resources

MDPI

Article

Exploitation of Mineral Resources Requires Proper People: Expectations of the World's Top Mining Companies

Dmitry A. Ruban [1,2,*], Vladimir A. Ermolaev [3] and Antonius J. (Tom) van Loon [4]

1 K.G. Razumovsky Moscow State University of Technologies and Management (the First Cossack University), Zemlyanoy Val Street 73, 109004 Moscow, Russia
2 Department of Organization and Technologies of Service Activities, Higher School of Business, Southern Federal University, 23-ja Linija Street 43, 344019 Rostov-on-Don, Russia
3 Department of Commodity Science and Expertise, Plekhanov Russian University of Economics, Stremyanny Lane 36, 117997 Moscow, Russia; ermolaevvla@rambler.ru
4 College of Earth Science and Engineering, Shandong University of Science and Technology, Qingdao 266590, China; Geocom.VanLoon@gmail.com
* Correspondence: ruban-d@mail.ru

Abstract: Human resources are essential for the mining industry. It is important to understand the requirements of the companies regarding the characteristics of their employees. Job- and career-related web pages of 40 of the world's top mining companies have been analyzed for the general demands on their employees. These demands are attributed intuitively to seven basic categories (each category includes words with more or less coherent meanings). It is found that the most commonly demanded characteristics are skills, dedication to the work, and personality. Surprisingly, the least attention is paid to social issues. The disclosed expectations are weakly coherent, with the only persistent demand being talent. It also appears that North American and European companies are especially concerned of work dedication, whereas Asian and African companies are primarily concerned of skills. The present study deduces that policy improvements in contemporary mining are necessary—at least, the demands on the employees should be made better in agreement with the actual needs of the mining industry.

Keywords: human resources; mining industry; content analysis; sustainability; resources policy

Citation: Ruban, D.A.; Ermolaev, V.A.; van Loon, A.J. Exploitation of Mineral Resources Requires Proper People: Expectations of the World's Top Mining Companies. *Resources* **2021**, *10*, 101. https://doi.org/10.3390/resources10100101

Academic Editor: Janie Chermak

Received: 16 August 2021
Accepted: 28 September 2021
Published: 30 September 2021

1. Introduction

The mining industry, which is highly important for the present-day global economy, is essential for its future growth. Mining activities, considered in a global socio-economic context, are therefore a subject of in-depth theorizing (e.g., [1–5]). The resulting findings indicate numerous problems, partly related to personnel. As an example, the mining industry needs a significant number of employees with highly specific personal characteristics and skills, but it depends on the labor market and education systems on whether such employees can be attracted in sufficient quantities. The relationship is highly complex [6,7] because of aspects such as the influence of automation [8], gender selection [9], and indigenous involvement [10].

Employee-related preferences of mining companies are important to know in detail because they indicate how the tasks of personnel are understood by this specific industry and they highlight employment opportunities and may help understand why employees are loyal or not and whether they have job satisfaction. Of crucial importance are general demands, which may be stated on official corporate web pages, and which reflect the strategic vision of business leaders regarding tasks, responsibilities and capabilities of employees. The requirements expressed on a company's web page may form part of the corporate image strategy, but simultaneously, they are of great importance because they will encourage or discourage employees (and, particularly, candidate employees and

newcomers). As shown already by [11–17], job- and career-related web pages (JC-WPs) are of utmost importance to applicants, and their content and design significantly influence recruitment effectiveness. There is no reason to assume that this is different for the mining industry, where the practical activities commonly occur far away from the companies' headquarters. Consequently, mining companies should care about the content of their JC-WPs because this issue is related to mining governance and its transparency [18].

The objective of the present study is to analyze the expectations of the biggest mining companies in the world regarding their employees. We pay attention to the stated (disclosed, communicated, and declared) requirements (demands) concerning employees in general (not related to specific jobs and responsibilities), which reflect the corporate vision regarding employees (at least, how this vision is disclosed and presented to employees and the general public). In other words, these are the characteristics that a company requires from an "ideal" employee. Only the world's top mining companies are considered because of their leading positions in the global mining industry and also because the large amount of information would otherwise not be manageable in a structured way. Moreover, the leading companies dictate the "rules" to the entire labor market in mining, or at least, serve as guides for smaller companies.

2. Previous Research

2.1. Human Resources Policy in the Mining Industry

Although effective mining depends primarily on mineral resources, human resources are not less important. The various issues related to the latter are not frequently discussed in the professional literature. Wyganowska and Tobór-Osadnik [19] emphasized that it is essential for effective human resource management in mining companies to establish a system of values and attitudes for employees that is clear before their employment. Scoble et al. [7] drew attention to the human resources crisis in mining and indicated the vital importance of mining engineering education if this crisis is to be overcome. Stadler [20] observed pitfalls in talent management in mining companies and called for application of additional measures that should help realize the full spectrum of individual's capabilities. Tucker and Clark [21] demonstrated the importance of trust-based relationships for successful development of a big mining company. It thus appears clear that the performance of mining companies depends on certain characteristics of their employees, which should be clearly indicated as required capabilities.

Companies dream of "ideal" employees fulfilling all criteria necessary for excellent performance. Although this can only remain a dream in practice, it should be attempted to turn this dream into reality as much as possible such that the positive effect for both companies and employees can be optimal [22]. A problem is, however, that different business leaders may have different insights into what makes their employees "ideal". According to Pató [23], clear job descriptions have a significant effect on employees. Consequently, a clear vision of a company regarding the essential requirements for the capabilities of personnel helps to acquire the most capable employees and assure the preservation of their qualities. It is interesting in this context that the development of the concept of "ideal" employees has been tied to gender issues in business studies [22,24,25].

2.2. Demands on Employees

The required capabilities of employees can principally be subdivided into two classes. The first concerns specific job requirements, which are related to particular working tasks and the qualifications needed to perform these tasks timely, efficiently, and completely. The second class concerns general characteristics of personnel that determine its usefulness to the particular industry/enterprise. These may be, for instance, interest in self-education, significant career expectations, etc. For the purpose of more clarity, the second class is labeled as "general demands" for being distinguished from job requirements.

The present study focuses on this second class, i.e., the general demands. A significant part of these demands is linked to the characteristics of the individual employees. These

characteristics are numerous. For instance, Celik et al. [26] showed that curiosity contributes to better innovations, and Wright and Nyberg [27] demonstrated that a managers' passion helps solve particular super-tasks such as those linked to corporate environmental responsibility. These demands are also linked to the desirable way in which tasks should be performed. According to Lööw et al. [28], creativity is essential for the modern mining industry, and thus companies should expect this characteristic from their employees. Undoubtedly, a desire for loyalty [29] and pride [30] also should play a role in recruiting the appropriate personnel. Not less important are capabilities linked to the company culture and to teamwork. Miller [31] demonstrated that team spirit of scientists involved in mineral exploration determines the success of the company. Employees' ethics matter significantly, also in the recruitment process [32].

It should be stressed that the abovementioned terms (as well as their meanings and definitions) are academic, and companies can use these differently and with certain simplifications. For instance, talent can be treated as a set of specific skills and broader competencies or as a general, almost philosophical idea putting man into the frame of life purpose, inherited/developed character, etc. However, to any given company, talent may mean something different such as the ability to quickly find optimal solutions and leadership. Moreover, a company would require talent without proper understanding of what this means. Therefore, the general demands as defined by scholars should be distinguished from the general demands as specified by companies. The present study focuses on the latter. Thus, attention is paid to what is stated on JC-WPs and not to scientific classifications of personnel's characteristics (the latter would require a book-length review, which is not our aim).

