- Litt, G. (2017). ENHANCE! Upscaling Images with Neural Networks. Video lecture. Retrieved at https://youtu.be/RhUmSeko1ZE (accessed on 23. 4. 2022).
- Paudel, A., Dhakal, R. & Bhattarai, S. (2021). Room Classification on Floor Plan Graphs using Graph Neural Networks. Retrieved at https://doi.org/10.48550/arXiv.2108.05947 (accessed on 1. 4. 2024)
- Philips, J. & Tabrizi, N. (2020). Historical Document Processing: A Survey of Techniques, Tools, and Trends. Department of Computer Science, North Carolina, U.S.A.: East Carolina University, Greenville. Retrieved at https://www.scitepress.org/Papers/2020/101774/101774.pdf (accessed on 26. 3. 2024)
- Plaziac, N. (1999). Image interpolation using neural networks. In IEEE Transactions on Image Processing, Vol. 8, No. 11, 1647–1651. Retrieved at https://doi.org/10.1109/83.799893 (accessed on 28. 3. 2024)
- Rigele G. (2021). Overview of business Archives in Austria. Business Archives in international Comparison: 8-10. Paris: International Council on Archives. Retrieved at_business_archives_in_international_comparison_-_2021.pdf (ica.org) (accessed on 28. 3. 2024).
- Rosenfeld, A. (1969). Picture Processing by Computer. In ACM Computing Surveys Vol. 1, No. 3, 147–176. Retrieved at https://doi.org/10.1145/356551.356554 (accessed on 12. 3. 2024)
- Santiago, E. (2023). How AI Perceptions Have Changed in the Last Decade [Comparing New & Old Consumer Data]. Hubspot, 11. July 2023. Retrieved at https://blog.hubspot.com/marketing/artificial-intelligence-is-here (accessed on 30. 3. 2024)
- Turton A. (2021). Editorial Note. Business Archives in international Comparison:

 1. Paris: International Council on Archives. Retreived at business archives in international comparison 2021.pdf (ica.org) (accessed on 28. 3. 2024).
- Yingfang C., Rui Y. (2021). Overview of business Archives in China. Business Archives in international Comparison: 20-24. Paris: International Council on Archives. Retreived at business_archives_in_international_comparison_-_2021.pdf (ica.org) (accessed on 28. 3. 2024).

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ARCHIVAL SCIENCE BETWEEN SOCIAL AND NATURAL SCIENCES, STUDY PRESENTATION

Abstract

Purpose: The purpose of this paper is to present research on classification of archival science among social science, but at the same time we want to find answers to whether archival science can also be classified among natural sciences.

Method/approach: The results of this paper are based on several methods. The first one is the comparative method of the study programs and profiles of the graduate students at the University of Ljubljana in correlation to the types of archival material which those specialists produced. Another method used in the paper is the method of studying different sources like websites, literature etc. including the experiential method.

Results: This paper presents the results of this research, which will place all three sciences in clear starting points related to archival science, archivistics and archival theory and practice.

Conclusion: The fact is that archival science is gaining ground as an independent, academic, multidisciplinary and interdisciplinary science; therefore, we must place it within clear starting points, which are typical for both social and natural sciences.

Key words: archival science, social science, natural science, archival material.

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1. INTRODUCTION

In the introduction, we would like to emphasize the firm belief that archival science today is undeniably an independent, academic, multidisciplinary and interdisciplinary science. This fact has been confirmed by a decade long research activity and a long period of positioning modern archival science as a science both within professional and layman public. Nevertheless, from time to time we can come across individual professional articles in which archival science is referred to as an auxiliary historical science, even though the activities of archivists have been positioning archivistics as a science for a long time. We are convinced that the majority of these auxiliary sciences are used by archivists in competent archives in the professional processing of material and by employees in archival institutions as well as creators of archival material (Klasine, 2023a).

