Impact of the Common European Framework of Reference—A bibliometric analysis of research from 1990-2017

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Published in 2001, the Common European Framework of Reference for Languages (CEFR), a reference framework which informs teaching, learning and assessment in language education, appears to be increasingly recognized, referenced and utilized in language education contexts worldwide. To date however, the extent, provenance and adoption of the collected body of knowledge concerning the CEFR has yet to be systematically analysed, rendering it difficult for any conclusions to be made about its impact. A bibliometric analysis was therefore conducted to explore the CEFR from the document's more formal origins in 1990 to the end of 2017 for the bibliometric indicators of number of publications per year, geographical location of research, highly cited works and journals with the highest number of relevant publications. The findings show that research on the CEFR has increased significantly over the examined time. The majority of publications with a focus on the CEFR are European, but numbers are increasing in geographical areas outside of Europe, and particularly in Asia. The framework is discussed in numerous types of publications covering a range of topics in language education. These findings suggest that the CEFR has been used in contexts beyond its origins and has influenced many aspects of language education around the globe. Diffusion of innovations theory suggests that the CEFR's impact and influence is likely to increase over the next ten years in and outside of Europe and especially in Asia.

Keywords: CEFR, bibliometric analysis, bibliometric indicators, adoption, diffusion, diffusion of innovations, educational innovation

1 Introduction

The Common European Framework of Reference (CEFR) is the culmination of decades of work from a number of participating institutions and contributors in Europe, designed to improve the communication and mutual understanding of language education stakeholders on the topics of language learning, teaching, and assessment in all European languages (Council of Europe 2001). The CEFR is also a policy tool based on the tenets that education is a human right, and that multilingualism and plurilingualism can increase mutual understanding among individuals with different linguistic and cultural backgrounds, thus building inclusive societies (Council of Europe 2001; 2018). According to the CEFR, a plurilingual approach to language education is one that recognizes the interrelationships and interactions between language and culture and that communicative competence is built according to these interactions. This means that an individual "can call flexibly upon different parts of this competence to achieve effective communication with a particular interlocutor" (Council of Europe 2001: 5). The plurilingual approach emphasizes that as an individual person's experience of language in its cultural contexts increases, from the language of the home to that of society, and then to the languages of other peoples (whether learnt at school or college, or by direct experience), he or she does not keep these languages and cultures in strictly separated mental

compartments. Rather, the person builds up a communicative competence to which all knowledge and experience of language contributes, and in which languages interrelate and interact.

The CEFR was more formally conceived at the *Transparency and Coherence in Language learning in Europe: objectives, evaluation, certification* Symposium, held in Switzerland in 1991 (Council of Europe 2001b). In 1995, a draft of the framework was produced for evaluation with further revisions resulting in the first version being published in English and French in 2001. Used all over the world, it is now available in 40 languages with a companion document published in 2018 providing recently updated descriptors (Council of Europe 2018b). Many scholars refer to its success and increasing popularity (Alderson 2007; Carty 2014; Council of Europe 2005; Figueras 2012; Li and Zhang 2004; Martyniuk and Noijons 2007; Nagai and O'Dwyer 2011; O'Dwyer 2014; O'Dwyer et al. 2017; Papageorgiou 2014; Valax 2011). Furthermore, the CEFR is identified as having had a positive impact in a number of domains in language education, such as curriculum design and development, pedagogy and teacher education (Little 2006; Hulstijn et al. 2010; Faez et al.2012; Jones and Saville 2009; Little 2007; Figueras 2012; Piccardo et al. 2013; Eckes et al. 2005; Schärer 2007).

A handful of studies have explored the usage of the CEFR on an international level. For example, Valax (2011) considers how language teachers perceive the impact of the CEFR on curriculum design in two countries from each of the European, Asian and Oceanian continents. The Council of Europe surveys in 2005 and 2007 also looked at utilization of the CEFR in Europe and beyond (Martyniuk and Noijons 2007). Other studies have considered the CEFR's usage at national levels in countries such as Japan, Colombia and Vietnam (de Mejía 2011; Ngo 2017; Schmidt et al. 2017). However, the sampling of respondents in these works are rather limited and each focuses on vastly different aspects or users of the CEFR, which makes it difficult to generalize utilization of the CEFR in assessing its impact. To date, there has been little in the way of systematic analysis of the applied and theoretical body of literature on the CEFR. An examination of this literature could provide insight into the progression of research on the CEFR since its more formal conception around 1990 to 1991 and an exploration of its uptake or adoption and current impact.

1.1 Bibliometric analysis

One methodology to derive evidence for research profiling is a bibliometric analysis (Kostoff et al. 2001; Porter et al. 2002). Bibliometric analysis refers to methods used to assess a field of research through the examination of large-scale publication metadata (Borgman and Furner 2002; Xian and Madhavan 2014). It entails the quantifiable study of a body of literature to uncover historical development, patterns in publications or authorship, and usage over time (Tricco et al. 2008). Bibliometric analyses can provide a macro focus on a specific subject from a field of research, by incorporating a large range of works into numerical and graphical depictions of the field, in contrast to solely textual discussions summarizing content typically seen in some types of literature review (Porter et al. 2002). Such analyses can produce quantifiable estimates of productivity, importance, or visibility of research, can explore the occurrence of specific events within the literature (Koskinen et al. 2008), or can highlight collaborations between scientists in the field (Glänzel et al. 1999).

1.2 Focus of the study

To our knowledge, bibliometric analyses have not been widely utilized in language education, and certainly not to carry out a review of research on the CEFR. In this study we aim to explore the impact of the CEFR through an examination of the body of scholarly research related to it and its changes over time. 'Impact' is being used herein to refer to having a marked effect or influence. It does not refer to having a positive or negative impact on language education within the context where it was researched – it simply refers to the change over time in bibliometric indicators (either increases or decreases). Bibliometric indicators that reflect the extent (number of publications and number of publications per

year) and provenance of work (the source and geographical location of the publications and the most highly cited works) were thusly profiled (Van Leeuwen 2006). The implications these have on the CEFR's adoption and impact is considered. Such knowledge will not only allow for a better understanding of the characteristics or patterns in previous work performed on the CEFR, but may also suggest direction for future research in the field and inform policy and decision-making (Hanney et al. 2003, Mays et al. 2005, Milat et al. 2011, Koskinen et al. 2008, Van Leeuwen 2006).

