

# WIKIPEDIA IN UNIVERSITY PROGRAM: META-ANALYSING THE ACTORS IN THE LUSOPHONE PAGE

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**Abstract**—The curricular integration of Wikipedia has the potential to create Open Virtual Learning Environments that promote a broad set of skills. It should be noted that the Wikimedia Foundation, a foundation that supports a number of projects, including Wikipedia, is particularly interested in partnerships with educational institutions, particularly at the higher education level. It is in this context that the page of the Wikipedia Program at the University in the Portuguese-speaking context was meta-analyzed between the years 2011 and 2018. The research study was aimed at answering to the following question: - What do the courses registered on the Lusophone page of the Wikipedia Program at the University tell us? Given that it was achieved by meta-analysing a *corpus* of 92 interventions, we present, in this text, the part related to the meso category “actors”, which, in turn, is included in the macro category “Methodologies”. Hence, our specific question is: - Which actors are involved? Methodologically, this postdoctoral research is an exploratory, descriptive and meta-analytical study of a mixed nature, combining a quantitative and a qualitative approach. The MAECC®, Meta-model of Analysis and Exploration of Scientific Knowledge® was adopted as the methodological and analytical instrument, supported by document analysis, statistical analysis and content analysis. In the whole, the mapping obtained allows us to identify curricular areas, actors involved, pedagogical strategies, educational products and trends of each university involved in the program, expanding our understanding of this phenomenon. More specifically, the meso category “actors” allows us to identify those who were involved, namely: “teachers” (42), “students” (~3557) and “ambassadors” (62).

**Keywords**—*Networked Educational Technology, Wikipedia in University Program, Meta-analysis, MAECC®, Knowledge Mapping.*

## I. INTRODUCTION

The network is assumed as an educational interface that integrates and provides the openness and sharing of knowledge [1], and in this context we consider Wikipedia, because it can be described as a source of information. Through collaborative and anonymous writing, and the self-regulation of the knowledge construction system, it can also be described, following [2], as a project with an undeniable contribution to the construction of collective intelligence. At the same time, we highlight that under the motto “Wikipedia belongs to education”, the Wikimedia Foundation, an entity that financially supports several projects, including Wikipedia, has been targeting at partnerships with educational institutions, namely through the Wikipedia Education Program (WEP), which in turn integrates the Wikipedia in University Program (WUP) [3] [4] [5]. Bearing in mind this specific program, it was considered important to meta-analyse the page of the courses available in the context of the

Portuguese-speaking WUP. For this purpose, we adopted, methodologically, the MAECC®.

The text is organized in five parts. The first part is the introduction, the second is dedicated to the theoretical contextualization, focusing issues related to open education, in general, and, specifically, to Open Educational Practices (OEP) and Open Educational Resources (OER). The third is dedicated to the methodological system of analysis [11], that is, the MAECC®. The fourth part is dedicated to the presentation and discussion of data inherent to the specific research question. The fifth, and last part, is the conclusion.

## II. THEORETICAL CONTEXTUALIZATION

We have been defending Wikipedia as an OER [6] and as an Networked Educational Technology. Therefore, we are in the presence of a phenomenon that is part of Open Education, which, moreover, can be embodied as an OEP. Open Education, as in [5] [7] [8], integrates individual and/or institutional resources, tools and practices in order to promote access, efficiency, success and equity in education in the world. In this context, both the OER and the OEP are important.

Taking Wikipedia as an object of study and as a pedagogical strategy, we highlight that it is increasingly becoming present at different levels of education in the world, namely because the Wikimedia Foundation identifies as a priority the partnership with the various educational institutions, implementing the initiative designated as the Wikipedia in Education Program (WEP), which includes the Wikipedia in University Program (WUP). In Portugal, this partnership was made with the Portuguese Open University, *Universidade Aberta* (UAb), in 2016, through the, Laboratory of Distance Education and Elearning (LE@D) [9], and more recently through the WEIWER® (Wikis, Education & Research) International Academic Network, which has been promoting several initiatives, developed at different levels of education [10] [11]. The WEIWER® Network was officially set in 2018 with its Open Sessions, an event that fosters debate on issues associated to the Wikipedia phenomenon; it also promotes and studies a set of practices that embody the curricular and pedagogical integration of Wikipedia at different levels of education.

## III. METHODOLOGICAL CONTEXTUALIZATION

The research carried out, of which this text is an excerpt, aims to answer to the following specific question: Which actors are involved in the Portuguese-speaking WUP? Our research design embodies an approach that combines quantitative and qualitative methods.