We were led to prepare this paper by the observation that the process of establishing archival science as an independent, academic, multidisciplinary and interdisciplinary science is way too slow (Klasinc, 2023; Trivette, 2022), and it can therefore not be equally integrated into the social or natural sciences (Plazar & Klasinc, 2023). The basis for this paper provides *Table 1*, which shows the differences between natural and social sciences.

	Natural sciences		Social sciences
+	Accuracy	-	Inaccuracy
+	Correctness	-	Incorrectness
+	Determinacy	-	Indeterminacy
+	Independence	-	Dependence
+	Transparency	-	Opacity

Table 1: Differences between natural and social sciences (Ambrož, 2023, 18.)

Data in *Table 1* shall be understood in the context of scientific research work, or in relation to the so-called evaluations of research results (Henttonen, 2023). If, based on the data from *Table 1* we find and classify individual archival documents, we will arrive at different results after the analysis. More on that below.

2. PRESENTATION OF SOCIAL SCIENCES FROM THE PER-SPECTIVE OF ARCHIVAL SCIENCE, ARCHIVISTICS AND ARCHIVAL THEORY AND PRACTICE.

For a brief presentation of social science in the broadest sense of the word, we will use data from the Faculty of social sciences of the University of Ljubljana (Uni Lj, 2024a). We could have of course chosen any other higher educational institution to present the social sciences, but the decision fell on the oldest and largest university in Slovenia. Among all faculties of social sciences within Ljubljana University, we chose the Faculty of Economics, Faculty of Law, Faculty of Education, Faculty of Social Sciences, Faculty of Administration, Faculty of Social Work, Faculty of Sports and Faculty of Arts.

The conclusion that archival science shall be positioned within social sciences is only partially true. In this paper we therefore want to prove that archival science can also be classified as a natural science. Below, we will justify the fact that in the study programs of individual faculties, we can find clear connections between studies and the subsequent work activity of graduates in connection with the creation of archival and documentary material, and in this way establish a connection with archival science, archivistics and archival theory and practice.

The Faculty of Economics (EF) educates future professionals who, after completing their education, generally create archival and documentary material in their work in large quantities, for example in financial and accounting departments, management, in trade or in international business contacts.

The same applies to the Faculty of Law (PF, 2008), where future experts study for the preparation of laws, recommendations, contracts, implementation works or legal opinions. For the creators of archival material, lawyers are important creators of individual documents, even those marked as confidential and used to prove various situations, which can add archival value to the documents. Among the material that is created in the legal field, we can distinguish between confidential and important documentary material, which is marked as inaccessible in the archives for a long period of time or is kept by the creators with a mark permanent.

The Faculty of Social Sciences (FDV, 2012) educates those who, in their future careers, will be closely related to the creation of archival and documentary ma-

terial, especially as employees of ministries, economic or non-economic institutions, state or private companies. We believe that the most material is created in this area, which we rightfully take into account when evaluating and selecting archival material. It is interesting to note that the Social Science Data Archive, a scientific research institution that supports research and education with an important data infrastructure, also operates within the faculty (FDV).

The Faculty of Social Sciences (FDV, 2012) educates those who, in their future careers, will be closely related to the creation of archival and documentary material, especially as employees of ministries, economic or non-economic institutions, state or private companies. We believe that most material is created in this particular area, which we rightfully take into account when evaluating and selecting archival material. It is interesting to note that the Social Science Data Archive, a scientific research institution that supports research and education with an important data infrastructure, also operates within the faculty (FDV).

Other faculties of social sciences are in a similar position to the one mentioned above in relation to archival science, for example the Faculty of Education (PEF), where those who will create archival material about education are being trained, or where material is already being created, which experts who teach at this faculty have created during their work. The same applies to the Faculty of Social Work (FSD) which educates those who will create documents related to the social activity of the country and the activity of state institutions and healthcare, which will reflect the social state of society (housing issues, the situation of pensioners ...).