2 Methods

An approach was employed that is commonly used in bibliometric analyses on emerging literatures similar to those described in Karakaya et al. (2014) and Koskinen et al. (2008). The five-step process involved the selection of i) literature search instruments, ii) a search term(s), iii) bibliometric indices, iv) the search itself, and v) the analysis of the search results.

2.1 Instruments

Glänzel et al.'s (1999) factors for the selection of a data source for a bibliometric analysis guided the decision to use Google Scholar and EBSCO Host as the literature search instruments. These factors include multidisciplinarity (which refers to the span of disciplines included), selectiveness (which refers to the criteria for inclusion – for instance, whether a publication is peer-reviewed or not), coverage (the extent to which it includes a record of all papers published in the discipline), and completeness (the extent to which information for each citation is complete).

Google Scholar is a publicly accessible web search engine that includes peer-reviewed papers, theses and dissertations, books, abstracts, articles from academic publishers, professional societies, universities, and other scholarly organizations (University of Wisconsin–Milwaukee 2014; Vine 2006). It is also compatible with free, publicly accessible software for performing bibliometric analyses called Publish or Perish (Harzing 2007). This program retrieves and analyses academic works from a number of databases and presents bibliometric statistics such as the number of citations, citations per year, and citations per author (Harzing 2007). EBSCO Host is an indexing engine that provides research databases tailored to the needs of libraries, corporations, or military institutions (EBSCO Industries 2016). Google Scholar was selected because of its accessibility and comprehensive coverage in social science (Harzing and Alakangas 2016) while EBSCO Host was selected because of its advanced sort and filter features and more detailed publication metadata, which allowed for the assessment of bibliometric indicators that could not have been assessed using Google Scholar alone.

2.2 Procedure

The search term 'Common European Framework of Reference' was selected for the bibliometric analysis due to having the highest number of hits on both databases when compared to a number of other terms that were pilot-tested (these included Common European Framework, Common European Framework of Reference, Common European Framework of Reference for languages, CEFR, and CEF). This term also resulted in a far higher number of relevant retrievals, and few false hits in comparison to the other keywords.

The bibliometric indicators used in the current study were selected because they provide estimates of overall productivity, productivity per year, important and impactful works, as well as a general understanding of where research is being conducted (Van Leeuwen 2006; Fagerberg 2009):

i.   Number of publications
ii. Number of publications per year
iii. Source

iv. Most cited works

v. Geographical location

According to the information provided by each database, EBSCO Host and Google Scholar were both used for indicators i) and ii), EBSCO Host alone was used for iii) and v) and Google Scholar alone was used for iv).

2.3 Screening procedure

Using the keyword 'Common European Framework of Reference', a literature search from 1990-2017 was conducted in both EBSCO Host and Google Scholar. Each search was repeated (once in the morning and once in the afternoon) on two different days within the first week of 2018, although the same number of hits were obtained in each database each time.

Prior to recording the data, the resulting hits from the literature searches were screened for irrelevant literature. The first 1000 hits on Google Scholar by way of Publish or Perish (PoP) contained two articles that were not in reference to the CEFR. These articles were removed prior to any data recording or analysis. In EBSCO Host, non-print, audio, trade publications, and news sources were removed and manual verification of the first 500 remaining search hits confirmed that they all referred to the CEFR.

2.4 Number of publications and publications per year

Following the screening procedure, the total number of search hits was recorded for each database for the years 1990-2017 and also for each year from 1990 to 2017. These searches were conducted such that the search term of interest appeared at any point in the body of the text. However, this meant that the relevance of the sources or the extent to which a publication focused on the CEFR was not accounted for: the focus on the CEFR could range from a single mention of it at some point in the body of the work, or it could be a specific study about its usage or implementation. In the current study, these two examples contributed equivalently to the counts of articles on the CEFR, while they clearly make vastly different contributions to knowledge on the CEFR. As a result, a second search with the keyword in the title was also conducted, with the assumption that these publications focused more specifically on the CEFR. The first search intended to provide more comprehensive and inclusive results, while the second would provide results reflecting research with a deeper focus on the CEFR. The findings from both searches were considered in assessing the impact of the CEFR.

2.5 Source and geographical location

For the bibliometric indices of source and geographical location, a sort and filter tool on EBSCO Host was employed for the articles for which location metadata was available. This provided a list of journals and countries that contained or produced publications on the CEFR. Of the 12,104 hits that were retrieved on EBSCO Host, the metadata of 2,171 of them made up the results. For source, journal impact factor obtained from each of the journal's homepages, if available, was also noted (for a discussion about journal impact factor, see Garfield 2006).

2.6 Most cited works

Sort tools within the software Publish or Perish were used to rank the works with the greatest numbers of citations according to the retrievals on Google Scholar. Citations per year were also provided. The results of the two searches with the keyword in the body of the article or the title of the article are provided.

3 Results

3.1 Number of publications

A Google Scholar search of 'Common European Framework of Reference' for the years 1990-2017 retrieved approximately 18,400 publications. The EBSCO Host search for the same time period and search term produced a total of 12,104 hits. When the search criteria was restricted to containing the search term in the title alone, rather than anywhere in the article, EBSCO Host retrieved 305 articles, and Google Scholar, by way of the PoP software, retrieved 454. The results should be interpreted as representative of the data available through the tools EBSCO Host and Publish or Perish, and subject to their limitations.

