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Original article

The socio-economic importance of abandoned railway areas in the landscape of the Silesian Province (southern Poland)

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ABSTRACT

The Province of Silesia, in Poland, is an area where many railway connections, of mostly local importance, have been closed recently. In some cities, they have been eliminated altogether and passenger rail transport has been replaced by bus transport. For this research, a sociological study was conducted using the diagnostic survey method and the questionnaire technique. A transversal testing strategy was also used. The aims of the study were to illustrate the function of abandoned railway areas in the landscape and to present possible recommendations for their development from the point of view of the needs of society. The research population included 1,685 people who were students at the University of the Third Age and adult residents. The surveys focused on the possibility of exploiting the natural potential of railway areas. The respondents' answers provided suggestions for the development of unused railway areas, which included creating bicycle lanes, alleys with a high biodiversity of both flora and fauna, and walking tracks. The analysis of the study's results can be useful to both local authorities and the Management of the Polish State Railways (PKP S.A.) in their decision-making processes concerning the revitalization of unused railway areas. Similar revitalization efforts have already been undertaken by various cities and communities.

KEY WORDS: biodiversity, post-industrial areas, land use, railway transport, socio-ecological research

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1. Introduction

September 27, 1825, is considered to be the beginning of the world's railways. On this date, a section of railroad with steam traction and a rail gauge of 1,435 mm was opened for the first time on a route from Stockton to Darlington in England (ORŁOWSKI, 1978). By 1840, the length of newly built railway lines in Great Britain was already 3,500 km, and by ten years later was 10,600 km. In other European countries, the first railway line was opened in Bohemia in 1832, and in 1835, in Belgium and Germany. In 1834, the railway reached Russia (KUROWSKA-CIECHAŃSKA & CIECHAŃSKI, 2007). Rail transport in Poland was established in the first half of the 19th century, and its development fell in the second half of the 19th century and the beginning of the 20th century (LIJEWSKI, 1959; TAYLOR, 2007; RAMS, 2017). A significant event on May 22, 1842 was the launch by the Upper Silesian Railway, of the first railway line connecting Wrocław and Oława (KUROWSKA-CIECHAŃSKA & CIECHAŃSKI, 2007). A relatively dense network of lines, mainly standard-gauge, covered the area of Upper Silesia, thus enabling not only fast but also cheap transport of passengers and cargo. By the end of 1918, in the discussed area, 2,005 km of railway lines had been laid (KOZIARSKI, 1990; KUROWSKA-CIECHAŃSKA & CIECHAŃSKI, 2007). The history of railways in Silesia dates back to 1767 when a coal port was established

near Maczki, to which coal from the mines of the region was transported by horse-drawn rail cars (DELOWICZ, 2008). Of vital importance to the region's industry and foreign trade was the establishment of the Upper Silesian Railway and the junctions at Kędzierzyn and Szczakowa, as Upper Silesia then became a transit and service centre (SOIDA, 1997; HALOR, 2006).

The decline of passenger railway transport in Poland was observed as early as the 1990s. The number of active lines (not only local ones) decreased as a result of the closing of railway connections (BARCIK & CZECH, 2010). The reason for the closing of railway lines was the outdated rail infrastructure and as a consequence some cities were fully deprived of railway connections, which were replaced by bus transport (KACZOROWSKI & MISIASZEK-PRZYBYSZEWSKI, 2018). The development of road transport also had an impact on the reduction of rail transport (POLIŃSKI, 2016). These changes also took place in the Silesia Region. The railway line closing processes were felt soonest near the Czech and German borders. Of the 23 connections, as many as 11 were closed with the Czech Railways. Lines that were deemed unnecessary due to the suspension of cross-border traffic were the first to be closed (KOZIARSKI, 2009). The regression in railway transport included not only the liquidation of railway lines, but also the closure of railway stations from use, which were by that time often dilapidated and ruined, while some still partially served a residential function (ROCHMIŃSKA & ROCZNIAK, 2016).

Railway areas are a part of the anthropogenic landscape. They include tracks, platforms, areas between tracks, embankments, and station buildings (KORNAŚ ET AL., 1959; FORNAL-PIENIAK & WYSOCKI, 2010). These are areas of very different environmental conditions (SENDEK, 1973). They cause not only deformation of biocoenoses, but also their fragmentation. However, railway routes excluded from their "railway use" provide a convenient place for the germination, development, and spontaneous spread of plants. Due to the large mosaic of surrounding habitats, they are populated by plants from different ecological groups, which form unique plant communities (WRZESIEŃ & ŚWIĘS, 2006; FUDALI, 2009; KLARZYŃSKA & KRYSZAK, 2014). Railway areas are not only habitats for ruderal communities, but they also constitute migration corridors for species that are ecologically alien to those biocoenoses through which they pass (FUDALI, 2009). In recent years, in some countries, abandoned railway areas constitute a cultural heritage and are often used as tourist attractions (GÓRNY, 2008; FOLJANTY, 2012; OPPIDO & RAGOZINO, 2014).

