2022 Volume XXII(2): 97-108
DOI: 10.25142/aak.2022.018

CRITICAL THINKING AS A COMPETENCE FOR FORMING ONE'S OWN OPINION ON THE EXAMPLE OF SELECTED UNIVERSITY STUDENTS

[Kritické myšlení jako kompetence k formování vlastního názoru na příkladu vybraných vysokoškoláků]

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Abstract: This paper aims to determine how to motivate selected students of the Silesian University in Opava, School of Business Administration in Karviná (SU OPF) for the academic year 2020/2021 to develop critical thinking and how to form their factual and value opinions. The theoretical background lies in critical thinking in terms of growth linker, and competence. The methodology used is based on a case study approach to the inventory of ideas and content analysis of respondents' personal opinions. The discussion interprets the effects and criteria for evaluating respondents value opinions and own substantive to implement rational decisions according to the SU OPF study program. The conclusion presents a model and method to develop critical thinking for selected university students and recommends using the Institute of the before second opinion.

Keywords: competence, critical, factual, opinion, thinking, value.

JEL classification: Z13

Received: 11.1.2022; Reviewed: 17.2.2022; 3.3.2022; Accepted: 23.11.2022

Introduction

In nowadays society, we are faced with an overabundance of information and a lack of dialogue based on critical thinking. Developing critical thinking as competence is an investment in the development of every individual who needs to make evidence-based decisions. Critical thinking involves understanding, examining, and evaluating opinions, including forming one's own. When an individual engages in argumentation, his or her opinions are not always rationally based. Rationally unsupported opinions are *premature* and *spontaneous*. Therefore, the paper aims at finding out *how to motivate a selected group of university students to develop critical thinking and how to form a factual and value-based opinion after learning the effects of premature and spontaneous opinions.* In the development of critical thinking, verifying the results of decision-making, current situation, possibilities and impacts of premature and spontaneous opinions are as important as evaluating them. By making decisions using critical thinking, selected university students can form *factual* and *value-based opinions* that are supported by facts. However, they need to apply three steps. *The first* step *includes the with inventory of their ideas.* The specification of the ideas of the selected university students in this paper specification research a *case study* research approach according to Thomas (2021). *The second* step *is a content analysis of personal opinions.* The research method for content analysis of personal opinions as empirical data is Wilflower's (2014) OSCAR developmental model. *The third step is to decide according to the criteria established to evaluate factual and value opinions*. The criteria to evaluate the factual and value opinion resulting from effects of personal rationality may include according to Rosling et al. (2018).

1 The concept of critical thinking as a growth mindset and competence

The mentality of the individual works with two types of rationality: epistemic and instrumental.

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Epistemic rationality, according to Manktelow and Cheung (2004), ascertains whether the beliefs that the beliefs that an individual has in his or her head correspond to the actual reality. According to Manktelow and Cheung (2004), *instrumental rationality* refers to whether the activities of individuals have thought-out consequences. As Dweck (2006) mentions, the setting of an individual's mentality is visible through the concept of critical thinking in terms of the growth mindset. An individual's growth mindset is denoted by accepting challenges with perseverance when faced with obstacles. It cannot be developed – once you master something, it is absolute and there is no need to develop it. He or she sees inspiration in the success of others.

Concerning the growth mindset, Dweck (2006) refers to the neuroplasticity of the brain that is stimulated. If damaged, it can transfer tasks from one part to another and make new connections. Thus, learning, thinking, clarifying ideas behaviour, and everyday activities of an individual change the anatomy of the brain. When an individual learns something new, it creates new neural connections. The more often an individual develops neural connections, the stronger and more extensive they become. Mental qualities and abilities, for instance, talent, are used are used by the individual in terms of personal biological basis and can be seen as a game of cards. Although he or she gets the best cards, it does not. As a result, individuals who showed top performance the beginning with start turn out not to be the best. Therefore, there is no universal brain map because every brain is unique. The skills such as creativity, caring and communicating can be learned. The ability of the human body to create new neurons is called neurogenesis. There are neural stem cells in the brain, replenished no matter how old an individual is. New cells are created throughout a person's lifetime. The resulting neurons become part of newly formed neural networks.

