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Students Beware!

The text is about cognitive biases that teachers, students and policy makers should be aware of when making important decisions about teaching, learning and the education system in general. We all tend to create our own reality, form opinions that are not exclusively based on facts, judge situations and other people inaccurately and make illogical decisions. The text is primarily based on Daniel Kahneman's book *Thinking, Fast and Slow* (2011), a book that describes the workings of the mind as an interaction between two systems: the automatic and very fast System 1 and the effortful but slow System 2. In the final section of the article, the importance of developing thinking and decision-making skills in both teachers and students is emphasized.

Ključne besede: cognitive biases, teaching, learning

Študenti pozor!

Besedilo obravnava nekatere kognitivne pristranskosti, ki se bi jih morali zavedati učitelji, študenti in oblikovalci izobraževalne politike pri sprejemanju pomembnih odločitev o učenju, poučevanju in izobraževalnem sistemu na splošno. Vsi smo nagnjeni k ustvarjanju lastne resničnosti, oblikovanju mnenj, ki ne temeljijo izključno na dejstvih, netočnemu presojanju situacij in drugih ljudi ter sprejemanju nelogičnih odločitev. Besedilo temelji predvsem na knjigi Daniela Kahnemana z naslovom *Thinking, Fast and Slow* (2011), ki opisuje delovanje naših možganov kot interakcijo med dvema sistemoma: samodejnim in zelo hitrim sistemom 1 ter počasnim sistemom 2, ki zahteva veliko osebnega napora. V zadnjem delu članka je poudarek na pomenu razvijanja sposobnosti razmišljanja in odločanja tako pri učiteljih kot pri učencih.

Keywords: kognitivne pristranskosti, poučevanje, učenje

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Introduction

The title is used in the sense of *Caveat emptor,* which means buyer beware, the principle that the customer is responsible for checking the quality of goods before buying them. In our case, we are responsible for taking informed decisions by investigating thoroughly the situation, thinking about viable alternatives, exploring our options, selecting best solutions, constantly evaluating our plans and, finally, rethinking facts and valuable pieces of information available to us. This, of course, holds true for personal decision making, business decision making and consumer decision making, and, as you might have guessed, for teachers and students.

The inspiration for the text has come mainly from Daniel Kahneman's book *Thinking, Fast and Slow* (2011). To some extent, mind and brain research is also an important source – if time allows, have a look at Learning with Brain in Mind, a Flipboard magazine on Twitter, for an introduction.

Purpose

This text is about several cognitive *biases and faulty heuristics* – the shortcuts and rules of thumb by which we make judgments and predictions – which were discussed in the 1970s by Amos Tversky and Daniel Kahneman. Tversky died in 1996. Kahneman later won the 2002 Nobel Prize in Economics for the work the two men did together, which he summarized in his 2011 best seller, *Thinking, Fast and Slow.* Another important figure in the field is the renowned economist Richard Thaler. One of the biases he's most linked with is the endowment effect, which forces us to place an irrationally high value on our possessions. Thaler won the Nobel Prize in Economics in 2017.

With 200 entries, the list of cognitive biases is rather long, but I will focus on those that I believe are the most harmful in the context of learning and teaching:

- *Optimism bias* makes us consistently undervalue the costs and the duration of almost everything we do. Teachers are often overoptimistic about the role of technology in teaching, or we may occasionally see a certain teaching methodology as the best – if not only – possible (say, project-based learning). *Availability bias* – is about ease of recall and more exposure to certain events or knowledge. In other words, we base our decisions upon easily available recent knowledge
- *Bandwagon effect* makes us believe things because many people believe the same: if many teachers believe that learning styles really exist, the idea remains alive years after it has been debunked. Here, as elsewhere, a healthy dose of scepticism may help.
- *Confirmation bias* – the propensity to search for, interpret, focus on, and remember information in a way that confirms our preconceptions. This seems to be the most damaging bias, as it leads us to look for evidence confirming what we already know or think, by ignoring any piece of evidence that seems to support alternate views. Testing is good for students, said a teacher, now they are working hard to find supportive information only.
- *Stereotyping* – expecting a member of a group to have certain characteristics without actual information about that individual. Yes, of course, boys are better at math.
- *False consensus effect* – we overestimate the degree to which others agree with them. Think about meetings and you will find myriad situations when participants reach false conclusions.