3.2 Publications per year

Figure 1 shows the number of publications per year for the keyword 'Common European Framework of Reference' for the searches in each database. As can be seen in Figure 1, there are fewer than 10 publications in each year between 1990 and 1995. A gradual increase in publications between 1995 and 2001 is evident (from 10 in 1995 to 92 in 2001). In 2001, the number of publications jumps to 128. A gradual increase proceeds until 2013, with nearly 2,500 publications in that year. The number of publications increases slightly to over 2,500 in 2014 and 2015, peaks at nearly 3,410 in 2016, and then drops back to 2,810 in 2017. These patterns are similar in the literature searches in EBSCO Host until 2011. After 2011, the number of publications per year falls between 1,000 and 1,500 for each year thereafter and no increase per year in publications is visible (Figure 1).
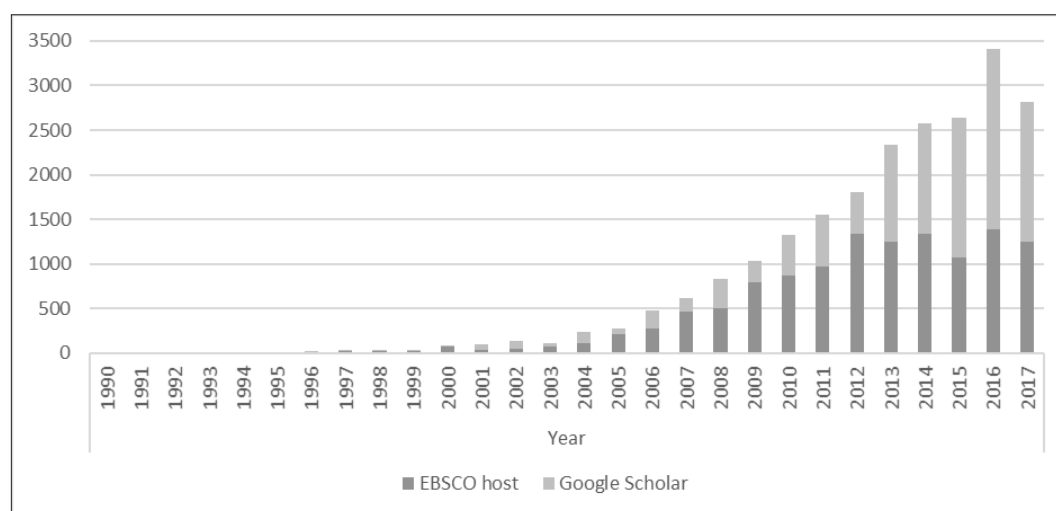

Figure 1. The number of publications for the search term 'Common European Framework of Reference' for each of the years from 1990 to 2017.

The results for the second search of works including CEFR in the title are shown in Figure 2. As can be seen, there are far fewer publications in each year when compared to Figure 1, although an increase of works over time, albeit a far less consistent one, is nonetheless evident. Once again, there are very few publications on the CEFR between its formal conception and the release of the first draft in 1995, with an increase in subsequent publications in the years until 2003. The number increases to over 20 works in the year 2004 and remains between 20 and 40 publications per year between 2004 and 2017, with the exception of the spike in 2012.
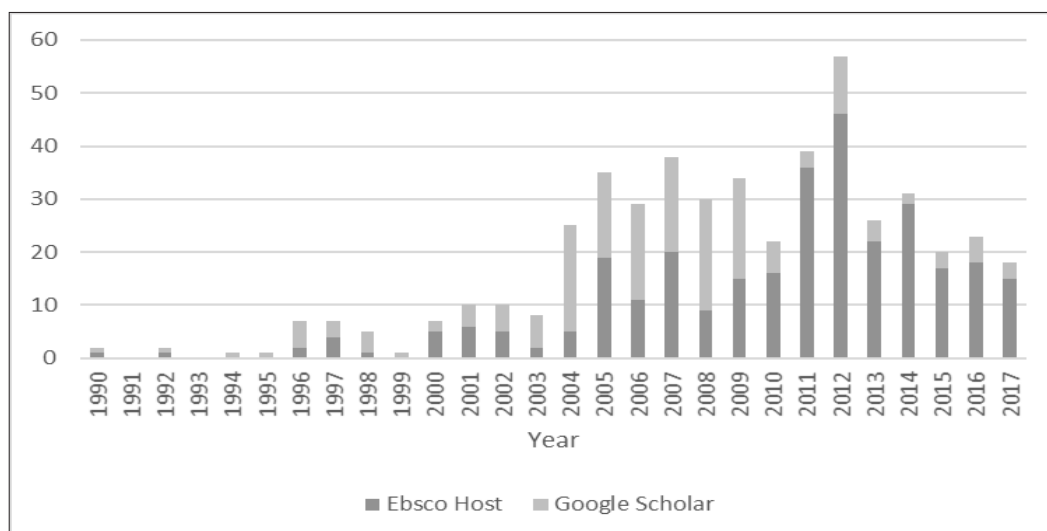
Figure 2. The number of publications for the search term 'Common European Framework of Reference' in the title for each of the years from 1990 to 2017.

3.3 Source and geographical location

The EBSCO Host search retrieved a total of 48 journals that published research on the CEFR ranging from 1 to 538 articles in each of these journals. The ten journals publishing a greater number of articles on the CEFR are shown in Table 1. Altogether, the top ten journals contained 1,714 relevant CEFR articles (nearly 80 percent of the total for which metadata were available). They are mostly published in English, with the exception of the 6th ranked journal, which contains mostly German language material.

EBSCO Host retrieved geographical information for 1,409 separate works. Three-quarters of these were European, including countries such as the U.K., Poland, Spain, Germany, France, Netherlands, Greece, Ireland, Italy, Finland, as the most common. Asia made up 11 percent of the remaining publications with the most research in Turkey, China, Japan, India, and Malaysia. Research from North America was mostly from the U.S. with about 30 percent from Canada. The countries of note from South and Central America and Oceania were Colombia and Australia respectively. In total, about 50 countries were identified where research on the CEFR was undertaken.