According to Dweck (2006), neuroplasticity and neurogenesis have changed the perception of an individual's brain so that the brain reorganizes, strengthens, and regenerates itself. An individual possessing a growth mindset is characterized by an contentment. According to research carried out by Prati and Pietrantoni (2009), up to 90% of an individual's long-term satisfaction is influenced by how his brain processes the external world. Found out and delete that the article works better in a positive setting. Up to 75% of work success cannot be influenced, only a person, related to an individual's level of optimism, which tends to be more productive, faster, and more accurate in an optimistic setting. According to Dweck (2006), praise in the form of feedback appreciating the individual's effort contributes 80% of the result. *Fragilely perfect* people are great when everything goes smoothly. When things go wrong, they collapse and do not continue. The brakes on continuing after failure are in their head to heads. Therefore, a key element of success is the individual's ability to continue after failing. It is not those who never fall who are successful, but those who can get up and carry on as quickly as possible.

Competence, as defined by Bělecký (2007) is the endowment with a complex system of knowledge, skills, and attitudes where everything is interconnected so advantageously that thanks to this, the individual successfully copes with the tasks and situations he or she gets into during his or her studies, work, and personal life. Having a particular competence means being able to orient oneself appropriately in a given situation, perform appropriate actions and adopt a favour able attitude. According to Ludwig (2017), critical thinking is the competence to judge the quality of information and one's ideas, verify the sources offered, develop a level of media literacy, argumentation, rational thinking, recognize hoaxes and not succumb to manipulations. According to Silvernam (2016), in the United States of America (USA), research was conducted on fake news as news that, although not substantiated, was the most shared by the public. The

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problem was that individuals knew a lot of false information that they were unable to seek out and refute. They easily succumbed to post-truth when emotions took precedence over verified facts in forming perceptions of reality. Misconceptions and myths were illusions of patterns that functioned as cognitive illusions. The rational quotient (RQ) can be applied to not being subject to cognitive illusions.

According to Stanovich, West and Toplak (2016), intelligence quotient (IQ) as an innate intelligence measures an ability to work with patterns, memory capacity, and verbal skills. RQ assesses an individual's sense of rationality as the ability to evaluate facts, make effective decisions, change one's mind, and resist cognitive fallacies. There is a correlation between IQ and RQ. The correlation between the two quotients tends to be weakly positive, weakly negative, or there is no relation. The result can be disrationality as an individual's state having high intelligence and a low sense of rationality or vice versa. The advantage of RQ over IQ is the possibility of long-term personal improvement through training. Based on the bias blind spot, Scopelliti et al. (2015) state that up to 85% of the population think of themselves as more objective than others. Overconfidence reinforced by personal illusions of knowledge, according to Kahneman (2012), begins to diminish when one realizes that the optics of personal perspective are not black and white, but more complex. According to Rosling et al. (2018), personal beliefs about one's truth are related to an individual's willingness to perceive facts correctly. An individual's correct perception of facts relies on his or her realistic attitude towards the extent of personal knowledge, assuming that it is all right to say *I do not know* and be prepared to change opinion if new facts emerge.