Compared to the previously mentioned higher education institutions, the Faculty of Administration (FU, 2021) is also important for archivists and their work in terms of the educational process. We believe that the experts who teach at the faculty are creators of important archival documents. At the same time, part of the study program is also aimed at educating students as future creators of archival material, since in the process of studying they acquire important knowledge about the functioning of state administration, public administration, and local administration and institutions of the European Union.

The Faculty of Arts (FF) educates a wide range of future experts in the fields of humanities and social sciences. The archival material, which is directly or indirectly created during the work of the faculty, represents an important starting

point for the presentation of national values and Slovenian identity, but at the same time directs the study fields to a new quality, which is important for Slovenian self-awareness. There is no independent study programme of archivistics at this faculty.

A special department is also organized within the University of Ljubljana - Archives and Museum Service, also called University Archives or Archives and Museum of the University of Ljubljana (Uni Lj, 2024) - whose operation is based on the decision of the Ministry of Culture of the Republic of Slovenia on its own storage of archival material. In practice, this means that the University of Ljubljana and its members - faculties - do not submit their material to the competent archive, i.e. Archives of the Republic of Slovenia, but according to the Act on the Protection of Archival and Documentary Materials and Archives and according to the instructions of the Archives of the Republic of Slovenia, they must keep it in their archives (MK RS, 1999).

3. PRESENTATION OF NATURAL SCIENCES FROM THE PERSPECTIVE OF ARCHIVAL SCIENCE, ARCHIVISTICS AND ARCHIVAL THEORY AND PRACTICE

As with the presentation of the social sciences from the perspective of archival science, archivistics and archival theory and practice, the presentation of natural sciences will also be based on the University of Ljubljana, where there are eight faculties that can be characterized as natural sciences. It can be said that these institutions educate students who will create archival and documentary material in their future jobs, i.e. when selecting archival material from documentary material, they will also undergo a professional evaluation. Archival material from the field of natural sciences is important, professional archival work therefore requires knowledge that only experts from faculties of natural sciences can acquire during their studies. It is indisputable that archival material created by creators in the field of natural sciences is related to the natural sciences. A quick look at the guides to archival fonds and collections published by the archives as independent publications shows that the archives also hold documents created by graduates in the field of natural sciences

The Faculty of Biotechnology (BF) covers various fields of natural sciences, such as agronomy, agricultural policy and everything related to professional work at

the Ministry of Agriculture, the Chamber of Agriculture or even the work of the Ministry of Natural Resources and Spatial planning. We want to emphasize that public law entities in this area are legally obliged to hand over archival material to the Archives of the Republic of Slovenia or to competent regional archives, if the archival material is created by creators at the municipal level (e.g. agricultural cooperatives, institutes for the development of agriculture, etc.).

The same can be said for education at the Faculty of Civil Engineering and Geodesy (FGG, 2022), where archival material is created at the competent ministry or at municipal levels, municipal offices and departments. In any case, the material created by experts who have completed their studies at the Faculty of Civil Engineering and Geodesy can also be found with various creators of public-private partnerships (construction companies, etc.).

Graduates of the Faculty of Medicine (MF) are undeniably the creators of large amounts of archival material, as they are active in various institutions - the Ministry of Health, various hospitals, medical centres and elsewhere, where work is defined by medicine or healthcare and related activities.

The activity of the Faculty of Pharmacy (FFA, 2024) shows that archival documents, created by pharmacists, are primarily created by creators within the Ministry of Health and the Agency for Medicine, the Chamber of Pharmacy and individual pharmacies, and are kept in the competent archives, i.e. Archives of the Republic of Slovenia or regional archives. In principle, we do not find this type of material in archival fonds in the field of economy, since we usually do not classify pharmaceutical companies as businesses. At this point, there is also a question regarding the handing over of archival material to competent archives by business entities, but we will leave this issue aside for the time being.