The aim of this article was to illustrate the function of abandoned/unused railway areas in the landscape and to present possible recommendations for their development from the point of view of the needs of society. Considering the information on the importance of unused railway lines and areas, the research sought to answer the following research questions:

- What is society's knowledge about abandoned/ unused railway areas?
- How can abandoned railway areas be developed and used in the landscape?
- What are the likely benefits of the revitalization of abandoned railway areas and railway station buildings which have been excluded from "railway use" located near railway lines (together with the railway infrastructure)?
- Are the ideas for the development of such areas in the province of Silesia similar to those in other European countries?

2. Materials and methods

Between 2015-2018, floristic, phytosociological and soil studies were carried out on unused railway areas in the Province of Silesia (= Silesian Voivodeship) – southern Poland. These studies covered only the passenger, normal-track railway lines, owned by the Management of the Polish State Railways (PKP S.A.), to a total length of 151,2 km, as well as areas in the vicinity of railway stations located next to the tracks (HUTNICZAK ET AL., 2020). In addition, sociological studies (discussed herein) were conducted in these areas. In the studies, two basic research directions were distinguished:

- a theoretical and cognitive direction/approach of the study – the analysis of public opinion on the function of unused railway lines,
- a practical and implemental direction of the study which was aimed at defining further actions and social expectations with regard to these unused railway lines based on the results of the study and the available literature.

The main research question involved determination of the attitudes of urban/rural residents towards these abandoned railway lines and their recommendations for their re-use in modern times. The specific problems concerned:

- public opinion on the reactivation and/or restoration of an unused railway line running through a specific town/ city/ village,
- recommendations for activities/ development or revitalization of unused railway lines,
- determination of the residents' knowledge about the plants appearing along unused

railway lines,
- public opinion about the similarity between the formation of the flora of unused railway lines and that of the surrounding areas,
- the attitude of residents towards the use of railway station buildings along unused railway lines,
- the residents' knowledge about the adaptation of unused railway areas for other purposes – as practiced in various European countries.

The diagnostic survey method was used in this study. The questionnaire technique and the transversal research strategy were also employed. Moreover, the dialogue method (individual interviews with local residents) was applied to gather additional information. Prior to the study, a questionnaire, in paper format, consisting of two parts, with 16 questions and details, was prepared. The first part of the questionnaire survey focused on abandoned/unused railway lines and the second part – on railway stations. Each respondent completed the questionnaire independently in the presence of an interviewer. Some questions made it possible for the respondent to provide more extensive answers.

The study presented in this article was conducted at schools and in single-family and multi-family households located in the towns through which the studied railway lines passed (Table 1, Fig. 1). The general population consisted of 1,685 people, and included students at the University of the Third Age – UTA (the Polish name: Uniwersytet Trzeciego Wieku) and adult residents of towns/cities and villages (other respondents). The choice of the students of UTA was dictated by its location in the town through which the studied railway line ran (UTA Bielsko-Biała, Cieszyn, Jastrzębie-Zdrój, Jaworze, Pyskowice, Racibórz and Skoczów).

Table 1. Surveyed respondent groups in relation to individual railway lines

The number of railway line	Towns selected for research (the number of respondents is given in parentheses)	The total number of people surveyed
Third Age University students		
190	Bielsko-Biała	65
190	Cieszyn	55
159	Jastrzębie-Zdrój	116
190	Jaworze	39
152, 198	Pyskowice	32
176, 198	Racibórz	50
190	Skoczów	98
Other respondents		
132	Czekanów Śląski (35); Zabrze Mikulczyce (1); Przezchlebie (36)	72
152	Paczyna (64)	64
159	Turza Śląska (1); Godów (53)	54
162	Dąbrowa Górnicza Gołonóg (43)	43
170	Jastrzębie-Zdrój Moszczenica (67)	67
172	Chudów (24)	24
176	Olza (67)	67
178	Wieszowa (10); Kamieniec (24); Zbrosławice (46)	80
182	Miasteczko Śląskie (43)	43
190	Grodziec Śląski (47); Goleszów (30)	77
192	Syrynia (60); Pszów (30)	90
193	Racibórz Studzienna (45); Krzanowice Południowe (44)	89
197	Strzebiń (53); Psary Śląskie (65); Woźniki Śląskie (29)	147
198	Pyskowice (70)	70
653	Katowice Ochojec (45)	45
662	Dąbrowa Górnicza Piekło (21)	21
683	Czarków (19)	19
684	Krupski Młyn (84)	84
710	Bytom (74)	74
	Total number of respondents	1,685



Fig. 1. Distribution of the towns/ cities and villages where the sociological research was carried out (divided into two groups of respondents) against the background of unused railway areas of the province of Silesia (see Table 1)

3. Results

The attitudes of the residents of selected towns/ cities and villages toward the presence of unused railway lines and recommendations for their use in modern times was studied in terms of two aspects: in relation to the railway lines and railway stations. The study included 1,685 people, 455 of whom were students at the University of the Third Age (UTA). Of the total population of respondents, 81% were women and 19% were men. Of note: 5% of the respondents were excluded from the analysis, because they did not provide any answers to the second part of the survey, there were gaps in their answers, or they provided several answers when one was required. The detailed characteristics of the respondents by gender, age, and education are shown in Fig. 2.