Both students and teachers are prone to several biases, as a general 'law of least effort' applies to teachers as much as to other human beings. We often allow ourselves to be guided by impressions and feelings and have high confidence in our intuitive beliefs. Even when we are wrong, we are confident that we are right. Both teachers and education policy makers are prone to employing System 1 (which is fast, automatic, frequent, emotional, stereotypic and subconscious) when System 2 (which is slow, effortful, infrequent, calculating and conscious) should be employed. According to Kahneman, our minds do not naturally rely on logical, rational and critical thinking processes.

Among the biases found in teachers and students, confirmation bias is found everywhere. After years of practice, it is not particularly difficult to believe that what we haves always done is the right way of doing it. An example of confirmation bias, combined with the status quo bias (the tendency to like things to stay the same way) is the damaging fine-tuning of Business English courses at Slovenian business and economics higher education institutions. It is so strong a bias that nothing has changed since the late 1990s in all higher education institutions in Slovenia, except, maybe, one: The Faculty of Management of the University of Primorska.

Teachers, too, love to be right, so we make sense of the world by seeking patterns they are familiar with. This may explain why so many teachers are keenly interested in one, and one only, method of teaching, say, project work. While project work can certainly help students learn certain things more effectively, it cannot be considered the only method for teaching all subject matter for all courses taught at a faculty.

Maybe some teachers (and considerably more education policy makers) are victims to Dunning-Kruger Effect, according to which the less one knows, the more likely one is to perceive oneself as an expert. Many students at all levels of education are familiar with the illusory superiority of some of their teachers and vice versa, who are unable to recognize their own lack of skills/knowledge/understanding necessary for effective teaching/learning.

The tendency to be overoptimistic and to overestimate favourable and pleasing outcomes is called optimism bias. Unrealistic optimism of unexperienced teachers has been a topic of several studies (Weinstein 1980; Kulik and Mahler 1987; Weinstein 1988; Kearns 1995). On the other hand, high performance expectations among low scoring students have also been discussed by researchers (Richman 2010), but it seems that too little has been written about the overoptimistic bias of education policy makers and seasoned teachers.

Framing bias (using a too narrow approach to solving a situation or issue) and substitution bias (being prone to substituting a difficult question with a simple one) can also be found in educators and education policy makers. The question How could we improve higher education? Is answered

by 'We should introduce iPads or computers' or 'We should make smaller classes and things will improve considerably.'

Some Other Important Errors of Thinking in Education

- *Fundamental attribution error.* When teachers observe another teacher's class they clearly see the things the other teacher does wrong. But when we teach, we only notice the things students might do wrong. This is fundamental attribution error. Fundamental attribution error stops us from learning by condemning our problems on the external circumstances (students, technology, not enough time, etc.) rather than with our own limitations.
- *Planning fallacy.* Have you ever kept postponing planning your classes until the last day? Or, in the case of students: have you ever postponed starting to study for an exam until it was almost too late? The planning fallacy makes us underestimate how much time we need to complete the task before the deadline.
- *Overconfidence bias.* Overconfidence bias makes us misjudge how much control we have and makes it impossible for us to predict problems. Student progression may be misjudged, their failure to pass the exam may be misinterpreted, our own abilities as teachers may be plain wrong.
- *Outcome bias.* The outcome bias tells teachers that because something worked well in one class, may also work splendidly in all other classes. When we do not focus on the process but prefer to focus on the result, things are likely to go wrong without us knowing it.
- *Cognitive dissonance.* If you have been reading this carefully and think that none of this applies to you, cognitive dissonance is the term you should pay some attention to. Even though people tell you that you are wrong, you keep believing how right you are. If someone observes your lesson and gives you feedback, you refuse to change your opinion because you are sure the observer is wrong. You might never learn anything if you constantly think you are right.
- *Groupthink.* A perfect example for groupthink bias is the Office for Standards in Education's keen desire to continue grading schools. Ofsted officials do not see alternative viewpoints, constantly supress opposite views.
- *Status Quo Bias.* Maybe both teachers and students are afraid of change. The result of status quo bias is the feeling some of them have: that nothing changed to better in education for a very long time.