Table 1. *The ten journals with the highest number of articles on the CEFR according to an EBSCO Host search for the years 1990-2017*

| Source	Number of articles	Impact factor (when available)
Modern Language Journal	538	1.745
Language Testing	228	1.815
ELT Journal	156	1.125
Language Assessment Quarterly	119	1.02
Language Teaching	105	1.913
Teaching German/Die Unterrichtspraxis	88	
Language Learning Journal	81	
Canadian Modern Language Review	77	0.39
Language Learning	68	2.079
European Journal of Language Policy	66	
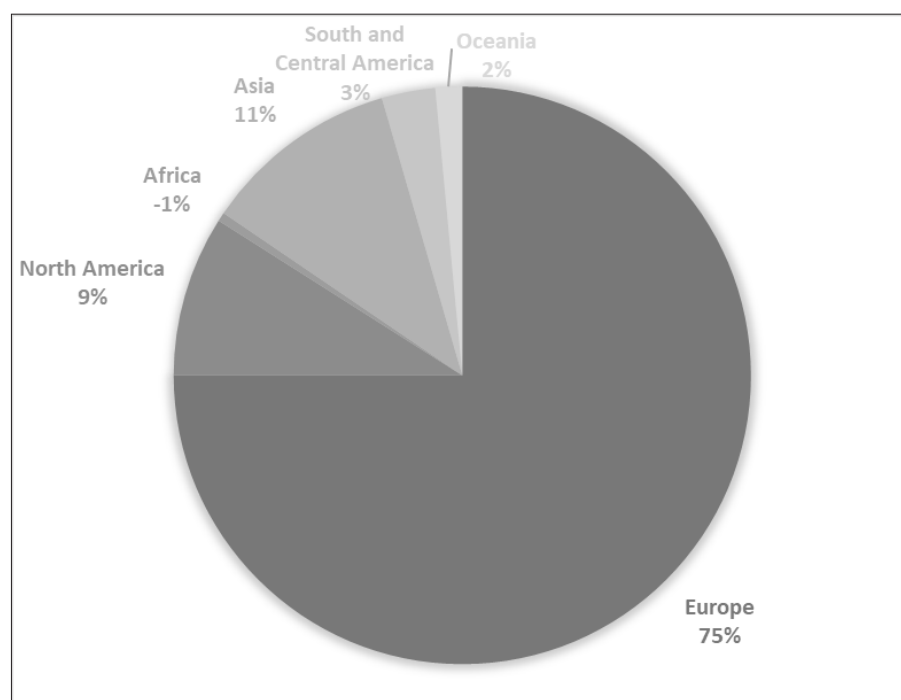
Figure 3. The geographical location of research on the CEFR according to the search term of 'Common European Framework of Reference' on EBSCO Host for the years 1990-2017.

3.4 Most cited works

Publish or Perish was used to identify the most cited works. The first 998 papers from the search with the search term appearing at any point were cited a total of 54,260 times. The 454 papers with CEFR in the title were cited a total of 3,029 times. The most cited ten publications with the CEFR at any point in the work are in Table 2, which also shows the number of citations per year since publication. Table 3 shows the most cited works with CEFR in the title alone. The framework itself is the only document to appear in both lists.

Table 2. *The ten most cited publications referring to the CEFR between 1990-2017*

Total cites	Cites per year	Authors/editors	Title	Year	Source type
6,664	952	C Baker	Foundations of bilingual education and bilingualism	2011	Book
4,176	2,088	V Cook	Second language learning and language teaching	2016	Book
1,731	432.75	J Jenkins, C Leung	English as a lingua franca	2014	Book
946	94.6	N Schmitt	Instructed second language vocabulary learning	2008	Article
885	55.31	M Byram, B Gribkova, H Starkey	Developing the intercultural dimension in language teaching	2002	Book
794	794	A Pym	Exploring translation theories	2017	Book
699		Council of Europe	Common European Framework of Reference for Languages: learning, teaching, assessment	2001	Document

Total cites	Cites per year	Authors/editors	Title	Year	Source type
566	35.38	D Marsh	CLIL/EMILE-The European dimension: Actions, trends and foresight potential	2002	Book
513	102.6	JE Purpura	Assessing grammar	2013	Book
487	97.4	M Byram, A Hu	Routledge encyclopedia of language teaching and learning	2013	Book

Table 3. *The ten most cited publications containing 'Common European Framework of Reference' in the title.*

Cites	Cites per year	Authors	Title	Year	Source
699		Council of Europe	Common European Framework of Reference for Languages: learning, teaching, assessment	2001	Document
185	16.82	D Little	The Common European Framework of Reference for Languages: Perspectives on the making of supranational language education policy	2007	Article
172	14.33	D Little	The Common European Framework of Reference for Languages: Content, purpose, origin, reception and impact	2006	Article
160	13.33	JC Alderson, N Figueras, H Kuijper, G Nold et al.	Analysing tests of reading and listening in relation to the Common European Framework of Reference: The experience of the Dutch CEFR Construct Project	2006	Report
121	5.76	JLM Trim	Modern languages: Learning, teaching, assessment: A common European framework of reference: A general guide for users: Draft 1	1997	Document
105	17.5	JA Hawkins, L Filipović	Criterial features in L2 English: Specifying the reference levels of the Common European Framework	2012	Book
84	14	M Byram, L Parmenter	The Common European Framework of Reference: The globalisation of language education policy	2012	Book
80	3.81	M Byram, G Zarate, G Neuner	Sociocultural competence in language learning and teaching: Studies towards a common European framework of reference for language learning	1997	Book
69	4.93	JC Alderson, N Figueras, H Kuijper, G Nold, S Takala	The development of specifications for item development and classification within The Common European Framework of Reference for Languages	2004	Report
61	8.71	Little D	The Common European Framework of Reference: A research agenda	2011	Article

4 Discussion

A bibliometric analysis was performed on research on the CEFR from 1990 to 2017, with the purpose of exploring the extent, provenance and adoption of the collected body of knowledge. In terms of the extent of the research, the results show a marked increase in the number of publications over the examined time, from 1990 to 2017 (Figure 1 and 2). The results suggest that there was scholarly interest in the CEFR following its formal inception in 1990, after the release of the first draft in 1995, and also in research conducted since the CEFR's publication in 2001. This means that greater attention is being paid to the CEFR from individual researchers and a greater number of researchers overall (Lockwood 2007). A peak in publications in 2016 was also seen, which may be due to the occurrence of Council of Europe language conferences held in October 2015 and March 2016 (Council of Europe 2015, 2016) and one specifically on the CEFR in Japan in March (FLP SIG 2016).

In addition to an increase in the overall number of publications, it was found that a range of journals publish work on the CEFR. These journals varied in their impact factor, geographical location, discipline, specific topics of focus, and even their main language of operation, thus suggesting that the CEFR has application in many areas within language education. When the geographical information of the publications was examined, the vast majority of the works (75%) were European, with research performed in North America and Asia making up nearly all of the remaining quarter. This suggests that the framework, while originally written for the European context, has utility in contexts outside of where it was developed.