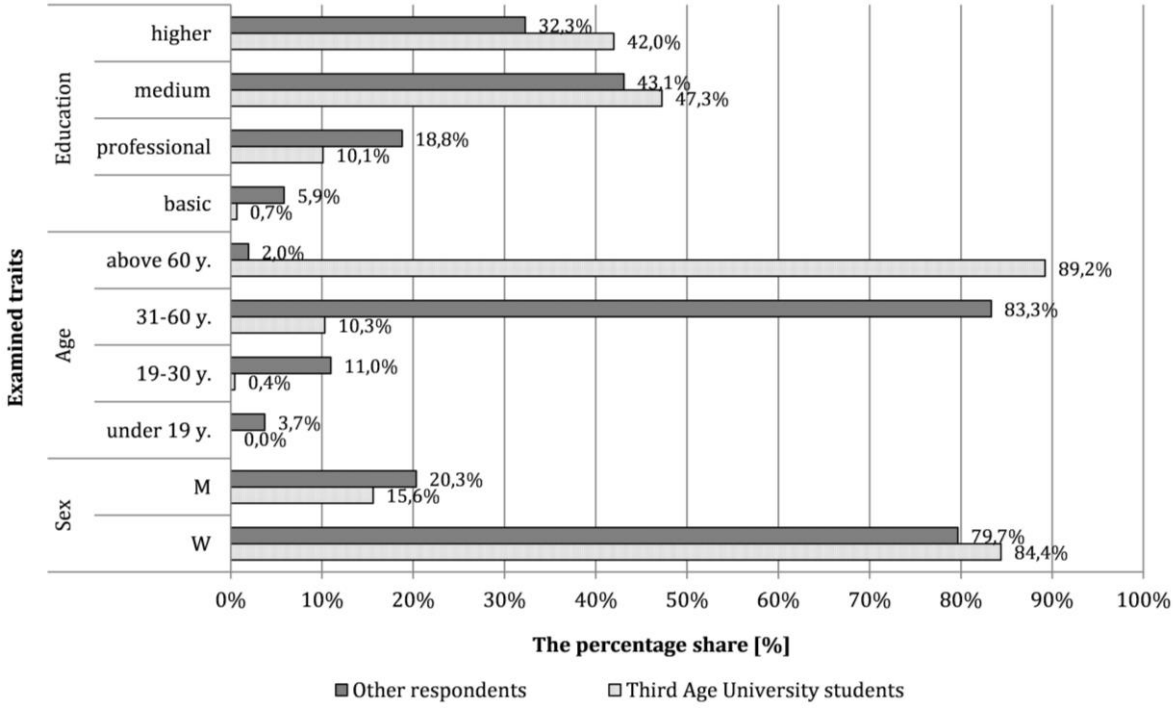


Fig. 2. The characteristics of the respondents (Explanation: y. – years)

Based on the study, it was found that the majority of the respondents (74%) were in favour of restoring the closed railway line located where they lived, 14% were against the idea, and 12% of the respondents were not interested in the issue at all.

When asked if, in today's fast-paced world, they would be able to give up driving and start regularly using the railway service transport on the newly opened line, as many as 73% of UTA respondents gave affirmative answers. This group was dominated by women over the age of 60.

Both UTA students (79%) and other respondents (67%) thought that it would be an interesting idea to start a tourist train/handcar (a light/small rail vehicle adapted to transport men or material necessary for the maintenance of railway infrastructure) that would likely lead to the revitalization of unused railway lines. Only 14% of UTA students and 21% of other respondents had a negative attitude toward this idea. The majority (80%) of the respondents were in favour of using the railway areas, especially of launching a tourist train, which could become an attraction for the town/ city and could also attract tourists. The respondents themselves would be willing to use such a train, most often on their days off (Saturdays, Sundays, and holidays) (Fig. 3). According to the interviews with residents of towns and cities, such initiatives have been taken before (e.g. on sections of line No. 176: Racibórz Markowice – Olza, and line No. 192: Syrynia – Pszów: https://dev.nowiny.pl/nowiny-kolejowe/111858-przyjdz-na-piknik-kolejowy-i-przejedz-sie-drezyna.html; https://www.nowiny.pl/86872-przejechali-drezyna-z-silnikiem-malucha.html; https://raciborz.com.pl/2015/09/12/piknik-drezynowy-ratujmy-linie-kolejowe-176-i-192.html). Direct contact with the residents of the areas covered by the study helped identify interesting recommendations for the takeover of closed railway lines by the Railroad Enthusiast Society. By showing care for these areas, the Society strives to save the railways so that they can serve future generations.