2 Methodology for the inventory of ideas and content analysis of personal opinions

The specification of the ideas and personal opinions of the selected university students in this paper specification research a *case study* research approach. According to Thomas (2021), the casuistic approach is about the choice of the topic, which is the focus of the specific case under study, *in our case, on critical thinking as a competence to form one's own opinion of the selected SU OPF students in the academic year 2020/2021*. It becomes an research on the uniqueness of this example according to the first two steps of the respondents, which are the *inventory of ideas* and *content analysis of personal opinions.* It consists of an in-depth investigation that aims to understand the case study by generating knowledge and information about its development. Respondents transferred the outcomes into the process of critical thinking as a competence according to their self-reflection. Thus, the selected students had the opportunity to validate critical-thinking practices that can be used to form *substantive* and *value-based* opinions and then evaluate their decisions in a real-world context. Qualitative case study research was exploratory in the interactive teaching of the course on *Communication Skills* at SU OPF in the academic year 2020/2021. Interviewing (exploration) as a qualitative research method uses *unstructured* interview as exploratory techniques to collect empirical data. The kind of interview chosen depends on the type of questions formulated. An *unstructured* interview includes only *open-ended* questions that are free-choice. The output of unstructured interviews were broad answers with self-reflection by the respondents towards the core of the researched subject. The sample was selected using a simple purposive sampling according to Miovsky (2009, p. 136) and had a total of 69 (100.00%) respondents. In the academic year 2020/2021, the subject Communication Skills worked for a selected group of respondents at SU OPF in Karviná, where a research case study was conducted. Of these, 37 (53.6.9%) were students of the *System Engineering and Computer Science* **(SII)** degree programme, and 32 (46.4%) were students of the *Economic Policy and Administration* **(HOSPOL)** degree programme.

Table 1: Sample

SU OPF study programme	Absolute frequency	%
SII	37	53.6
HOSPOL	32	46.4
Total	69	100.0

Source: Information system of Silesian University. [online]. 5 February 2021. [accessed on 5 February 2021]. Available from: https://www.slu.cz/slu/cz/issu

The objective was to obtain comprehensive responses from respondents to the main research question: *How to use critical thinking as a competence to form own opinion?* Based on the self-reflection of the selected students of their *different motivations to use critical thinking as a competence for the formation of a factual and a value-based opinion to make a rational decision according to their study program at SU OPF*. Research method is Wilflower's (2014) OSCAR developmental model, that is following five categories as meaning units. The name OSCAR is derived from initial letters of the English names of each category of the development model O/OUTCOME, S/SITUATION, C/CHOICES and CONSEQUENCES, A/ACTIONS and R/REVIEW). For a practical conceptualisation of five categories as a tool for development of critical thinking, it is recommended to apply development OSCAR model, which offers to the selected students of SU OPF Karviná a chance for a success. Coaching according to the Wilflower's OSCAR developmental model enables to conceptualise the critical thinking quickly and efficiently. Coaching questions that are put by Wilflower's OSCAR developmental model, are divided into five areas:

Table 2: OSCAR development model

I.OUTCOME	1.What do you want to achieve by using critical thinking as a competence?
II.SITUATION	2.What is your current level of critical thinking as a competence? 3.What are the obstacles to achieving the outcome? 4.What do you need to do about the obstacles now? 5.What resources do you now have to achieve the outcome?
III.CHOICES and CONSEQUENCES	6.What is the best idea that you would recommend yourself to develop critical thinking as a competence? 7.What other practices could you use? 8.What are the consequences of each choice? 9.Which practices have brought you the best results?
IV.ACTIONS	10.What other actions could you implement to develop critical thinking as a competence? 11.What will be your first step towards your goal?
V.REVIEW	12.How do you assess your progress in developing your critical thinking as a competence?

Source: WILFLOWER, L., 2014. *The Complete Handbook of Coaching.*2nd ed. London: Sage Publishing. ISBN 978-1-4462-7616-7.

As for this project, we employed/used the case study to *case study* is used to inventory ideas and content analysis of personal beliefs in critical thinking as a competence. Will be achieved by the selected university students, provided *they evaluate the impact of premature and spontaneous beliefs, including the activities they will implement in the development of critical thinking.* The case study approach motivated the selected undergraduate students to self-reflect on critical thinking, as a competence to form substantive and value-based opinions. *Here is an example from the implemented content analysis.*

I.OUTCOME

1.What do you want to achieve by using critical thinking as a competence?