Attention of their employees to the various societal needs can be expected by mining companies for three reasons. First, Kemp and Owen [33] argued that the social attitude in mining companies tends to decline, and corporate social performance should therefore be improved. Second, maintaining social responsibility is imperative to modern mining companies [34,35], also in overseas operations [36] and post-mining life "normalizing" [37]; employees should be ready to follow this imperative. This is particularly the case when indigenous communities are involved or affected [38,39]. Third, as made clear by Longenecker et al. [40], volunteer activities are not uncommon in the modern mining industry. The competences of individual mining employees such as specific skills, talent, and talent management are of utmost importance for extractive industries [20,41–44]. Finally, companies may need people with different life/career intentions such as interest in self-development, which is evidently beneficial for a company (e.g., [45]).

Personnel expectations of mining companies and their statements on the JC-WPs remain, however, almost unknown. Previous research (see above) addressed only certain aspects of this important issue, and the general demands on personnel in the global mining industry (as stated by companies) remain unclear. It thus remains unknown whether these demands are coherent or company dependent. The present study aims at filling this gap in knowledge.

3. Material and Methods

3.1. Data Sampling

A list of the fifty mining companies with most capital (https://www.mining.com/top-50-biggest-mining-companies/, accessed on 20 April 2021) was used for the present study. The choice of this list was determined because it is comprehensive and homogeneous (see the explanation of the company selection principles on the aforementioned web page) and represents the true global leaders of the mining industry. A number of 50 companies may not seem large, but it fully matches the objective of the present study, which handles the world's top mining companies, not the entire mining industry. Evidently, the biggest companies differ from the smaller ones by their vision regarding personnel, which is demonstrated by their treatment of social responsibility [46,47] and employee volunteerism [48]. A choice for only the biggest companies therefore is reasonable. The

companies under consideration have their headquarters all over the world (Figure 1); the fact that most headquarters are located in North America most probably reflects the actual geographical spreading and a type of disproportion of the present-day mining industry. Consideration of smaller companies would extend the focus of the present study. However, these companies are not ranked internationally, and thus their selection is not possible on a clear basis. Moreover, small and medium mining companies often do not have well-established webpages or the latter bear too short, unjustified statements and often in national languages other than English. As a result, analyzing such information is not reasonable for the purposes of the present study (but this remains a task for further investigations).

Figure 1. Geographical distribution of the analyzed world's forty top mining companies.

JC-WPs, which seem to be essential sources of information on personnel demands as well as objects of employees' attention [15,49], were examined qualitatively to find the statements related to the desired basic characteristics of employees. In certain cases, these characteristics are indicated precisely, but in other cases, the texts need "light" interpretation. Moreover, several companies have web pages on which such statements are lacking, or where JC-WPs are not present at all. Such companies had to be excluded from our analysis, which resulted in an analysis that includes forty organizations. For each of them, the three most clearly expressed general demands have been taken for analysis; this restriction was chosen in order to avoid a too large data heterogeneity, and in the majority of cases, the number of well-expressed demands does not exceed the maximum of three.

The stated demands should be understood as disclosed expectations of the world's top mining companies regarding their personnel. They are formulated here briefly—in one or several words (both nouns and adjectives) only—because the wordings on the web pages differ significantly, such that it is their essence that makes them comparable. An additional aspect that needs to be considered is that, as explained above, the clarity of the statements differs significantly between the JC-WPs of the various companies. This clarity is expressed in the present study in a score that shows how difficult it is to find the relevant statements on a specific web page and the amount of interpretation needed. For instance, when these statements can be found quickly and when they are clear and unambiguous, the score for clarity is optimum, whereas the score is lowest if the statements are difficult to find and when they need great interpretation. The general demands on employees and the clarity of the statements thus have been specified for all forty companies involved; they constitute the main material for the present study. The names of the companies are not disclosed here to avoid any occasional reputation challenge.

3.2. Analytical Procedures

Methodologically, the present study includes qualitative, semi-quantitative, and quantitative analytical procedures, which are detailed below. A total of 40 JC-WPs were analyzed. The analysis was undertaken in April 2021.

All identified general demands (these are statements of the companies, not research interpretations) are assigned to the seven basic categories outlined in the section on previous research. These categories are distinguished intuitively via tracing similarity between the stated demands. The latter with a relatively close meaning are attributed to the same category; in other words, these basic categories are intuitive, not pre-established, and they can be understood as entities of more or less similarly expressed words. This categorization is a purely qualitative procedure, which is based on interpretation of the meaning of all stated demands, such that it was judged whether it is related to personality, work, company, culture, society, skills, or intentions (Table 1). Each company may explicitly or implicitly state only several (or one) of these demands, as well as define its own meaning of the desired employees' characteristics. Nonetheless, these basic categories are important in human management, as indicated in the related literature (Table 1). The novelty of the present analysis is that we do not handle general demands and categories known from the theory but focus on what is stated (and how) on JC-WPs of the considered companies. The same requirements can be expressed with more than one word, and the noted categorization allows avoiding double or triple counting of the same requirement. In other words, this categorization allows shifting from "mechanistic" word counting to measuring meanings.

Table 1. Basic categories of general demands on employees by the analyzed mining companies. Grouping of general demands into basic categories is based on the closeness of the meanings of the former. Naming of basic categories is only provisional and does not pretend to be any scientific classification.

Basic Category	Brief Category Outline	Demands Stated by the Analyzed Companies *	General Literature Supporting the Validity of the Categories
Personality	desired personal characteristics of employees	adventurous, ambitious, aspiration, attitude, being passionate, bright, commitment, curiosity, individuality, motivation, passion	[50–52]
Work	desired employees' manner of work	challenge facing, creative, dedicated, driven, dynamic, hardworking, high performance, innovative, quality valuing, responsible, result-focused	[53–55]
Company	desired employees' attitude toward organization	company-focused, contributing, loyal, pride, wishing to work in a major company	[56–58]
Culture	desired employees' attitude toward organizational culture and teamwork	collaborative, cooperative, ethical, team spirit	[59–61]
Society	desired employees' attitude toward society's needs	social responsibility, volunteer experience	[62–64]
Skills	desired employees abilities	capable, competent, experienced, intelligent, large potential, profession, skilled, talented	[65–67]
Intentions	desired employees' life/career expectations	career-focused, excellent, focused on future, self-development, success	[45,68,69]

* Taken directly or slightly interpreted from the JC-WPs.

On the basis of this assignment, it is possible to establish the distribution of the basic categories in the considered set of companies; the number of the stated demands belonging to each category can, as mentioned above, vary from one to three (Table 2). It should, however, be realized in this context that, when the statement is not clear, the demands matter less than when they are well-expressed. In order to take this into account, the scores for the clarity of the statements (Table 2) are multiplied by the number of statements; the thus obtained values are presented in Table 3.

Table 2. Distribution of the demands on employees by the analyzed mining companies. The numbers indicate the amount of the stated demands, i.e., the number of the words related to each basic category in each JC-WPs.

Company (Anonymized)	Basic Categories of General Demands *						
	P	**W**	**Co**	**Cu**	**So**	**Sk**	**I**
1		2					
2	1					2	
3						1	
4		1		1			
5		1	1	1			
6						2	
7		1					
8	1					1	
9	1					2	
10	1	1				1	
11						2	1
12		2					
13		2				1	
14						2	
15	1	1				1	
16	2						
17		2		1			
18	1	2					
19						1	
20	2		1				
21							2
22			2	1			
23			1				
24							1
25			1	1		1	
26					1	2	
27		3					
28							1
29	1						
30	1	1					

Table 2. *Cont.*

Company (Anonymized)	Basic Categories of General Demands *						
	P	**W**	**Co**	**Cu**	**So**	**Sk**	**I**
31						1	
32				1	1	1	
33		2					
34		1					2
35							1
36		1					1
37			1	1			1
38						1	
39						1	
40						1	

* Abbreviations of the demand categories: P, personality; W, work; Co, company; Cu, culture; So, society; Sk, skills; I, intentions.