When asked about proposals for the development of unused railway lines, a large majority of respondents favoured recreational bicycle lanes. In the area covered by the study, the Iron Bicycle Route, which is considered the best bicycle route in Silesia, was put into service on a former railway line section from Godów through Jastrzębie-Zdrój to Zebrzydowice. It has become popular thanks to the 15-kilometre long bicycle track that was built here. The Iron Bicycle Route uses elements of the dismantled Orzesze – Wodzisław Śląski railway line (line No. 159) and the Godów – Jastrzębie-Zdrój – Zebrzydowice railway line (line No. 170) (https://www.znajkraj.pl/zelazny-szlak-rowerowy-najlepsza-trasa-kolejowa-na-slasku) (Fig. 4). Other recommendations for new uses of closed railway lines are shown in Fig. 5.

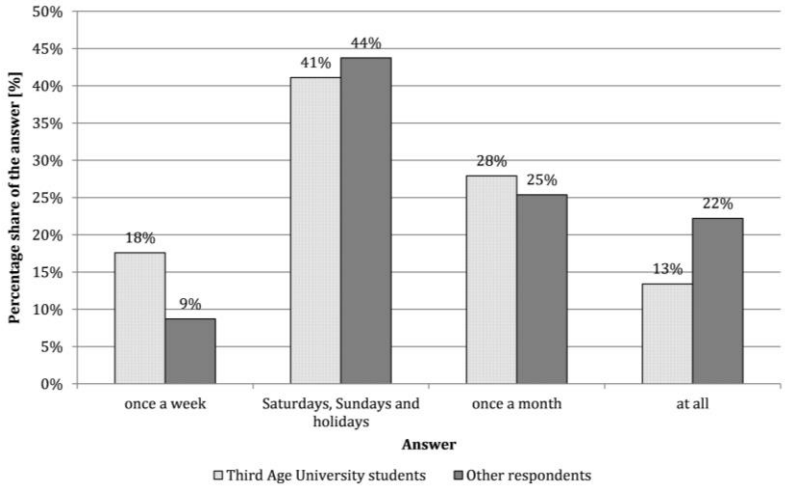


Fig. 3. The respondents' interest in tourist train/ handcar rides



Fig. 4. A fragment of the bicycle route, on the former railway line from Godów to Zebrzydowice, in the village of Łaziska (view looking towards Jastrzębie-Zdrój) – photo by Stanisław Grzonka (04 October 2022)