Thinking critically, the selected the selected **SII** students can make logical and independent decisions and to use their judgement to choose solution procedures. To choose solution procedures, recognise the relevant information, not fall for nonsense and think rationally

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relevant information, not fall for nonsense and think rationally. Learn to process their reasoning, rationality, logic and improve communication skills. Be able to ask the right questions, recognize manipulation, form an opinion by evaluating the facts and then compare with knowledge. Sort data to use the most relevant information based on truth. Be able to distinguish useful information in the flood of information when it comes to ethical considerations and try to assert it. Be assertive, show less stage fright and nervousness and empathise better with the experiences of others. Achieve better negotiation with reasoning through the information gained to help clear outcomes. If the topic is interesting, they want to learn as much as possible about the topic by seeking out additional information that will help them clarify the issue and form their own opinion. At the same time, they are not willing to believe everything they hear. They want to learn more about *communication* and *argumentation* fouls. Achieve a balanced form of communication on a more factual level, as well as avoid hasty statements in negotiations. The selected students want to know the decision option which would bring the best benefit. They do not consider people infallible, but they want to point out past mistakes as part of their self-reflection. They want to listen better to others, to make the discussion enjoyable and to be able to read the sincerity in the reactions of others. Have background information about the topic being discussed in order to bring their own perspective to the conversation.

The selected **HOSPOL** students want to check the validity of the information received and determine the value of its contribution. Improve the effectiveness of information retrieval, assessment, and reception. Using critical thinking skills, they want to advance their communication skills. Use communication in work life to resolve disputes and propose solutions. They see critical thinking as a means of uncovering fabrications, fallacies, deceptions and lies. *To believe everything only because it is on a website. One can be a bit sceptical and not believe everything*. The desirable thing is to verify real data and information before it reaches them as users. They want to apply critical thinking to evaluate speculation when they do not have access to credible data and see what can and cannot be researched in information sources. Reports coming from higher positions tend to be biased and edited. They are misrepresented, and thus, they know they must be able to intuitively discern speculation from substantiated information in a short time. Find out as much as they can about the topic from the sources they are working with and sort and evaluate the information as they see fit. Know enough to be able to refute the misinformation spread by the emails and set the information straight. Recognise incorrect information and do not succumb to the manipulations that appear in communications. Recognise the boundaries between information, misinformation, and half-truths, find useful information, learn to analyse, sort, compare and evaluate it. Improve the overall assessment of information, to be able to filter out misinformation.

II.SITUATION

2.What is your current level of critical thinking as a competence?

The selected **SII** students are now in a period of analysing their personal views and justifying their positions. They perceive the current situation as ambiguous. The abundance of information in the internet environment makes it difficult for them to discern what is true and objective. Their laziness to search for available facts and unwillingness to step out of their comfort zone contribute to spontaneous and premature judgements. When offered ready-made answers, they do not think about their true content. They do not verify all the information they learn. However, in their experience, they evaluate that if someone said they heard something, the information may not be true. But they do not distinguish between what is misinformation and what may be true. They do not share verified information from trusted sources. *Our problem is not that we know a little. Our problem is that much of what we know is not true.* The selected students consider critical thinking an aid to verify the origin and accuracy of information. They

understand that nowadays, access to data is quick and easy. The problem arises when data is not easily accessible but hidden in the competence of superiors. They prefer to perceive information from mass media by common sense.
The selected **HOSPOL** students use a wide range of information sources where they find it difficult to search relevant information. They work primarily with information that is more readily available than valuable. They understand that it is better to be cautious in communicating about sensitive topics when the other person indicates that inappropriate presentations affect them personally. They acknowledge that it is appropriate to be tactful, but after bonding with the participants in the discussion, they also venture into topics that should topics that should be left out left out. They want to learn how to accept criticism better and have the courage to communicate when communication is a key aspect of their work tasks. When serious information when serious information throws them off balance, they try to compare the information with life experiences. Sometimes, however, they are influenced by *guaranteed* news that is interpreted differently from official sources.