Table 3. Corrected distribution of the demands on employees by the analyzed mining companies. The numbers indicate the number of the stated demands if their clarity is considered (see text for explanations).

Company (Anonymized)	Basic Categories of General Demands *						
	P	**W**	**Co**	**Cu**	**So**	**Sk**	**I**
1		6					
2	3					6	
3						3	
4		3		3			
5		3	3	3			
6						6	
7		3					
8	3					3	
9	3					6	
10	3	3				3	
11						6	3
12		6					
13		6				3	
14						6	
15	3	3				3	
16	6						
17		6		3			
18	3	6					
19						3	
20	6		3				
21							2
22			2	1			

Table 3. *Cont.*

Company (Anonymized)	Basic Categories of General Demands *						
	P	**W**	**Co**	**Cu**	**So**	**Sk**	**I**
23			1				
24							1
25			1	1		1	
26					1	2	
27		3					
28							1
29	1						
30	1	1					
31						2	
32				2	2	2	
33		4					
34		2					4
35							2
36		2					2
37			2	2			2
38						2	
39						2	
40						2	

* Abbreviations of the demand categories: P, personality; W, work; Co, company; Cu, culture; So, society; Sk, skills; I, intentions.

The number of the companies that disclose expectations that are relevant for each of the basic categories can be calculated with three techniques. First, the mere presence of the demand can be considered. Second, the numbers of the stated demands regarding a specific category (Table 2) can be considered. Third, these numbers multiplied by the clarity score (Table 3) can be considered. The results of each of these three approaches indicate the most commonly disclosed expectations of the world's top mining companies regarding their personnel. The system of the scores is as follows: 3—statements can be found quickly and they are clear and unambiguous; 2—there are certain, but not too big, troubles with finding the statements and understanding them; 1—statements are difficult to find, and when found, they need interpretation.

The coherence of the expectations among the leaders of the global mining industry can be interpreted both qualitatively (regarding just the basic categories) and quantitatively. The latter approach can be based on metrics, currently commonly used by natural scientists for similarity checks. This method handles the so-called J similarity [70], which is calculated as

$$J = C/[(R1 + R2) - C]$$

where J is (in our case) the similarity of the demand statements, which varies between 1.0 (full similarity) and 0.0 (total dissimilarity), C is the number of the basic categories stated by two companies, and R1 and R2 are the numbers of the basic categories stated by each of these companies. C reflects the number of the categories common to both companies, R1 reflects the number of the category of one company (irrespective of whether the same is stated by another company), and R2 reflects the same for the second company. The J similarity can be calculated for all possible pairs of the considered companies. Subsequently, the mean value of this metric (J_{av}) can be measured: the higher the value, the greater the coherence of expectations. For the purposes of this study, it is proposed that a value of

J_{av} between 0.0 and 0.3 indicates a weak coherence, J_{av} between 0.3 and 0.7 indicates a moderate coherence, and J_{av} between 0.7 and 1.0 indicates a strong coherence.

It is reasonable to address diversity of the disclosed expectations on the basis of the number of the stated demands attributed initially to all seven basic categories (Table 1). The 'WordItOut.com' on-line software is used to construct a so-called "word cloud", which visualizes the frequency of a word in the analyzed text block. This technique has recently become increasingly important in content analysis studies [71–73]. In the present study, the text block represents the entity of the stated demands of the considered companies.

An important question is whether it would be reasonable not to deal in the various analytical procedures with the basic categories of the general demands, but with the stated demands themselves. Although this is technically possible, the value of the outcomes of such an approach would be low (and probably not useful). Different companies can state the same expectation with different words. Their meanings and/or connotations would therefore be exactly the same or overlapping. In the case of companies from countries where English is not a native language, the language skills of the managers responsible for the disclosure of the job- and career-related information also would play a role. Conversely, part of the stated demands has been interpreted for the purpose of the present study, and thus the relevant words are correct regarding their meaning but not genuine. Considering all this, the analysis of the basic categories, which handle words with a more or less similar meaning, is the only feasible approach, except for the analysis of the diversity of the disclosed expectations.

4. Results

4.1. Frequency of Expectations and Coherence of Statements

The expectations regarding personnel differ between the various analyzed companies (Figure 2). When only the presence of demands on the JC-WPs is considered, the most common basic categories are skills, work, and personality; the least common is society (the categories' naming is provisional—see Table 1 for the stated general demands attributed to each category). This means that the world's top mining companies prefer employees equipped with experience, talent, and other personal characteristics of this type, dedicated to work, and with self-confidence. In contrast, their life/career expectations, their focus on and loyalty to the company, their attitude toward the company's culture and teamwork, and their individual social responsibility are significantly less demanded (at least, as stated on the analyzed JC-WPs). It appears that consideration of the numbers of the stated demands belonging to a specific category does not affect the relative importance of the various basic categories strongly, although the importance of the demands regarding work and skills becomes the same (Figure 2), and the clarity of the statements does not change the situation either (Figure 2).

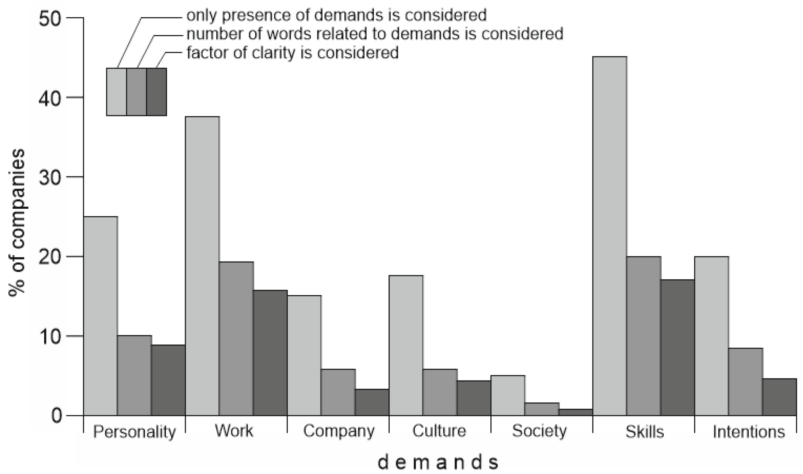

Figure 2. Basic categories of demands on employees from the analyzed companies.

These findings indicate that the basic personnel-related preferences are disclosed by the world's top mining companies explicitly, and that neither the number of the stated demands nor the statements' clarity reveal these preferences differently. The results also imply, however, that the demands on employees are only partly coherent. Although many companies look for individual skills and work dedication of their employees, the proportion of companies with only these two common basic categories is below 50% (Figure 2). Categories such as company, culture, and intentions are comparable and not small. The J_{av} value is 0.21, which indicates a low average similarity between the demand statements, and therefore, a weak coherence. This evidence against any strong or moderate coherence of the disclosed expectations implies that the leaders of the global mining industry have a significantly different understanding of the desired characteristics of their employees.

4.2. Diversity of Expectations

The various disclosed expectations differ in their diversity (Table 1). The largest diversities occur in the personality and work categories. Certain companies realize that working for them is hard, and consequently they demand specific personal properties (such as being adventurous) because they wish to recruit employees with appropriate personalities. The other categories are low or moderately diverse (Table 1). Certain companies value loyalty, talent, and voluntary activities of employees; such companies tend to state special interest in recruiting personnel with these characteristics (otherwise they would not indicate these demands on their JC-WPs).

In most cases, the leaders of the global mining industry, taken together as a group, demonstrate a wide spectrum of preferences regarding personnel. The "word cloud" shows that the most frequently used word is "talent" (Figure 3), which is attributed provisionally to the basic category of skills (such an attribution does not mean that talent and skills are the same) (Table 1). Its frequency is high in comparison to the other words ("focus" is also a frequently stated word, but this is due to its presence in different stated demands—see Table 1) that one may judge the analyzed companies as talent-concerned. The relatively frequent attention for high performance and challenge facing (Figure 3) indicates interest in the basic category of work (Table 1). Apart from these demands that are frequently stated, the frequency of the majority of the words regarding specific demands is low or moderate (Figure 3).