In terms of the most cited works, the CEFR itself appeared at the top of the lists whereby the search term could appear either at any point in the publication or within the title of the work itself (Tables 1 and 2). For the former, as can be seen in Table 2, the most highly cited works were primarily books on a range of topics in language education and are not likely to focus greatly on the CEFR (which confirmed the rationale behind performing the second search with CEFR in the title). These findings suggest that scholars in language education are aware of and see value in the framework enough to discuss it or at least mention it in a wide range of works of varied topics. Conversely, for the works with CEFR in the title shown in Table 3, although the framework itself is the most cited work from this list, there is a wide range of source types (books, articles, and reports) and foci of the works: from language education policy, language testing, CEFR impact, and determining language proficiency (future studies could focus more closely on the thematic areas of research upon which the CEFR has been studied most extensively). This suggests that the CEFR has met its intended criteria, in the sense that its multi-purpose approach to language education is to be transparent, comprehensive, and cohesive (Council of Europe 2001). This also suggests that awareness of the CEFR is spreading, and that this has not only been occurring since it was originally published, but also more recently. This is also evident considering that the research from geographical locations external to Europe (and particularly Asia) is more recent than much of the European work. The works in Table 3, which contain the search term in the title, are also, on average, older than those presented in Table 2. This implies that the knowledge of the CEFR is increasing over time and that its uptake is occurring in contexts beyond where the CEFR was originally developed. In summary, the CEFR's impact appears to be spreading more and more widely as time goes by.

Although it has been shown that the amount of research on the CEFR has changed over the period of examined time, the characteristics of that change also have implications for the CEFR's impact. In Figures 1 and 2, a gradual and continual increase in publications from 2001 through to 2017 is mostly but not entirely evident. A tapering off of the growth in the number of publications can be seen in both figures, with local spikes at certain times. In Figure 1, the number of publications exceeded 2,500 in 2014, it did not increase significantly in 2015, went up in 2016, and then returned closer to 2,500 in 2017. In Figure 2, the number of publications remained between approximately 20 to 40 per year (with the exception of 2012) and dropped below this range after 2014. It is unclear whether the number of publications is in decline after 2016. If publications per year have declined or shortly will begin to decline, this could suggest that the framework has already had its greatest scholarly impact. However, this is unlikely given

recent developments such as the updated descriptors released in 2018 and their associated conferences (Council of Europe 2018, 2018b), as well as the release of this CEFR-specific journal. If publications per year continue to be produced at similar levels, this may mean that interest in the Framework has reached a level that will only change if impacted by exceptional events or activity in the literature or industry, as is suggested in the local spike of 2016. For example, the local increase in the number of publications in 2012 (Figure 2) may be a result of immediate increased awareness of the CEFR in Japan due in part to the development and release of the CEFR-Japan (Negishi et al. 2013). A national television station in Japan (Nihon Hoso Kyokai or NHK) adopted the CEFR as the basis for their foreign language education programming (Tono and Negishi 2012) which was followed by an outpouring of related works in Japan (see Runnels 2015; O'Dwyer et al. 2017). If the number of publications is still increasing, then the CEFR's full impact is yet to be seen.

In either case, each of these scenarios have implications for the extent of adoption of CEFR (Yeo et al. 2015), which may be better explored using a theoretical framework. Rogers' diffusion of innovation, a theory that seeks to explain the transfer of ideas, practices or items spread through communities and populations, offers such an opportunity for exploration. According to Rogers (2003), an innovation is communicated to members of social systems: whether the members adopt the innovation is dependent on the characteristics of the innovation and the individual. Specifically, members of the social system can be classified in five adopter categories, depending on their willingness to adopt the innovation, or their innovativeness. The adopter categories are often represented graphically on a bell-curve with time on the x-axis and market share on the y-axis (Rogers 2003) and have been found to make up consistent percentages of the social systems. The categories are innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%), and laggards (16%). It should be noted that this refers to adopters only and not those that reject the innovation entirely, such that it does not include all members of a population. Furthermore, there is no assumption that once an innovation is adopted by a certain group it will continue to diffuse through the remaining categories; rather, diffusion can halt outright at any time.

The shapes of the curves of the bibliometric indicators (number of papers published by year, for example) can be used to explore the saturation and impact of an innovation within its industry, or to estimate its potential impact in the near future (Yeo et al. 2015). Furthermore, since changes in slope are associated with various levels of productivity (Koskinen et al. 2008), the results can be used to predict the degree and stage of an innovation's adoption. Indeed, the slope of the curve in Figure 1 changes in 1995, in 2001, and a third change is evident at approximately 2005 to 2006. These changes match up relatively well with CEFR-related events, namely the first draft's release in 1995 and the CEFR's release in 2001. During this period, the developers worked on the framework until the first draft in 1995, when it is possible that innovators began publishing research, followed by the contributions of early adopters between or shortly after publication in 2001 until about 2006. Indeed, this even matches up with the focus of a forum held in 2007 that was to go beyond the series of seminars and events introducing the CEFR and the potential it offers as a new approach to language learning, teaching and assessment (Goullier 2007), suggesting that it was intended for those who had already adopted the framework. The slope between 2007 and 2017 shown in Figure 1 can be interpreted in two ways: firstly, that there are two or three changes within that time, which suggests that the CEFR went from early majority from 2007 to 2012, to late majority in 2013, until it reached the laggards in 2016, and is in decline as of 2017, from having filled its market share (Rogers 2003). Realistically, the CEFR is very unlikely to have already reached laggard-adopters in any language education context in the world, and so the second and more likely possibility is that the slope can be seen as remaining consistent (with some local variations due to the influence from other geographical areas such as was discussed for Japan and the CEFR-J) from about 2012 onwards. This is supported by the EBSCO Host results, which also do not show much variation in numbers after 2012.