3.What are the obstacles to achieving the outcome?
The selected **SII** students consider the lack of self-criticism as an obstacle to as an obstacle to achieving the outcome the outcome. They do not notice examples that help them gain new knowledge and experience. They are hindered by their nature, stage fright, complexes, little experience coupled with low self-esteem, various fears, and gossip. The selected students perceive emotionally stressful situations as obstacles on their way to reaching the outcome, which causes unbalanced communication. They work with a lot of information that is unnecessary, even excessive.
The selected **HOSPOL** students see the time-consuming nature of verifying information and the unavailability of fee-based information sources as the biggest obstacle on the way to their goal. They do not know how to work with text, understand the information, assess its credibility, and use the information correctly. Some data can hide information. They complain that information is not systematic. There is a lot of information on the road to success that they cannot process. The diversity of cultures, the cost of time and the lack of funding for communication courses hinder them from communicating.

4.What do you need to do about the obstacles now?
The selected **SII** students understand the need to be consistent in addressing personal weaknesses, experience less stage fright and be calmer in presentations. Use participation in projects and volunteer activities to test knowledge. Orient to ERASMUS projects that allow them to practice argumentation and presentation before multicultural audiences in an international setting. They prefer to verify the available information within the time and technical possibilities and limit reading comments on social networks. The selected students want to work better with time and increase systematicity. They are interested in strengthening their self-awareness. They do not want to admit negative influences and time pressure. They do not want to keep track of so much information and fall into the panic that comes with sorting through information.
The selected **HOSPOL** students take time to time to work with information and consult methods for finding resources. They prefer to focus on information and comparing contexts. They acquire data slowly through multiple people, so they want to analyse the data and then make the prognosis of what needs to be supported. Here they see help to decide where resources will go. It is not easy for them to accept information when they hold a different opinion, but that does not mean it has to be true. They have to verify its authenticity, evaluate it and find more information on the subject because they cannot what they do not read properly. They want to respect the information that is binding, but they do not want to add their comments to various

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discussions on social media. They choose not to engage with the unsubstantiated and push out the untrustworthy information.

5.What resources do you have now to achieve the outcome?
The selected **SII** students now have publicly available resources, expertise, and colleagues. do not forget about books, professional articles, personal knowledge, and experience. The selected students now have access to the internet, social networks, and friends working in the field. They know: *If something looks like a canard, swims like a canard, and quacks like a canard, it is probably a canard.* They rely on determination, motivation, and information. If they understand the functioning of the brain, they can discern what others are telling them and become better at communicating information.
The selected **HOSPOL** students now have more time, patience, and self-reflection. They do not forget their experiences of employment and study, especially professional training, lectures, literature, and active involvement in communication. They like to hear information from foreign friends. They prefer a healthy view of distinguishing true and false information, including the end of procrastination. They can generate data through information systems. They use access to official information, therefore eliminating other sources.

III.CHOICES and CONSEQUENCES
6.What is the best idea, you would recommend yourself for developing critical thinking as a competence?
The selected **SII** students recommend ample time to understand their judgment, as well as the solid ground under your feet as the best idea. They see thinking about whether the chosen course of action is correct as of basis of critical thinking. The selected students understand that the world is not black and white, so the best idea is to observe their surroundings looking at the big picture and with distance, work with facts, and verify information from multiple sources and literature. They say: *I will believe it when I check it and beware of second-hand information!* They want to avoid jumping to conclusions and take only the information they need.
The selected **HOSPOL** students see it as the best idea to look for information and compare it with multiple sources and for someone interested in the topic. They clarify what they want to say. They will not read only the headlines, but the whole text because of their distrust of articles without *peer-review*. They will not be swayed by first impressions and the urgency of the message. They will keep their distance, listen and respect differing opinions. As for realistic reasoning, they state that they lack self-love and self-confidence. Now that contact with others is limited, they meet friends online.