Figure 3. "Word cloud" reflecting the relative frequency of specific words in the stated demands on employees from the analyzed companies.

5. Discussion

The undertaken study seems to be pioneering, and thus it would be challenging to compare its outcomes to those of previous investigations. The latter aimed chiefly at the general construction and design of corporate webpages and their perception [11,15,16,49,74,75]—these topics differ essentially from the scope of the present study. Nonetheless, our findings raise several questions that need further consideration and interpretation. A first question is whether the expectations of the employers are realistic and reasonable. A second is whether the demands depend on a company's size, and a third is whether they depend on the companies' locations. A fourth question is whether the demands are responsible in the light of social behavior toward both the employees and society (for instance, regarding the role of mining in the development of a sustainable society).

5.1. How Realistic Are the Expectations?

The present study is based on the general demands that the world's top mining companies state on their web pages with the objective to attract suitable employees. The majority of the stated demands concern skills, work, and personality, whereas intentions, culture, company, and society are significantly less mentioned. This means that the leaders of the global mining industry seek strong individuals with a high potential, whereas their social attitude is somewhat less important. Apparently, the companies prefer well-educated professionals who are eager to show a high performance and who are dedicated to hard work and are able to act on their own.

This matches the urgency of shifting toward true innovation of the mining industry [76–80] to further increasing labor productivity [79] and to more team-independent work as imposed by the increase in automation [8]. Conversely, it must be realized that the mining industry remains conservative [79], with a strong dependence on overseas operations [36,81,82] and teamwork [83]. Generally, these two opposite considerations imply that the disclosed expectations from employees match only partly the actual needs of the mining industry regarding their human resources. The expectations must result either from a biased understanding of the real needs, or they represent at least partly failed communication of these needs on the JC-WPs of the companies. This may confuse potential employees addressing these web pages, which would inevitably result in cases where highly suitable potential employees do not apply for an open position.

The weak coherence of the disclosed expectations found in the present study indicates differences in the strategic vision of the companies regarding the desired personnel, which faces the latter with a situation in which they have several choices; personal characteristics of potential employees seem appropriate for the application for several positions in several companies (Figure 4). Concerning the limited size of the labor market (e.g., [84–86]), it appears that the leading companies must compete for the available personnel.

If the weak coherence of the expectations is only "occasional" and results from a partly failed communication concerning personnel needs, it contributes to the noted competition regardless, such that it is questionable whether a company would need to make the demands clearer. However, the present study also demonstrates that many of the world's top mining companies struggle for personnel (Figure 2) and talent (Figure 3). This perfectly matches the global trend in this industry [20,41–44]. The noted shortage of personnel in the mining labor market is related to the deficiency of experienced, skilled, and talented employees (e.g., [86]). The effectiveness of the noted aspects of competition on this market is moderated by the importance of JC-WPs for potential applicant, as well as by the importance of the specific demands for jobs in comparison to the more general demands considered in the present study.

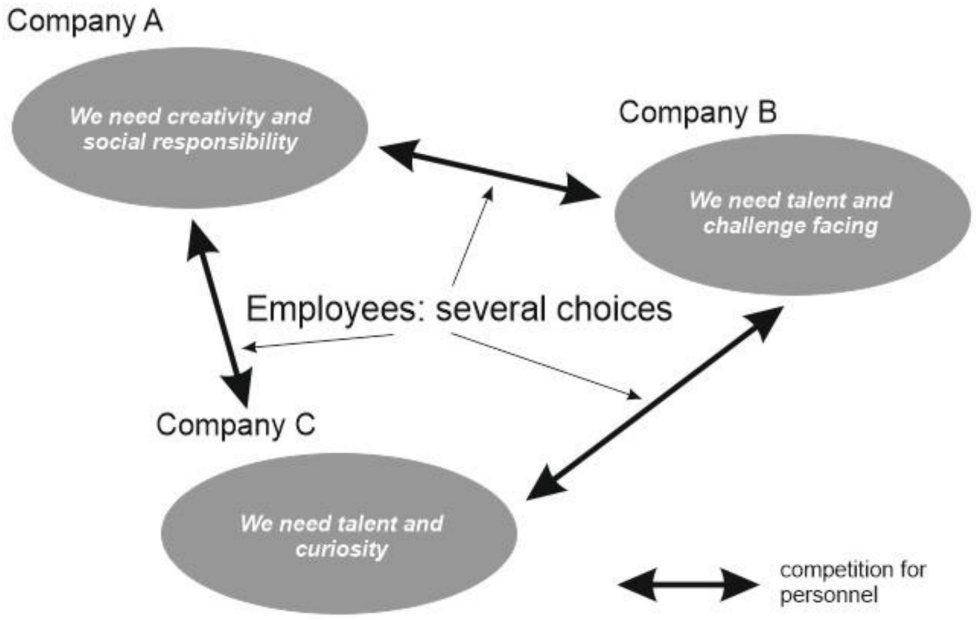

Figure 4. Scheme showing why potential employees can choose between several companies because of insufficiently detailed demands from the global mining industry.

Previous specialists argued that more corporations need to make their human resource management practices and the related reporting sustainable, ready to transition to the so-called "Industry 4.0", and more process oriented [87–90]. The results of the present study question whether JC-WPs of the world's top mining companies serve these needs. The demanded talents would improve the quality of human resources in this industry. Conversely, it is shown above that the communication of the corporate expectations is far from being ideal, which indicates certain deficiencies in human resource management practices.

5.2. Role of Company Size

Although only the biggest mining companies are considered, these differ significantly by their capital. An intriguing question is whether the company size is, in one way or another, related to the disclosed expectations regarding personnel. Depending on their total capital (https://www.mining.com/top-50-biggest-mining-companies/, accessed on 20 April 2021), all considered companies can be grouped into five categories: the ten with most capital, and successively groups of ten companies with less capital. Figure 5 shows, for each of the five groups, the number of companies that have stated demands for each of the basic categories of demands. Three relationships thus become visible that the various (capital-based) categories of companies have in common. First, work dedication is important for all categories of companies, whereas focus on society and the company's culture seem almost of no importance. Second, specific personal characteristics are less desired by the categories with the largest and the least total capital. Third, company focus and intentions become more important with decreasing capital. Although the analyzed sample (40 companies) is relatively small, one should consider that the differences in total capital of the companies are significant (Figure 5). This implies that the abovementioned relationships indicate a real correspondence between company size and the stated demands on employees.