Extensive archival material is also created by graduates of the Faculty of Electrical Engineering (FE) namely in the work of several ministries, various agencies, offices, nuclear power plants, other power plants and commercial electrical companies. The Archives of the Republic of Slovenia or regional archives are also responsible for such archival material. Based on our experience, we would like to present the management of the archival fond of Elektrarna (powerplant) Fala (today known as hydroelectric power plant Fala), which is kept in the Provincial Archives of Maribor and is one of the more extensive funds. Part of this material

is a large set relating to electrotechnical, construction, social and employment issues. The material was accidentally preserved in the attic of the old part of the Fala power plant building and contains documents from the period between 1906 and 1954. Before being handed over to the competent archive, it was arranged in the offices of the Dravske elektrarne company and handed over to the Maribor archive for further study, research, archiving and editing, work (Lešnik, 14).

4. GENERAL ASSESSMENT

When citing faculties in the field of natural sciences and social sciences, we found that the faculties train and educate experts who, after completing their studies, create documents at their workplaces, many of which can be described as archival material. These are documents that are important for science and culture as well as legal security and must be kept in a competent archive, i.e. Archives of the Republic of Slovenia, or six regional historical archives. Traces of the work of natural science and social science experts can be found in the inventories of archival fonds and collections, which are available both in classic book formats (e.g. guides to archival fonds and collections) as well as in digital format. The content that represents the creators of the documents - in our case, graduates of the discussed faculties of social and natural sciences - is part of the inventory of the archival fond. In this way, we also justify the definition of archival science as a multidisciplinary (description of the guide) or interdisciplinary (description of an individual fond) science.

With this contribution, we want to present the fact that better results in the professional processing of archival material can be achieve only if we are assisted by experts. If archivists insist that we have to make our own decisions about archival issues, we can also apply the Latin saying "Cuilibet in arte sua credendum" (Each man, in his own skill/art, must be given credit (must be believed)) to the knowledge of individual experts or graduates of the faculties in question. The most recent finding and presentation of this kind was at the opening of the exhibition of Mojca Horvat entitled "From townspeople to photographs, Archival materials of the Fala estate", where the author of the exhibition emphasized that she had been helped by experts in the description of individual documents of the estate, among them many from the fields presented in this contribution (Horvat, 2024, 100).

At this point (not with the intention of criticism), we can assert that we cannot extract data from the historical description that would direct us to archival documents created by experts from the faculties described above. An easier way to search is to review individual lists of archival holdings, or to search with the help of information solutions, such as the search engine for archival material of the Historical Archive of Celje (*Figure 1*).

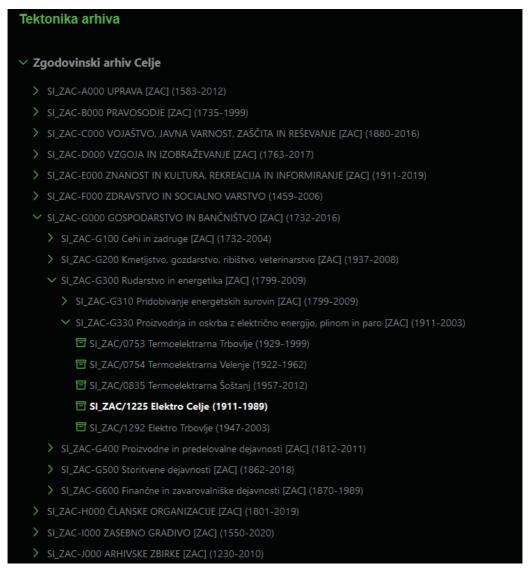


Figure 1: Search engine for archival material of the Historical Archive of Celje (ZAC, 2024.)

5. CONCLUSION

To conclude, we will present the archival science in relation to the social and natural sciences. In doing so, we note that we can easily discover so-called *common denominators* in the inventories of archival funds, which prove that there are many documents in the documentary and archival material created by experts from the faculties mentioned in this paper (the same applies to the other educational institutions). Based on this, we want to connect the results presented in *Table 1* (Ambrož, 2023, 18) with preserved archival or documentary material, which we can do on the basis of research-editing work, guided by the content of individual documents. We can conclude that archival material created within the natural or social sciences is undeniably precise, accurate, definite, dependent and transparent.