7.What other practices could you use?
The selected **SII** students further want to use examples of successful personalities. They want to learn to think preventively and do not want to hurt or harm. They are not interested in slipping into first impressions, but they have no problem changing their personal assessment if they are convinced otherwise. Bad experiences cause prejudice among them. The selected students want to engage more in conversation with experts. Be more active and interested in topics that are not familiar to them.
The selected **HOSPOL** students further want to apply data analysis, discovery, and orientation to information. They want to form ideas when they have the necessary data to argue quickly and check the results. They are creatively interested in using mind maps to display their perspectives and ideas on specific topics. They want to get a broader overview where details may not be an issue. They prefer podcasts in the form of interviews with inspiring people. They are willing to look for rational ways of solution, asking questions of themselves and competent persons.

8.What are the consequences of each choice?
The selected **SII** students assess the first idea as a difficult decision influenced by emotional factors. They understand that distrust about the authenticity of information disrupts the relationships between people, causing aggression, nervousness, and hopelessness. Others may not agree with their opinion, so nothing should be exaggerated. Expert lectures have a financial cost, but they can learn something new there. The selected students want to place higher demands on the family as a challenge in the emotional area. In international communication, they consider finance as a necessary cost.
The selected **HOSPOL** students appreciate valid information that will bring positive benefits both in an informational sense and improve their mood. It serves their overall development. False information will bring negatives when the false essence comes out. Therefore, they want to verify and preserve all choices. The demands of time are not significant to them when they care about something. With an increase in self-confidence, they want to master foreign languages for better job competitiveness. They want to subordinate patience to learning and managing tension. However, they must not be shy when communicating with professionals.

9.Which practices have brought you the best results?
The selected **SII** students perform best when they make perspicacious logical judgments, even if the logical decisions deny the emotional essence. Supervisors like accurate data, so negotiating with results in hand compared from multiple sources is considered the best choice. Speak openly, name things/problems/issues specifically and argue according to logic. The selected students have the best results when communicating in a foreign language. They get to know a different culture and different characters.
The selected **HOSPOL** students get the best results when they listen to others, think through, summarize the facts, and then only respond. They benefit from reading the information more carefully. They appreciate podcasts when the conversation is humorous, and they only focus on the topic while listening. That way they remember more than from the written text. However, they find it difficult to process bad experiences, even when the good ones prevail. They prefer to wait with their first judgment and final opinion until all relevant data is available.

IV.ACTIONS
10.What other actions could you implement to develop critical thinking as a competence?
The selected **SII** students want to focus on hidden forms of manipulation, asking questions, seeking answers, rethinking inaccuracies, and reflecting more often. What they consider significant, they will examine. They plan to watch more documentaries, educational films, and learn more readily. Become aware of the connections in the knowledge and look for solutions to problems. The selected students want to set certain visions to which they will add here. To learning to react to the moment of surprise and not to be afraid to communicate with more problematic people.
The selected **HOSPOL** students want to try different methods of testing the information. They will question and wonder why it is the right thing to do when hearing about any work procedure. This will reinforce the procedure with respect to understanding the principle. They do not want to succumb to first impressions but think more about problems from the position of themselves. Encourage those around them to do this and think together. Ask questions that will help them handle practical problem solving, including a different perspective, as well as understand the difference between facts.

11.What will be your first step towards your goal?
As a first step towards the goal, the selected **SII** students will analyse their views. They will compare the information with the opinions of others and make a judgment about the credibility

and value of the information based on their own experiences. They will find thought processes to form their own opinion based on answers to questions and experience. As a first step towards their goal, the selected students will commit to self-reflection. Discussion of a specific topic will kick-start their independent thinking.
As a first step towards the goal, the selected **HOSPOL** students will examine the information in more detail and check the credibility of its author. In a short period of time, they will sort and analyse the information received and finally justify their position to themselves. They will recall what they really know about the topic. They will strengthen their internal interest in solving the problem, which implies learning more about the topic.

