

THE ATTITUDES TOWARDS THE INNOVATION AMONG MINERS OF DIFFERENT HIERARCHICAL POSITIONS IN COAL MINE COMPANIES

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Introduction

Making changes in working process is always hard and it is even harder when people are pretending that psychology doesn't exist. This is a big mistake because psychology is everywhere where people are; even when we think it is just a simple, hard work. This article is about how hard it is to introduce innovation in Polish mining. There are many different reasons of this situation; but it is focused on a specific environment with a tough history and there have mistakes in the past when introducing innovation. Mining, as a "men's thing" isn't really concerned about workers' mental comfort claiming there are more important problems to consider; like money, aggressive market and policy.

Silesians have an unfortunate attitude to change because of the difficult history of their region. In 18th century when the mining industry blossomed Silesia was both part of Prussia and Czechia. Even the French under Napoleon tried to occupy this land. After three Silesian Uprisings the bigger part of Silesia was won back to Poland while another portion belonged to Germany. Between the 20th century World Wars Silesia became autonomous with our own parliament and Treasury, and people finally had their freedom; but sadly this did not last long. After the 2nd World War Silesia was won back by Poland but was

controlled by the USRR. After many years being German citizens Silesians had to be real Poles again.

This complicated history proved to Silesians how important coal was; being necessary to every country for transport and the production of military equipment. That was why many countries wanted to have our region and why they fought to control us. Coal was like a treasure and the miners knew it! They knew how extremely important this raw material was; so they didn't treat mining like usual work, but rather like a kind of mission. It was this attitude that built a characteristic collection of feelings and behaviours known as the Silesian Work Ethic (SWE). The highest values of SWE are: family; work; and religion in that specific order. The main purpose in life for every miner was to guarantee his family a good life, money, a home and a school for their children. These people were usually brought up as Catholics and it was very important for them to live according the rules of the Bible. Silesian miners are very hard-working; they conform to the rules prevailing in the mine, and respect their superiors. They need to behave like this to reduce the high risks and danger associated with their workplace.

Unfortunately many of the events in Polish latest history have changed miners'

attitudes to work for the worse. After the economic transformation in 1989 mining situation deteriorated with many of collieries being closed; leaving only a few open today. A lot of people lost their work, with almost every mining school being liquidated. Polish policy was to drastically reduce coal usage; and little money was invested in the existing mines which became in such bad condition that the government had to vote funds to rescue the organizations. Today, the situation is more settled and the use of coal as an energy source is growing again. However, miners do not believe that novelty can brighten their situation.

The aim of this research was to find out the attitude to innovation among working miners to enable them to adapt to new circumstances. The research questions were: a) Are there differences between attitudes to innovation among miners in different hierarchical positions in coal mines? b) Do miners hold negative attitudes to innovations? c) Do higher-level employees hold positive attitudes to innovation and lower-level employees hold negative attitude to innovation?

Method

This study used a questionnaire consisting of 55 items in three sections. First part consists of questions specifically designed for this study in order to understand what innovation is in the mining industry. Secondly, 40 items looked at attitude to innovation and change (e.g., “Innovations are necessary in companies”; “Actual innovation can bring a big loss”; “There was training for all employees about innovation”). Participants respond with one of five possible answers: “definitely no”; “no”; “don’t know”; “yes”; “definitely yes”. The third part consists of ten pairs of adjectives (constructed by Elsner, Ekiert, Grabowska & Kożusznik, 1994). Responses are numbered 1-5 and the participant picks the response that is the closest to their feelings. In addition there were three demographic items (age, education, and organizational position).

Responses to non-demographic items are scored into five categories based on the numeric score from the questionnaire (see Figure 1 below). This was based on normative data collected by the author. The lowest score possible to gain was 50 points and the highest was 250.

Figure 1: Scoring categories for participant responses to questionnaire items

CATEGORY NAME	NUMBER OF POINTS	CHARACTERISTIC
STRAGGLERS	86 – 109	This is the group characterised by a negative attitude to changes and innovations, it is connected with their own resistance and problems with change. They accept change when they have no other choice.
LATE MAJORITY	110 – 132	This is the name for people who assimilate changes when others do it and it is successful.
EARLY MAJORITY	133 – 155	Group of people who show discouragement to innovations but they accept it when others do; they do not need to know if change was successful before.
EARLY ABSORBING	156 – 178	These people are well-disposed to innovation, absorb it easily, and even help them. They are less enthusiastic than innovators but they are behind them.
INNOVATORS	179 – 203	This is the group characterised by a great deal of enthusiasm for everything new; they often initiate changes.

The survey was administered to managers who were taking part in training organised by a company. Participants undertook the survey voluntarily and they remained anonymous. The questionnaire was distributed by the researcher’s friends and family. Almost everyone who was asked to participate in the research agreed.