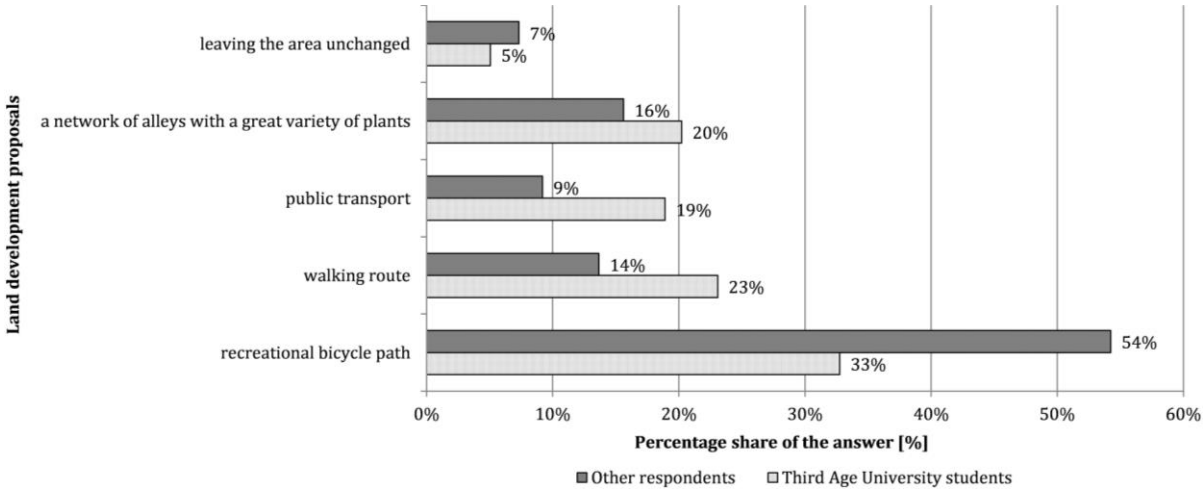


Fig. 5. Recommended uses for unused railway lines

The study found that the respondents noticed the presence of various plant species along the unused railway lines. The best knowledge of this issue was demonstrated by UTA students (67%). The plant names they pointed out included: common nettle – *Urtica dioica*, mullein – *Verbascum* sp., St. John's wort – *Hypericum perforatum*, ribwort plantain – *Plantago lanceolata*, greater celandine – *Chelidonium majus*, wild elderberry – *Sambucus nigra*, common aspen – *Populus tremula*, mooseberry – *Viburnum opulus*, large-leaved lupin – *Lupinus polyphyllus*, goldenrod – *Solidago* sp., common wormwood – *Artemisia absinthium*, sycamore – *Acer pseudo-platanus*, briar rose – *Rosa canina*, blackberry – *Rubus* agg., Scots pine – *Pinus sylvestris*, evening primrose – *Oenothera* sp., raspberry – *Rubus idaeus*, common dandelion – *Taraxacum officinale*, horsetail – *Equisetum* sp., hawthorn – *Crataegus* sp., and field poppy – *Papaver rhoeas*. Some of them expressed the opinion that these areas could be a refuge for rare species. They also noted the presence of mosses in the area. Moreover, they made a mention that species dangerous to the natural environment and people, such as Sosnowskyi's hogweed *Heracleum sosnowskyi* (45% of UTA students), were also occur there. The vast majority of the respondents also indicated that the plants that are found in these areas are readily used for various purposes in daily life, such as floral bouquets, as an object for photography, for ornamental/decorative purposes, and as fodder for animals. In addition, there were those who reported making herbaria or pictures from dried plant specimens (Fig. 6).

Railway areas that run along different habitat types very often become similar to them in terms of their flora. However, when asked whether the respondents saw similarities in the formation of the flora of unused railway lines with those of the surrounding areas, they mostly gave negative answers. The remarks of UTA students are interesting, because as many as 46% of them see a clear similarity in this regard and only 12% do not see this relationship (42% had not thought about this issue) (Fig. 7).

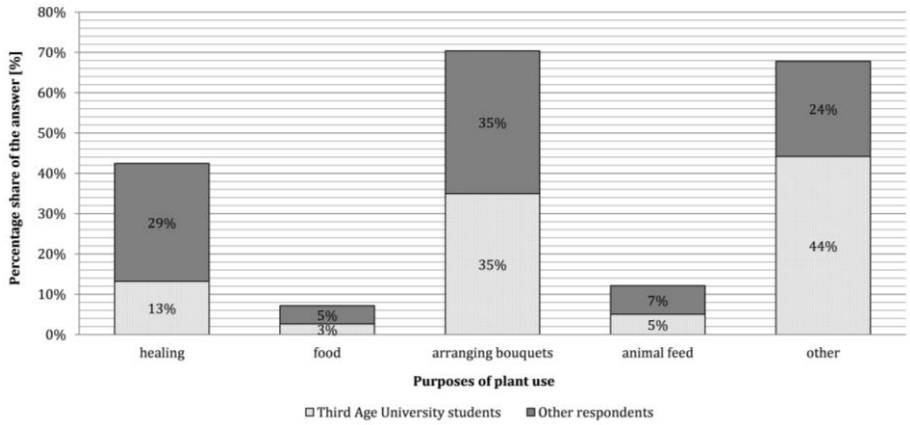


Fig. 6. Use of plants by the respondents for daily living purposes

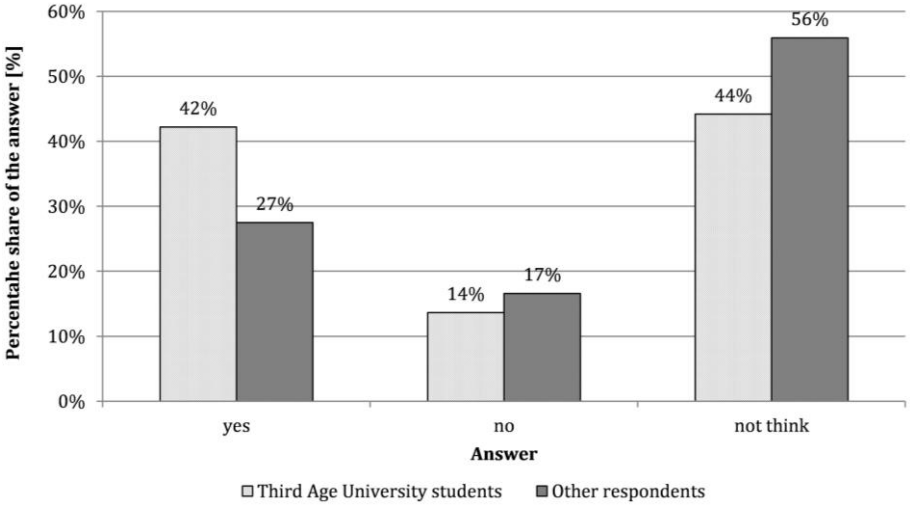


Fig. 7. The proportion of the respondents' answers relating to the similarity in the formation of the flora of the railway lines with the surrounding areas (Explanation: not thought – I have not thought about this issue)

Most of the respondents realized that dilapidated overpasses and bridges, and abandoned railway stations are not a good showcase for the area. As many as 80% of respondents stated that they should be renovated in some way.