V.REVIEW
12.How do you assess your progress in developing critical thinking as a competence?
The selected **SII** students stand in the middle of an imaginary journey. They have understood the use of critical thinking, which has helped them improve their communication skills. Realize to think critically is an achievement for them. *I can be right, and how do I know that am not? Is it true and how do I verify it?* They clarified the manipulative techniques used by mass media and social networks. They know that there is misinformation, so they assess the credibility and relevance of sources with every piece of information. Selected students perceive the present as full of fake news. However, they want to keep the door open for more interesting information. They continue to communicate on the Internet with foreign friends and practice foreign languages.
The selected **HOSPOL** students see progress in critical thinking with progressive experience. They reflect more on the information and focus on its credibility with verification against other sources. They feel that progress in critical thinking is already moderate. They verify the information at points of adequate confirmation. Changes have occurred in their ability to work with the contexts in which the information is placed and how it affects the final message. They believe what their friends say and can *Google* what they said. They find that things are a bit different, but they can clarify the information. The friends are then surprised, but they accept it.

3 Discussion on the inventory of ideas and content analysis of personal opinions

The inventory of ideas and content analysis of personal opinions is influenced by the personal mentality of the selected university students, which exhibits *epistemic* and *instrumental* effects. *Epistemic* effects correspond to the real context of perceived reality. *Instrumental* effects influence the real effects. In critical thinking, rationality effects influence the competence of the selected students to establish criteria for evaluating their own opinion to implement rational decisions. According to Rosling et al. (2018), the criteria to evaluate the factual and value opinion resulting from *epistemic* effects of personal rationality may include:

1. *In the sense of majority seeking.* They see differences even though the reality is not very polarized. Controlling for huge gaps implies looking for a majority by comparing ratios and extremes by looking from a peak that no longer appears so distant
2. *Linearity in the sense of bending the curves.* Curves have different shapes that need to be properly understood. To do this, it is important to realize that linear growth is not really common, and many trends do not follow a linear curve.
3. *Distortion of size in the sense of putting things in the right proportions.* They mainly notice data that looks impressive. Finding the most important ones means dealing with them according to Pareto's 80/20 rule and dividing to get proportional data.
4. *Fatality in the sense of slow change is also considered as a change.* Matters appear not to have changed as changes are slow to progress. Tracking gradual improvements involves updating knowledge, talking to the experienced, and noticing a cultural change.

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DOI: 10.25142/aak.2022.018

5. *Resist blame, bias, and personification.* Resist the temptation to find a scapegoat among participants. Look for the causes of problems rather than the guilty ones and identify systems rather than heroes.

According to Rosling et al. (2018), criteria for assessing factual and value judgments arising from *instrumental* effects of personal rationality include:

1. *Negativity in the sense of expecting bad news*. Notice more good events than bad ones. Therefore, prefer selective reporting, factual reflections, not censoring and idealizing the past, but clarifying information about gradual improvement.
2. *Fear in the sense of calculating risks.* Filter personal attention. Natural fear leads to an overestimation of risks. Fear versus reality. Risk = danger - level of exposure. Until panic passes, make minimum personal decisions.
3. *Generalization in the sense of questioning some categories*. Some categorization is used in an explanation. Therefore, look for differences within groups, compare differences and similarities between groups, but pay attention to the *majority* and *colourful* examples.
4. *Multiple thinking tools instead of one point of view*. One point of view limits imagination. Validate own opinions and no to try to be an expert outside one's field. Combine different ideas and compromise.
5. *Urgency in the sense of proceeding in small steps.* The urgency of the situation influences the decision. Take one's time and insist only on verified facts. Avoid unsubstantiated predictions and admire scepticism only when respecting evidence.