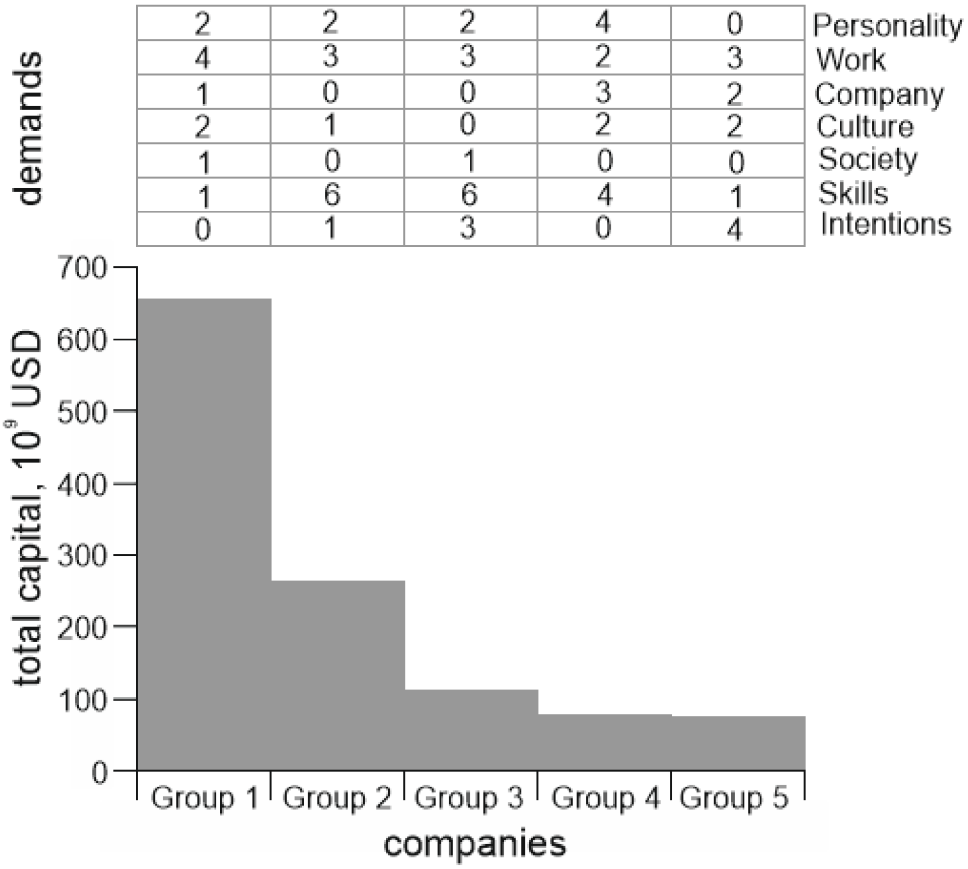

Figure 5. Distribution of the basic categories of demands on employees from the analyzed mining corporations, as grouped according to their capital.

5.3. Role of Company Location

The mining companies under study are located in different parts of the world (Figure 1). It is therefore interesting to find out whether the geographic locations influence the demands on employees. It is established that such an influence exists and that the geographic differences between the general demands are significant (Figure 6). Demands regarding personal skills exist everywhere except for Latin America. Work dedication is especially valued by North American, European, and Australian companies. Personality is less a point of concern in Europe, Africa, and Latin America. Of much interest is the attention to the company's culture. This appears relatively significant in North America and Europe, whereas it seems insignificant in Asia, Latin America, and Africa. It should be mentioned in this context that Latin American companies pay most attention to the employees' life/career expectations, although only several companies are considered (because of their low number among global leaders).

The above information implies that the biggest North American companies have the most diverse set of demands, whereas those from Asia and Latin America have the least diverse set (Figure 6). Moreover, the North American and European companies differ from the Asian and African ones by the most common demand of work dedication; in contrast, the Asian and African companies tend to demand personal skills. All these findings indicate that the disclosed expectations of the world's top mining companies depend on their geographic position, which should be explained by either regional peculiarities of personnel or the principles of its recruitment. In other words, the expectations of the companies regarding the qualities of the employees that they want to attract are geographically heterogeneous.

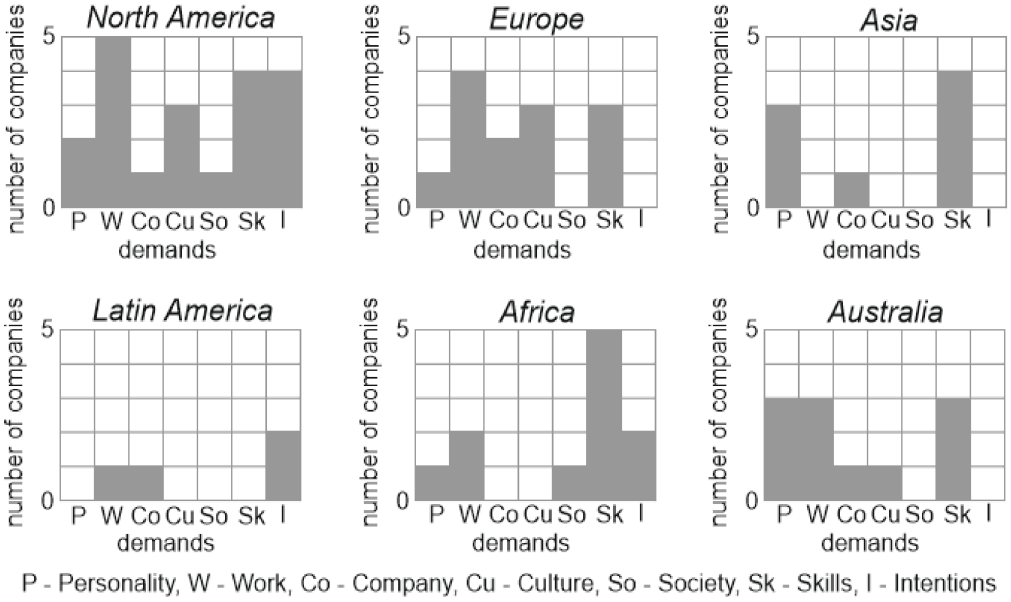

Figure 6. Geographical distribution of the basic categories of demands on employees from the analyzed mining companies.

5.4. Corporate Social Responsibility in Resources Policy

Sustainable exploitation of mineral deposits requires a well-developed resources policy, which should be aimed not only at strategies and plans for the extraction of raw material, but also at many more aspects of mining, including personnel and labor market. It is currently commonly accepted that such a resources policy is a corporation's social responsibility. This philosophy was developed and conceptualized in the benchmark works by [91–95], as well as in the recently published synthesis by Pons et al. [96].

The social responsibility is generally considered in terms of the local community and environment. Consequently, not only should companies as a business and their top managerial staff behave in a socially responsible way, but all employees should as well. The findings of the present study imply that social responsibility and volunteer experience, which constitute the general demands in the basic category of society (Table 1), are stated in several cases, and that these demands on employees are the least common among all (Figure 2). Environmental responsibility is not stated at all (Table 1). It must therefore be deduced that a serious bias is present in the preferences stated by the world's leading companies.

The findings of the present study should be discussed in light of modern ideas that link resources policy, personnel, and corporate social responsibility in the mining industry. Saenz and Romero (2020) [97] found that corporate governance and social responsibility in the mining industry overlap by ~21.5% in regard to the concerned topics. However, when the statements on the JC-WPs are considered (Table 1, Figures 2 and 3), only a small proportion (<5%) is related to social responsibility. It thus appears that the analyzed companies understand that social responsibility is desirable, but that they fail to make this clear in the general demands on personnel.

Van der Watt and Marais [98] demonstrated how complex and difficult-to-achieve are attempts of mining companies and municipalities for joint implementation of social and labor plans. The present study shows that the analyzed companies pay significant attention to the employees' talents, work dedication, and individuality, but that they seem to consider their societal characteristics less important (Figure 3). Undoubtedly, this diminishes chances for successful collaboration of this type. Katz [99] argued that social responsibility should be taught to university students because they are the future professionals of extractive industries. However useful and logical this proposition may be, the present study indicates how limited the interest of mining companies is in employees with characteristics related

to social responsibility. Such potential employees therefore will not have any advantage when applying for a job, and they may be discouraged by the companies' lack of interest in their characteristics when they consider an application. In other words, companies may need such employees, but recruiting them is hampered by what they state on their JC-WPs. All these findings imply that resources policy linked to personnel and social responsibility in mining companies suffers from lack of clear communication.

6. Conclusions

The present study of the general demands on personnel stated by the world's top mining companies on their JC-WPs leads to three general conclusions.

(1) The most demanded characteristics of employees are linked to their abilities (especially talent), work dedication, and strong personality, whereas a focus on company and society needs are the least demanded. This implies that the demands match the industry needs only partly.
(2) The coherence of the demands between the various companies is weak, which stimulates competition between companies on the labor market.
(3) The total capital (company size) and the geographical location (with its cultural frame) have an impact on the stated demands.