The railway station buildings, which no longer serve their original function and are located next to closed railway lines, have been used in various ways. Some have been re-used for residential purposes. Examples include the railway stations in Zbrosławice (Fig. 8), Krzanowice, and Godów.



Fig. 8. The partially inhabited railway station building in Zbrosławice (railway line No. 178) – photo by Agnieszka Hutniczak (24 April 2016)

The care given to these building by residents often includes planting different species of plants. Such use of railway station buildings contributes to increasing the region's species diversity. The unused railway stations have also been transformed into private facilities serving the public (e.g. a hairdressing salon at Ornontowice railway station and a pharmacy in Woźniki Śląskie). Some public projects involving railway infrastructure have also already been undertaken; for example, as part of the project "With history by bike – along the trail of the Lichnowsky family//Na kole za poznáním historie – stezkou rodu Lichnovských", the former railway station in Krzanowice Południowe has been renovated, as has the Krzanowice Południowe station on the Krzanowice – Chuchelna bicycle route. Here, an open-air gym has been built (Fig. 9A-C) (http://www.krzanowice.pl/asp/z-historia-na-rowerze-szlakiem-rodu-lichnowskych-na-kole-za-pozn-n-m-historie---stezkou-rodu-lichnovsk-ch---cz11245-00-0,557,,1).



A B C

Fig. 9. A – The abandoned railway station in Krzanowice Południowe – taken in 2015 (railway line No. 193) – photo by Agnieszka Hutniczak (19 August 2015); B – The revitalized railway station in Krzanowice Południowe and the area surrounding it. – photo by Agnieszka Hutniczak (27 September 2022); C – A view from 2019 – photo by Agnieszka Hutniczak (27 September 2022)

The majority of respondents favoured the renovation of railway stations (Table 2). They were aware that after their restoration, the station buildings can positively affect the aesthetic appearance of the area and the quality of life of local residents, create new jobs, contribute to environmental protection, and improve the quality of social relations.

The respondents were also asked to indicate the functions that a renovated railway station site could serve (Fig. 10). Among the many responses, the respondents most often pointed to education, which would mean that they would be happy to see the station building used as, for example, club houses for young people or places to hold various exhibitions. Such activities could enhance the attractiveness of the town, village and region.

When asked if they were aware of cases of revitalization of railway areas in other European countries, the respondents were unable to make a strong statement. Only about 21% had heard of the Natur-Park Schöneberger Südgelände in Berlin, where a railway area has been transformed into a scenic park that re-uses all the surviving railway elements (KOWARIK & LANGER, 2005).

The study provided valuable information on railway lines and railway stations excluded from "railway use". The respondents were eager to share their comments and possible suggestions for the use of these areas. The investments they suggest may sometimes seem relatively difficult to implement, but nevertheless they provide material for consideration in decision-making by local government and the management of the Polish State Railways. However, they certainly require deeper research. Nevertheless, it is a good idea to consider the use of the natural potential of these areas and the remaining railway elements.

Table 2. The impact of the renovation of the railway station building on the quality of life of the residents

Range	Answer	Examined group	
		Third Age University students	Other respondents
		Percentage share of the answer [%]	
Health	Yes	36	47
	No	6	14
	I don't know	58	39
Environmental protection	Yes	55	60
	No	5	12
	I don't know	40	27
Facilitating the standard of everyday life	Yes	64	71
	No	2	7
	I don't know	35	22
Social relations	Yes	55	69
	No	2	7
	I don't know	42	24
New work places	Yes	64	79
	No	2	5
	I don't know	34	17

