNF spricht in der Regel Globalbudgets mit festgelegten Jahrestranchen zu. Sie sind im Rahmen der reglementarischen Bestimmungen und unter Berücksichtigung der in dieser Verfügung genannten Bedingungen frei, wie Sie die Mittel einer Jahrestranche auf die anrechenbaren Kosten verteilen. *my*SNF bietet Ihnen Unterstützung bei der Verwaltung Ihres Beitrages. Sie können Ihr Budget online einsehen und bearbeiten.

Zugesprochene Jahrestranchen in CHF

Total	1. Tranche	2. Tranche	3. Tranche	4. Tranche
1'263'222	**326'374**	**341'980**	**345'210**	**249'658**

Beginn: 1. Januar 2018 Dauer: 48 Monate

Im Falle von Kürzungen der Bundesmittel, die das Budget des SNF tangieren, können Reduktionen bei den Tranchen nicht ausgeschlossen werden.

Bedingungen:

Apparate:
nicht bewilligt (Computer übernimmt SNF normal nicht)

Saläre:
Kürzung um CHF 19'400.- (der SNF fand den verl angten Betrag für eye-tracking consultant zu hoch)

Sollten Sie anrechenbare Kosten in der Kategorie «direkte Kosten für die Benützung von Infrastrukturen» dem SNF in diesem Projekt abrechnen, machen wir Sie auf folgende Anforderungen aufmerksam:

- Es sind nur Kosten anrechenbar, welche im direkten Zusammenhang mit der Durchführung dieses Projektes stehen.
- Es können keine Kosten für Wartung und Pflege der Infrastrukturen übernommen werden.
- Jeder Rechnung muss ein Anhang beigelegt sein, welcher den verrechneten Tarif bezüglich der eingerechneten Kosten plausibilisiert.
- Weitere Information finden Sie auf unserer Homepage <http://www.snf.ch/de/foerderung/infrastrukturen/infrastrukturnutzung>

Der Beitrag wird in die Berechnung des Overhead-Gesamtbeitrags einbezogen, der Ihrer Institution zur Deckung von indirekten Forschungskosten überwiesen wird.

Weitere Beitragsempfängerinnen und Beitragsempfänger

- Prof. Lutz Jäncke, Lehrstuhl für Neuropsychologie Psychologisches Institut Universität Zürich, 8050 Zürich
- Prof. Maureen Ehrensberger-Dow, Departement Angewandte Linguistik Institut für Übersetzen und Dolmetschen Zürcher Hochschule für Angew. Wissenschaften, 8401 Winterthur

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Informieren Sie allfällige weitere in das Vorhaben involvierte Personen und beachten Sie auch Ihre Informationspflicht gegenüber dem SNF.

Weitere wichtige Informationen finden Sie im Anhang. Für die Realisierung Ihres Vorhabens wünschen wir Ihnen viel Erfolg.

Freundliche Grüsse

Laura Binz

Rechtsmittelbelehrung

Gegen diese Verfügung kann gemäss Artikel 13 des Bundesgesetzes vom 14. Dezember 2012 über die Förderung der Forschung und der Innovation (SR 420.1) innerhalb von 30 Tagen nach Eröffnung Beschwerde beim Bundesverwaltungsgericht, Postfach, 9023 St. Gallen, eingereicht werden.

Die Beschwerdeschrift hat die Begehren, deren Begründung mit Angabe der Beweismittel und die Unterschrift der Beschwerdeführerin bzw. des Beschwerdeführers oder der Vertreterin bzw. des Vertreters zu enthalten.

Die angefochtene Verfügung und die als Beweismittel angerufenen Urkunden sind beizulegen, soweit die Beschwerdeführerin bzw. der Beschwerdeführer sie in Händen hat.

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Zudem wird Sie *my*SNF auch bei den weiteren Schritten zur Beitragsfreigabe und -abwicklung unterstützen. Im Leitfaden für das Lifetime-Management von Forschungsgesuchen (Beiträgen) (www.snf.ch/lifetime) finden Sie dazu umfassende Informationen.