Some insight is gleaned when considering the results summarizing the number of works with CEFR in the title: Figure 2 shows a certain level of productivity from 1990 to 1995, another level between 1996

and 2003, and a third level after 2003, which arguably continues through until 2017. We know that the majority of these works are Europe-based, and due to CEFR being in the title we can assume that the research is performed by CEFR-adopters. These findings suggest that at least two, possibly three levels of adoption have occurred: the European innovators became involved after the publishing of the first draft and the early adopters started publishing two years after the CEFR's publication. It is possible that, currently, the early adopters are still the only ones publishing the same amount as when they first adopted the framework, but taking the findings from Figure 1 into consideration, it is more likely that diffusion into the early majority stage seems to have occurred and is ongoing at the time of writing.

Overall, this means that it took around or just over ten years after publication to move beyond the innovators and early adopters into the early majority stage in Europe, and following the normal-curve (Rogers 2003), this suggests it will take another ten to fifteen years for it to move beyond the late majority to the laggards (assuming no fundamental changes to the innovation or the social system). Although this accords with the timing cited in other innovation research works (Grübler 1996), in North America, for example, the CEFR is unlikely to have gone beyond the innovators. One reason for this is that the U.S. and Canada share an official language (compared to the numerous languages in Europe). They also have their own frameworks (ACTFL's Proficiency Guidelines in the US and the Canadian Language Benchmarks in Canada; American Council on the Teaching of Foreign Languages 2012, Citizenship and Immigration Canada 2013), which have been in operation since 1986 and 1996 respectively, and the need for the CEFR is lower (although arguments for its usage have been put forward in Canada, Arnott et al. 2017, Faez 2012: a Common Framework of Reference for Languages in Canada, a Canadian equivalent of the CEFR, is already in use in some parts of the country [Government of Saskatchewan 2013]). This may also be the case for Oceania. In Asia the socio-cultural situation may be more similar to Europe in that different languages are spoken in each country, significant resources are invested in language education, and no overarching framework is well-established. As such, the literature suggests that the CEFR is currently at an innovators stage for Asia overall (O'Dwyer et al. 2017) and may be entering the early adopters stage in Japan (Schmidt et al. 2017). Turkey also is one country where the CEFR may be moving beyond the innovators, based on the amount of nationally run programs that have supported its usage (Yalatay and Gurocak 2016; Sülü and Kır 2014). The CEFR's influence will be more notable over the next ten years in particular, possibly mirroring its European impact during the time after its 2001 release. What is clear from these analyses is that the CEFR has diffused and will continue to diffuse through different contexts at different rates.

This discussion is extrapolated from the findings of the bibliometric analysis performed on published research on the CEFR, and although findings suggest that scholars have had and will likely demonstrate continued interest in the Framework, we would like to highlight the caveat that there is a difference between teachers and researchers in its adoption. While many researchers are language teachers and vice versa, not all educators perform scholarly research, and not all researchers have taught. Although the CEFR is a language education innovation in which CEFR-adopter teachers perceive value, the patterns of uptake or adoption among teachers may be different and are difficult to determine. One possibility is that there is more research on the CEFR than there is actual usage, while another is that there is more widespread usage of the CEFR than the research shows, meaning that its impact is even larger than estimated. That being said, we think that the results of the bibliometric analysis are strong indicators that can be reasonably applied to represent adoption among educators as well as researchers. However, we must also note that these findings are unable to determine whether or not the impact that the CEFR has had on both scholarship and research is a positive one: the apparent interest in the CEFR shown in the results could be in part due to criticisms of the CEFR derived from its adoption and subsequent negative impact. Further studies could aim to assess the nature of its impact more precisely.

A methodological consideration with this bibliometric analysis is that the two databases generated overall total numbers that were divergent from each other. Although this did not present any major issues, as the findings from both of them were similar, future investigations of this kind should give

consideration to results of bibliometric analyses with different databases, as these often present varying perspectives, which then need to be interpreted individually, particularly in the social sciences (van Raan 2000). Nonetheless, these findings should be taken as preliminary since Google Scholar is not a fully manually curated database, nor did our searches include complete manual searches (as they do, for example, in systematic reviews and other types of literature reviews). Errors such as duplicates were found in the retrievals themselves (for instance, the most highly cited work in Table 2 had over 40 separate entries in Publish or Perish, meaning that its citation rates are most likely underestimated), and in the summations of retrievals: a global search on Google Scholar 1990-2017 retrieved different numbers than each of the searches for each year added together in Publish or Perish). While we selected EBSCO Host for its more detailed bibliometric information and metadata and to address such issues, this database also has some limitations including access to data: the articles and metadata available to EBSCO Host users are conditional to the specific members' library subscription. EBSCO Host identified approximately 12,000 CEFR-related articles (compared to Google Scholar's 18,000), and only a small percentage (about 20%) of the total articles and their metadata was accessible to the authors. It is possible that a different subscription could present different results. Despite these issues, the results likely provide a reasonable approximation of actual numbers, especially given that the patterning of results between the two databases were similar. We nonetheless warn that if the precise totals of publications are of importance, then other measures can be taken using alternative instruments and tools. We also suggest that future studies use different databases to perform searches, and modify and compare findings of different search terms and how research on the CEFR differs according to thematic area of study.

6 References

American Council on the Teaching of Foreign Languages. 2012. ACTFL Proficiency Guidelines. https://www.actfl.org/sites/default/files/pdfs/public/ACTFLProficiencyGuidelines2012_FINAL.pdf. (accessed 05 May, 2018.)

Alderson, J. Charles. 2007. The CEFR and the need for more research. *Modern Language Journal. 91*(4). 659-663.

Arnott, Stephanie, Lace Marie Brogden, Farahnaz Faez, Muriel Péguret, Enrica Piccardo, Katherine Rehner, Shelly K. Taylor & Meike Wernicke. 2017. The Common European Framework of Reference (CEFR) in Canada: A research agenda. *Canadian Journal of Applied Linguistics. 20*(1). 31–54. https://journals.lib.unb.ca/index.php/CJAL/article/view/24472/29666. (accessed 08 April, 2018).

Borgman, Christine L. & Jonathan Furner. 2002. Scholarly communication and bibliometrics. *Annual Rreview of Information Science and Technology. 36*(1). 1-53.

Carty, Nicola. 2014. The adult learner in Gaelic language-in-education policy. *European Journal of Language Policy. 6*(2). 195–217.