Conclusion

Our brains play tricks on us. I wish I were a handsome, young and confident writer, because then, the reader would judge my comments more favourably than I might deserve. Speaking about thinking errors of people is a difficult job. Fears, affection, and hatred explain many occasions on which people depart from rationality. On the other hand, luck plays a large role in every success story.

Kahneman's book describes the workings of the mind as an interaction between two systems or two characters: the automatic System 1 and the effortful System 2.

So, let me ask the final question: What can we do to become less biased? One answer is that little can be done without a considerable investment of effort. Being aware that I am as prone to overconfidence, extreme predictions, and the planning fallacy as my 40-year younger students is something. I am maybe a bit better at recognizing the signs of a cognitive minefield, and so I can slow down deliberately and ask for help from System 2. But this sensible procedure is, in my case, too, less likely to be applied when needed.

What can teachers do? We should, perhaps, focus more on developing student's thinking skills, decision-making skills, principles of probability, choice theory and statistics and teach our students how to approach problems methodically and avoid jumping to conclusions – in other words, teach them to understand and not only to gain new knowledge, to understand by not blindly accepting what they hear or read. They should be constantly asking questions, do their own thinking and be critical by challenging the well-known and exploring the unknown.

Appendix

Kahneman's list of biases is unexhaustive, and his remarks are precious food for thought. Here are some for you to discuss with your peers and think over.

1. 'A reliable way to make people believe in falsehoods is frequent repetition, because

familiarity is not easily distinguished from truth.' Authoritarian institutions as well as some universities know this fact.

2. 'If you care about being thought credible and intelligent, do not use complex language where simpler language will do.'
3. 'Odd as it may seem, I am my remembering self, and the experiencing self, who does my living, is like a stranger to me.'
4. 'The confidence that individuals have in their beliefs depends mostly on the quality of the story they can tell about what they see, even if they see little.'
5. 'We are prone to overestimate how much we understand about the world and to underestimate the role of chance in events.'
6. 'We can be blind to the obvious, and we are also blind to our blindness.'
7. 'The illusion that we understand the past fosters overconfidence in our ability to predict the future.'
8. 'Acquisition of skills requires a regular environment, an adequate opportunity to practice, and rapid and unequivocal feedback about the correctness of thoughts and actions.'
9. 'Declarations of high confidence mainly tell you that an individual has constructed a coherent story in his mind, not necessarily that the story is true.'
10. 'Before an issue is discussed, all members of the committee should be asked to write a very brief summary of their position. This procedure makes good use of the value of the diversity of knowledge and opinion in the group. The standard practice of open discussion gives too much weight to the opinions of those who speak early and assertively, causing others to line up behind them.'
11. 'The easiest way to increase happiness is to control your use of time. Can you find more time to do the things you enjoy doing?'
12. 'Experts who acknowledge the full extent of their ignorance may expect to be replaced by more confident competitors, who are better able to gain the trust of clients. An unbiased appreciation of uncertainty is a cornerstone of rationality – but it is not what people and organizations want.'
13. 'The idea of mental energy is more than a mere metaphor. The nervous system consumes more glucose than most other parts of the body, and effortful mental activity appears to be especially expensive in the currency of glucose.'

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