The findings have two principal policy implications.

(1) Human resource management in the leading mining companies needs improvement regarding how corporate preferences should be communicated. If the findings of the present study represent the actual visions of the companies, these visions need reconsideration and should take the real needs of the industry into account. Otherwise, if these findings represent company preferences that are expressed insufficiently while communicated online, the way of online communication should be reconsidered critically. In both cases, more attention should be paid to the current under-representation of the demands related to the life/career expectations of the employees, their company focus, the company's culture (particularly regarding collaboration and teamwork), and social responsibility.
(2) The expectations expressed by the leaders of the mining industry regarding their personnel indicate that the employee-related policy in this industry urgently needs improvement. Particularly, sustainable growth of the industry depends strongly on recruitment of the truly needed personnel. Although talent is a priority demand matching the urgent need of innovation and automation in the mining industry, insufficient attention is paid on the level of the industry as a whole to other highly important aspects such as life/career expectations, teamwork, and social responsibility. This makes clear that urgent improvements are needed in the policy with regard to attracting qualified personnel for the mining industry. It is evident that the quality of personnel has an impact on the professional and effective exploitation of mineral resources.

The present study has limitations, particularly with respect to the sample size. It is true that the findings characterize the world's top mining companies, but it is proposed that smaller companies be investigated in the future. This will require development of another methodology due to the more chaotic character and often incompleteness of the related information and its availability in languages other than English. Most probably, solutions of such a challenging task will require joint efforts of experts in various fields (corporate governance, linguistics, and computer technologies) from many countries. A second limitation is that the present study analyzed only JC-WPs; employee-related information may also be found in ethical codes and in a variety of strategic documents. Further research is needed to explore these sources of information, and its outcomes should be compared with actual opinions of corporate managers that may be obtained through surveys and interviews. In spite of the above limitations, it can be concluded on the basis of the JC-WPs of forty out of the fifty biggest mining companies in the world that more attention on

these web pages for the truly needed qualities of potential employees will help the mining industry to be better prepared for the nearby developments that will require employees who are innovative and ready to handle the further developing automation.

There are many related topics for further investigation. Besides attention to smaller companies and other sources of information about expectations from employees, it is reasonable to pay attention to gender and age preferences (or their absence) and equal opportunities, as well as to preferences given to representatives of local communities and pro-environmental behavior of personnel. Another direction of research is linked to methodological development, and particularly, to quantification of meanings of words and phrases on companies' webpages (the information from social networks would also be helpful) and in their corporate documents.

Author Contributions: Conceptualization, D.A.R. and V.A.E.; investigation, D.A.R. and V.A.E.; writing—original draft preparation, D.A.R. and A.J.v.L.; writing—review and editing, D.A.R. and A.J.v.L.; project administration, V.A.E. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: The authors thank the editors and the reviewers for thorough examination of this paper and helpful recommendations.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Dashwood, H.S. Sustainable development and industry self-regulation: Developments in the global mining sector. *Bus. Soc.* **2014**, *53*, 551–582. [CrossRef]
2. Katz, J.; Pietrobelli, C. Natural resource based growth, global value chains and domestic capabilities in the mining industry. *Resour. Policy* **2018**, *58*, 11–20. [CrossRef]
3. Mudd, G.M.; Jowitt, S.M.; Werner, T.T. Global platinum group element resources, reserves and mining—A critical assessment. *Sci. Total Environ.* **2018**, *622–623*, 614–625. [CrossRef] [PubMed]
4. Ostrowski, W. "Transparency and global resources: Exploring linkages and boundaries". *Extr. Ind. Soc.* **2020**, *7*, 1472–1479. [CrossRef]
5. Owen, J.R.; Kemp, D. Social management capability, human migration and the global mining industry. *Resour. Policy* **2017**, *53*, 259–266. [CrossRef]
6. Ranosz, R. Mining and its role in the global economy. *Gospod. Surowcami Miner.-Miner. Resour. Manag.* **2014**, *30*, 5–20. [CrossRef]
7. Scoble, M.; Van Zyl, D.; Ward Wilson, G. Human resources and education in mining and mine waste engineering. *Geotech. News* **2008**, *26*, 38–40.
8. Paredes, D.; Fleming-Muñoz, D. Automation and robotics in mining: Jobs, income and inequality implications. *Extr. Ind. Soc.* **2021**, *8*, 189–193. [CrossRef]
9. Kansake, B.A.; Sakyi-Addo, G.B.; Dumakor-Dupey, N.K. Creating a gender-inclusive mining industry: Uncovering the challenges of female mining stakeholders. *Resour. Policy* **2021**, *70*, 101962. [CrossRef]
10. Caron, J.; Asselin, H.; Beaudoin, J.-M. Attitudes and behaviors of mining sector employers towards the Indigenous workforce. *Resour. Policy* **2019**, *61*, 108–117. [CrossRef]
11. Banerjee, P.; Gupta, R. Design deficiencies in corporate career web-sites in India: A content analysis. *Hum. Syst. Manag.* **2016**, *35*, 291–300. [CrossRef]
12. Baum, M.; Kabst, R. Websites in the recruitment context: A conceptual model. *CEUR Workshop Proc.* **2010**, *570*, 128–144.
13. Braddy, P.W.; Thompson, L.F.; Wuensch, K.L.; Grossnickle, W.F. Internet recruiting: The effects of web page design features. *Soc. Sci. Comput. Rev.* **2003**, *21*, 374–385. [CrossRef]
14. Guerrier, Y.; Wilson, C. Representing diversity on UK company web sites. *Equal. Divers. Incl. Int. J.* **2011**, *30*, 183–195. [CrossRef]
15. Lee, I. Evaluation of Fortune 100 companies' career web sites. *Hum. Syst. Manag.* **2005**, *24*, 175–182. [CrossRef]
16. Lee, I. The evolution of e-recruiting: A content analysis of fortune 100 career web sites. *J. Electron. Commer. Organ.* **2005**, *3*, 57–68. [CrossRef]
17. Williamson, I.; Lepak, D.P.; King, J. The effect of company recruitment web site orientation on individuals' perceptions of organizational attractiveness. *J. Vocat. Behav.* **2003**, *63*, 242–263. [CrossRef]