With regard to MAECC®, as in [12], the systematization of knowledge, carried out via a mixed or multimodal meta-

analysis, allows to combine document analysis from a qualitative and quantitative perspective with content analysis, privileging the theories proposed by van der Maren (1996), categorized according to the following levels: description, understanding, explanation and formalization of knowledge; these levels promote an appropriation of critical and reflective knowledge on the issues being analysed. It is important to clarify our understanding of meta-analysis, sustained, for this purpose, by the perspective of Gene Glass, who introduced the term for the first time, in 1976. Thus, as in [13, p.3], “[m]eta-analysis refers to the analysis of analyzes. I use it to refer to the statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings”.

From the meta-analysis, we considered for our study, as in [14], the following procedural steps: (a) the selection and inclusion of all existing courses on the platform of the WUP; (b) the definition of inclusion and exclusion criteria, for the constitution of the *corpus*; (c) the development of the coding categories, to cover most of the identified courses; (d) the analysis and graphic representation of the results and their presentation; (e) the combination of quantitative and qualitative reviews. Figure 1 systematizes the conceptual model built for our meta-analytical study, in its various phases, which we describe below.

As in [14], Phase 1 (Collection) was based on documental analysis and resulted in the identification of the documents to be included in the *corpus*. For this purpose, the inclusion and exclusion criteria of the documents to be (meta) analysed, and the respective research descriptors, were defined and applied. Phases 2 and 3 (Treatment and Organization) refer to stages of consecutive readings, through which the information in the texts of the *corpus* gradually emerged from each document, induced by the content analysis, in a constant resource to the data and in a permanent dialogue with it. The analytical units were recorded in the analysis instrument, according to the defined categorical matrix. It is important to remember that we had the support of MAECC® and, therefore, we incorporated its five macro dimensions (Characterization, References, Methodologies, Contributions, Implications). Finally, Phase 4 (Diffusion) closes the methodological sequence of this study.

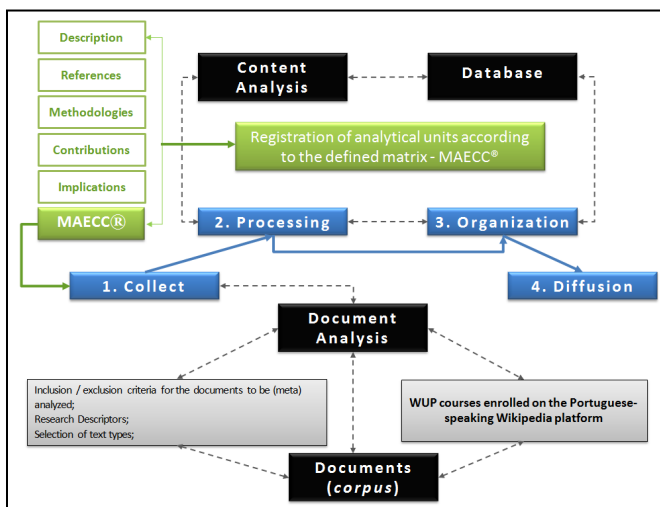


Fig. 1. Methodological analysis system: conceptual model (translated from [12])

In the next section, we present the context that supported the research and we present the corpus. Then, we address the principles and procedures for the application of the methodological system of analysis.

### A. Context

WUP is part of WEP and the Portuguese speaking WUP website gathers all the courses developed under this program in the Portuguese language (<https://bit.ly/31jyHVv>). The welcome page, as its name implies, welcomes people potentially interested in the program and it is also directed to the actors directly involved in the program – i.e. teachers, students and Wikipedians, specially Wikipedia Ambassadors. In addition to the welcome page, the program includes the tabs “Courses”, “Campus Ambassadors”, “Online Ambassadors”, “Resources” and “Help”. The “Courses” tab aggregates the courses taught in Portuguese within this program (cf. Figure 2).



Fig. 2. Screenshot of the “Courses” tab of the WUP page in Portuguese (<https://bit.ly/31jyHVv>)

At the date of the definition of our *corpus*, the meta-analysis period identified was between 2011-2018. The “Courses” tab of the Lusophone WUP page totalled 92 courses during that time, that is, our *corpus* of analysis is limited to those eight years [12]. It is important to note that in 2019, 1 course was added and in 2020, another one. However, we also acknowledge that after that time, the courses in Portuguese began to be implemented through the Wikimedia Foundation's Outreach Dashboard ([https://pt.wikipedia.org/wiki/Wikipédia:Outreach\\_Dashboard](https://pt.wikipedia.org/wiki/Wikipédia:Outreach_Dashboard)) and no longer are listed in the WUP page; the courses based in the US and Canada are aggregated in a dedicated portal (<https://outreachdashboard.wmflabs.org>).