Results

The questionnaire was completed by 134 male miners (managers and non – managers) from one mine, aged from 25 to 59 years. Demographic variables are listed in Figure 2 below.

Figure 2: demographic description of study sample

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Age	The majority of workers were aged between 35 and 50 years.
Education	48% of participants were people with technical education.
Position	75% - non - managers 19% - lower managers 3% - middle managers 3% - higher managers.

The lowest score gained from the non-demographic items was 86 and the highest was 203; with the median score being 137. A majority of the participants scored between 120 and 140.

Attitude to innovation

Non – managers gained less points than managers; confirming that non – managers had more negative attitudes to innovation than managers (middle managers mean score = 176 with non-managers scoring 132). In emotional scale higher managers and middle managers gained the highest average; with the lowest scores being gained by non – managers. The other two scales showed similar findings. This demonstrates that attitudes to innovation among non – managers are more likely to be negative; their knowledge of change is insufficient and they usually absorb innovations under pressure and with resistance.

Negative attitudes to innovation

The second hypothesis said that all mining workers have negative attitudes to innovation. The assumption was that “stragglers” and “late majority” have negative attitudes, those in the “early majority” category have neutral attitudes, and the “early absorbing” and “innovators” categories have corresponding positive attitudes to innovation. The study showed that 49% of participants have negative attitudes, 25% were neutral in attitude, and 26% held positive attitudes. This confirmed that a majority of all mining workers were likely to have negative attitudes to innovation.

Attitudes to innovation among miners in different hierarchical positions

Questionnaire responses demonstrated that there were more positive attitudes to innovation among managers and when compared to non – managers (see Figure 3 below).

Figure 3: Managers and non-managers scores across categories

	stragglers	late majority	early majority	early absorbing	Innovators
non – managers	19%	39%	23%	12%	7%
lower managers	0%	31%	35%	30%	4%
middle managers	0%	0%	25%	0%	75%
higher managers	0%	0%	25%	50%	25%

Figure 3 shows that all “stragglers” (a group characterised by a negative attitude to changes and innovations, it is connected with their own resistance and problems with change. They accept change when they have no other choice.) are non – managers demonstrating differences in attitude associated with hierarchical position in the organization.

Attitudes to innovation with age and education

Questionnaire responses demonstrated that attitudes to innovation were less positive as workers’ age means older miners have worse attitude, the reason could be worse coping with changes by older people. However, the strongest correlation was between age and the cognitive scale demonstrating that this negative attitude could be associated with experiences at work and earlier experimentation with change.

No relationship was found between education and attitude to innovation suggesting that having great theoretical knowledge did not improve attitude to innovation.

Discussion and practical implications

The research was conducted to show the importance of understanding how psychology can contribute to the study and development of mining.

Psychologists really care about miners and after every work place tragedy they have helped workers and their families to cope with Post Traumatic Stress Disorder. While this is helpful, it is not enough; as mining, like every other business area needs psychology to help support its everyday work. Where there are people there is psychology too; even if men do not feel psychologically or mentally fragile.

Every innovation should be carefully planned but to be successful it needs to consider the psychological aspects of the change. Only when workers’ opinions, feeling and attitudes are respected it is possible to make changes without resistance. This study has shown a range of attitudes associated with innovation and if these can be understood and developed they can be highly effective in facilitating change.

What happens at work depends on people attitudes; and happier workers are more likely to be better workers. Therefore understanding worker attitudes should be very important to employers.

This study points to strong correlation between capacity, age and attitude to innovation, and weak one between education level and attitude to innovation. This contravenes the miner's stereotype of a poorly educated, narrow – minded person who always ready to go on strike, and who is afraid everything that is new and strange. Usually they have rational reasons to be afraid because a lack of awareness will cause fear; and it is a natural behaviour.

The recipe for good innovation contains an idea, a proper plan, positive attitudes and steady progress towards change. All of these components involve psychology. An idea is not just a spark to change; but it should include a holistic view for change and its influence is on every single employee. Currently, it is important that we

understand how innovation will change work systems and develop workers; and how long it will take to implement an idea. The second phase is to make a plan; and psychology will be invaluable to assist planning to achieve ambitious time schedules, by accommodating workers to new work conditions. The third component it is strictly psychological work. Starting from checking attitudes among workers at the beginning, then improving attitudes to innovating in many ways such as with training or individual coaching. This work never stops because of a fourth phase would achieve steady progress when psychologists evaluate workers and resolve problems related to innovation; and persist in doing this until the innovation is completed.

This topic of research will be more and more important because miners have begun to perceive themselves as a fully-fledged workers and realise they have rights; confirming mining an important area of study.