18. Domínguez-Gómez, J.A.; González-Gómez, T. Governance in mining: Management, ethics, sustainability and efficiency. *Extr. Ind. Soc.* **2021**, *8*, 100910.
19. Wyganowska, M.; Tobór-Osadnik, K. The passively active worker—A diagnosis and comparison of the phenomenon in a mining company and a corporation. *Pol. Sociol. Rev.* **2017**, *197*, 109–120.
20. Stadler, K. Talent reviews: The key to effective succession management. *Bus. Strat. Ser.* **2011**, *12*, 264–271. [CrossRef]
21. Tucker, M.K.; Clark, M.C. Promoting organisational effectiveness. *Managing the risk in human relationships. Min. Eng.* **1991**, *151*, 29–35.
22. Gray, D.; De Haan, E.; Bonneywell, S. Coaching the 'ideal worker': Female leaders and the gendered self in a global corporation. *Eur. J. Train. Dev.* **2019**, *43*, 661–681. [CrossRef]
23. Pató, B.S.G. Formal options for job descriptions: Theory meets practice. *J. Manag. Dev.* **2017**, *36*, 1008–1028. [CrossRef]
24. Brumley, K.M. 'Involved' fathers, 'ideal' workers? Fathers' work–family experiences in the United States. *Contemp. Perspect. Fam. Res.* **2018**, *12*, 209–232.
25. Brumley, K.M. "It's more appropriate for men": Management and worker perceptions of the gendered ideal worker. *Sociol. Spectr.* **2018**, *38*, 406–421. [CrossRef]
26. Celik, P.; Storme, M.; Davila, A.; Myszkowski, N. Work-related curiosity positively predicts worker innovation. *J. Manag. Dev.* **2016**, *35*, 1184–1194. [CrossRef]
27. Wright, C.; Nyberg, D. Working with passion: Emotionology, corporate environmentalism and climate change. *Hum. Relat.* **2012**, *65*, 1561–1587. [CrossRef]
28. Lööw, J.; Abrahamsson, L.; Johansson, J. Mining 4.0—the impact of new technology from a work place perspective. *Min. Metall. Explor.* **2019**, *36*, 701–707. [CrossRef]
29. Hong Loan, N.T.; Huong, D.K. The relationship between working conditions and job satisfaction of coal miners: Typically analyzing of 86 company Ltd., Dong Bac Corporation, Vietnam. *J. Adv. Res. Dyn. Control Syst.* **2020**, *12*, 1186–1192.
30. Ghorpade, J.; Lackritz, J.; Singh, G. Work Values and Preferences for Employee Involvement in the Management of Organizations. *Empl. Responsib. Rights J.* **2001**, *13*, 191–203. [CrossRef]
31. Miller, R.M. The keys to successful corporate mineral exploration. *S. Afr. J. Geol.* **1989**, *92*, 146–154.
32. Hall, D. Mining for managers. *Aust. Min.* **2008**, *100*, 18.
33. Kemp, D.; Owen, J.R. The industrial ethic, corporate refusal and the demise of the social function in mining. *Sustain. Dev.* **2018**, *26*, 491–500. [CrossRef]
34. Bice, S. Corporate Social Responsibility as Institution: A Social Mechanisms Framework. *J. Bus. Ethics* **2017**, *143*, 17–34. [CrossRef]
35. Gamu, J.K.; Dauvergne, P. The slow violence of corporate social responsibility: The case of mining in Peru. *Third World Q.* **2018**, *39*, 959–975. [CrossRef]
36. Charles, M.; Billon, P.L. Corporate accountability and diplomatic liability in overseas extractive projects. *Extr. Ind. Soc.* **2021**, *8*, 467–476.
37. Van der Watt, P.; Marais, L. Normalising mining company towns in Emalahleni, South Africa. *Extr. Ind. Soc.* **2019**, *6*, 1205–1214. [CrossRef]
38. Berman, M.; Loeffler, R.; Schmidt, J.I. Long-term benefits to Indigenous communities of extractive industry partnerships: Evaluating the Red Dog Mine. *Resour. Policy* **2020**, *66*, 101609. [CrossRef]
39. Horowitz, L.S. Culturally articulated neoliberalisation: Corporate social responsibility and the capture of indigenous legitimacy in New Caledonia. *Trans. Inst. Br. Geogr.* **2015**, *40*, 88–101. [CrossRef]
40. Longenecker, C.O.; Beard, S.; Scazzero, J.A. What about the workers? The workforce benefits of corporate volunteer programs. *Dev. Learn. Organ. Int. J.* **2012**, *27*, 9–12. [CrossRef]
41. Beamond, M.T.; Farndale, E.; Härtel, C.E.J. Frames and Actors: Translating Talent Management Strategy to Latin America. *Manag. Organ. Rev.* **2020**, *16*, 405–442. [CrossRef]
42. Jago, B.C. Miners. *Can. Min. J.* **2014**, *135*, 56–58.
43. Knights, P.F. Short-term supply and demand of graduate mining engineers in Australia. *Miner. Econ.* **2020**, *33*, 245–251. [CrossRef]
44. Oppong, N.Y.; Gold, J. Developing local managers in the Ghanaian mining industry: An indigenous talent model. *J. Manag. Dev.* **2016**, *35*, 341–359. [CrossRef]
45. Momeni, A.; Kaffashpoor, A.; Malekzadeh, G.; Khorakian, A. Presenting employees' self-development behaviour pattern. *Int. J. Procure. Manag.* **2020**, *13*, 578–595. [CrossRef]
46. D'Amato, A.; Falivena, C. Corporate social responsibility and firm value: Do firm size and age matter? Empirical evidence from European listed companies. *Corp. Soc. Responsib. Environ. Manag.* **2020**, *27*, 909–924. [CrossRef]
47. Wirth, H.; Kulczycka, J.; Hausner, J.; Koński, M. Corporate Social Responsibility: Communication about social and environmental disclosure by large and small copper mining companies. *Resour. Policy* **2016**, *49*, 53–60. [CrossRef]
48. Basil, D.; Runte, M.; Basil, M.; Usher, J. Company support for employee volunteerism: Does size matter? *J. Bus. Res.* **2011**, *64*, 61–66. [CrossRef]
49. Lee, I.; Dehkordi-Vakil, F.; Kaul, T. Evaluating job applicants' perceptions of corporate career web sites. *Hum. Syst. Manag.* **2008**, *27*, 321–330. [CrossRef]
50. Alolayyan, M.N.; Alyahya, M.S.; Omari, D.A. Strategic human resource management practices and human capital development: The role of employee commitment. *Probl. Perspect. Manag.* **2021**, *19*, 157–169. [CrossRef]