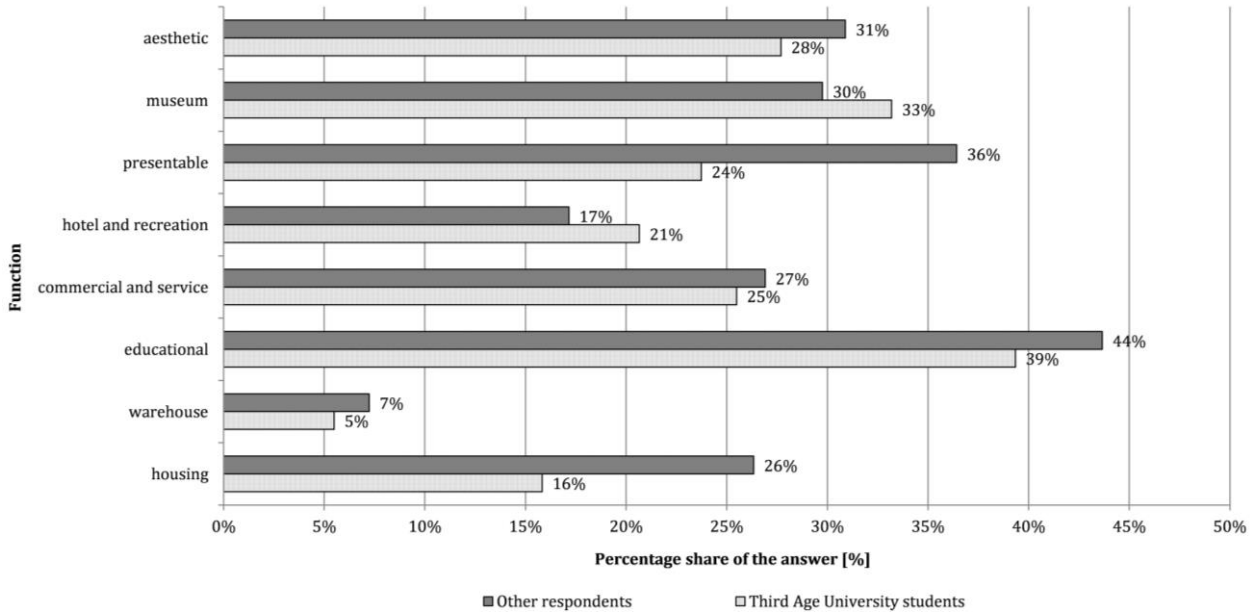


Fig. 10. The recommended functions that the respondents think a renovated railway station could fulfill

4. Discussion

The presence of unused railway areas in the landscape has been noticed by residents of the towns/cities and villages where they are located. Based on the completed research, it was found that almost half of the Third Age University students surveyed and 27% of the other respondents noted that these areas are very often similar to the habitats surrounding the unused tracks in terms of their flora. Some respondents demonstrated their knowledge by identifying the invasive alien species present in the area (e.g. Sosnowskyi's hogweed *Heracleum sosnowskyi*). Such observations may indicate the residents' awareness of the transformation of the vegetation cover in their surroundings. However, they were of the opinion that the railway lines in question, and the infrastructure around the abandoned railway stations, were not a good showcase for the region, and it would be desirable to renovate them and utilise them for a socially useful purpose. Based on the surveys, the residents' ideas on how to use the unused lines were analyzed. The majority of the respondents were in favour of creating recreational bicycle lanes in these areas. There were also suggestions to create a network of alleys with a diversity of plants and walking trails (especially in urban areas). Similar possibilities for the future use of the railway lines (e.g. as cycle routes) have been proposed by ANTOLAK & KRAWIECKA (2014a) for the Lidzbark Warmiński – Jarzeń railway line, as well as by HELDAK & RÓŻAK (2013) for the Wołów – Lubiąż line. Possible uses for the areas of closed railway lines in the Opolskie and Dolnośląskie provinces were also presented by WYSZYŃSKI (2008). He considers converting these areas into recreational and sports paths or vegetation strips and ecological corridors. An interesting approach related to the way in which these railway lines may be used, can be found in the publication by HEŁDAK & RÓŻAK (2013). As these authors suggest, construction of a cycle route would be an attractive idea, especially if benches or rubbish bins are also installed. ANTOLAK & KRAWIECKA (2014b), on the other hand, indicate that the use of closed railway lines is possible without any particular interference with the landscape. They present designs for street furniture (including seats and bicycle stands) and provide the dimensions and materials for the construction of these items. They suggest using railway elements such as sleepers and rails to make them. Such a solution is not yet common, but it shows how these old railway lines can be transformed in an interesting way, while respecting the history of the routes. The problem with the revitalization of former railway areas is also recognized by ZAŁUSKI (2009) who notes that tracks can be easily transformed into pedestrian and bicycle routes, thus adding to the complement of recreational areas in cities. GAŃKO (2005) puts forward the proposal that railway areas can act as "feeding areas" for a city's natural system.