Addressing again our attention to the context of our research, and regarding the meso category “Curricular Area”, among the 92 educational interventions, 41 were in the field of “Exact Sciences” and 51 in the field of “Social and Human Sciences” [15]. Next, we present the *corpus* that was meta-analyzed; in other words, we list the 92 courses we mapped.

1. Desenvolvimento de Software Livre
2. Sistemas Multimidia
3. A história romana na Wikipédia
4. História da Cultura
5. Eletromagnetismo
6. Espalhamento Elástico de Luz e Raios-X por Biosistemas
7. Política Cultural
8. Antiguidade Clássica
9. Memória e Vivência
10. Curso de extensão

- |  |  |
|--|--|
| 11. Direito Sanitário  | 51. Termodinâmica e Mecânica Estatística (FIS01232)  |
| 12. Atividades Acadêmico-Científico-Culturais                  | 52. Gestão de Pessoas  |
| 13. Cidade e Imaginário  | 53. Liderança e Comportamento Organizacional   |
| 14. Química Geral e Experimental                               | 54. Ciência Política   |
| 15. Equações Diferenciais                                      | 55. Sociologia   |
| 16. Design e Editoração  | 56. Gestão de Pessoas II   |
| 17. Física III-C – Física para engenharia                      | 57. Gestão de Pessoas I  |
| 18. Literatura - Teoria e Crítica                              | 58. Criação de verbetes sobre História da Antiguidade Ocidental                                |
| 19. Sistemas de Produção I                                     | 59. Laboratório didático de Física e Práticas Pedagógicas VII                                  |
| 20. Tópicos Especiais em Biologia Evolutiva                    | 60. Física III-C – Física para engenharia  |
| 21. Língua Latina 2  | 61. Comportamento Organizacional   |
| 22. Evolução   | 62. Evolução: o sentido da vida  |
| 23. Introdução às Tecnologias da Comunicação                   | 63. Criação de verbetes sobre História da Antiguidade Ocidental                                |
| 24. Antropologia e Sociologia - Grandes Pensadores Brasileiros | 64. Laboratório didático de Física e Práticas Pedagógicas VII                                  |
| 25. Eletromagnetismo II  | 65. Instrumentação Física  |
| 26. Seminário de Pesquisa em Cultura Histórica e Documento     | 66. Física III - C – Física para engenharia  |
| 27. Física III – C – Física para engenharia                    | 67. Contextos Educacionais   |
| 28. Instrumentação Física                                      | 68. Evolução: o sentido da vida  |
| 29. Cálculo Numérico   | 69. Ecologia Geral   |
| 30. Aplicações da Matemática - A                               | 70. Ciência Política   |
| 31. Introdução ao Cálculo Fracionário                          | 71. Biologia da Conservação  |
| 32. Sociedade de Consumo e Litígios em Massa                   | 72. Ecologia Geral   |
| 33. Tradução Inglês - Português                                | 73. História da Antiguidade Ocidental  |
| 34. Planejamento Wikipédia na Universidade com FGV SP          | 74. Laboratório didático de Física e Práticas Pedagógicas VII                                  |
| 35. Introdução às Tecnologias da Comunicação                   | 75. Introdução ao Cálculo Fracionário  |
| 36. WikiProjeto Medicina                                       | 76. Ciência Política   |
| 37. Física IV Civil (FIS01223)                                 | 77. Comportamento Humano nas Organizações  |
| 38. Cálculo Numérico (MAT01169)                                | 78. Gerenciamento Editorial em Mídias Digitais: Jornalismo de Dados                            |
| 39. Tradução do Alemão   | 79. Caminhão com Ciência   |
| 40. Introdução às Tecnologias da Comunicação                   | 80. Tópicos Especiais em Ciência da Informação   |
| 41. Física III-C – Física para engenharia                      | 81. História da Antiguidade Ocidental  |
| 42. Instrumentação Física                                      | 82. Laboratório didático de Física e Práticas Pedagógicas VII                                  |
| 43. Física IV Civil (FIS01223)                                 | 83. Gerenciamento Editorial em Mídias Digitais: Jornalismo de Dados                            |
| 44. Cálculo Numérico (MAT01169)                                | 84. Gerenciamento Editorial em Mídias Digitais: Jornalismo de Dados                            |
| 45. O Mundo Helenístico  | 85. Extensão: Reformulação e construção de verbetes da Wikipédia na área de Teoria da História |