51. Morris, T.; Lydka, H.; O'Creevy, M.F. Can Commitment Be Managed? A Longitudinal Analysis of Employee Commitment and Human Resource Policies. *Hum. Resour. Manag. J.* **1993**, *3*, 21–42. [CrossRef]
52. Pak, K.; Kooij, D.T.; De Lange, A.H.; Van Veldhoven, M.J. Human Resource Management and the ability, motivation and opportunity to continue working: A review of quantitative studies. *Hum. Resour. Manag. Rev.* **2019**, *29*, 336–352. [CrossRef]
53. Lewis, R.W. Creativity: The Human Resource. *J. Creat. Behav.* **1979**, *13*, 75–80. [CrossRef]
54. Liu, D.; Gong, Y.; Zhou, J.; Huang, J.-C. Human Resource Systems, Employee Creativity, and Firm Innovation: The Moderating Role of Firm Ownership. *Acad. Manag. J.* **2017**, *60*, 1164–1188. [CrossRef]
55. van Esch, E.; Wei, L.; Chiang, F.F.T. High-performance human resource practices and firm performance: The mediating role of employees' competencies and the moderating role of climate for creativity. *Int. J. Hum. Resour. Manag.* **2018**, *29*, 1683–1708. [CrossRef]
56. DuBoff, R.; Heaton, C. Employee loyalty: A key link to value growth. *Strat. Leadersh.* **1999**, *27*, 8–13. [CrossRef]
57. Durrah, O.; Allil, K.; Gharib, M.; Hannawi, S. Organizational pride as an antecedent of employee creativity in the petrochemical industry. *Eur. J. Innov. Manag.* **2020**, *24*, 572–588. [CrossRef]
58. Hajdin, M. Employee Loyalty: An Examination. *J. Bus. Ethics* **2005**, *59*, 259–280. [CrossRef]
59. Campbell, B.A.; Di Lorenzo, F.; Tartari, V. Employer–Employee Matching and Complementary Assets: The Role of Cross-Organization Collaborations. *Acad. Manag. J.* **2021**, *64*, 799–823. [CrossRef]
60. Hassan, S.; Pandey, S.; Pandey, S.K. Should Managers Provide General or Specific Ethical Guidelines to Employees: Insights from a Mixed Methods Study. *J. Bus. Ethics* **2021**, *172*, 563–580. [CrossRef]
61. Villegas, S.G.; Bockorny, K.M. Hiring ethics: A case of undue influence in employee selection. *J. Bus. Ethics Educ.* **2020**, *17*, 285–290. [CrossRef]
62. Cycyota, C.S.; Ferrante, C.J.; Schroeder, J.M. Corporate social responsibility and employee volunteerism: What do the best companies do? *Bus. Horiz.* **2016**, *59*, 321–329. [CrossRef]
63. Derecskei, A.K.; Nagy, V. Employee Volunteerism—Conceptual Study and the Current Situation. *Sustainability* **2020**, *12*, 8378. [CrossRef]
64. Nejati, M.; Brown, M.E.; Shafaei, A.; Seet, P.-S. Employees' perceptions of corporate social responsibility and ethical leadership: Are they uniquely related to turnover intention? *Soc. Responsib. J.* **2021**, *17*, 181–197. [CrossRef]
65. Ferreiro-Seoane, F.J.; Miguéns-Refojo, V.; Atrio-Lema, Y. Can talent management improve training, sustainability and excellence in the labor market? *Sustainability* **2021**, *13*, 6645. [CrossRef]
66. Hills, A. Succession planning—or smart talent management? *Ind. Commer. Train.* **2009**, *41*, 3–8. [CrossRef]
67. Hooghiemstra, T. Management of talent. *Eur. Manag. J.* **1990**, *8*, 142–149. [CrossRef]
68. Bui, H.T.M.; Shoaib, S.; Vu, V.H.T.; Nguyen, T.Q.; Nhuận, M.T. Career ambition and employee performance behaviour: The presence of ideological development. *J. Gen. Manag.* **2021**, *46*, 302–312. [CrossRef]
69. Ok, A.B.; Vandenberghe, C. Organizational and career-oriented commitment and employee development behaviors. *J. Manag. Psychol.* **2016**, *31*, 930–945. [CrossRef]
70. Jaccard, P. Étude comparative de la distribution florale dans une portion des Alpes et du Jura. *Bull. Soc. Vaud. Sci. Nat.* **1901**, *37*, 547–579. [CrossRef]
71. DePaolo, C.A.; Wilkinson, K. Get Your Head into the Clouds: Using Word Clouds for Analyzing Qualitative Assessment Data. *TechTrends* **2014**, *58*, 38–44. [CrossRef]
72. Filatova, O. More than a word cloud. *TESOL J.* **2016**, *7*, 438–448. [CrossRef]
73. Ruban, D.A.; Yashalova, N.N. Lost in Missions? Employees as a Top Strategic Priority of the World's Biggest Banks. *J. Risk Financ. Manag.* **2021**, *14*, 46. [CrossRef]
74. Eckhardt, A.; Laumer, S.; Maier, C.; Weitzel, T. The transformation of people, processes, and IT in e-recruiting: Insights from an eight-year case study of a German media corporation. *Empl. Relat.* **2014**, *36*, 415–431. [CrossRef]
75. Maurer, S.D.; Cook, D.P. Using company web sites to e-recruit qualified applicants: A job marketing based review of theory-based research. *Comput. Hum. Behav.* **2011**, *27*, 106–117. [CrossRef]
76. Bartos, P.J. Is mining a high-tech industry? Investigations into innovation and productivity advance. *Resour. Policy* **2007**, *32*, 149–158. [CrossRef]
77. Bryant, P. The imperative case for innovation in the mining industry. *Min. Eng.* **2015**, *67*, 39–40.
78. Burt, R. Innovation or Imitation? Technological Dependency in the American Nonferrous Mining Industry. *Technol. Cult.* **2000**, *41*, 321–347. [CrossRef]
79. Sánchez, F.; Hartlieb, P. Innovation in the Mining Industry: Technological Trends and a Case Study of the Challenges of Disruptive Innovation. *Min. Met. Explor.* **2020**, *37*, 1385–1399. [CrossRef]
80. Theron, E.; Volk, P.J. Research and Development: Driving Innovation in a Declining Mining Industry. *Lect. Notes Mech. Eng.* **2015**, *20*, 363–377. [CrossRef]
81. Hosseinzadeh, A.; Smyth, R.; Valadkhani, A.; Moradi, A. What determines the efficiency of Australian mining companies? *Aust. J. Agric. Resour. Econ.* **2018**, *62*, 121–138. [CrossRef]
82. Zhou, C.; Van Witteloostuijn, A.; Zhang, J. The internationalization of Chinese industries: Overseas acquisition activity in Chinese mining and manufacturing industries. *Asian Bus. Manag.* **2014**, *13*, 89–116. [CrossRef]
83. Saporito, V.; Self, F.M. Mining industry taking to a higher level of excellence. *Can. Min. J.* **2012**, *133*, 45–52.

84. McCauley, D. More than 20,000 Extra Mining Workers Needed by 2024: Report. 2019. Available online: https://www.smh.com.au/politics/federal/more-than-20-000-extra-mining-workers-needed-by-2024-report-20190916-p52rql.html (accessed on 20 April 2021).
85. MIHRC (Mining Industry Human Resources Council). Canadian Mining Labour Market Outlook. 2016. Available online: https://mihr.ca/wp-content/uploads/2020/03/MiHRNationalReport2016_EN_WEB.pdf (accessed on 20 April 2021).
86. Stam, C. Europe's Mining Sector Faces Skilled Workers Shortage. 2018. Available online: https://www.euractiv.com/section/circular-economy/news/raw-materials-industry-faces-skilled-workers-shortage-calls-for-linking-industry-with-education/ (accessed on 20 April 2021).
87. Hronová, Š.; Špaček, M. Sustainable HRM Practices in Corporate Reporting. *Economies* **2021**, *9*, 75. [CrossRef]
88. Jančíková, K.; Milichovský, F. HR Marketing as a Supporting Tool of New Managerial Staff in Industry 4.0. *Adm. Sci.* **2019**, *9*, 60. [CrossRef]
89. Rolinek, L.; Plevny, M.; Kubecova, J.; Kopta, D.; Rost, M.; Vrchota, J.; Marikova, M. Level of process management implementation and some related implications. *Transform. Bus. Econ.* **2015**, *14*, 360–377.
90. Vrchota, J.; Mařiková, M.; Řehoř, P.; Rolínek, L.; Toušek, R. Human Resources Readiness for Industry 4.0. *J. Open Innov. Technol. Mark. Complex.* **2020**, *6*, 3. [CrossRef]
91. Hamann, R. Mining companies' role in sustainable development: The 'why' and 'how' of corporate social responsibility from a business perspective. *Dev. S. Afr.* **2003**, *20*, 237–254. [CrossRef]
92. Hilson, G. Corporate social eesponsibility in the extractive industries: Experiences from developing countries. *Resour. Policy* **2012**, *37*, 131–137. [CrossRef]
93. Hilson, G.; Murck, B. Sustainable development in the mining industry: Clarifying the corporate perspective. *Resour. Policy* **2000**, *26*, 227–238. [CrossRef]
94. Jenkins, H. Corporate social responsibility and the mining industry: Conflicts and constructs. *Corp. Soc. Responsib. Environ. Manag.* **2004**, *11*, 23–34. [CrossRef]
95. Jenkins, H.; Yakovleva, N. Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure. *J. Clean. Prod.* **2006**, *14*, 271–284. [CrossRef]
96. Pons, A.; Vintrò, C.; Rius, J.; Vilaplana, J. Impact of Corporate Social Responsibility in mining industries. *Resour. Policy* **2021**, *72*, 102117. [CrossRef]
97. Saenz, C.; Romero, L. Relationship between corporate governance and social responsibility: Evidenced in mining companies. *Corp. Soc. Responsib. Environ. Manag.* **2020**, *27*, 552–561. [CrossRef]
98. Van der Watt, P.; Marais, L. Implementing social and labour plans in South Africa: Reflections on collaborative planning in the mining industry. *Resour. Policy* **2021**, *71*, 101984. [CrossRef]
99. Katz, M. The need for socially responsible university educated professionals in the extractive industries. *Extr. Ind. Soc.* **2020**, *7*, 1351–1353. [CrossRef]