Citizenship and Immigration Canada. 2013. *National placement guidelines*. http://www.language.ca/wp-content/uploads/2017/12/National_Placement_Guidelines_2014-1.pdf. (accessed 08 April, 2018.)

Council of Europe. 2001. *The Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge, United Kingdom: Cambridge University Press.

Council of Europe. 2001b. *The common European framework of reference in its political and educational context*. http://assets.cambridge.org/052180/3136/sample/0521803136ws.pdf. (accessed 04 August, 2014.)

Council of Europe. 2005. *Survey on the use of the common European framework of reference for languages (CEFR): Synthesis of results*. Strasbourg, France: Council of Europe.

Council of Europe. 2018, May 16-18. Building inclusive societies through enriching plurilingual and pluricultural education. Strasbourg.

Council of Europe. 2018b. Companion volume with new descriptors. https://rm.coe.int/cefr-companion-volume-with-new-descriptors-2018/1680787989. (accessed 18 November, 2018.)

Council of Europe. 2016. 1st Symposium on *The linguistic integration of adult migrants: lessons from research,* Strasbourg. March 30-April. LIAM Project: www.coe.int/lang-migrants. (accessed 18 November, 2018.)

Council of Europe. 2015, October 14-15. Intergovernmental conference on *"The language dimension in all subjects: equity and quality in education"*. Strasbourg.

de Mejía, Anne-Marie. 2011. The national bilingual programme in Colombia: Imposition of opportunity? *Journal of Applied Language Studies. 5*(3), 7–17.

EBSCO Industries. 2018. *All databases*. https://www.ebsco.com/products/research-databases. (accessed 05 May, 2018.)

Eckes, Thomas, Melanie Ellis, Vita Kalnberzina, Karmen Pižorn, Claude Springer, Krisztina Szollás & Constance Tsagari. 2005. Progress and problems in reforming public language examinations in Europe: cameos from the Baltic States, Greece, Hungary, Poland, Slovenia, France and Germany. *Language Testing. 22*(3). 355-377.

Faez, Farahnaz, Suzanne Majhanovich, Shelley K. Taylor, Maureen Smith & Kelly Crowley. 2012. The power of "Can Do" statements: teachers' perceptions of CEFR-informed instruction in French as a second language classrooms in Ontario. *Canadian Journal of Applied Linguistics. 14*(2). 1–19.

Fagerberg, Jan & Bart Verspagen. 2009. Innovation studies: The emerging structure of a new scientific field. *Research Policy. 38*(2). 218–233.

Figueras, Neus. 2012. The impact of the CEFR. *ELT Journal. 66*(4). 477–485.

Framework & Language Portfolio SIG Newsletter. 2016. CriConCef III Symposium: Critical, constructive assessment of CEFR-based Language teaching in Japan and beyond. Osaka University, Nakanoshima Centre. March 26-27. https://sites.google.com/site/flpsig/critical-constructive-assessment-of-cefr/criconcefiii-march-2016. (accessed 05 May, 2018.)

Garfield, Eugene. 2006. The History Meaning of the Journal Impact Factor. *Journal of the American Medical Association. 295*(1). 90-93.

Glänzel, W., A. Schubert & H. J. Czerwon. 1999. A bibliometric analysis of international scientific cooperation of the European Union (1985–1995). *Scientometrics. 45*(2). 185–202.

Goullier, Francis. 2014. Le *Cadre européen commun de référence pour les langues*, instrument de normalisation ou document instrumentalisé pour une normalisation de l'enseignement et de l'évaluation? *Cahiers de l'Apliut. 26*(2).

Government of Saskatchewan. 2013. *A guide to using the common framework of reference (CFR) with learners of English as an additional language*. http://publications.gov.sk.ca/documents/11/82934-A%20Guide%20to%20Using%20the%20CFR%20with%20EAL%20Learners.pdf. (accessed 08 April, 2018.)

Hanney, Stephen R., Miguel A. Gonzalez-Block, Martin J. Buxton & Maurice Kogan. 2003. The utilisation of health research in policy-making: Concepts, examples and methods of assessment. *Health Research Policy System. 1.* 2–29.

Harzing Anne-Wil. 2007. Publish or perish, available from http://www.harzing.com/pop.htm. (accessed 12 April, 2016.)

Harzing, Anne-Wil & Satu Alakangas. 2016. Google Scholar, Scopus and the web of science: A longitudinal and cross-disciplinary comparison. *Scientometrics. 106*(2). 787–804.

Hulstijn, Jan H., J. Charles Alderson & Rob Schoonen. 2010. Developmental stages in second-language acquisition and levels of second-language proficiency: Are there links between them? *Communicative proficiency and linguistic development: intersections between SLA and language testing research.* 11-20.

Jones, Neil & Nick Saville. 2009. European language policy: Assessment, learning, and the CEFR.*Annual Review of Applied Linguistics. 29.* 51–63.

Karakaya, Emrah, Antonio Hidalgo & Cali Nuur. 2014. Diffusion of eco-innovations: A review. *Renewable and Sustainable Energy Reviews. 33.* 392–339.

Koskinen, Johanna, Matti Isohanni, Henna Paajala, Erika Jaaskelainen, Pentii Nieminen, Hannu Koponen, Pekka Tienari & Jouko Miettunen. 2008. How to use bibliometric methods in evaluation of scientific research? An example from Finnish schizophrenia research. *Nordic Journal of Psychiatry. 62*(2). 136–143.

Kostoff, Ronald N., Antonio del Rio, James A. Humenik, Ester Ofilia Garcia, & Ana Maria Ramirez. 2001. Citation mining: Integrating text mining and bibliometrics for research user profiling. *Journal of the American Society for Information Science and Technology. 52*(13). 1148–1156.

Li, Linda M. & George X. Zhang. 2004. A common framework for Chinese. Presented at Navigating the new landscape for languages (www.llas.ac.uk/navlang). 30 June - 1 July 2004. https://www.llas.ac.uk/resources/paper/2280. (accessed 13 April, 2016).

Little, David. 2006. The Common European Framework of Reference for Languages: Content, purpose, origin, reception and impact. *Language Teaching. 39*(3). 167-190.