- 86. Extensão: Reformulação e construção de verbetes da Wikipédia na área de Teoria da História
- 87. História Moderna II
- 88. Seminário de Pesquisa em História Antiga
- 89. Introdução à Biofotônica
- 90. Gerenciamento Editorial em Mídias Digitais: Jornalismo de Dados
- 91. Audiologia Educacional e Reabilitação Auditiva
- 92. Editatona de Prevenção em Saúde

**B. Analysis Instrument**

Before presenting the meta-analysis instrument (in Table II), we identify and characterize below the (macro, meso, and micro) meta-analysis categories of the study (in Table I).

TABLE I. META ANALYSIS CATEGORIES DEFINED FOR THE STUDY [12]

MAECC® Macro Categories	Description/Categories and Subcategories (MAECC® meso and micro levels)
Description	In this macro dimension of MAECC® it is intended to identify the: Name of the Course; Higher Education Institution; Year and Semester; Country where it was developed (meso level).
References	In this macro dimension of MAECC® it is intended to identify the: Curricular Areas implemented (meso level), namely Exact Sciences / Social and Human Sciences (micro level).
Methodologies	In this macro dimension of MAECC® it is intended to identify the: Actors (course participants) (meso level), namely Teachers, Students and Wikipedia Ambassadors (micro level); Format/Typology of courses available (meso level), namely Typology “A” (Edit-a-thon), Typology “B” (Dashboard), Typology “C” (Project Page), Typology “D” (Project with 4 pages – Main, Discussion, Resources and Help) (micro level).
Contributions	In this macro dimension of MAECC® it is intended to identify the: Level of Access to Information (meso level), namely Access Link Active/Inactive (micro level).
Implications	In this macro dimension of MAECC® it is intended to identify the: Articulation with other initiatives (meso level).

Regarding the meta-analysis instrument grid itself, the example presented in the Table II illustrates the only Portuguese university represented in the Portuguese-Speaking WUP, and its course – “Educational Contexts”; the remaining (91) courses correspond were taught in Brazilian Higher Education institutions [9].

As we can see, the meso category “actors” is part of the macro category “Methodologies” aiming at identifying, quantifying and relating data, that is, aiming at meta-analysing data with regard to the micro categories “teachers”, “students” and “ambassadors” involved in the 92 courses that our research *corpus* comprises.

TABLE II. COURSE META-ANALYSIS GRID “EDUCATIONAL CONTEXTS” [9, p. 365]

<b>1. Description</b>	
1.1. Course Designation:	Wikipédia na Universidade/Cursos/Contextos Educacionais
1.2. Higher Education Institution:	Universidade Aberta
1.3. Year/ Semester:	2016/ 1st Semester
1.4. Country:	Portugal
<b>2. References</b>	
2.2. Curricular Area	
2.2.1. Exact Sciences:	—
2.2.2. Social and Human Sciences:	✓
<b>3. Methodologies</b>	
3.1. Actors (course participants)	
3.1.1. Teachers:	Teresa Cardoso (Teacher) and Filomena Pestana (Researcher)
3.1.2. Students:	4
3.1.3. Ambassadors:	Alchimista
3.2. Course availability format / typology	
3.2.1. Tipologia “A” (Edit-a-thon):	—
3.2.2. Tipologia “B” (Dashboard):	—
3.2.3. Tipologia “C” (Project Page):	—
3.2.4. Tipologia “D” (Project with 4 pages – Main, Discussion, Resources and Help):	✓
<b>4. Contributions</b>	
4.1. Level of access to information	
4.1.1. Access Link Active:	✓
4.1.2. Access link not active:	—
<b>5. Implications</b>	
5.1. Articulation with other initiatives:	Not detected.

**IV. PRESENTATION AND DISCUSSION OF DATA**

The 92 courses of the *corpus* of our meta-analysis include the participation of 21 Brazilian universities, where 91 courses were implemented, and 1 Portuguese university, where 1 course was carried out (cf. meso dimension – “Country” and macro dimension – “Characterization”).

Recalling our specific research question, considered for this text – What actors are involved? –, it should be noted that in the meso dimension “actors” we identified three micro dimensions: “Teachers”, “Students” and “Ambassadors”, corresponding, respectively, to 42 teachers, approximately 3557 students and 62 Wikipedia ambassadors.