The general conclusion of this paper is that there are no obstacles for equal treatment of archival sciences in terms of the content of archival documents, regardless of whether they were created within natural sciences or social sciences. (Klasinc, 2019). Archival material represents the nation's memory. It is protected by law and is a cultural monument

REFERENCES

- Ambrož, M. (2023). *Metodologija raziskovanja v družboslovju, pragmatičen pristop k raziskovanju v družbenih vedah*. Maribor: Alma Mater Press.
- Biotehniška fakulteta, Univerza v Ljubljani [BF]. (s. d.). Retrieved at https://www.bf.uni-lj.si/ (accessed on 30. 4. 2024).
- Henttonen, P. (2023). Open questions of research on appraisal, Atlanti, 33(1), 119–126.
- Horvat, M. (2024). *Od urbarjev do fotografij, arhivsko gradivo gospostva Fala s širšega območja Ruš, Lovrenca na Pohorju in Selnice ob Dravi*. Maribor: Pokrajinski arhiv Maribor.
- Klasinc, P. P. (2019). Archival science today. *Atlanti+*, 29(1), 10–18.
- Klasinc, P. P. (2023). Archivistics, archival science and artificial inteligence. *Atlanti+*, *33*(2), 25–38.
- Klasinc, P. P. (2023a). Implementacija arhivskih pomožnih ved v arhivsko teorijo in prakso. *Atlanti*, *33*(1), 149–178.

- Trivette, K.J. (2022). Archival Science? Existential questions and proposed answers. *Atlanti+*, 32(1), 50–62.
- Plazar, N. & Klasinc, P. P. (2023). Research of doctoral students in archival science at AMEU Maribor, classification of archival seminar work by students of Archival sciences at AMEU Maribor. *Atlanti+*, *33*(2), 101–108.
- Ekonomska fakulteta, Univerza v Ljubljani [EF]. (s. d.). Retrieved at https://www.ef.uni-lj.si/ (accessed on 30. 4. 2024).
- Filozofska fakulteta, Univerza v Ljubljani [FF]. (s. d.). Retrieved at https://www.ff.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za družbene vede, Univerza v Ljubljani [FDV]. (2012). Retrieved at https://www.fdv.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za družbene vede [FDV]. (s. d.). *Arhiv družboslovnih podatkov*. Retrieved at https://www.adp.fdv.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za elektrotehniko, Univerza v Ljubljani [FE]. (s. d.). Retrieved at https://www.fe.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za farmacijo, Univerza v Ljubljani [FFA]. (2024). Retrieved at https://www.ffa.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za gradbeništvo in geodezijo, Univerza v Ljubljani [FGG]. (2022). Retrieved at https://www.fgg.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za socialno delo, Univerza v Ljubljani [FSD]. (s. d.). Retrieved at https://www.fsd.uni-lj.si/ (accessed on 30. 4. 2024).
- Fakulteta za upravo, Univerza v Ljubljani [FU]. (2021). Retrieved at https://www.fu.uni-lj.si/ (accessed on 30. 4. 2024).
- Lešnik, S. (2017). *Vodni stolp v Mariboru in gradnja elektrarn na Dravi*. Maribor: Pokrajinski arhiv Maribor.
- Medicinska fakulteta, Univerza v Ljubljani [MF]. (s. d.). Retrieved at https://www.mf.uni-lj.si/ (accessed on 30. 4. 2024).
- Ministrstvo za kulturo RS [MK RS]. (1999). *Dovoljenje za zagotovitev varstva lastnega arhivskega gradiva*. Retrieved at https://www.uni-lj.si/assets/Sluzba-za-pravne-zadeve/Arhivsko-muzejska-sluzba/Dokumenti/Dokumenti-landing-page/Dovoljenje-Ministrstva-za-kulturo-RS-Univerzi-v-Ljublja-ni-za-varstvo-lastnega-arhivskega-gradiva.pdf (accessed on 30. 4. 2024).