Little, David. 2007. The common European framework of reference for languages: Perspectives on the making of supranational language education policy. *The Modern Language Journal. 91*(4). 645–655.

Lockwood, Fred. 2007. Foreword. In Gráinne Conole & Martin Oliver (eds.), *Contemporary perspectives in e-learning research: Themes, methods, and impacts on practice* (pp. xvi–xvii). London, United Kingdom: Routledge.

Martyniuk, Waldemar & José Noijons. 2007. Executive summary of results of a survey on the use of the CEFR at national level in the Council of Europe Member States. *Strasbourg: Council of Europe*.

Mays, Nicholas. Catherine Pope & Jenni Popay. 2005. Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *Journal of Health Services Research and Policy. 10*(Suppl. 1). S6–S20.

Milat, Andrew, Adrien Bauman, Sally Redman & Nada Curac. 2011. Public health research outputs from efficacy to dissemination: a bibliometric analysis. *BMC Public Health. 11.* 934.

Nagai, Noriko & Fergus O'Dwyer. 2011. The actual and potential impacts of the CEFR on language education in Japan. *Synergies Europe. 6.* 141–152.

Negishi, Masashi, Tomoko Takada & Yukio Tono. 2013. *A progress report on the development of the CEFR-J*. In E. D. Galaczi & C. J. Weir (eds.). Exploring language frameworks: Proceedings of the ALTE Kraków conference. 135–163. Cambridge, United Kingdom: Cambridge University Press.

Ngo, Xuan Minh. 2017. Diffusion of the CEFR among Vietnamese teachers: a mixed methods investigation. *The Asian EFL Journal Quarterly. 19*(7). 9-32.

O'Dwyer, Fergus. 2014. Toward critical, constructive assessments of CEFR-based language teaching in Japan and beyond. *The Modern Language Journal. 91*(4). 659–663.

O'Dwyer, Fergus, Morten Hunke, Alexander Imig, Noriko Nagai, Naoyuki Naganuma, & Maria Gabriela Schmidt. 2017. *Critical, constructive assessment of CEFR-informed language teaching in Japan and beyond*. Cambridge: Cambridge University Press.

Papageorgiou, Spiros. 2014. Issues in aligning assessments with the common European framework of reference. *Language Value.* 6. 15–27.

Piccardo, Enrica. 2013. Assessment recollected in tranquility: The ECEP project and the key concepts of the CEFR. *Studies in Language Testing. 36.* 187–204.

Porter, Alan, Alisa Kongthon & Jye-Chyi Lu. 2002. Research profiling: Improving the literature review. *Scientometrics. 53*(3). 351–370.

Rogers, Everett. 2003. *Diffusion of innovations* (5th ed.). New York: Simon and Schuster.

Runnels, Judith. 2015. Usage of the CEFR and CEFR-J in Japanese universities: Preliminary survey results. *Framework & Language Portfolio SIG Newsletter. 14.* 8-18. https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxmbHBzaWd8Z3g6MTBlODE1ZjJlINjg0NTYxZA. (accessed 12 April, 2016.)

Schärer, Rolf. 2007. The common European framework of reference for languages: Multifaceted and intriguing. *Babylonia. 1*(7). 11.

Sülü, Ayfer & Elif Kır. 2014. Language teachers' views on CEFR. *International Online Journal of Education and Teaching. 1*(5). 358–364. http://iojet.org/index.php/IOJET/article/view/69/97. (accessed 13 April, 2016.)

Runnels, Judith. 2014. The CEFR-J: The story so far (2012–2014). *Framework & Language Portfolio SIG Newsletter. 12.* 9-19. https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFppb-nxm bHBzaWd8Z3g6MTE5OTNmMWExOWQzNzdlOQ. (accessed 12 April, 2016.)

Schmidt, Maria Gabriela, Judith Runnels & Noriko Nagai. 2017. The past, present and future of the CEFR. In *Critical, constructive assessment of CEFR-informed language teaching in Japan and beyond*. Fergus O'Dwyer Morten Hunke, Alexander Imig, Noriko Nagai, Naoyuki Naganuma, and Maria Gabriela Schmidt (eds.). Cambridge: Cambridge University Press.

Tono, Yukio & Masashi Negishi. 2012. The CEFR-J: Adapting the CEFR for English language teaching in Japan. *Framework & Language Portfolio SIG Newsletter. 8.* 5–12. https://dl.dropboxusercontent.com/u/33808898/FLP%20SIG%20NL%208%20Sep2012%20CEFR-J.pdf. (accessed 11 April, 2016)

Tricco, Andrea C., Vivien Runnels, Margaret Sampson, & Louise Bouchard. 2008. Shifts in the use of population health, health promotion, and public health: a bibliometric analysis. *Canadian Journal of Public Health. 99*(6). 466–471.

University of Wisconsin–Milwaukee. 2014. *Diagnostic medical sonography: Journal impact factors & citation analysis*. http://guides.library.uwm.edu/c.php?g=56512&p=363435. (accessed 08 April, 2018)

Valax, Philippe. 2011. *The Common European Framework of Reference for Languages: A critical analysis of its impact on a sample of teachers and curricula within and beyond Europe.* Doctoral dissertation, University of Waikato.

Van Leeuwen, Thed. 2006. The application of bibliometric analyses in the evaluation of social science research. Who benefits from it, and why it is still feasible? *Scientometrics. 66*(1). 133-154.

Van Raan, Anthony F. J. 2000. The interdisciplinary nature of science: theoretical framework and bibliometric-empirical approach. *Practising interdisciplinarity.* 66-78.

Vine, R. 2006. Google scholar. *Journal of the Medical Library Association. 94*(1). 97–99.

Xian, Hanjun, & Krishna Madhavan. 2014. Anatomy of Scholarly Collaboration in Engineering Education: A Big Data Bibliometric Analysis. *Journal of Engineering Education. 103*(3). 486-514.

Yalatay, Sibel & Fatma Gurocak. 2016. Is the CEFR really over there? *Procedia. 232.* 705–712.

Yeo, Woondong, Seonho Kim, Hyunwoo Park & Jaewoo Kang. 2006. A bibliometric method for measuring the degree of technological innovation. *Technological Forecasting and Social Change. 95*, 152-162.

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