Regarding the 42 “Teachers”, the majority (28) only implemented 1 course; on the contrary, Rafael Pezi has implemented the largest number of courses (12), followed by Juliana Bastos Marques and Flávia Varela (both implemented each 7 courses). Moreover, we identified the following “Teachers” who also implemented more than one course: Valério Andrade Melo 6 courses; João Alexandre Peschanski, 5. Besides, Esequia Sauter, Fábio Azevedo, Deborah Magnani, Lina Nagaka, Viktor Chagas, and Rafael Vasques Brandão implemented 4 courses each; Ruben Camargo has implemented, in his turn, 3 courses. Finally, Irandy Marcos da Cruz and Lucas Nicolau, each, implemented 2 courses.

Regarding the “Ambassadors” involved, we observe that this involvement can result in assisting one or several courses. Nevertheless, the majority of the “Ambassadors” were involved in only 1 course (39), whereas 15 were involved in 2 courses and 3 in 3 courses. In addition, we can see that the “Ambassador” Fábio Azevedo was involved in 12 courses, the “Ambassador” Vitor Mazuco in 8 courses, and the “Ambassadors” Célio Costa and Otavio, each, in 4 courses.

Still with regard to “Teachers” and “Ambassadors”, it is important to highlight courses in which the actors embodied these two roles. For instance, both Fábio Azevedo and Rafael Pezzi represent such case, as the former was involved in 16 courses, 12 as an “Ambassador” and 4 as a “Teacher”, and the latter was involved in 15 courses, 12 as a “Teacher” and 3 as an “Ambassador”. The cases of Esequia Sauter and RadiX are also similar, since the first was involved in 4 courses with the role of the “Teacher”, and as an “Ambassador” in 2 others; the second was involved in 2 courses as a an “Ambassador” and in 1 course as a “Teacher”.

Finally, with regard to the data related to the micro category “Students”, in this micro category, two situations are identified: courses where there is the indication of the specific number of students (e.g., 1839), and other courses where an approximate number of students is presented (e.g., ~1718). We have also identified a third situation, which was not considered for analysis, that of the courses (of 3 universities) of which the number of students involved is not indicated.

#### V. CONCLUSION

Under the motto “Wikipedia belongs to education”, the Wikimedia Foundation created the PWE in 2010 and, within it, the WUP, with the aim of providing greater quality to the content available on Wikipedia, also involving the academic community in its construction and development. Wikipedia started in 2011 in Portuguese, and so it was considered important to map and meta-analyse the courses implemented in partnership with Higher Education institutions since then to answer to the following main question: - What do the courses of the Wikipedia in University Program registered in the Lusophone Wikipedia platform tell us? Specifically, this problem fits an exploratory study, of a descriptive and meta-analytical nature, of a mixed nature, integrating a quantitative and qualitative approach. Hence, the Meta-model of Analysis and Exploration of Scientific Knowledge® (MAECC®) was adopted as an analytical and methodological instrument, supported by document analysis, statistical analysis, and content analysis.

This text covers a part of a broader postdoctoral study, and the main purpose we targeted here was to identify, in the *corpus* we defined, which actors are involved in the courses referred to before, including in the previous paragraph.

So, in the period from 2011 to 2018, namely in the context of the 92 Portuguese-speaking WUP courses we meta-analyzed, these were delivered in 22 Higher Education institutions (21 Brazilian and 1 Portuguese). In the same context, 42 professors (teachers) and 62 Wikipedia ambassadors were identified. With regard to teachers and ambassadors, we can observe that while some were only involved in a single course, others implemented/assisted more than one course. The data collected evidences 4 professors who also assumed the role of Wikipedia ambassadors and vice-versa. The exchange of roles was carried out in different courses, that is, it was not carried out simultaneously, within the same course. As for the students involved, we recognized 3 situations: the number of students is specified; the number of students is estimated in approximate values; the number of students is not indicated. Hence, in the whole, we identified ~3557 students involved in the 92 courses of our research *corpus*.

To conclude, we can say that we the Portuguese-speaking WUP is a program that integrates projects of a wide scope, especially if taking into account the actors involved in the courses, namely teachers, students and Wikipedia ambassadors. Moreover, these courses, provided by Higher Education institutions in partnership with Wikimedia Foundation, are significant, mainly and above all, but not exclusively, to the educational actors who are committed to its implementation.

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