It should be noted that some communities and municipalities have already completed some projects (e.g. the "Iron Bicycle Route" that uses parts of the dismantled Orzesze – Wodzisław Śląski railway line (No. 159) and Jastrzębie-Zdrój – Zebrzydowice railway line (No. 170):

https://www.nowiny.pl/147946-z-wodzislawia-do-jastrzebia-pociagiem-a-tory-uloza-na-nowej-sciezce-rowerowej.html?p=4; https://wirtualneszlaki.pl/projekt/trasy-rowerowe-na-dawnych-liniach-kolejowych; https://www.znajkraj.pl/zelazny-szlak-rowerowy-najlepsza-trasa-kolejowa-na-slasku) as well as the project "With history by bike – along the trail of the Lichnowsky family//Na kole za poznáním historie – stezkou rodu Lichnovských" on railway line No. 193 (http://www.krzanowice.pl/asp/z-historia-na-rowerze-szlakiem-rodu-lichnowskych-na-kole-za-pozn-n-m-historie---stezkou-rodu-lichnovsk-ch---cz11245-00-0,557,,1). Also worth mentioning is the development of the Bytom part of the protected area "Żabie Doły" Nature and Landscape Complex (within Silesia). In this area a narrow-gauge railway line used to run from Bytom to the power station in Chorzów. A fragment of this former railway line has been turned into a bird-watching footpath, and bicycle paths were created on the railway embankments. Also, the walls under the former viaducts are decorated with attractive graffiti (including a green frog), which is characteristic of this area (https://roweremposlasku.pl/zabie-doly/). Attempts at undertaking such initiatives are being made not only in Silesia, but also throughout Poland and abroad (WYSZYŃSKI, 2008; CIEŚLEWICZ, 2012; OPPIDO & RAGOZINO, 2014; MROCZEK, 2018; https://www.transport-publiczny.pl/wiadomosci/slask-dawne-linie-kolejowe-beda-trasami-rowerowymi-53800.html (...); https://www.szlakwokoltatr.eu/mapa/1/trasa-glowna-czyli-rowerem-po-nasypie-dawnej-linii-kolejowej-po-stronie-polskiej).

Examples of the revitalization of abandoned railway areas can also be found in foreign literature (HENEIDY ET AL., 2021) and indicate that knowledge of plant diversity on railway tracks plays a key role in the future prospects and development of these areas. A fascinating approach to unused railway areas was shown by OPPIDO & RAGOZINO (2014) in the example of the disused Cancello-Torre Annunziata railway in Italy. Their goal was not connected with "a restyling of disused railway network, but the activation of regeneration processes and local development, linking local resources and increasing equipments and services in the area" (OPPIDO & RAGOZINO, 2014).

According to the authors' own research, as many as 74% of those surveyed favoured the restoration of unused railway lines, which they would be happy to use instead of daily driving. Residents also advocated launching a tourist train/handcar, which could be an attraction for the city/town and tourists. Most of the respondents would be happy to travel by such a train with their families, most preferably on their days off. The effects of the closure of passenger traffic on railway lines in selected cities, towns, and villages localities in Poland were studied by TAYLOR (2007) (by questionnaire research), who indicated how important the railway network was to local residents and what problems they have to face after the closure of the rail connections.

The results and analysis of this study can be useful to both local authorities and the Management of the Polish State Railways (PKP S.A.) in their decision-making process concerning the revitalization of abandoned/unused railway areas. It is very likely that their proper transformation and use would enhance the aesthetic and tourist characteristics of the cities, towns, and regions where they are located. For most residents, these areas could become a place for leisure activities and contact with Nature after their revitalization.

This article has focused only on disused passenger railway lines. The realization of such research was connected with the limitations of the study which were the following: difficulties in determining the location and course of railway lines which were out of use, difficulties in reaching a given railway line, challenges in moving along an abandoned railway line for a long period of time, the stony soil substrate is difficult to penetrate, the location of the examined lines was in abandoned places which were often dangerous to explore, extreme thermal conditions (e.g., strong sunlight).

The research undertaken refers only to a fragment of the surrounding reality, but the results provide valuable knowledge about the function of abandoned/unused railway areas in the landscape and present possible recommendations for their development from the point of view of the needs of society. In the future, it is worth considering expanding this type of research and including narrow-gauge railway lines and the lines of industrial areas in similar sociological research. An interesting aspect would also be to analyze the situation in other regions of the country, as well as to extend the analysis to foreign areas and compare them with the results obtained in this study.

5. Conclusions

1) The study showed that the respondents have a broad knowledge of many aspects of abandoned/unused railway areas.
2) The survey was conducted among residents of Silesia who live in cities/ towns, and villages through which the studied railway

lines pass. Respondents indicated various recommendations for the use of closed railway lines and stations. These included: bicycle lanes, walking tracks, and alleys with a biodiversity of both flora and fauna. Some respondents were interested in restoring train connections on the unused lines. The most common suggestion with regard to the abandoned stations was to use the buildings for educational purposes.

3) The benefits of the revitalization of abandoned railway areas and station buildings excluded from the "railway use" located near railway lines (together with the railway infrastructure) are visible by respondents. Based on this study, the appropriate transformation of unused railway areas will undoubtedly contribute to both the preservation of biodiversity in these areas and the enhancement of the touristic and aesthetic characteristics of the region.
4) Ideas for the development of abandoned railway areas in the province of Silesia are similar to those being proposed in other European countries.

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