Generalizing of findings of the survey is difficult because we have used only the relevant respondents, which in the academic year 2020/2021, the subject Communication Skills worked and, where a research case study was conducted. *Are selected college students able to critically receive information that helps them form factual and value-based opinions to make rational decisions based on facts?* Selected **HOSPOL** students seek employment in the state and public administration and evaluate their factual and value-based opinions more often according to criteria resulting from the *epistemic* effects of personal rationality. They are alerted when they receive anonymous data. They seek truthful information in reputable mass media, including newspapers with credible information. In the state and public sector, they encounter *deep fake*. According to Dwivedi (2021), deep fake originates as fake videos, including false statements and actions that look authentic at first glance. Fake news is a global problem. For the selected students, the computer as an information portal is addictive. It destroys their rational intelligence, breaks down interpersonal relationships, and leads to degradation. From a neurological point of view, their views on facts and values are not shaped by information technology. But when used as the dominant mode of communication, they suppress capacities. The selected university students have different styles of self-management. They see social networks as trading with people's privacy because it leads to increased anxiety and depression and turns them away from each other. They fail to identify the highest risk that will bring them together in forming factual and value opinions. When their ideas have a clear line in the text, they remember more than when they resemble puzzle pieces.

Selected **SII** students are employed in the private and commercial sectors and evaluate their factual and value judgments more often according to criteria derived from *instrumental* effects of personal rationality. They find information technology advantageous because they know how to use it. They can find everything they need for their work on the Internet. However, acquiring information requires their *positive frustration*, which, according to Kosa and Uysal (2021), consists of pressing their brains to consider alternatives. The selected students need an active

dialogue that will motivate them to think more deeply. Forming factual and value-based opinions in their case requires an active discussion involving a greater amount of brain capacity, where they are not looking at a computer but discussing, enjoying the contact, and exchanging ideas. They go into deeper interpersonal processes in a natural way of getting information. When they use information technology and addictive social networks, their brains create a place for them. Their brain then uses the computer as an information source, not as an input portal to form factual and value-based opinions. The risk remains that the more they work with the computer, the more they neglect other activities. When they use information technology several hours a day at work, they also relax with it. Communication then does not work biologically in their case. If a link on the Internet looks interesting, people click on it to learn more. By skipping elsewhere, they lose concentration. This way of perceiving is fragmented and evolutionarily unnatural. They are atomized from others, each seeking their path and truth, but tolerating differing opinions. They are addicted to information technology.

Conclusion

Does factual evidence motivate selected university students to form factual and value-based opinions? Moravec (2019) refers to the Czech neurosurgeon Beneš, who recommends using the *institution of the second opinion.* Beneš accepts hearing a second opinion when his patient wants to hear the opinion of another neurosurgeon. He will let the patient go, even though the other neurosurgeon follows the same procedure. Critical thinking is a set of skills, attitudes, and habits that lead to resistance to myths and half-truths. In terms of competence, critical thinking can be developed according to the level of awareness. The more grounded the information respondents have, the better they form factual and value-based opinions to make rational decisions. According to Davies and Eynon (2018), enriching their know-how with critical thinking as a new competence can be a recommendation. In relation to the new competence, Dunning's method of *question, consider, answer* can be used to train critical thinking by searching for information on the Internet. *How concrete develop critical thinking of the selected students?* According to Schoo et al. (2015), the three-stage model of **E**vocation - **A**wareness - **R**eflection (EAR) can be applied in the development of critical thinking in selected undergraduate students. **Evocation** involves equipping them with what they already know about the problem, then comes active involvement in the discussion of the problem and their intrinsic interest to solve the problem. **Awareness** explores new knowledge and experiences. It consists of maintaining interest in the problem and awakening interest in monitoring the development of one's understanding and processing new knowledge. **Reflection** focuses on the changes that have occurred in terms of their cognitive and meta cognitive perceptions. At the cognitive level, they monitor what they have learned, what new knowledge they have gained, what interests them most about the problem and what they want to pursue. At the meta cognitive level, they clarify how they have learned about the problem, and whether and how their original substantive and value-based view of the problem has changed.

Acknowledgement

This article was written with the support of the Ministry of Education, Youth and Sports of the Czech Republic within the Institutional Support for Long-term Strategic Development of the Silesian University in Opava, School of Business Administration in Karviná in 2021.

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